VALIDATION REPORT

AB BRASIL IND. E COM. DE ALIMENTOS LTDA

VALIDATION OF THE

AB BRASIL RENEWABLE ENERGY PROJECT

REPORT NO. COUNTRY-VAL/00285/2008

REVISION NO. 03

BUREAU VERITAS CERTIFICATION

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VALIDATION REPORT

Date of first issue:	Organizational unit:
09/06/2008	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
AB Brasil Ind e Com de Alimentos	José Luiz Theodoro

Summary:

Bureau Veritas Certification has made the validation of the AB Brasil Renewable Energy Project of AB Brasil Indústria e Comércio de Alimentos Ltda, located in Pederneiras – SP, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CR and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document, originating the version 4, of May 30, 2008.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the Clean Development Mechanism Project Design Document Form (CDM-SSC-PDD) – Version 03; the Guidelines for completing the simplified Poject Design Document (CDM-SSC-PDD) Version 05; the AMS-I.C - 'Thermal Energy for the User with or without Electricity', Type I – Renewable Energy Projects, version 13; the Tool for the demonstration and assessment of additionality – Version 05; and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.:	Subject Group:
BRAZIL-val/00285/2008	CDM
Project title:	
AB Brasil Renewable Energy Project	
Work carried out by:	
Antonio Daraya – Lead Auditor	
Work verified by:	
Sérgio Carvalho	

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Indexing terms

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Abbreviations change / add to the list as necessary

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CETESB	Companhia de Tecnologia de Saneamento Ambiental
CH4	Methane
CR	Clarification Request
CO_2	Carbon Dioxide
DIS	Draft of International Standard
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
GHG	Green House Gas(es)
I	Interview
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
ITR	Internal Technical Review
LI	Installation License
LO	Operation License
LP	Preliminary License
MoV	Means of Verification
MP	Monitoring Plan
NGO	Non Government Organization
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

VALIDATION REPORT

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1 INTRODUCTION

AB Brasil Indústria e Comércio de Alimentos Ltda has commissioned Bureau Veritas Certification to validate its AB Brasil Renewable Energy Project, at Pederneiras - SP.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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

1.3 GHG Project Description

The project activity displaces fossil fuel by using renewable biomass for thermal energy generation at AB Brasil Ind. e Com. de Alimentos Ltda, located in Pederneiras, state of Sao Paulo. The project aims at reducing green-house gas emissions by burning renewable biomass instead of fuel oil.
AB Brasil is a market-leading bakery supply company. The company has two key brands Fleischmann and Mauri, and they offer a wide range of products under each brand, both direct to customers and through a network of distributors.

The AB Brasil head office is located in Sao Paulo and the manufacturing in Pederneiras. The Pederneira's facility produces both fresh and dried yeast, confectionery mixes and other products in the bakery market.

The project activity consists in installing a biomass boiler for the steam generation, to substitute three oil-fired boilers, which generated the steam previously, at Pederneira's facility. The oil-fired boilers have been used since 1996.

The steam is used in the productive process and in the sterilization process. AB Brasil buys the 'melaço', which is obtained from the sugar cane's juice diluted in water. This mixture is called 'mosto', and it will be sterilized at 121ºC, by the steam produced in the boiler. The steam is used also to cleanup the equipments and the facilities at 80ºC, and to sterilize the fermenters. The last process that utilizes the steam is the dehydration of the yeast.

As described above, the continuous steam generation is essential to the productive process in AB Brasil and the steam production results in greenhouses gases emissions from burning fuel oil.

To keep the continuous steam generation and minimize the greenhouse gases emissions, AB Brasil decided to use a biomass boiler with production capacity of 15 tones of steam per hour.

The new boiler's manufacturer is ICAVI – Industrial de Calderas Vale do Tiara S/A. Ferrari Santa Barbara Leda, a third party company that was contracted to operate the new boiler will also be responsible for the obtainment and the transportation of the biomass and to feed the boiler.
The biomass used is composed of residues such as sugar cane biogases and woodchips. To feed the boiler, a mixture of these residues will be made to maintain the same efficiency and the same previously established set up. One ton of the mixture produces three tones of steam.

When the biomass is being burnt to generate steam, CO2 is released into the atmosphere. During trees and sugar cane growth, this gas is absorbed by photosynthesis. As the biomass used is considered renewable, the greenhouse gas emissions are zero. Therefore using the biomass will contribute to minimize the greenhouse gas emission, emitted by burning non renewable fuel.

In addition using these residues as fuel also prevent emissions from the biomass that was left to decay in the fields and will avoid the residues accumulation in landfills.

The company is making new contracts to use sugar cane straw as biomass in the future, which will be part of the mixture. After the approval

of the state law number 11241 that regulates the gradual elimination of the practice of burning sugar cane straw, fires are decreasing in the state of Sao Paulo.

Previously the straw was burnt to facilitate the manual cutting. Now it is separated and in the future it will be used for energy generation. It represents a greater use of the energy content of the sugar cane residue; in addition it reduces the greenhouse gas emissions by fire.

Biomass is obtained in the wood industries and sugar and alcohol plants in Sao Paulo state, located within a 200 km radius from the Serraria Santa Barbara's facility, where a biomass mixture is prepared and put into dumpsters. The filled biomass dumpsters go to AB Brasil, located 40 km far from Serraria Santa Barbara, where they will be stored and later used in the boiler to generate steam.

The oil fired boilers used previously were disabled. Two of them, that produced 5 tones of steam per hour, will be sold as scrap and the third boiler will be maintained in AB Brasil's facility to ensure the steam supply if any problems occur with the biomass boiler or for its maintenance.

The oil-fired boiler will be used approximately 12 hours per month for biomass boiler maintenance and another 4 days for corrective maintenance, which totalize 10 days per year. Since the flow meter is located at the steam exit from the biomass boiler, the steam generated by the oil-fired boiler during this period of time will not be counted in the steam control system, so there will be no project emissions.

The oil consumption for the steam generation emits harmful gases to human health and the environment. The project activity avoids the oil consumption and brings a solution for the final destination of these residues, using them in the burning boiler. It contributes to reduce the waste volume generated, therefore reducing the necessary area for its disposal, and minimize the methane gas generation, from the waste decomposition in anaerobic conditions.

AB Brasil concerned about the final destination given to the ashes generated in the boiler, opted to gather and send them to *Biolandia Ind. e Com. de Composto*, in *Piracicaba*, *Sao Paulo* state. This residue will be transformed into fertilizer.

Thus the implementation of project activity contributes to sustainable development through the use of a clean technology and renewable resources, improving the human life quality and preserving the environment.

1.4 Validation team

The validation team consists of the following personnel:

Antonio Daraya
Bureau Veritas Certification Team Leader, Climate Change Verifier

Sérgio Carvalho
Bureau Veritas Certification, Internal Reviewer

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of five tables. The different columns in these tables are described in Figure 1.

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The completed validation protocol is enclosed in Appendix A to this report.

Validation Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** or a **Clarification Request (CR)** of risk or non-compliance with stated requirements. The CAR's and CR's are numbered and presented to the client in the Validation Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is validated. This is to ensure a transparent validation process.

Validation Protocol Table 2: Requirements checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CR)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CR)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 4: Legal requirements				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CR)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	**Ref. to checklist question in tables 2/3/4**	**Summary of project owner response**	**Validation conclusion**
If the conclusions from the Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarized in this section.	This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) submitted by AB Brasil Indústria e Comércio de Alimentos Ltda and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests AB Brasil Indústria e Comércio de Alimentos Ltda revised the PDD and resubmitted it on 30/05/2008.

The validation findings presented in this report relate to the project as described in the PDD version 04.

2.2 Follow-up Interviews

On 12/03/2008 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of AB Brasil Indústria e Comércio de Alimentos Ltda were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	**Interview topics**
AB Brasil Indústria e Comércio de Alimentos Ltda.	►Project description ►Technology used ►Operational aspects ►Contribution towards sustainable development. ►QA/QC procedures ►Internal review / verification mechanism ►Stakeholder meetings and response to stakeholder comments
Key Associados	**Interview topics** ►Project description ►Project category ►Baseline & Additionality ►Monitoring Plan

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation 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 project design.

To guarantee the transparency of the validation process, the concerns raised are documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

In the following sections, the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 10 Corrective Action Requests and 18 Clarification Requests.
3) The conclusions for validation subject are presented.

3.1 Project Design

Bureau Veritas Certification recognizes that company AB Brasil Indústria e Comércio de Alimentos Ltda Project is helping country fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific CDM requirements because
:
The project activity displaces fossil fuel by using renewable biomass for thermal energy generation. It aims at reducing green-house gas emissions by burning renewable biomass instead of fuel oil.

The project activity consists in installing a biomass boiler for the steam generation, to substitute three oil-fired boilers, which generated the steam previously used at Pederneira's facility. The oil-fired boilers have been used in that facility since 1996.

The steam is used in the productive process and in the sterilization process. AB Brasil buys the 'melaço', which is obtained from the sugar cane's juice diluted in water. This mixture is called 'mosto', and it is sterilized at 121ºC, by the steam produced in the boiler. The steam is used also to cleanup the equipments and the facilities at 80ºC, and to sterilize the fermenters. The last process that utilizes the steam is the dehydration of the yeast.

As described above, the continuous steam generation is essential to the productive process in AB Brasil and the steam production results in greenhouses gases emissions from burning fuel oil.

To keep the continuous steam generation and minimize the greenhouse gases emissions, AB Brasil decided to use a biomass boiler with production capacity of 15 tones of steam per hour.
Serraria Santa Barbara Ltda, a third party company, was contracted to operate the new boiler and this company will also be responsible for the obtainment and transportation of the biomass and to feed the boiler.

The biomass used is composed of residues such as sugar cane bagasse and woodchips. To feed the boiler, a mixture of these residues will be made to maintain the same efficiency and the same previously established set up. One tone of the mixture produces three tones of steam.

Biomass is obtained in the wood industries and sugar and alcohol plants in Sao Paulo state, located within a 200 km radius from the Serraria Santa Barbara's facility, where a biomass mixture is prepared and put into dumpsters. The filled biomass dumpsters go to AB Brasil, located 40 km far from Serraria Santa Barbara, where they will be stored and later used in the boiler to generate steam.

The oil fired boilers used previously were disabled. Two of them, that produced 5 tones of steam per hour, will be sold as scrap and the third boiler will be maintained in AB Brasil's facility to ensure the steam supply if any problems occur with the biomass boiler or for its maintenance.

When the biomass is being burnt to generate steam, CO2 is released into the atmosphere. During trees and sugar cane growth, this gas is absorbed by photosynthesis. Therefore using the biomass will contribute to minimize the greenhouse gas emissions, emitted by burning non renewable fuel.

In addition using these residues as fuel also prevent emissions from the biomass that was left to decay in the fields and will avoid the residues accumulation in landfills.

The company is making new contracts to use sugar cane straw as biomass, in the future, which will be part of the mixture. After the approval of the state São Paulo law number 11241 that regulates the gradual elimination of the practice of burning sugar cane straw, fires are decreasing in the state of Sao Paulo.

Previously the straw was burnt to facilitate the manual cutting. Now it is separated and in the future will be used for energy generation. It represents a greater use of the energy content of the sugar cane residues; in addition, it reduces the greenhouse gas emissions by fire.

The biomass transportation and processing generate the creation of new jobs to the local community. In AB Brasil there are 10 employees working

in three shifts daily, to keep feeding the boiler and ensure the continuous steam supply.
The oil consumption for the steam generation emits harmful gases to human health and to the environment.

The project activity avoids the oil consumption and brings a solution for the final destination of these residues, using them in the burning boiler. It contributes to reduce the waste volume generated, therefore reducing the necessary area for its disposal, and minimize the methane gas generation, from the waste decomposition in anaerobic conditions.

AB Brasil concerned about the final destination given to the ashes generated in the boiler, opted to gather and send them to Biolandia Ind. e Com. de Composto, in Piracicaba, Sao Paulo state. This residue will be transformed into fertilizer.

Thus the implementation of project activity contributes to sustainable development through the use of a clean technology and renewable resources, improving the human life quality and preserving the environment.

The Project Scenario is considered additional in comparison to the baseline scenario, and therefore,eligible to receive Certified Emissions Reductions (CERs) under the CDM, based on an analysis, presented by the PDD, of technological, infrastructure, logistic and other barriers, and prevailing practice.

The project design is sound and the geographical (Pederneiras - São Paulo) and temporal (20 years). Boundaries of the project are clearly defined.

CAR 08 and CRs 01/02/04 were issued with respect to project design. They have been satisfactorily resolved. – Refer to Appendix A.

3.2 Baseline and Additionality

The project AB Brasil Renewable Energy Project uses the approved consolidated baseline methodology AMS.I.C - Type I – Renewable Energy Projects, I.C. Thermal energy for the user with or without electricity, version 13, of 28 March 2007.

This methodology applies to renewable energy technologies that supply user with thermal energy that displaces fossil fuels, stating that thermal generation capacity shall be less than 45 MW.

The AB Brasil boiler is expected to run at 7 tones of steam per hour, and its maximum capacity is 15 tones of steam per hour. According to the data

provided by the manufacturer, the boiler produces 11.6 MW and the calculations are demonstrated in section B.2 of the PDD. As the boiler capacity is lower than 45 MW, the project activity falls under this small scale methodology.

The project activity aims to replace the fossil fuel for biomass for the steam generation. According to the AMS-I.C methodology chosen for the project activity, the baseline is the fuel consumption that would have been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced.

In the absence of the project activity, the technology to be used to ensure the steam supply would be the oil-fired boiler, which has already been used. This is the most appropriate baseline, since the oil-fired boiler was a common technology in the *AB* Brasil's facility and would not be necessary infrastructure investments.

The fossil fuel oil used previously is the oil BPF 2A, a kind of fuel oil usually utilized to produce steam or heat for thermal energy. This fuel is a fraction obtained from petroleum distillation, either as a distillate or a residue. The fuel oil is classified into seven classes, from 1A to 7A, according to its boiling temperature, composition and purpose. The boiling point, ranging from 175 to 600 °C, and carbon chain length, from 20 to 70 atoms, increases with the fuel oil class number. Viscosity also increases with fuel oil number.

For the baseline calculations, the most recent historical records of fossil fuel consumption and the amount of steam produced were analyzed, from 2005 to 2006.

AB Brasil's facility already reaches its maximum physical limit, what indicates that the company will not increase the steam amount. To estimate the net quantity of steam supplied by the project activity per year, a mean of the historical data was calculated as follow: (52,181 + 54,250) / 2, resulting in 53,215.5 tons of steam per year or 6.07 tons per hour.

The baseline emissions are obtained by the annual steam quantity produced times an oxidation factor, times the CO2 emission factor from fuel oil, and dividing the product by the efficiency of the oil boiler that would have been used in the absence of the project activity.

IPCC default values for emission factor and the oxidation factor for fuel oil were used in the baseline calculations (2006 IPCC Guidelines for National Greenhouse Gas Inventories - – Volume 2 – Energy, Table 1.4 on Page 1.23).

In order to convert the carbon emission factor for fuel oil to CO2 emission factor, carbon emission factor for fuel oil has been multiplied by a factor of 44/12. Thus, the utilized fuel oil emission factor is obtained as follows:

EF CO2,FO = 21.1 tC/TJ FO x 44/12
EF CO2,FO = 77.36 tCO2/TJ FO

Where:
EF CO2,FO = the CO2 emission factor per unit of energy of the fuel that would have been used in the absence of the project activity (in tCO2 / TJ), obtained from IPCC default emission factor.

The emissions of this project are considered null, since biomass is a renewable fuel. During its growth period, the sugar cane and the trees planted reabsorb the CO2 emitted during the biomass combustion.

Efficiency of the baseline plant was determined as the efficiency of the existing oil-fired boiler, as specified in the manufacturer's technical manual. The efficiency utilized is 90%.

The additionality of the project activity was evaluated and reported in accordance with the steps of the "Tool for Assessment and Demonstration of Additionality (version 5)" and in accordance with the rules and procedures of the CDM project activity on a small scale.

Step 1: the possible alternative baseline scenarios are the following:

(a) The use of fuel oil in the boiler.
AB Brasil used fuel oil in the boiler, which is petroleum derived.
The fuel oil would have been used in the absence of project activity, since its technology is known and has already the necessary infrastructure. This alternative defines the first scenario that was evaluated.

(b) Proposed project activity without CDM;
The second scenario is the project activity without the CDM incentive, which uses a mixture of woodchip and sugar cane bagasse to generate steam. The bagasse is a byproduct of sugar and alcohol industry resulting from the sugar cane milling. The woodchip is the residue from wood industry.

The baseline options considered do not include those options that:
- do not comply with legal and regulatory requirements; or
- depend on key resources such as fuels, materials or technology that are not available at the project site.

Step 2: Investment analysis was not considered in the analysis, since step 3 was chosen.

Step 3: Barrier analysis – The following barriers were identified: Technical barriers, Infrastructure barriers, Logistic barriers and Other barriers.

Technical Barriers

1) Oil fired boiler.

Since this fuel has already a known technology and has been successfully used for eight years in the industry, there are no technical barriers to this scenario. Besides, the fuel oil composition is homogeneous, what facilitates the boiler's regulation control, therefore the burning will have less variation.

2) Steam generation from woodchip and bagasse, without the CDM incentive.

Woodchip and sugar cane bagasse have fuel characteristics less satisfactory when they are compared to fuel oil. This biomass presents low calorific value, low density and high moisture percentage. Therefore to feed the boiler, a larger biomass quantity is necessary to generate the same amount of steam that would be generated with less fossil fuel.

When the biomass is wet its efficiency decreases. Pederneiras is located in center of Sao Paulo state and has a tropical climate in which the months between October to March have a considerable mean precipitation values, and the acquisition of dried biomass becomes a substantial barrier.
Biomass has more heterogeneous form and composition, consequently it has a larger variation in the burning, and the boiler's regulation control is more difficult, comparing with fuel oil.

The calorific value for woodchip is 2.500 kcal / kg and for sugar cane bagasse, with 50% moisture, is 2.257 kcal / kg, while for fuel oil the calorific value is 10.409 kcal / kg.

Technical and safety training was also an important component for the development of the project activity and it was a requirement for all personnel involved with the boiler operation.

Besides all these problems, the project developer had also to get used to burn biomass, resulting in loss of production, due to the time of adaptation required for biomass.

Logistic Barriers

1) Oil fired boiler.

No logistic barriers were identified to this scenario.

2) Steam generation from woodchip and bagasse, without the CDM incentive.

The biomass transport to AB Brasil's facility faces difficulties in its continuous supply. The geographical dispersion and the different productive capacities from the many biomass sources are a barrier to implement the project activity.

The project activity requires a supply plan to ensure the biomass continuous supply. A complex supply biomass chain had to be developed, following the steps:

- biomass collection from industrial waste in the region;
- transport of all biomass dumpsters to Agudos;
- biomass processing in Agudos, to maintain the regulation standards and boiler performance;
- transport to AB Brasil's facility, in Pederneiras;
- biomass storage in Pederneiras.

Infrastructure Barriers

1) Oil fired boiler.

The local infrastructure is already prepared to generate steam with fuel oil, therefore no infrastructure barriers were identified to this scenario.

2) Steam generation from woodchip and bagasse, without the CDM incentive.

To implement the project activity, AB Brasil's facility had to provide a biomass storage area. In this area the biomass dumpsters are left by the trucks and stored before its use in the boiler.

To implant the new boiler AB Brasil had to make available an area of 320.52 m² for the shed boiler, which includes a biomass boiler and all necessary equipment as chimneys, exhaust fans and silos. Another shed was constructed in order to receive the biomass before it goes to feed the boiler, with 252.96 m². This shed comprises a biomass compartment, allowing the biomass to fall on an automated conveyor belt, which feeds the boiler silos.

Next to the boiler shed was built a control room that contains all necessary equipment to control the boiler, with 40m². The boiler control is made by a control monitor that indicates all parameters in the boiler.

The difficulties to develop, install, operate and maintain a biomass-fired boiler and this extra infrastructure are superior to the difficulties of continuing using an oil-fueled boiler. Thus, without the CDM incentives, these technical and technological barriers could have prevented the use of biomass as fuel.

Other barriers

1) Oil fired boiler.

There are no other barriers identified to this scenario.

2) Steam generation from woodchip and bagasse, without the CDM incentive.

AB Brasil established a contract that guarantees the biomass supply by Serraria Santa Barbara, which will be responsible for the biomass collection and transportation and the boiler feeding. As all the necessary steam in the production process comes from the biomass boiler, AB Brasil takes the risk of having a cut of steam supply if any problems occur with the Serraria Santa Barbara.

Besides that, even with the contract, problems of discontinuity in the biomass supply can occur due to the harvest break and seasonality of biomass. The boiler can consume other kind of biomass, but it would demand a logistic reset of renewable fuel supply.

Sub-Step 3b - Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity).

According to the barrier analysis described above, the second proposed scenario, that is the project activity without the CDM incentive, faces technical barriers, logistic barriers, infrastructure barriers and other barriers.

The first scenario, that is the fuel oil for steam generation did not show any of the identified barriers.

Step 4. Common Practice Analysis

Sub-step 4a. Analyze other activities similar to the proposed project:

According to the “State Energy Head Office” [*], made by the Secretary of Energy, Water and Sanitation of the Sao Paulo State, the energy demand has grown in the Sao Paulo state. Analyzing the consumption by source data in 1970, and comparing them with 2004 data, it is noticed that even with increased consumption by other energy sources still prevails the oil use.

The technology used in the project activity is spreading in all Brazil. The biomass boiler has been modified and improved to increase its efficiency. This type of boiler is used in the pulp and paper industry, in the sugar and alcohol industry and in the vegetable oils production. These industries use wood and vegetable products in their production processes generating residues as a by product. As the residues are used by them as a fuel source for energy generation, it becomes easier to obtain biomass, because there

are no third parties involved in the supply of biomass, representing less dependence and lower logistic difficulties.

Sub-step 4b - Discuss any similar options that are occurring:

Greenhouse gases emissions from Brazil are one of the largest in the world. The land-use practices (e.g. deforestation) are having the effect of substantially increase Brazil's relative position in the emissions ranking in the world. It rose from the 18th position in year 1950 to 5th position in year 2000.

Concerned about that, the Brazilian energy sector is trying to minimize its emissions. Brazil has a great potential for using biomass. But as it is a developing country, the change of the national energetic matrix will affect directly its economy. Therefore, the CDM incentive is offering new opportunities to switch to biomass fuel and, consequently, to decrease greenhouse gas emissions.

According to the barrier analysis described, scenario (b), the proposed project activity without CDM faces all the listed barriers.

Scenario (a), which is the use of fuel oil for steam generation, doesn't face any of the identified barriers.

As a consequence, the project scenario is considered additional in comparison to the baseline scenario and therefore, eligible to receive Certified Emission Reductions (CERs) under the CDM.

CARs 02, 03 and CR 03 were issued with respect to Baseline/Additionality. They have been satisfactorily resolved. – Refer to Appendix A.

3.3 Monitoring Plan

The Project uses the approved consolidated monitoring methodology AMS.I.C - Type I – Renewable Energy Projects, I.C. Thermal energy for the user with or without electricity, version 13 of 28 March 2008. Refer discussions on the validity of the methodology at section 3.2 above.

The baseline of the project activity is calculated according to the fuel oil amount needed to produce the same amount of steam that would be produced in the absence of the biomass boiler.

This methodology was chosen because the project activity consists of renewable energy technology, providing thermal energy to AB Brasil, replacing the fuel oil, and the generation capacity specified by the manufacturer is less than 45 MW.

As the plant is a biomass plant, the fuel combustion is considered to take place emission free. Consequently, there are not project emissions. When fuel oil is used due to shortage of biomass or to due to technical problems in biomass burning, the monitoring plan allows a proper monitoring of fuel oil related GHG emissions. A monitoring system in place will measure the steam production using fuel oil and using biomass fuel.

According to the glossary of terms found in the UNFCCC site, leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases (GHG) which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity.
Reductions in anthropogenic emissions by sources shall be adjusted for leakage in accordance with the provisions of Appendix B for the relevant project categories.

Since the project boundary includes only the physical site where the renewable energy is generated, and the supply of biomass comes from the outside of project boundary, the transportation of biomass supply is considered as leakage.

Item B.6 of the PDD demonstrates how Project Leakage has been calculated.

Leakage = 468.82 tCO2e/year.

Or, approximately 469 tCO2e/year, that was utilized for the calculation of Emission Reductions.

Emission reductions (ERy) calculations are in compliance with the applicable methodology and are calculated as follows:

ERy = BEy - PEy - Leakage

Item B.6 of the PDD also demonstrates how the calculation of BEy, Baseline emissions in year y, has been made.

BEy = 12,376 tCO2e/year

Project emissions PEy = 0

As a consequence, Project Emission Reductions are as follows:

ERy = 12,376 – 469 = 11,907 tCO2e/year

CARs 04, 05, 06, 07, 08, 10 and CRs 05, 06 and 07 were issued with respect to monitoring plan. They have been satisfactorily resolved. Refer to Appendix A.

3.4 Calculation of GHG Emissions

According to the selected methodology AMS-I.C, as there are not Project Emissions, Emission Reductions of the Project activity are calculated by the ballance between the Baseline emissions and the Leakage.

For the crediting period, Baseline emissions are calculated based on the amount of steam generated by the project activity times the emission factor of the fossil fuel and times the efficiency of the oil-fired boiler.

The emission factor of the fossil fuel is determined ex ante and will not be monitored.

EF $CO_{2,FO}$ = 77.36 tCO_2/TJ

The detailed algorithms are described under sections B 6.3 of the PDD.

The estimated annual average of approximately 11,907 tCO_2e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project.

According to section C of the PDD, a 10 year fixed crediting period was defined for the project, with starting date on October 01, 2008.

CAR 10 was issued with respect to monitoring plan. It has been satisfactorily resolved. Refer- Appendix A

3.5 Sustainable Development Impacts

The applicable Environmental Licenses have been checked:

- Operation License for the Biomass Boiler – CETESB – Valid until February 22, 2011.
- Water Well License – Valid until January, 2010.

The oil consumption for the steam generation emits harmful gases to human health and to the environment.

The project activity avoids the oil consumption and brings a solution for the final destination of the biomass residues used, such as sugar cane bagasse and woodchips,
using them in the burning boiler. It contributes to reduce the waste volume generated, therefore reducing the necessary area for its disposal, and minimize the methane gas generation, from the waste decomposition in anaerobic conditions.

AB Brasil concerned about the final destination given to the ashes generated in the boiler, opted to gather and send them to Biolandia Ind. e Com. de Composto, in Piracicaba, Sao Paulo state. This residue will be transformed into fertilizer.

Thus the implementation of project activity contributes to sustainable development through the use of a clean technology and renewable resources, improving the human life quality and preserving the environment.

CAR 01 was issued with respect to sustainable development impacts. It has been satisfactorily resolved. Refer- Appendix A

3.6 Comments by Local Stakeholders

As a requirement of the Brazilian Interministerial Commission on Global Climate Change, the Brazilian DNA (Designated National Authority), AB Brasil invited several organizations and institutions to comment the CDM project being developed.
Letters were sent to the local stakeholders regarding the project activity.
Following is a list of the contacted stakeholders:

- Municipal City Hall of *Pederneiras, Sao Paulo* state;
- Municipal Assembly of *Pederneiras, Sao Paulo* state;
- Company of Environmental Sanitation Technology (CETESB);
- Office of the Attorney-General of *Sao Paulo*;.
- Neighboring Communities of Pederneiras; and
- The Brazilian Forum of NGOs.
- Office of the National Attorney-General, Brasília, DF.

CAR 09 and CR 08 were issued with respect to comments by local stakeholders. They have been satisfactorily resolved. Refer- Appendix A

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The Pederneiras's mayor, Ms Irvana Maria Bertolini Camarinha, has sent a letter to compliment the project participants for the Clean Development Mechanism project initiative.

Since there were no suggestions to improve or change the project, the comment was archived in AB Brasil's electronic system. .

According to the modalities for the Validation of CDM projects, the DOE shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC

accredited non-governmental organizations and make them publicly available.

Bureau Veritas Certification published the project documents on the UNFCCC CDM website (http://cdm.unfccc.int) on 27/02/2008 and invited comments within 27/03/2008 by Parties, stakeholders and non-governmental organizations.

No comments were received.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the project AB Brasil Renewable Energy Project in Brazil. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan (11/03/2008); ii) follow-up interviews with project stakeholders (12/03/2008); iii) the resolution of outstanding issues and the issuance of the final validation report and opinion (30/07/2008). PDD was revised, originating version 4 (30/05/2008).

Project participants used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of technological and other barriers to determine that the project activity itself is not the baseline scenario.

The project activity displaces fossil fuel by using renewable biomass for thermal energy generation. It aims at reducing green-house gas emissions by burning renewable biomass instead of fuel oil.

The project activity consists in installing a biomass boiler for the steam generation, to substitute three oil-fired boilers, which generated the steam previously used at Pederneira's facility. The oil-fired boilers have been used in that facility since 1996.

The steam is used in the productive process and in the sterilization process. AB Brasil buys the 'melaço', which is obtained from the sugar cane's juice diluted in water. This mixture is called 'mosto', and it is sterilized at 121ºC, by the steam produced in the boiler. The steam is used also to cleanup the equipments and the facilities at 80ºC, and to sterilize the fermenters. The last process that utilizes the steam is the dehydration of the yeast.

The project is likely to result in reductions of GHG emissions. An analysis of the technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions. The review of the project design

documentation (version 1, of December 10, 2007), and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.
The validation is based on the information made available to us and the engagement conditions detailed in this report.

Date: 30/July/2008	Date: 30/July/2008
_____	_____
Sergio Carvalho Internal Reviewer	Antonio Daraya Team Leader

6 REFERENCES

Category 1 Documents:
Documents provided by AB Brasil Indústria e Comércio de Alimentos Ltda, that relates directly to the GHG components of the project.

/1/ Project Design Document – AB Brasil Renewable Energy Project, version 1, of December 10, 2007.
/2/ Project Design Document – AB Brasil Renewable Energy Project, version 4, of May 30, 2008.

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/ Resolução Interministerial 01. Comissão Interministerial de Mudança Global do Clima, Sep, 2003.
/2/ Resolução Interministerial 02. Comissão Interministerial de Mudança Global do Clima, Aug 2005.
/3/ Resolução Interministerial 05. Comissão Interministerial de

Mudança Global do Clima, April 2007.

/4/ Resolução Interministerial 06. Comissão Interministerial de Mudança Global do Clima, June 2006.

/5/ Resolução Interministerial 07. Comissão Interministerial de Mudança Global do Clima, March 2008.

/6/ Clean Development Mechanism Project Design Document Form (CDM-SSC-PDD) – Version 03.

/7/ Guidelines for completing the simplified Poject Design Document (CDM-SSC-PDD) Version 05.

/8/ AMS-I.C - Thermal Energy for the User with or without Electricity, Type I – Renewable Energy Projects, version 13

/9/ Tool for the demonstration and assessment of additionality – Version 05.

/10/ Kyoto Protocol to the United Nations Framework Convention on Climate Change. United Nations, Dec, 1997.

/11/ Clarifications on validation requirements to be checked by a Designated Operational Entity. UNFCCC/CCNUCC, Sep, 2004.

/12/ IETA/PCF – Validation and Verification Manual (v. 3.3, Mar 2004)

/13/ Operation License for the Biomass Boiler – CETESB – Valid until February 22, 2011.

/14/ Water Well License – Valid until January, 2010.

/15/ Saturno Scale BBC 0352 Calibration Certificate.

/16/ Steam measurement equipment Calibration Certificate.

Persons interviewed:

List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

/1/ AB Brasil Indústria e Comércio de Alimentos Ltda
José Luiz Theodoro
Marcos Capobianco
Roberto Koga
Gabriel Canato

/2/ Key Associados
Sérgio Dutenhefner
Maria Fernanda P. Garcia

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VALIDATION REPORT

AB BRASIL RENEWABLE ENERGY PROJECT

APPENDIX A: **CDM PROJECT VALIDATION PROTOCOL**

Table 1 Mandatory Requirements for Small Scale Clean Development Mechanism (CDM) Project Activities

Requirement	Reference	Conclusion	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK	Table 2, Section A.3 of PDD. No participation of Annex I Party is yet identified.
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a	OK	Table 2, section A.3 of PDD.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK	Table 2, section A.3 of PDD.
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved.	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a	OK	The project has not yet been submitted to Brazil's DNA to obtain the Letter of Approval.

5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, section E.1 to E.4
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	Kyoto Protocol Art. 12.5c, Simplified modalities and procedures for small scale CDM project activities §26.	OK	Table 2, section B.2.1
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	Marrakech Accords (Decision 17/CP.7)	OK	Declaration by the project participant in Annex 2 of PDD.
8. Parties participating in the CDM shall designate a national authority for the CDM.	Marrakech Accords, CDM Modalities §29	OK	The Brazilian Designated National Authority for the CDM is the Comissão Interministerial de Mudança Global do Clima.
9. The host country shall be a Party to the Kyoto Protocol.	Marrakech Accords, CDM Modalities §30	OK	Brazil has ratified the Kyoto Protocol on 23/08/2002.
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity.	Simplified Modalities and Procedures for Small Scale CDM Project Activities § 12a,c	OK	Table 2, section A.1.

11. The project design document shall conform with the Small Scale CDM Project Design Document format.	Simplified Modalities and Procedures for Small Scale CDM Project Activities Appendix A	OK - Guidelines for completing the simplified project design document (CDM-SSC-PDD), version 05, 14/09/2007	PDD version 01, dated 10/12/2007
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category.	Simplified Modalities and Procedures for Small Scale CDM Project Activities § 22e	OK Methodology AMS.I.C, version 12.	Table 2, Section A.1.3 and B.1.
13. Comments by local stakeholders are invited, and a summary of these provided.	Simplified Modalities and Procedures for Small Scale CDM Project Activities § 22b	OK	Table 2, section G.
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented.	Simplified Modalities and Procedures for Small Scale CDM Project Activities § 22c	OK	Table 2, section F.
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available.	Simplified Modalities and Procedures for Small Scale CDM Project Activities § 23b,c,d	Project Design Document was made publicly available on UNFCCC Website, for the period of 30 days. OK	Source http://cdm.unfccc.int/project/Validation.

VALIDATION REPORT

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. **Small scale project activity** It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	/1/	DR	The project applies the simplified baseline methodology for selected small-scale CDM project activity categories, category "I.C – Thermal energy for the user". The category I.C is applicable for projects with renewable energy technologies that supply individual households or users with thermal energy that displaces fossil fuels. These units include technologies such as solar thermal water heaters and dryers, solar cookers, energy derived from renewable biomass for water heating, space heating, or drying, and other technologies that provide thermal energy that displaces fossil fuel. Biomass-based cogeneration systems that produce heat and electricity for use on-site are included in this category. The renewable energy capacity may be new or replace old units for more efficient units. To qualify under this category, the energy output shall not exceed 45 MWthermal. The new biomass-fuelled thermal application boiler displays an installed capacity of 16.6 Gcal/h = 19.3 MWth and complies with criteria.		OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	/1/	DR	The item A.4.5 of the PDD has the reasons for the confirmation that the small-scale project activity being analysed is not a debundled component of a large scale project activity. Besides, the project does not comply with the conditions stated in the Guidelines for Completing "The Form for Submission of Bundled Small Scale CDM Project Activities (F-CDM-SSC-BUNDLE), version 01, of 14 September 2007.		OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	/2/	DR	The project is a "Renewable energy technology that supply thermal energy for the user, displacing fossil fuels" (type I.C.) small-scale CDM project activity , as defined in the simplified modalities and procedures for small scale CDM project activities.		OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. **Project Design** Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/	DR I	The renewable biomass that replaces fossil fuel in the project activity is woodchips from sawmill and pulp and paper industry, and sugar cane bagasse from sugar and alcohol plants, located within a 200 km radius from *Serraria Santa Barbara*, where the biomass mixture is prepared. The project activity limit is the physical, geographic site where the renewable energy is generated. According to this definition the project activity limit includes the part of *AB Brasil's* facility where biomass boiler is located. The coordinates that define the unique identification of the small scale project activity should be indicated by project participants.	CR 01	OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/1/	DR I	According to the Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories, Type I – Renewable Energy Projects, I.C. Thermal energy for the user with or without electricity, version 12 of 10 August 2007, the total thermal generation capacity of the project shall be less than 45 MW. The new biomass-fuelled boiler has an installed		OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			capacity of 19.3 MW and complies with criteria.		
A.2.3. Does the project design engineering reflect current good practices?	-	DR	Yes. The technology using solid biomass for steam generation reflects current good practices.		OK
A.2.4. Will the project result in technology transfer to the host country?	-	DR	No. There was no transfer of technology, as the one used in project activities is Brazilian.		OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	/1/	DR I	It is not clear if the project will require initial training and maintenance efforts in order to work as presumed during the project period. The project participants should send information about that.	CR 02	OK
A.3. **Contribution to Sustainable Development** The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR I	The project activity avoids the oil consumption and brings a solution for the final destination of these residues, using them in the burning boiler. It contributes to reduce the waste volume generated, therefore reducing the necessary area for its disposal, and minimize the methane gas generation, from the waste decomposition in anaerobic conditions. AB Brasil concerned about the final destination given to the ashes generated in the boiler, opted to gather them and send them to the eucalyptus		OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			plantation, in Cabrália Paulista, Sao Paulo state. This material works as limestone, which is used to correct the soil. Thus the implementation of project activity contributes to sustainable development through the use of a clean technology and renewable resources, improving the human life quality and preserving the environment.		
A.3.2. Will the project create any adverse environmental or social effects?	/1/	DR	Adverse environmental or social effects are not foreseen.		OK
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR	The project was not yet submitted to Brazil's DNA to obtain the Letter of Approval..		OK
A.3.4. Is the project in line with relevant legislation and plans in the host country?	-	DR I	Serraria Santa Bárbara Company has a Steam Supply Agreement with AB Brasil. It owns the biomass boiler and is responsible for the steam supply to AB Brasil. On September 18, 2007, it has granted from CETESB - The State of São Paulo Environmental Protection Agency, the Previous Permit # 07001418, for a 15 ton per hour Biomass Boiler. All the conditioning factors to this Permit have already been fulfilled. Although on February 20, 2008 the mandatory Inspection visit # 1226092 to issue the Operation Permit had already been made by CETESB, the Operation Permit for the biomass boiler has not yet been issued.	CAR 01	OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Environmental Licenses are issued after all the possible environmental impacts are analyzed. All the other applicable permits have been accessed by the verifier and were considered in compliance with the legislation requirements.		
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. **Baseline Methodology** It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	/1/ /2/	DR	The project applies the Clean Development Mechanism - Project Design Document Form (CDM-SSC-PDD) – version 03 – in effect as of 22 December 2006, The Guidelines for completing the simplified project design document (CDM-SSC-PDD) and the form for proposed new small-scale methodologies (CDM-SSC-NM), version 05, of 14 September 2007 and the Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories, Type I – Renewable Energy Projects, I.C. Thermal energy for the user with or without electricity, version 12 of 10 August 2007. The project involves the	CR 03 CAR 02 CAR 03	OK OK OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			substitution of the three oil fired boilers used for steam generation utilized in the manufacturing process of AB Brasil Plant, by one renewable solid biomass fired boiler. The biomass used is composed of residues, such as sugar cane bagasse and woodchips. The burning of biomass in place of fuel oil in the boiler decreases the GHG gas emissions. The characterization of the fuel oil previously used should be informed by project participants. The Clean Development Mechanism - Project Design Document Form (CDM-SSC-PDD) utilized for the PDD was the version 01, instead of the version 03, in effect as of 22 December 2006. The Project Design Document (DCM-SSC-PDD) content did not follow The Guidelines for completing the simplified project design document (CDM-SSC-PDD) and the form for proposed new small-scale methodologies (CDM-SSC-NM), version 05, of 14 September 2007, as in page 02 of the PDD there is a Revision history of this document, not contemplated in the Guideline, on page 11, the title of item B.4 should be Details of baseline and its development, instead of Description of baseline and its development and in Section D, Environmental Impacts, It is being used item D.2, that it is not contemplated in the Guideline		
B.1.2. Is the baseline methodology applicable		DR	The methodology Indicative simplified baseline and monitoring methodologies for selected small scale		OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
to the project being considered?			CDM project activity categories, Type I – Renewable Energy Projects, I.C. Thermal energy for the user with or without electricity, version 12 of 10 August 2007, is applicable to the project.		
B.2. **Baseline Determination** It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	/1/	DR	The additionality of the project activity was evaluated and reported in accordance with the steps of the "Tool for Assessment and Demonstration of Additionality (version 5)" and in accordance with the rules and procedures of the CDM project activity on a small scale. The additionality of the project is evidenced by the following barriers: **Technical Barriers** 1) Oil fired boiler. Since this fuel has already a know technology and has been successfully used for eight years in the industry, there are no technical barriers to this scenario. Besides that the fuel oil composition is homogeneous, which facilitates the boiler's regulation control, therefore the burning will have less variation. 2) Steam generation from woodchip and bagasse,		OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			without the CDM incentive. Woodchip and sugar cane bagasse have fuels characteristics less satisfactory when they are compared to fuel oil. This biomass presents low calorific value, low density and high moisture percentage. Therefore to feed the boiler, a larger biomass quantity is necessary to generate the same amount of steam that would be generated with less fossil fuel. When the biomass is wet its efficiency decreases. Pederneiras is located in center of Sao Paulo state and has a tropical climate in which the months between October to March have a considerable mean precipitation values, and have a dried biomass becomes a substantial barrier. Biomass has more heterogeneous form and composition, consequently it has a larger variation in the burning, and the boiler's regulation control is more difficulty, comparing with fuel oil. The calorific value for woodchip is 2.500 kcal / kg and for sugar cane bagasse, with 50% moisture, is 2.257 kcal / kg, while for fuel oil the calorific value is 10.409 kcal / kg. Technical and safety training was also an important component for the development of the project activity and it was required for all personnel involved with the boiler operation. Besides all these problems the project developer had also to get used to burn with the biomass, resulting in loss of production, due to the time of adaptation with these new biomass.		

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Logistic Barriers 1) Oil fired boiler. No logistic barriers were identified to this scenario. 2) Steam generation from woodchip and bagasse, without the CDM incentive. The biomass transport to AB Brasil's facility faces difficulties in its continuous supply. The geographical dispersion and the different productive capacities from the many biomass sources are a barrier to implement the project activity. The project activity requires a supply plan to ensure the biomass continuous supply. A complex supply biomass chain had to be developed, following the steps: □□biomass collection from industrial waste in the region; □□transport of all biomass dumpsters to Agudos; □□biomass processing in Agudos, to maintain the regulation standards and boiler performance; □□transport to AB Brasil's facility, in Pederneiras; □□biomass storage in Pederneiras. **Infrastructure Barriers** 1) Oil fired boiler. The local infrastructure is already prepared to generate steam with fuel oil, therefore no infrastructure barriers were identified to this scenario. 2) Steam generation from woodchip and bagasse, without the CDM incentive. To implement the project activity, AB Brasil's facility		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			had to provide a biomass storage area. In this area the biomass dumpsters are left by the trucks and it will be stored before its use in the boiler. To implant the new boiler AB Brasil had to make available an area, with 320.52 m², for the shed boiler, which includes a biomass boiler and all necessary equipment as chimneys, exhaust, fans and silos. Another shed was constructed in order to receive the biomass before it goes to feed the boiler, with 252.96 m². This shed comprises a biomass compartment, allowing the biomass falls on an automated conveyor belt, which feeds the boiler silos. Next to the boiler shed was built a control room that contains all necessary equipment to control the boiler, with 40m². The boiler control is made by a control monitor that indicates all parameters in the boiler. The difficulties to develop, install, operate and maintain a biomass-fired boiler and this extra infrastructure are superior to the difficulties of continuing using an oil-fueled boiler. Thus, without the CDM incentives, these technical and technological barriers could have prevented the use of biomass as fuel. **Other barriers** 1) Oil fired boiler. There are no other barriers identified to this scenario. 2) Steam generation from woodchip and bagasse,		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			without the CDM incentive. AB Brasil established a contract that guarantees the biomass supply by Serraria Santa Barbara, which will be responsible for the biomass collection and transportation and the boiler feeding. As all the necessary steam in the production process comes from the biomass boiler, AB Brasil takes the risk of having a cut of steam supply if any problems occurs with the Serraria Santa Barbara. Besides that, even with the contract, problems of discontinuity in the biomass supply can occur due to the harvest break and seasonality of biomass. The boiler can consume other kind of biomass, but it would demand a logistic reset of renewable fuel supply. According to the barriers analyses described above, the second proposed scenario that is the project activity faces technical barriers, logistic barriers, infrastructure barriers and other barriers. The first scenario, that is the fuel oil for steam generation did not show any of the identified barriers. **Common Practice Analysis** **Analyze other activities similar to the proposed project.** According to the "State Energy Head Office", made by the Secretary of Energy, Water and Sanitation of the Sao Paulo State, the energy demand has grown in the Sao Paulo state. Analyzing the consumption by source data in 1970, and comparing them with 2004 data, it is noticed that		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			even with increased consumption by other energy sources still prevails the oil use. The technology used in the project activity is spreading in all Brazil. The biomass boiler has been modified and improved to increase its efficiency. This type of boiler is used in the pulp and paper industry, the sugar and alcohol industry and in the vegetable oils production. These industries use wood and vegetable products in their production processes, and the residues generated becomes fuel for energy generation. As the residues are generated in the same industry, it becomes easier to obtain biomass, because there is no third party supply dependence or logistic difficulties. **Discuss any similar options that are occurring:** Greenhouse gases emissions from Brazil are one of the largest in the world. The land-use practices (e.g. deforestation) are having the effect of a substantial increase in Brazil's relative emissions position: its position in the ranking of cumulative emissions, from 1950 to 2000, rose from 18th to 5th. Concerned about that, the Brazilian energy sector is trying to minimize its emissions. Brazil has a big potential for using biomass. But to change the national energetic matrix from a developing country will affect directly its economy. Therefore the CDM incentive is increasing new opportunities to switch fuel and consequently decreases greenhouse gas emissions.		

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			As a result, the project is considered additional.		
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	/1/	DR I	Please, see B.1.2.		OK
B.2.3. Are relevant national and/or sectorial policies and circumstances taken into account?	-	DR	Yes. The national and sectorial policies support renewable energy projects.		OK
B.2.4. Is the baseline selection compatible with the available data?	/1/	DR	Yes.		OK
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	/1/ /2/	DR	Yes.		OK
C. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	/1/	DR	The starting date of the project activity is 01 August 2008, with an expected operational lifetime of 20 years. As the project starting date can only be confirmed after the project registration, it is not possible to guarantee that the starting date of the project can be achieved.	CR 04	OK

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C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	/1/	DR	Yes. A fixed 10-year, non renewable, crediting period has been defined.		OK
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. **Monitoring Methodology** It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	/1/ /2/	DR	The project applies the monitoring methodology established according to the simplified monitoring methodology for type I.C. Thermal energy for the user, for small-scale CDM project activities.		OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	/1/ /2/	DR I	For this category (I.C), the monitoring shall consist of (one in three options): (a) Metering the energy produced by a sample of the systems where the simplified baseline is based on the energy produced multiplied by an emission coefficient or (b) Metering the thermal and electrical energy generated for co-generation projects. In the case of co-fired plants, the amount of fossil fuel input shall be monitored; or (c) If the emissions reduction per system is less than 5 tonnes of CO2 a year: (i) Recording annually the number of systems	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK

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			operating (evidence of continuing operation, such as on-going rental/lease payments could be a substitute); and (ii) Estimating the annual hours of operation of an average system, if necessary using survey methods. Annual hours of operation can be estimated from total output (e.g. tones of grain dried) and output per hour if an accurate value of output per hour is available. The AB Brasil project activity aims to replace the fossil fuel for biomass for the steam generation. According to the AMS-I.C methodology chosen for the project activity, the baseline is the fuel consumption that would have been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced. In the absence of the project activity the technology to be used, to ensure the steam supply, would be the oil-fired boilers, which have already been used. This is the most appropriate baseline, since the oil-fired boiler was a common technology in the AB Brasil's facility and would not be necessary infrastructure investments. For the baseline calculations, the most recent historical records of fossil fuel consumption and the amount of steam produced were analyzed, from 2005 to 2006, and the values are presented in the table 3, item B.4 of the PDD. Project Participants should inform why in item B.6.2 of the PDD the historical steam consumption of 60,480 tones of steam/year was utilized in item		

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			B.6.2 to calculate the project emission reduction, although, according to table 3 of item B.4, the historical average annual steam consumption for the years 2005 and 2006 was (52,181 + 54,250)/2 = 53,215,5 tones/year. The baseline emissions are obtained by the annual steam quantity produced times an oxidation factor, times the CO2 emission factor from fuel oil, and dividing the product by the efficiency of the oil boiler that would have been used in the absence of the project activity. IPCC default values for emission factors, as well as other parameters used in the baseline calculations, are presented in the table 4, item B.4 of the PDD. The project participants utilized the Carbon emission factor and the oxidation factor for fuel oil obtained from 1996 IPCC's default values instead of the 2006 figures. The project participants utilized 89.9% as the boiler efficiency using fossil fuel in the AALBorg boiler, but the more conservative efficiency should be 90% of the ATA boiler, to obtain a lower value of Baseline emissions. As per the selected methodology, baseline emissions for thermal generation in the year Y shall be calculated as the product of the net quantity of steam/heat supplied by the project activity in year Y in TJ, times the emission factor per unit of energy of the fuel that would have been used in the baseline plant in tCO2/TJ (an IPCC default emission factor was utilized), times an oxidation		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			factor for fossil fuels (an IPCC default oxidation factor was utilized), divided per the efficiency of the plant using fossil fuel that would have been used in the absence of the project activity. The net quantity of steam/heat supplied by the project activity in year Y in TJ shall be calculate as the product of the quantity of steam produced by the biomass boiler in year Y in metric tons, times the Entalpy (Heat content of the steam produced by the biomass boiler, as specified by the boiler manufacturer), times 0.0041868 (conversion factor for megajoules to kilocalories). The quantity of steam produced in the biomass boiler is measured by an electronic steam flow meter. It was available the Calibration Certificate # 0400/07-1901 of the flow meter, made on 19/11/2007 by Digitrol Service Instrumentação Industrial. Project Participants should inform why the calibration frequency of the steam flow meter has not been defined. The emission reductions in year Y are calculated as follows: ERy □□BEy -□PEy-□Leakage where ERy are the Emission Reductions in year y, BEy the Baseline emissions in year y, PEy are the Project Emissions in year y. According to the methodology AMS. I.C. Leakage is considered only when the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another	CAR 10	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			activity. Since this is not the case,leakage will not be considered. Project Participants should inform why they have considered that there are no project emissions, since in section A.2 of the PDD, there is the information that the oil fired boilers used previously were disabled. Two of them that produced 5 tones per hour of steam will be sold as scrap and the third boiler will be maintained in AB Brasil's facility to ensure the steam supply if any problems occur with the biomass boiler or for its maintenance. In this case, fuel oil consumption should be controlled and included in the monitoring plan. AB Brasil has a calibrated scale to control the weight of biomass that arrives in trucks. According to item A.2 of the PDD, the biomass used is compound of residues such as sugar cane bagasse and woodchips. Biomass is obtained in the wood industries and sugar and alcohol plants in Sao Paulo State, located within a 200 km radius from the Serraria Santa Barbara's facility, where the biomass misture is prepared and put into dumpsters. The filled biomass dumpsters go to AB Brasil, where it will be stored and later used in the boiler to generate steam. According to annex 4 of PDD, monitoring information, FCBIOMASS,y, amount of renewable biomass consumed at the boiler in year y will be calculated, not measured. Item 21 of the methodology AMS.I.C says that If more than one type of biomass fuel is consumed each shall be		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			monitored separately. According to annex 4 of PDD, monitoring information, Psteam, y, the amount of steam generated by a biomass- fueled boiler in the project scenario during year y should be monitored continuously and archived electronically. On March 12, 2008, during the site visit in Pederneiras – SP, it was verified that the electronic system Viewer was not operating properly. According to item B.7 of the Guidelines for Completing the Simplified Project Design Document (CDM-SSC-PDD) and The Form for Proposed New Small Scale Methodologies (CDM-SSC-NM), version 05, Data monitored and required for verification and issuance are to kept for a minimum of two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later. This information is not given in the PDD.		
D.1.3. Is the application of the monitoring methodology transparent?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
D.1.4. Will the monitoring methodology give	/1/	DR	See D.1.2	CR 05	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
opportunity for real measurements of achieved emission reductions?	/2/	I		CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK
D.2. **Monitoring of Project Emissions** It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06	OK OK OK OK OK OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
				CAR 07 CAR 08	OK OK
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
D.3. **Monitoring of Leakage** It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	/1/ /2/	DR I	According to the methodology AMS. I.C. Leakage is considered only when the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another	CAR 10	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			activity. Since this is not the case,leakage will not be considered.		
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	/1/ /2/	DR I	See D.3.1		OK
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	/1/ /2/	DR I	See D.3.1		OK
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	/1/ /2/	DR I	See D.3.1		OK
D.4. **Monitoring of Baseline Emissions** It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/ /2/	DR	The monitoring methodology in which project activities fit is that of letter (a) of I.C Thermal Energy for the User: the energy produced by a system sample should be measured where the baseline refers to the energy which would be produced, multiplied by an emission factor. See D.1.2.	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06	OK OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
				CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5. **Project Management Planning** It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	/1/	DR I	Yes, Mr. José Luiz Theodoro, manager of Quality, Safety and Environment has the authority and responsibility for the project management		OK
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	/1/	DR I	Yes. See D.5.1		OK
D.5.3. Are procedures identified for training of monitoring personnel?	/1/	DR I	There are not procedures for training of monitoring personnel.		OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR I	There are not procedures for emergency preparedness for cases where emergencies can cause unintended emissions.		OK
D.5.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR I	There are not procedures identified for calibration of monitoring equipment.		OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR I	There are not procedures identified for maintenance of monitoring equipment and installations.		OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR I	There are not procedures for monitoring, measurements and reporting.		OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how	/1/	DR I	There are not procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process		OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
to process performance documentation)?			performance documentation).		
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR I	There are not procedures identified for dealing with possible monitoring data adjustments and uncertainties.		OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	/1/	DR I	There are not procedures identified for internal audits of GHG project compliance with operational requirements as applicable.		OK
D.5.11. Are procedures identified for project performance reviews?	/1/	DR I	There are not procedures identified for project performance reviews.		OK
D.5.12. Are procedures identified for corrective actions?	/1/	DR I	There are not procedures identified for corrective actions.		OK
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. **Project GHG Emissions** The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05	OK OK OK OK OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
				CAR 06 CAR 07 CAR 08	OK OK OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	/1/ /2/	DR I	See 1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	/1/ /2/	DR I	The calculation of the emission reductions is in accordance with AMS-I.C and takes into account all relevant factors of the project technology.		OK
E.1.4. Are the calculations documented in a complete and transparent manner?	/1/ /2/	DR I	Yes.		OK
E.1.5. Have conservative assumptions been used?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
				CAR 10	OK
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	/1/ /2/	DR I	See D.1.2	CR 05 CR 06 CR 07 CAR 04 CAR 05 CAR 06 CAR 07 CAR 08	OK OK OK OK OK OK OK OK
E.2. **Leakage** It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	/1/ /2/	DR I	According to the methodology AMS. I.C. Leakage is considered only when the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. Since this is not the case,leakage will not be considered.	CAR 10	OK
E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	/1/ /2/	DR I	See E.2.1	CAR 10	OK

VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	/1/ /2/	DR I	See E.2.1	CAR 10	OK
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	/1/ /2/	DR I	See E.2.1	CAR 10	OK
E.2.5. Have conservative assumptions been used (if applicable)?	/1/ /2/	DR I	See E.2.1	CAR 10	OK
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	/1/ /2/	DR I	See E.2.1	CAR 10	OK
E.3. **Baseline GHG Emissions** The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	/1/ /2/	DR I	Yes.		OK
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	/1/ /2/	DR I	The AB Brasil project activity aims to replace the fossil fuel for biomass for the steam generation. According to the AMS-I.C methodology chosen for the project activity, the baseline is the fuel consumption that would have been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced. In the absence of the project activity the technology to be used, to ensure the steam supply, would be	CR 05 CAR 04 CAR 05	OK OK OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			the oil-fired boilers, which have already been used. This is the most appropriate baseline, since the oil-fired boiler was a common technology in the AB Brasil's facility and would not be necessary infrastructure investments. For the baseline calculations, the most recent historical records of fossil fuel consumption and the amount of steam produced were analyzed, from 2005 to 2006, and the values are presented in the table 3, item B.4 of the PDD. Project Participants should inform why in item B.6.2 of the PDD the historical steam consumption of 60,480 tonnes of steam/year was utilized in item B.6.2 to calculate the project emission reduction, although, according to table 3 of item B.4, the historical average annual steam consumption for the years 2005 and 2006 was (52,181 + 54,250)/2 = 53,215,5 tones/year. The baseline emissions are obtained by the annual steam quantity produced times an oxidation factor, times the CO2 emission factor from fuel oil, and dividing the product by the efficiency of the oil boiler that would have been used in the absence of the project activity. IPCC default values for emission factors, as well as other parameters used in the baseline calculations, are presented in the table 4, item B.4 of the PDD. The project participants utilized the Carbon emission factor and the oxidation factor for fuel oil obtained from 1996 IPCC's default values instead of the 2006 figures.		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			The project participants utilized 89.9% as the boiler efficiency using fossil fuel in the AALBorg boiler, but the more conservative efficiency should be 90% of the ATA boiler, to obtain a lower value of Baseline emissions. As per the selected methodology, baseline emissions for thermal generation in the year Y shall be calculated as the product of the net quantity of steam/heat supplied by the project activity in year Y in TJ, times the emission factor per unit of energy of the fuel that would have been used in the baseline plant in tCO2/TJ (an IPCC default emission factor was utilized), times an oxidation factor for fossil fuels (an IPCC default oxidation factor was utilized), divided per the efficiency of the plant using fossil fuel that would have been used in the absence of the project activity.		
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	/1/ /2/	DR	Yes.		OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	/1/ /2/	DR	Yes.		OK
E.3.5. Are the calculations documented in a complete and transparent manner?	/1/ /2/	DR	Yes.		OK
E.3.6. Have conservative assumptions been used?	/1/ /2/	DR	See E.3.2	CR 05 CAR 04 CAR 05	OK OK OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	/1/ /2/	DR	See E.3.2	CR 05 CAR 04 CAR 05	OK OK OK
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	/1/	DR I	According to item B.6.4 of the PDD, the project is expected to reduce CO2 emissions to the extent of 143,347 tCO2e during the 10 year non renewable crediting period. Project Participants should inform why they have considered that there are no project emissions, since in section A.2 of the PDD, there is the information that the oil fired boilers used previously were disabled. Two of them that produced 5 tones per hour of steam will be sold as scrap and the third boiler will be maintained in AB Brasil's facility to ensure the steam supply if any problems occur with the biomass boiler or for its maintenance. In this case, fuel oil consumption should be included in the monitoring plan.	CR 07	OK
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of	/1/	DR	Serraria Santa Bárbara Company has a Steam Supply Agreement with AB Brasil.	CAR 01	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
the project activity?		I	It owns the biomass boiler and is responsible for the steam supply to AB Brasil. On September 18, 2007, it has granted from CETESB - The State of São Paulo Environmental Protection Agency, the Previous Permit # 07001418, for a 15 ton per hour Biomass Boiler. All the conditioning factors to this Permit have already been fulfilled. Although on February 20,2008 the mandatory Inspection visit # 1226092 to issue the Operation Permit has already been made by CETESB, the Operation Permit has not yet been issued. Environmental Licenses are issued after all the possible environmental impacts are analyzed. All the other applicable permits have been accessed by the verifier and were considered in compliance with the legislation requirements.		
F.1.2. Does the project comply with environmental legislation in the host country?	/1/	DR I	The project activity does not generate environmental impacts that need to be monitored.		OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR I	AB Brasil's facility in Pederneiras complies with environmental and safety regulations and has all the necessary operating licenses.		OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	/1/	DR I	The project activity does not change the land use, as well as not interfere with the habitat of any species of fauna and flora, since the biomass have		OK

VALIDATION REPORT

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			already been planted for industrial production and the steam generation occurs inside the AB Brasil´s property. Regarding air pollution, in the state of Sao Paulo, the emissions control occurs mainly for sulfur oxides, which are practically absent in the biomass boiler. Since biomass is renewable, the CO2 emitted in its burn is compensated by the absorption of this gas during the plants growth, resulting in zero emissions of CO2. The application of this technology does not interfere with water reservoirs or groundwater, therefore there are no changes in water quality. The ashes generated by the biomass burning will be collected and sent for eucalyptus plantation, avoiding soil or water contamination and residues accumulation in landfills. During the site visit, it was possible to verify the existence of the authorization granted from CETESB, for the disposal of the ashes generated in the boiler, CADRI # 07000249, of 15/12/2006, for the disposal of 250 tones of ashes/year. It was also possible to verify the existence of the Portaria DAEE 012, of 05/01/2005, with the water-impounding permit for three wells, for the period of five years. After this evaluation was observed that the project activity ensures environmental safety for the region where the project is located and for the region where the biomass is being explored.		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR I	Local stakeholders, such as the Municipal Government of Pederneiras, the Municipal Assembly of Pederneiras, CETESB – the Environmental State of São Paulo Agency, the Office of the Attorney General of São Paulo, Local NGO of Pederneiras were invited to comment on the project. Up to now, no comments had been received In accordance with the requirements of Resolution 1 of the Brazilian DNA, Neighboring Comunities and the Brazilian Forum of NGOs, should also had been invited for comments.	CAR 09	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR I	The Project Participants should inform and send evidences of the invitations made and of the media utilized for the invitations.	CR 08	OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/	DR I	See G.1.1	CAR 09	OK
G.1.4. Is a summary of the comments received provided?	/1/	DR I	See G.1.1	CAR 09	OK
G.1.5. Has due account been taken of any comments received?	/1/	DR I	See G.1.1	CAR 09	OK

VALIDATION REPORT

Table 3 Approved Consolidated Baseline and Monitoring Methodologies for selected small-scale CDM project activity categories AMS I C

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Technology/measure					
1.1. Does the project comprises renewable energy technologies that supply individual households or users with thermal energy that displaces fossil fuels, such as solar thermal heaters and dryers, solar cookers, energy derived from renewable biomass for water heating, space heating, or drying, and other technologies that provide thermal energy that displaces fossil fuels, and co-generating systems that produce heat and electricity?	/2/	DR	Yes. The project activity displaces fossil fuel by using renewable biomass for thermal energy generation. The project aims at reducing green-house gas emissions by burning renewable biomass instead of fuel oil.		OK
2. Boundary					
2.1. Does the project boundary encompass the physical, geographical site of the renewable generation source?	/2/	DR	Yes. The project activity limit defined by the methodology AMS.I.C. Thermal Energy for the user with or without electricity, is the physical, geographic site where the renewable energy is generated. The project activity limit includes the part of AB Brasil's Facility where biomass boiler is located.		OK
3. Baseline					
3.1. Did the project participants identify the most plausible baseline scenario among all realistic and credible alternatives(s)?	/2/	DR	The project participants identified the most plausible baseline scenario among all realistic and credible alternatives, that is for renewable energy technologies that displace technologies using fossil fuels, the simplified baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity		OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			times an emission coefficient for the fossil fuel displaced .		
3.2 Was steam/heat produced calculated considering the formula presented at item 10 of the approved methodology?	/2/	DR	Yes. The steam/heat produced was calculated using the formula presented at item 10 of the methodology AMS.I.C., revision 12.		OK
4. Monitoring					
4.1 Does the monitoring consist of metering the quantity of steam generated ?``	/2/	DR	Yes. The monitoring consists of metering the amount of steam generated by a biomass-fuelled boiler in the project scenario during the year y.		OK

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Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	/1/	DR I	Serraria Santa Bárbara Company has a Steam Supply Agreement with AB Brasil. It owns the biomass boiler and is responsible for the steam supply to AB Brasil. On September 18, 2007, it has granted from CETESB - The State of São Paulo Environmental Protection Agency, the Previous Permit # 07001418, for a 15 ton per hour Biomass Boiler. All the conditioning factors to this Permit have already been fulfilled. Although on February 20,2008 the mandatory Inspection visit # 1226092 to issue the Operation Permit has already been made by CETESB, the Operation Permit has not yet been issued. Environmental Licenses are issued after all the possible environmental impacts are analyzed. All the other applicable permits have been accessed by the verifier and were considered in compliance with the legislation requirements.	CAR 01	OK
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?	/1/	DR I	See 1.1	CAR 01	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1.3. Is the project in line with relevant legislation and plans in the host country? Is the water-impounding permit applied to competent authority?	/1/	DR I	Yes, the project is in line with relevant legislation and plans in the host country. Portaria DAEE 012, of 05/01/2005, with the water-impounding permit for the three existing wells, for the period of five years.		OK
1.4. Are the conditions of the Resolução Interministerial 01/2003 being met?	/1/	DR I	See 1.1	CAR 01	OK

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Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
CAR 01 - Although on February 20, 2008 the mandatory Inspection visit # 1226092 to issue the Operation Permit had already been made by CETESB, the Operation Permit for the biomass boiler has not yet been issued. Environmental Licenses are issued after all the possible environmental impacts are analyzed.	Table 2 A.3.,F.1.1 Table 4 1.1,1.2,1.4	The Operation Permit # 7002654 from CETESB has already been published and it is sending in annex with the validation protocol.	The Operation Permit # 7002654 from CETESB, issued on February 21, 2008 and valid until February 21, 2008 was received by the Validation Team. This CAR is closed.
CAR 02 - The Clean Development Mechanism - Project Design Document Form (CDM-SSC-PDD) utilized for the PDD was the version 01, instead of the version 03, in effect as of 22 December 2006.	Table 2 B.1.1	The Clean Development Mechanism - Project Design Document Form (CDM-SSC-PDD) version 03, in effect as of 22 December 2006, was utilized for the PDD, modifying the previously form utilized.	Version 2 of the PDD utilizing The Clean Development Mechanism - Project Design Document Form (CDM-SSC-PDD) version 03, in effect as of 22 December 2006 was received by the Validation Team. This CAR is closed.
CAR 03 - The Project Design Document (DCM-SSC-PDD) content did not follow The Guidelines for completing the simplified project design document (CDM-SSC-PDD) and the form for proposed new small-scale methodologies (CDM-SSC-NM), version 05, of 14 September 2007, as in page 02 of the PDD there is a Revision history of this document, not contemplated in the Guideline,	Table 2 B.1.1	The Project Design Document (DCM-SSC-PDD) was modified to attend the Guidelines for completing the simplified project design document (CDM-SSC-PDD) and the form for proposed new small-scale methodologies (CDM-SSC-NM), version 05, of 14 September 2007. The modifications were made on	- The date of version 02 of the PDD is 30/03/2007 but it should be 30/03/2008. - In page 02 of the PDD there is a Revision History of this document, not contemplated in the Guideline. This CAR is closed.

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Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
on page 11, the title of item B.4 should be Details of baseline and its development, instead of Description of baseline and its development and in Section D, Environmental Impacts, It is being used item D.2, that it is not contemplated in the Guideline		page 02 in the Revision history, on page 11 in the title of item B.4 and on page 26 in section D, the item D.2 that is not contemplated in the Guideline, was removed and placed in the section A.4.2, on page8. The date was modified to the current date.	
CAR 04 - The project participants utilized the Carbon emission factor and the oxidation factor for fuel oil obtained from 1996 IPCC's default values instead of the 2006 figures.	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3 D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1 E.1.2,E.1.5,E.1.6 E.3.2,E.3.6,E.3.7	The Carbon emission factor and the oxidation factor for fuel oil obtained previously from 1996 IPCC's default values were modify to 2006 IPCC's default values.	The Validation Team checked the data and they are according to the 2006 IPCC's values. This CAR is closed.
CAR 05 - The project participants utilized 89.9% as the boiler efficiency using fossil fuel in the AALBorg boiler, but the more conservative efficiency should be 90% of the ATA boiler, to obtain a lower value of Baseline emissions.	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3 D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1 E.1.2,E.1.5,E.1.6 E.3.2,E.3.6,E.3.7	For calculations in the more conservative scenario the boiler efficiency was modify from 89.9% of AALBorg boiler to 90% of the ATA boiler, to obtain a lower value of Baseline emissions.	The calculations were checked by the Validation Team and it was confirmed the utilization of 90% for the AALBorg boiler efficiency. This CAR is closed.
CAR 06 - According to item A.2 of the PDD, the biomass used is compound of residues such as sugar cane bagasse and woodchips.	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3	Serraria Santa Barbara weights each type of biomass separately when it is received. The weight is	In item B.7.1 – Data and Parameters Monitored, **$FC_{BIOMASS,y}$**, Description of Measurement Methods and Procedures

Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
Biomass is obtained in the wood industries and sugar and alcohol plants in Sao Paulo State, located within a 200 km radius from the Serraria Santa Barbara's facility, where the biomass misture is prepared and put into dumpsters. The filled biomass dumpsters go to AB Brasil, where it will be stored and later used in the boiler to generate steam. According to annex 4 of PDD, monitoring information, FCBIOMASS,y, amount of renewable biomass consumed at the boiler in year y will be calculated, not measured. Item 21 of the methodology AMS.I.C says that If more than one type of biomass fuel is consumed each shall be monitored separately.	D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1 E.1.2,E.1.5,E.1.6	registered in a receipt and it is sent monthly to AB Brasil. At AB Brasil the receipt are registered in an electronic worksheet located at public folders in AB Brasil's server. This information is described in the item B.7.2.	to be Applied, it is informed that "Biomass Received at the Plant will be Monitored by sample Weight", and in Annex 4 Monitoring Information, Source of Data, "Measurement from Biomass Weight used to Feed the Biomass Boiler. Both information must be consistent. It is also necessary to inform that the different types of Biomass will be Monitored Separately and included in the Monitoring Plan, according to the PDD information and to the Applicable Methodology request. This CAR is closed.
CAR 07 - According to annex 4 of PDD - Monitoring Information, $P_{steam, y,}$ the amount of steam generated by a biomass- fueled boiler in the project scenario during year y should be monitored continuously and archived electronically. On March 12, 2008, during the site visit to Pederneiras – SP, it was verified that the electronic system Viewer was not operating properly. The only existing control is the steam amount quantities recorded and utilized by Serraria Santa Bárbara to invoice	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3 D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1 E.1.2,E.1.5,E.1.6	The electronic system is under maintenance. While the electronic system is not functioning properly the steam production will be registered manually by an AB Brasil's employee from the Department of Maintenance every day. Another control will be made by Serraria Santa Barbara that takes the measurements three times per	In the annex 4 of the PDD, Monitoring Information, $\mathbf{P_{steam, y}}$, Recording Frequency is Continuous, and in item 7.2 of the PDD, Recording Daily, by an Employee of the Maintenance Department. The information is not consistent. The information related to the recording frequency of the steam production is still not consistent: According to item 7.2 of version 2 of the

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Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
the quantities of steam supplied montly to AB Brasil.		day. The steam generated will be monitored daily. This information has been modified in the PDD.	PDD, the steam production is controlled by an AB Brasil's employee from the Department of Maintenance, which takes the steam flow meter measurements daily, registers it manually in a worksheet and then registers the data in a steam production control electronic system stored at public folders in *AB Brasil's* own server. This information is update daily. While in the annex 4, monitoring information of the version 2 of the PDD informs that the recording frequency is continuous. This CAR is closed.
CAR 08 - According to item B.7 of the Guidelines for Completing the Simplified Project Design Document (CDM-SSC-PDD) and The Form for Proposed New Small Scale Methodologies (CDM-SSC-NM), version 05, Data monitored and required for verification and issuance are to kept for a minimum of two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later. This information is not given in the PDD.	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3 D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1 E.1.2,E.1.5,E.1.6	In the item B.7.2 was added a information specifying that all data monitored and required for verification and issuance will be kept for a minimum of two years after the end of the crediting period or the last issuance of CER's for this project activity, whichever occurs later, as specified in section B.7 of the Guidelines for Completing the Simplified Project Design Document (CDM-SSC-PDD) and The Form for Proposed New Small Scale	Version 2 of the PDD was checked by the Validation Team and the information related to the maintenance of the Data monitored and required for verification and issuance are will be kept for a minimum of two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later. This CAR is closed.

Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
		Methodologies (CDM-SSC-NM), version 05.	
CAR 09 - Local stakeholders, such as the Municipal Government of Pederneiras, the Municipal Assembly of Pederneiras, CETESB – the Environmental State of São Paulo Agency, the Office of the Attorney General of São Paulo, Local NGO of Pederneiras were invited to comment on the project. Up to now, no comments had been received In accordance with the requirements of Resolution 1 of the Brazilian DNA, Neighboring Comunities and the Brazilian Forum of NGOs, should also had been invited for comments.	Table 2 G.1.1,G.1.3, G.1.4,G.1.5	The Municipal Government of Pederneiras, the Municipal Assembly of Pederneiras, CETESB – the Environmental State of São Paulo Agency, the Office of the Attorney General of São Paulo, Local NGO of Pederneiras were invited to comment on the project, as a local stakeholders. During the validation process, a comment from the Municipal Government of Pederneiras was received and included in the PDD. To be in accordance with the requirements of Resolution 1 of the Brazilian DNA, Neighboring Communities and the Brazilian Forum of NGOs, were also invited for comments.	It is necessary to send a copy of the letters sent to the Stakeholders as evidences. Only the answer from the Municipal Government of Pederneiras was sent as an evidence. Copies of the letters sent to the Stakeholders and the answer sent by the Municipal Government of Pederneiras have been received by the Validation team. This CAR is closed.
CAR 10 - Conservative assumptions should be used in the project. It should be considered the leakage relative to the emissions caused by the biomass transportation from the suppliers to Serraria Santa Bárbara and from there to AB Brasil site. These emissions only occur due to	Table 2 D.1.2, E.1.5, E.2.1, E.2.2, E.2.3, E.2.4, E.2.5, E.2.6	To be more conservative, the emissions caused by the transportation of biomass were calculated as leakage and included in the item B.6.	OK. The version 04 of the PDD was checked. This CAR is closed.

Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
the project activity.			
CR 01 - The coordinates that define the unique identification of the small scale project activity should be indicated by project participants.	Table 2 A.2.1	The coordinates that define the unique identification of the small scale project activity are indicated in the figure 2 at the item A.4.1.4	The version 2 of the PDD was checked by the Validation Team, that confirms the information. CR 01 is closed.
CR 02 - It is not clear if the project will require initial training and maintenance efforts in order to work as presumed during the project period. The project participants should send information about that.	Table 2 A.2.5	The boiler operation system consists of 9 employees, who work in three shifts. Work shifts are composed of: one supervisor and two boiler operators. All employees must have graduated from high school, and they received a forty hours of boiler operator's course and 20 hours of trainee. All these information were added in the item A.4.2.	The version 2 of the PDD was checked by the Validation Team, that confirms the information. CR 02 is closed.
CR 03 - The characterization of the fuel oil previously used should be informed by project participants.	Table 2 B.1.1	The fuel oil used previously was the oil BPF 2A, a kind of fuel oil usually utilized to produce steam or heat for thermal energy. Its characteristics were added in the item B.4.	The version 2 of the PDD was checked by the Validation Team, that confirms the information. CR 03 is closed.
CR 04 - The starting date of the project activity is 01 August 2008, with an expected operational lifetime of 20 years. As the project starting date can only be confirmed after the project registration, it is not possible to guarantee that the starting	Table 2 C.1.1	The fixed crediting period was defined as August 1st 2008. Based on the host country meeting and on the UNFCCC meeting the project participants estimate the start date	Although there is some risk to accomplish the starting date of the project, the information was accepted by the Validation Team. CR 04 is closed.

Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
date of the project can be achieved.		of crediting period.	
CR 05 - Project Participants should inform why in item B.6.2 of the PDD the historical steam consumption of 60,480 tones of steam/year was utilized in item B.6.2 to calculate the project emission reduction, although, according to table 3 of item B.4, the historical average annual steam consumption for the years 2005 and 2006 was (52,181 + 54,250)/2 = 53,215,5 tones/year.	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3 D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1 E.1.2,E.1.5,E.1.6 E.3.2,E.3.6,E.3.7	The net quantity of steam supplied by the project activity was estimated per hour of steam produced by the biomass boiler. To be more conservative a mean of the historical data was calculated as follow, and added in the item B.4: (52,181 + 54,250) / 2, resulting in 53,215.5 tons of steam per year This value was used to estimate the steam consumption to calculate the emission reduction in the section B.6.	The version 2 of the PDD was checked by the Validation Team, that confirms the information. CR 05 is closed.
CR 06 - Project Participants should inform why the calibration frequency of the steam flow meter has not been defined.	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3 D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1 E.1.2,E.1.5,E.1.6	The steam flow meter will be calibrated annually as specified in the item B.7.	The version 2 of the PDD was checked by the Validation Team, that confirms the information. CR 06 is closed.
CR 07 - Project Participants should inform why they have considered that there are no project emissions, since in section A.2 of the PDD, there is the information that the oil fired boilers used previously were disabled. Two of	Table 2 D.1.2,D.1.3,D.1.4 D.2.1,D.2.2,D.2.3 D.2.4,D.4.1,D.4.2 D.4.3,D.4.4,E.1.1	The project emissions have not been considered into the calculations of the Crediting Emission Reduction. The flow meter is located at the steam exit frm the	Although the steam produced by the boiler that utilizes fuel oil is not being considered in the calculations of the emission reductions utilized for the calculation of the CERs, when that

Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
them that produced 5 tones per hour of steam will be sold as scrap and the third boiler will be maintained in AB Brasil's facility to ensure the steam supply if any problems occur with the biomass boiler or for its maintenance. In this case, fuel oil consumption should be controlled and included in the monitoring plan.	E.1.2,E.1.5,E.1.6 E.4.1	biomass boiler, so the steam generated from the oil fired boiler will be counted separately from the steam produced by the biomass boiler and it does not need to be subtracted once it is not being counted. As described in the item A.2, the oil-fired boiler will be used approximately 12 hours per month for biomass boiler maintenance and another 4 days for corrective maintenance, which totalize 10 days per year. Since the flow meter is located at the steam exit from the biomass boiler, the steam generated by the oil-fired boiler during this period of time will not be counted in the steam control system, so there will be no project emissions. The production capacity of the biomass boiler has been modified to 15 ton/hour, as described in boiler information and also in the CETESB's Operating License.	boiler is operating to guarantee the steam supply due to problems with the biomass boiler or for its maintenance, it will be generating emissions. In that occasions, the fuel oil consumption must be controlled and included in the Monitoring Plan. It should be considered in the PDD, for the calculation of that emissions, an estimation of the number of days per year when the fuel oil boiler will be activated, the estimation of fuel oil consumption and, based on that, the project emissions. Please, check the PDD information about steam production capacity of the biomass boiler. During the visit to the Pederneiras site, the boiler information of the manufacturer was of 15 ton/hour and also in the CETESB's Operating License the information was the same. In several places of the PDD, the steam production capacity informed is of 25 ton/hour. Version 04 of PDD was checked. The corrections have been made. This CR is closed.
CR 08 - The Project Participants should	Table 2	The evidences of the invitations are	It is necessary to send a copy of the

Draft report clarifications and corrective action requests by validation team	Reference to checklist question in Tables 2/3/4	Summary of project owner response	Validation team conclusion
inform and send evidences of the invitations made and of the media utilized for the invitations.	G.1.2	annexed in this validation protocol and the media utilized is specified below: • A letter was sent to Municipal City Hall of Pederneiras, Sao Paulo state; • A letter was sent to Municipal Assembly of Pederneiras, Sao Paulo state; • A letter was sent to Company of Environmental Sanitation Technology (CETESB); • A letter was sent to Office of the Attorney-General of Sao Paulo; • A letter was sent to Local ONG of Pederneiras, Sao Paulo state. • An email was sent to Brazilian Forum of NGOs. A copy of the letter were sent in annex. The letter and the email were sent in annex with this validation protocol.	letters sent to the Stakeholders as evidences. Only the answer from the Municipal Government of Pederneiras was sent as an evidence. Documents showing evidence of letters sent and received from the Stakeholders have been sent to the validation team. This CR is closed.

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APPENDIX B – VERIFIERS CV´s

Bureau Veritas Certification Team Leader, Climate Change Verifier
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.

Bureau Veritas Certification, Internal reviewer
Sergio Carvalho – is graduated in Physics with MsC in materials sciences. Has a big experience in the implementation of quality management systems in several industrial fields. He has been working for Bureau Veritas Certification for a long period developing certification schemes related to environment. Sergio is qualified as quality and environment lead auditor and as lead verifier GHG – Green House Gases.