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# Validation Report

AMAZON CARBON S/S LTDA

VALIDATION OF THE CDM-PROJECT:  
AMAZON CARBON SWINE WASTE  
MANAGEMENT SYSTEM PROJECT 03.

Report No. 1161120

**2008, October 02**  
**version 01**

TÜV SÜD Industrie Service GmbH  
Carbon Management Service  
Westendstr. 199 - 80686 Munich – GERMANY

Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
1161120	2008-09-05	01	2008-10-02	-
<b>Subject:</b> Validation of a CDM Project				
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 - 80686 Munich Federal Republic of Germany		TÜV SÜD Contract Partner: TÜV SÜD DO BRASIL – SERVIÇOS TÉCNICOS PARA A INDÚSTRIA E O MEIO AMBIENTE LTDA. Rua Henrique Monteiro n.90, 10.º andar ZIP 05423-020 - São Paulo Brazil		
Client: Amazon Carbon S/S Ltda. Rua Conselheiro Mafra, 758 sala 703 – Centro Florianópolis – SC ZIP 88010-102 Brazil		Project Site(s): 1. Antonio Durval Góis farm, GPS S 22°20'38.21", W 53°48'36.25" 2. Sitio Nossa Senhora Aparecida, GPS S 21°21'50.87", W 53°52'39.52" 3. Sitio São Geraldo, GPS S 21°29'18.26", W 54°07'52.70" 4. Sitio Esperança, GPS S 22°14'09.65", W 53°52'08.29" 5. Chacara Paraíso, GPS S 21°55'38.20, W 54°47'39.80 6. Osmar Rodrigues Caires farm, GPS S 22° 22'42.17, W 54°20'33.38 7. Dulcemar José Grando farm, GPS S 22° 32'36.02, W 54°16'01.42 8. Emerson Fernandes farm, GPS S 22° 27'34.91, W 54°17'37.40 9. Antonio José Figueiredo Filho farm, GPS S 22° 25'36.64, W 54°14'59.85 10. Rancho Cosmo, GPS W 21° 54'13.75, W 54°42'2.21		
<b>Project Title:</b> Amazon Carbon Swine Waste Management System Project 03.				
<b>Applied Methodology / Version:</b> <b>AMS – III.D - Methane Recovery in agricultural and agro industrial activities / Version 13</b>			<b>Scope(s): 15</b>	
<b>First PDD Version:</b> Date of issuance: 2008-03-09 Version No.: 1 Starting Date of GSP 2008-03-21		<b>Final PDD version:</b> Date of issuance: 2008-10-02 Version No.: 5		
<b>Estimated Annual Emission Reduction:</b>		<b>15,122 tCO<sub>2</sub>e</b>		
<b>Assessment Team Leader:</b> Johann Thaler		<b>Further Assessment Team Members:</b> Wilson Tomao Sandro T. Marostica		
<b>Summary of the Validation Opinion:</b>				
<input checked="" type="checkbox"/> The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board in case letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.				
<input type="checkbox"/> The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision.				

## Abbreviations

<b>ACM</b>	Approved Consolidated Methodology
<b>Amazon Carbon</b>	Amazon Carbon S/S Ltda.
<b>AWMS</b>	Animal Waste Management System
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CR</b>	Clarification Request
<b>DNA</b>	Designated National Authority
<b>DOE</b>	Designated Operational Entity
<b>EB</b>	Executive Board
<b>EIA / EA</b>	Environmental Impact Assessment / Environmental Assessment
<b>ER</b>	Emission reduction
<b>GHG</b>	Greenhouse gas(es)
<b>KP</b>	Kyoto Protocol
<b>MP</b>	Monitoring Plan
<b>NGO</b>	Non Governmental Organisation
<b>PDD</b>	Project Design Document
<b>PP</b>	Project Participant
<b>TÜV SÜD</b>	TÜV SÜD Industrie Service GmbH
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>Vs</b>	Volatile Solids excretion
<b>VVM</b>	Validation and Verification Manual

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Annex 1: Validation Protocol

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## 1 INTRODUCTION

### 1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed project activity against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and will finally result in a conclusion by the executing DOE whether a project activity is valid and should be submitted for registration to the CDM-EB. The ultimate decision on the registration of a proposed project activity rests at the CDM Executive Board and the Parties involved.

The project activity discussed by this validation report has been submitted under the project title: Amazon Carbon Swine Waste Management System Project 03.

### 1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities the scope is set by:

- Ø The Kyoto Protocol, in particular § 12
- Ø Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Ø Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Ø Decisions by the EB published under <http://cdm.unfccc.int>
- Ø Specific guidance by the EB published under <http://cdm.unfccc.int>
- Ø Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Ø The applied approved methodology
- Ø The technical environment of the project (technical scope)
- Ø Internal and national standards on monitoring and QA/QC
- Ø Technical guideline and information on best practice

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.

Once TÜV SÜD receives a first PDD version, it is made publicly available on the internet at TÜV SÜD's webpage as well as on the UNFCCC CDM-webpages for starting a 30 day global stakeholder consultation process (GSP). In case of any request a PDD might be revised (under certain conditions the GSP will be repeated) and the final PDD will form the basis for the final evaluation as presented by this report. Information on the first and on the final PDD version is presented at page 1.

The only purpose of a validation is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

## 2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual, an initiative of Designated and Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customised for the project. TÜV SÜD developed a “cook-book” for methodology-specific checklists and protocol based on the templates presented by the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, 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 three tables. The different columns in these tables are described in the figure below.

The completed validation protocol is enclosed in Annex 1 to this report.

<b>Validation Protocol Table 1: Conformity of Project Activity and PDD</b>				
<b>Checklist Topic / Question</b>	<b>Reference</b>	<b>Comments</b>	<b>PDD in GSP</b>	<b>Final PDD</b>
<i>The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further subdivided. The lowest level constitutes a checklist question / criterion.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.</i>	<i>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. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any <b>Request</b> has to be substantiated within this column</i>	<i>Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (<b>p</b>), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). <b>Clarification Request (CR)</b> is used when the validation team has identified a need for further clarification.</i>	<i>Conclusions are presented in the same manner based on the assessment of the final PDD version.</i>

<b>Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests</b>			
<b>Clarifications and corrective action requests</b>	<b>Ref. to table 1</b>	<b>Summary of project owner response</b>	<b>Validation team conclusion</b>
<i>If the conclusions from table 1 are either a Corrective Action Request or a Clarification Request, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.</i>	<i>The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final PDD".</i>

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

<b>Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests</b>		
<b>Clarifications and corrective action requests</b>	<b>Id. of CAR/CR 1</b>	<b>Explanation of the Conclusion for Denial</b>
<i>If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.</i>	<i>Identifier of the Request.</i>	<i>This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.</i>

## 2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body ensuring that the required skills are covered by the team. The Certification Body TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Ø Assessment Team Leader (ATL)
- Ø Greenhouse Gas Auditor (GHG-A)
- Ø Greenhouse Gas Auditor Trainee (T)
- Ø Experts (E)

It is required that the sectoral scope linked to the methodology has to be covered by the assessment team.

The validation team was consisting of the following experts (the responsible Assessment Team Leader in written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of sectoral expertise	Host country experience
<b>Johann Thaler</b>	ATL	p	p	p
<b>Wilson Tomao</b>	GHG-A	p	p	p
<b>Sandro T. Marostica</b>	T		p	p

**Johann Thaler** graduated as Master of environmental Economy at the University of Augsburg. During his study he got first experiences in environmental management systems. His master thesis was about a fuel switch program in Brazil as a CDM project. Based in Brazil he has been working for TÜV SÜD as a GHG auditor on freelance basis since March 2005. He attended and successfully finished a ISO 14001 Environmental Management Internal Auditing Training.

**Wilson R. Tomao** is lead auditor for environmental management systems. He is familiar with local laws and regulations and the assessment of technical installations. He has been working for TÜV SÜD as a GHG auditor since March 2002, and has been involved in the validation of most of the projects in the manure management sector in Brazil.

**Sandro T. Maróstica** graduated as Master of Business Administration at IMD (Institute of Management Development) in Lausanne Switzerland, and has a bachelor degree in Food Engineering by the State University of Campinas, Brazil. In 2004 and 2005, based in London UK, he negotiated CERs from projects in Brazil and Latin America for European buyers. During that period he participated in the development of the first CERPA contracts. Prior to that, he has worked for a Brazilian bank based in London, where he was responsible for the financial analysis and feasibility studies of Brazilian CDM projects, aiming at providing debt funding and advisory services to project sponsors. Based now in Brazil, he was working for TÜV SÜD as the General Manager



and project trainee from March 2006 until September 2008 and was involved in the validation of many projects in the manure management sector in Brazil.

## 2.2 Review of Documents

The first PDD version submitted by the client and additional background documents related to the project design and baseline were reviewed as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

## 2.3 Follow-up Interviews

In the period from April 14 to 16, 2008 TÜV SÜD performed interviews on-site with project participants to confirm selected information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in the context of the on-site visit.

Name	Organisation
Antonio Durval Góis	Farmer – Antonio Durval Gois farm
Fernado de Castro	Farmer – Sitio Nossa Senhora Aparecida
Luis Henrique Amaral	Farmer – Chacara Paraíso
Thiago Othero	Amazon Carbon, project director
Jorge Bernardo Silva	Amazon Carbon
Fábio Manhães	Biomassa
Reginaldo dos Santos	Manager – Osmar Rodrigues Caires farm
Dulcemar José Grando	Farmer – Dulcemar José Grando farm
Fabio Dones	Manager – Emerson Fernandes farm
Antonio José Figueiredo	Farmer – Antonio José Figueiredo farm
Cezr Janzeski	Farmer – Rancho Cosmo

## **2.4 Resolution of Clarification and Corrective Action Requests**

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarised in chapter 3 below and documented in more detail in the validation protocol in annex 1.

## **2.5 Internal Quality Control**

As final step of a validation the validation report and the protocol have to undergo an internal quality control procedure by the Certification Body "climate and energy", i.e. each report has to be approved either by the head of the certification body or his deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

It rests at the decision of TÜV SÜD's Certification Body whether a project will be submitted for requesting registration by the EB or not.

### **3 SUMMARY OF FINDINGS**

As informed above all findings are summarized in table 2 of the attached validation protocol.

#### **History of the validation process**

The audit team has been provided with a draft PDD in March 2008. Based on this documentation a document review and a fact finding mission in form of an on-site audit has taken place. Afterwards the client decided to revise the PDD according to the CARs and CRs indicated in the audit process including several weeks of Email and telephone conversation. The final PDD version 5, dated 02/10/2008, which was submitted in the beginning of October 2008 serves as the basis for the assessment presented herewith. Changes are not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM to achieve a reduction of anthropogenic GHG emissions by sources and to contribute to sustainable development.

#### **Project description**

The project proposes to replace the existing Animal Waste Management System (AWMS) by a lower-GHG emitting AWMS. Currently, swine waste is flushed from the barns and treated in a sequential anaerobic lagoon management system that results in high GHG emissions.

The project will replace this system by anaerobic digesters that capture and combust methane in a controlled and economically sustainable manner. The biogas will be captured and burned in motors to generate electric energy or in enclosed flares. Certified emission reductions are claimed exclusively for the emission reductions associated to methane capture and combustion and not for the electricity generated.

Besides reducing GHG emissions, the proposed project activity will contribute to sustainable development by contributing to local environmental sustainability, improving working conditions and creating employment, contributing to income distribution and technological development. Finally the project enables regional integration and articulation with other sectors.

#### **Findings**

In total the assessment team expressed 22 Corrective Action Requests and 05 Clarification Requests.

The most important findings during the validation audit were related to information not provided in the first version of the PDD, and non updated figures or information. Inconsistencies between PDD and other documents or evidences were also found, mainly related to the baseline emissions and emissions reductions. Information about monitoring were incomplete and were updated in the final version of the PDD.

Corrections made on number of heads resulted in lower emissions reductions in the final PDD than estimated in the initial version.

The proposed project activity employs motors (generators) on each site which use the biogas from the biodigester to generate electricity, and an enclosed flare as back up system when the motor is not operational. According to evidences from the engine manufacturer, the motor has an efficiency which is equivalent to an enclosed flare for the combustion and destruction of biogas. Besides, as the motors are built in a manner to ensure biogas combustion in an enclosed environment, the validation team can confirm the compliance with the description of enclosed flares described in the "Methodological Tool to determine project emissions from flaring gases contain-

ing methane". Finally, paragraph 12 of methodology AMS III-D, version 13 says that "project activities where a portion of the biogas is destroyed through flaring and the other portion is used for energy may consider to apply the flare efficiency to the portion of the biogas used for energy, if separate measurements are not performed". Therefore the default value of 90% for the flare efficiency has been accepted and used for the calculations as well for the motor efficiency.

Considering these findings the PDD version 1 has been revised and the actual PDD version 5 is in compliance with the CDM requirements.

### **Baseline calculation**

The baseline scenario is the continuation of the current Animal Waste Management System, namely the treatment of swine waste in anaerobic lagoons. There is no legal requirement nor any current planning for a legislation to capture and combust greenhouse gases produced by swine manure in AWMS.

The baseline is being determined using reliable assumptions. The parameter "livestock population" as one of the decisive parameters for the quantitative prognosis is determined by using reliable data and is based on the average of animals confined from December 2006 to November 2007. The choice of approach is based on the type of historic data available at the farms, which are all integrated suppliers of the same meat processor. Farms performed monitoring of monthly livestock, and the values used to determine livestock population are directly monitored by the farms' managers and validated by the purchasing company. During the on-site visit the availability of such comprehensive data could be confirmed. Hence, plausible data have been provided from traceable sources ensuring the reliability of the parameter.

The methane emission factors are determined for each animal category (gilts, sows in gestation, sows, boars, piglets, nursery, finishers) separately, considering local weight data and local VS values (except for gilts, sows and boars where default values have been used) besides default values defined as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Regarding the VS value, even though the application of a default value is not indicated within the TIER 2 approach, the approach is accepted by the validation team as it has been already accepted by the EB in other registered projects. Where possible, such default values for VS were adjusted for local, site-specific average animal weight to provide more realistic values for this parameter.

Default values for Western European genetics were chosen, since this is the genetics used in the participating farms. The use of Western European genetics was validated by the DOE.

The proposed project activity considers as project emissions "methane emissions from anaerobic digesters" and "emissions from inefficiency in methane flaring", even though this is not requested by the methodology AMS-III-D, version 13. This shows the conservative approach chosen by the project participants.

Project CO<sub>2</sub> emissions from fossil fuel combusted to operate the AWMS and emissions from electricity consumption to operate the AWMS have not been considered, as there is no increase in fossil fuel consumption and no significant increase in energy consumption due to the project activity. The estimated additional electricity consumption for each farm is approximately 0.8 MW/year, whereas it is planned that soon after operation start farms will be self-sufficient in electricity by generating electricity from the biogas.

Besides, there is no leakage due to the project activity.

Default values have been correctly applied and in the case where a selection of different options was possible, the chosen values are appropriate. Regarding the value for the methane density, project participants decided to apply the conservative value of 0.67 kg/m<sup>3</sup> indicated in AMS III-D, version 14.

### **Additionality**

The additionality of the project was checked carefully. In doing so the assessment team has put the main focus on the following issues.

As the starting date of the project activity is prior the date of GSP uploading, the validation team has requested an evidence that the CDM was seriously considered in the decision to proceed with the project activity. The first contract between the project developer Amazon Carbon and a farm owner participating in the project clearly evidences CDM consideration. The date when the contract was signed (15/01/2008) is at the same time the project's starting date.

Project participants decided to apply Attachment A to Appendix B of the Simplified modalities and procedures for small-scale clean development mechanism project activities in order to demonstrate additionality

In step one alternatives to the proposed project activity are identified. Step two excludes those alternatives which are not plausible or not in line with laws or regulations. After step two, only two alternatives, namely the continuation of the status-quo (AWMS in anaerobic lagoons) and the proposed project activity without CDM revenues are left over.

Step 3, the barrier analysis shows, why the proposed project activity without CDM would not be realized. Investment and technological barriers prevent the implementation of a digester based AWMS. Investment and maintenance costs for a biodigester system are much higher than for an anaerobic lagoon system and technological barriers as amongst others the lack of technical knowledge for the construction and operation of anaerobic digesters and low efficiency in animal waste treatment due to inadequate operation and maintenance procedures prevent the implementation of biodigester systems.

Step 4, the common practice analysis, describes that the usual technology applied to Brazilian swine confinement farms is based on anaerobic lagoons. Therefore the project activity, which consists on anaerobic digesters, is not similar to what can be commonly found in Brazil.

Step 5 shows why the impact caused by the registration of the CDM project was decisive to overcome the barriers to the implementation of the proposed project activity.

To conclude the additionality assessment it may be stated that the proposed project activity is without doubt additional.

The project boundary, the project's starting date as well as the starting date of the crediting period are clearly defined in the last submitted PDD.

The proposed small-scale project activity is not deemed to be a debundled component of a large project activity.

### **Monitoring**

The final PDD includes all relevant parameters to be monitored in order to determine baseline and project emissions. Baseline emissions will be monitored as according to the requirements of the methodology AMS III-D, version 13. In the case of project emissions ("methane emissions from anaerobic digesters" and "emissions from inefficiency in methane flaring"), the methodology does not indicate those project emissions and its monitoring, however the project participants considered them in order to be conservative. Methane emissions from the digesters are based on the methane captured and destroyed by the project activity and the Methane Conversion Factor (MCF) for the project AWMS. Even though the biodigester is a sealed system that does not result

in methane emissions, a 10% conservative MCF was adopted to account for uncertainties. Emissions from inefficiency in methane flaring are incorporated in the calculation of methane captured and destroyed by the project activity, as it is correctly described in section B.6.1. of the final PDD. The chosen monitoring approach and calculations deem to be reasonable and retraceable to the validation team.

The final destination of sludge will also be monitored to ensure that anaerobic conditions are avoided.

#### 4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website by installing a link to TÜV SÜD's own website and invited comments by Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

<b>webpage:</b> <a href="http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=4834&amp;Ebene1_ID=26&amp;Ebene2_ID=1414&amp;mode=1">http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=4834&amp;Ebene1_ID=26&amp;Ebene2_ID=1414&amp;mode=1</a>	
<b>Starting date of the global stakeholder consultation process:</b> 2008-03-21	
<b>Comment submitted by:</b> No comments	<b>Issues raised:</b> -
<b>Response by TÜV SÜD:</b> -	

## 5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

Amazon Carbon Swine Waste Management System Project 03.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board.

An analysis as provided by the applied methodology 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 as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2008-10-02



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Javier Castro

Head of Certification Body "climate and energy"  
TÜV SÜD Industrie Service GmbH

Fortaleza, 2008-10-02



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Johann Thaler

Assessment Team Leader

## **Annex 1: Validation Protocol**



## Validation Protocol

Project Title: Amazon Carbon Swine Waste Management System Project 03

Date of Completion: 02/10/2008

Number of Pages: 1

Report N° 1161120



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
<b>A. General description of small-scale project activity</b>				
<b>A.1. Title of the small-scale project activity</b>				
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	3	The project title "Amazon Carbon Swine Waste Management System Project 03" clearly enables to identify the unique CDM activity.	p	p
A.1.2. Are there any indication concerning the revision number and the date of the revision?	3	The PDD indicates version 1 from 09/03/2008.	p	p
A.1.3. Is this consistent with the time line of the project's history?	1,3, 27, 30 36, 42, 45, 57	<p><b><u>Corrective Action Request No.1.</u></b></p> <p>1. Starting date of the project activity should be the date of the signature of the first contract with farms participating in the project or the equipment's purchase contract, whatever comes first. Such signed contract has still to be presented for the farms S. Geraldo and Esperanca.</p> <p>2. Please correct starting date of project activity according to farm contracts or according to the equipment's purchase contract, whatever is first. Please inform which contract will be used as reference.</p> <p>3. In the case that project's starting date is before the date of validation, please submit an evidence that CDM was seriously considered to proceed with the project activity. This evidence should be submitted in original as well as translated in English language.</p> <p><b><u>Corrective Action Request No.2.</u></b></p> <p>For sites Chacara Paraiso, Emerson Fernandes and Rancho Cosmo, date for finishing biodigesters should be corrected.</p>	CAR 1 CAR 2	p p

## Validation Protocol

Project Title: Amazon Carbon Swine Waste Management System Project 03

Date of Completion: 02/10/2008

Number of Pages: 2

Report N° 1161120



CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
<b>A.2. Description of the small-scale project activity</b>				
A.2.1. Is the description delivering a transparent overview of the project activities?	1,3	PDD Section A.2 gives an overview, which is further detailed in other sections.	p	p
A.2.2. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?		<p>The following evidences have been presented during the on-site visit showing that the project description is in compliance with the actual situation or planning:</p> <ul style="list-style-type: none"> <li>-Environmental licences or protocols of each of the farms</li> <li>-Evidence about the ownership of the land for each farm</li> <li>-Technical plans of the biodigesters</li> <li>- Records of number of heads</li> <li>- Visual inspection of open lagoons on each site</li> </ul>	p	p
A.2.3. Is the information provided by these proofs consistent with the information provided by the PDD?	1,3,4,5,13,7,9	Some corrections and updates have to be done. See A.1.3., A.4.1.1., A.4.3.2., A.4.1.2.	See CAR 1, 2,5, 6, 10 and 11	p
A.2.4. Is all information presented consistent with details provided by further chapters of the PDD?	1,3,4,5,13,7,9,14,29,40,	<p>Some corrections and updates have to be done. See A.1.3., A.4.1.1., A.4.3.2.</p> <p><b><u>Corrective Action Request No.3.</u></b></p> <p>A.2. mentions that one open flare will be used to combust the produced biogas in rare situations, when the motors are not operational, such as oil change and any other replacement needs, however does not mention anything about the enclosed combustion system. Other parts of the PDD, as e.g. in A.4.2., talk of an</p>	<p>See CAR 1, 2,5, 10 and 11</p> <p>CAR 3</p>	<p>p</p> <p>p</p>

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	44, 50, 57	enclosed combustion system (enclosed flare) besides the motor use. Please indicate more details in A.2. of the PDD regarding the enclosed combustion system.		
A.2.5. Describe the type of Waste Management System (WMS) used in the site (e. g. Anaerobic lagoon, composting, solid separator, etc.)	1,3	PDD correctly describes the type of WMS in place.	p	p
A.2.6. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance?	1,3	Yes, description is sufficient.	p	p
A.2.7. Is the brief explanation how the project will reduce greenhouse gas emission transparent and suitable?	1,3	PDD Section A..2 gives an overview, which is further detailed in other sections.	p	p
<b>A.3. Project participants</b>				
A.3.1. Is the form required for the indication of project participants correctly applied?	3	PDD Section A..3 supports a positive answer	p	p
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	6, 27, 30, 36, 42, 45	<b><u>Corrective Action Request No.4.</u></b> A contract between farms S. Geraldo and Esperança and Amazon Carbon dully signed has to be presented to confirm the voluntary participation in the PDD.	CAR 4	p
A.3.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in par-	1,3,14	Information on participants is in consistency with details provided in annex 1 of the PDD.	p	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
ticalar annex 1)?				
<b>A.4. Technical description of the small-scale project activity</b>				
<i>A.4.1. Location of the small-scale project activity</i>				
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1,3, 57	<b><u>Corrective Action Request No.5.</u></b> 1. Please update address of Amazon Carbon in the PDD 2. PDD session 4.1.4 should be corrected for farm Antonio Durval Gois regarding lagoons. There are 3 lagoons onsite. 3. PDD should be corrected for G. Antonio J. Figueiredo Fo. Regarding number of lagoons = 2 4. . PDD should be corrected for Chacara Paraiso regarding number of lagoons = 2 5. PDD should be corrected for Chacara Paraiso regarding dimensions of biodigestors to be built. 6. PDD should be corrected for Faz. Emerson Fernandes regarding dimension of 1 <sup>st</sup> lagoon = 12x20. na verdade 7. PDD should be corrected for Rancho Cosmo regarding number of barns = 5	CAR 5	p
A.4.1.2. How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	28, 45, 48, 49, 54	Land registry or aquisiton contracts have been only presented for two farms, namely A. Durval Góis farm and Chacara Paraiso. <b><u>Corrective Action Request No.6.</u></b> Please submit evidences (like land registries or acquisition contracts) for all farms participating in the proposed project activity (except A. Durval Góis farm and Chacara Paraiso) showing that the project proponents can implement the project at their sites.	CAR 6	p
<i>A.4.2. Type and category(ies) and technology/measure of the small-scale project activity</i>				

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A.4.2.1. To which type(s) does the project activity belong to? Is the type correctly identified and indicated?	1, 3	The project activity belongs to type III. This type is correctly identified and indicated in the PDD section A.4.2.	p	p
A.4.2.2. To which category (ies) does the project activity belong to? Is the category correctly identified and indicated?	1, 3	PDD section A.4.2 correctly identifies category III.D.	p	p
A.4.2.3. Does the technical design of the project activity reflect current good practices?	1,3	Yes, the project design does reflect current good practice.	p	p
A.4.2.4. Does the implementation of the project activity require any technology transfer from Annex-I-countries to the host country (ies)?	1, 3, 13	PDD Section A.4.2 states that some monitoring equipment will be provided by a Annex 1 supplier.	p	p
A.4.2.5. Is the technology implemented by the project activity environmentally safe?	1, 3, 13	The technology implemented by the project activity is environmentally safe. It has been implemented in other CDM projects.	p	p
A.4.2.6. Is the information provided in compliance with actual situation or planning?	1,3, 13,	See 4.1.1.	See CAR 5	p
A.4.2.7. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?	1,3, 13	The project uses innovative equipment application, which has not been applied in the business as usual and will result in an improved ratio of energy generation/ GHG emissions.	p	p
A.4.2.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,3, 13, 29	The project equipment can be expected to run for the whole project period and it can not be expected that it will be replaced by more efficient technologies. <b><u>Corrective Action Request No.7.</u></b> An evidence for the lifetime of the motors should be submitted to	CAR 7	p

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		the validation team.		
A.4.2.9. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	1,3, 13, 31	The project requires initial training and maintenance efforts. <b><u>Corrective Action Request No.8.</u></b> Please provide training schedules for people involved in all sites.	CAR 8	p
A.4.2.10. Is information available on the demand and requirements for training and maintenance?	1,3, 13	No, information not available. See A.4.2.9.	See CAR 8	p
A.4.2.11. Is a schedule available for the implementation of the project and are there any risks for delays?	1,3, 31, 57	No implementation schedule is available. <b><u>Corrective Action Request No.9.</u></b> Please include into the PDD a project implementation schedule (biodigester commissioning, etc..) for all participating farms. In the case that project's starting date is before the validation date, CDM consideration should be included into the project's implementation schedule.	CAR 9	p
<b>A.4.3. Estimated amount of emission reductions over the chosen crediting period</b>				
A.4.3.1. Is the form required for the indication of projected emission reductions correctly applied?	3	Yes, precise dates for first and last year of the crediting period are provided.	p	p
A.4.3.2. Are the figures provided consistent with other data presented in the PDD?	34, 52, 57	<b><u>Corrective Action Request No.10.</u></b> 1. Evidences of number of heads presented during the onsite visits do not match the figures indicated in the PDD. Please correct figures in the PDD, attach evidences to it, and send new calculation spreadsheets of baseline, project emissions and emission reductions. 2. Evidences about the genetics used in each farm (except for the farms Antonio Durval Gois and Sito Nossa Senhora Aparecida)	CAR 10 CAR 11	p p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		and feed formulae if there is any farm participating which is not integrated in SEARA should be provided to the validation team. <b><u>Corrective Action Request No.11.</u></b> The figure for total estimated emission reductions is not consistent between A.2. and A.4.3. and B.6.4). Please provide consistent information.		
A.4.3.3. Are the figures consistent with the small-scale criteria for the used Type?	3, 15	Annual emission reductions are below 60.000 t CO <sub>2</sub> e. Thus, the small-scale criteria of methodology AMS III.D is fulfilled.	p	p
<b>A.4.4. Public funding of the small-scale project activity</b>				
A.4.4.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	1, 3	No public funding is involved. Information given in the PDD.	p	p
A.4.4.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	1,3	Information provided in A.4.4. is consistent with that in Annex 2.	p	p
<b>A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity</b>				

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A.4.5.1. Is there a registered small-scale CDM site of a project activity or an application to register another small-scale CDM project activity: with the following characteristics:	1,3, 15, 32, 57	<div><div><b><u>Corrective Action Request No.12.</u></b></div><div>A.4.5. mentions: "There are no other registered (...) large-scale CDM project activities....". Please correct to: "There are no other registered (...) small scale CDM project activities...".</div><table><tr><th>Debundling checklist</th><th>Yes / No</th></tr><tr><td>the same project participants?</td><td>No</td></tr><tr><td>In the same project category and technology/measure?</td><td>No</td></tr><tr><td>Registered within previous two years? Or in registration process?</td><td>No</td></tr><tr><td>Whose boundary is within 1 km of the project boundary of the small scale project activity (sites) under consideration?</td><td>No</td></tr></table></div>	Debundling checklist	Yes / No	the same project participants?	No	In the same project category and technology/measure?	No	Registered within previous two years? Or in registration process?	No	Whose boundary is within 1 km of the project boundary of the small scale project activity (sites) under consideration?	No	CAR 12	p
Debundling checklist	Yes / No													
the same project participants?	No													
In the same project category and technology/measure?	No													
Registered within previous two years? Or in registration process?	No													
Whose boundary is within 1 km of the project boundary of the small scale project activity (sites) under consideration?	No													
A.4.5.2. If the answer to all the above question is 'Yes' then does the total size of the small scale project activity combined with previously registered small scale CDM project activity exceeds the limits of small scale CDM project activities?	---	N.A.	p	p										
B. Application of a baseline and monitoring methodology														
B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity														
B.1.1.1.Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1, 3, 15	The PDD clearly indicates the SSC methodology "AMS-III.D "Methane Recovery in agricultural and agro industrial activities" version 13".	p	p										
B.1.1.2.Is the applied version the most recent one and / or is this version still applicable?	1, 3, 15	At the time of uploading the PDD for the GSP, version 13 has been the most recent version.	p	p										



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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD								
B.2. Justification of the choice of the project category												
B.2.1. Is the applied methodology considered the most appropriate one?	1, 3, 15	Yes. The applied methodology is considered to be the most appropriate one.	p	p								
B.2.1.1.Criterion 1:  Does the project category comprise methane recovery and destruction from manure and wastes from agricultural or agro-industrial activities that would be decaying anaerobically in the absence of the project activity by (a) Installing methane recovery and combustion system to an existing source of methane emissions, or (b) Changing the management practice of a biogenic waste or raw material in order to achieve the controlled anaerobic digestion equipped with methane recovery and combustion system?  .	1, 3, 15	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	p	p
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.1.2. Criterion 2 (a):  Does the project activity satisfies the following conditions?:  (a) The sludge is handled aerobically, and in case of soil application of the final sludge the proper conditions and procedures (not resulting in methane emissions) are ensured.	1,2,3, 15	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	p	p
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD										
B.2.1.3. Criterion 2 (b) (b)The technical measures used ensure that all bio-gas produced by the digester is used or flared?	1,2,3 ,15	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>		Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	p	p		
Applicability checklist	Yes / No / NA														
Criterion discussed in the PDD?	Yes														
Compliance provable?	Yes														
Compliance verified?	Yes														
B.2.1.4.Criterion 3:  Does the project recover methane from landfills or includes waste water treatment?	---	<table><tr><td colspan="2">Not applicable</td></tr><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>NA</td></tr><tr><td>Compliance provable?</td><td>NA</td></tr><tr><td>Compliance verified?</td><td>NA</td></tr></table>		Not applicable		Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	NA	Compliance provable?	NA	Compliance verified?	NA	p	p
Not applicable															
Applicability checklist	Yes / No / NA														
Criterion discussed in the PDD?	NA														
Compliance provable?	NA														
Compliance verified?	NA														
B.2.1.5.Criterion 4:  Are the measures limited to those that result in emis- sion reductions of less than or equal to 60 kt CO2 equivalent annually? .		<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>		Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	p	p		
Applicability checklist	Yes / No / NA														
Criterion discussed in the PDD?	Yes														
Compliance provable?	Yes														
Compliance verified?	Yes														
B.3. Description of the project boundary															
B.3.1. Does the project boundary include physical, geographical site(s) where the methane recovery facilities are taking place?	1,2,3 ,15	Yes, it does		p	p										
B.3.2. Do the spatial and technological bounda- ries as verified on-site comply with the discussion provided by / indication in- cluded to the PDD?	1,2,3 ,15	Yes, they do.		p	p										

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
<b>B.4. Description of baseline and its development</b>				
B.4.1. Have all technically feasible baseline scenario alternatives to the project activity been identified and discussed by the PDD? Why can this list be considered as being complete?	1,3,15,16	Technically feasible baseline scenario alternatives to the project activity have been identified and discussed by the PDD. The list can be considered as complete, as all the alternatives mentioned in the IPCC 2006 guidelines, are addressed	p	p
B.4.2. Does the project identify correctly and excludes those options not in line with regulatory or legal requirements?	1,3,15	Yes, section B.5 correctly addresses this issue at the end.	p	p
B.4.3. Have applicable regulatory or legal requirements been identified?	1,3,15	The alternative "throughing effluents directly to water resources" is not in compliance with the State regulations of Mato Grosso do Sul. Besides, burning the excrements is neither encouraged by IMASUL (environmental authority of Mato Grosso do Sul).	p	p
B.4.4. Does the PDD identify the most likely baseline scenario? [ <i>"...in the absence of the project activity, biomass and other organic matter are left to decay anaerobically within the project boundary and methane is emitted to the atmosphere."</i> ]	1,3,15	Anaerobic lagoons are identified as the most likely baseline scenario.	p	p
B.4.5. Is this identification supported by official and/or verifiable documents (e.g. studies, web pages, certificates, etc)?	1,3,8,15	Yes. The document "First Brazilian inventory of greenhouse gas emissions (Primeiro Inventario Brasileiro de emissões antropicas de gases de efeito estufa), Science and Technology ministry, 2006 mentions that anaerobic lagoons and tanks are the predominant scenario in Brazil.	p	p

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B.4.6. Is the identified baseline scenario in line with regulatory or legal requirements?	1,3,8,15	There are no regulatory or legal requirements in Brazil regarding manure management. However it is forbidden to through effluents directly to water resources (national law) or to burn the excrements.	p	p
<b>B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:</b>				
Integrate questions concerning the determination of the additionality when applying the “additionality tool”; Replace blue text, if necessary				
B.5.1. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	---	As the additionality tool is not applied, B.5.1.-B.5.12. are not applicable.	p	p
B.5.2. In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income?	---	N/A	p	p
B.5.3. In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	---	N/A	p	p
B.5.4. In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	---	N/A	p	p
B.5.5. In case of Option II or Option III: Is the calculation of financial figures for this indi-	----	N/A	p	p

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PPD in GSP	Final PDD
cator correctly done for all alternatives and the project activity?					
B.5.6.	In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	---	N/A	p	p
B.5.7.	In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	----	N/A	p	p
B.5.8.	In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?	----	N/A	p	p
B.5.9.	In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	----	N/A	p	p
B.5.10.	Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?	----	N/A	p	p
B.5.11.	If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?	-----	N/A	p	p

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B.5.12. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers (step 5)?	-----	N/A	p	p															
If the additionality tool has not been used please answer B.5.13 to B.5.18																			
B.5.13. If the starting date of the project activity is before the date of validation, is evidence available to prove that incentive from the CDM was seriously considered in the decision to proceed with the project activity?	1,3,	See A.1.3.	See CAR 1	p															
B.5.14. Is a complete list of barriers developed that prevents the project activity to occur?	1,3,20,57	The PDD mentions investment, technological and legal barriers. These barriers prevent the project activity (without the incentives of CDM) to occur. <b><u>Corrective Action Request No.13.</u></b> Please update the information about barriers as discussed during the on-site visit.	CAR 13	p															
B.5.15. Does this list include at least one of the following barriers?	1,3,20	<table><tr><th>Barrier</th><th>Discussed?</th><th>Verifiable?</th></tr><tr><td>Investment</td><td>yes</td><td>Yes</td></tr><tr><td>Technological</td><td>yes</td><td>Yes</td></tr><tr><td>Due to prevailing practice</td><td>no</td><td>Yes</td></tr><tr><td>Other</td><td>yes</td><td>Yes</td></tr></table>	Barrier	Discussed?	Verifiable?	Investment	yes	Yes	Technological	yes	Yes	Due to prevailing practice	no	Yes	Other	yes	Yes	p	p
Barrier	Discussed?	Verifiable?																	
Investment	yes	Yes																	
Technological	yes	Yes																	
Due to prevailing practice	no	Yes																	
Other	yes	Yes																	
B.5.16. Does the discussion sufficiently take	1,2,3	Yes.	p	p															

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into account relevant national and/or sectoral policies?		There is no specific legislation (nor a forthcoming law to regulate that issue) demanding specific effluent treatment or GHG control.		
B.5.17. Is transparent and documented evidence provided on the existence and significance of these barriers?	1,3,57	The barriers which are mentioned in the PDD are evidenced by literature references. However, see B.5.14. <b><u>Corrective Action Request No.14.</u></b> However, it is contradictory to mention regarding anaerobic digesters that "this system is easy to operate.." and later on (in Technological barriers) is indicated that "the lack of knowledge to operate anaerobic digesters was a serious barrier to the adoption of such system in Brazil...". Please revise information provided in "Included scenarios".	CAR 14	p
B.5.18. Is it appropriately explained how the approval of the project activity will help to overcome the identified barriers?	1,2,3	Yes. The PDD appropriately explains how the approval of the project activity as CDM project will help to overcome the identified barriers.	p	p
<b>B.6. Emissions reductions</b>				
<b>B.6.1. Explanation of methodological choices</b>				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1, 3, 16	All formulae used to estimate baseline emissions are described in section B.4 of the PDD. Formulae used to determine project emissions, leakage and emission reductions are described in section B.6.1 of the PDD	p	p
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	1, 3, 16	Yes, every one is justified and confirmed onsite.	p	p
B.6.1.3. Does the project emissions consist of	1,3,1	There is some use of fossil fuel to pump manure out of barns.	p	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
CO <sub>2</sub> emissions from use of fossil fuels or electricity for the operation of the project activity?	5	However, the amount is negligible and does not impact CER calculations.		
B.6.1.4. Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameters to be used and / or monitored?	1,3,16	See B.6.1.1	p	p
B.6.1.5. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1,3,16	See B.6.1.1	p	p
B.6.1.6. Are the formulae required for the determination of emission reductions correctly presented?	1,3,16	See B.6.1.1	p	p
<b>B.6.2. Data and parameters that are available at validation</b>				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	1,3,15,16,44,57	<p>The list of parameters presented in chapter B.6.2. is considered to be complete.</p> <p><b><u>Corrective Action Request No.15.</u></b></p> <p>Those parameters, which have to be monitored during the crediting period, should not be mentioned in B.6.2. of the PDD. Please take them out from B.6.2. as according to the guidelines.</p> <p><b><u>Clarification Request No. 1.</u></b></p> <p>Please inform how the efficiency of the engine which will combust the biogas can be determined ex-ante, and if it is the case, how its</p>	CAR 15 CR 1	p p



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		efficiency will be monitored during the crediting period. Depending on the answer to this request, additional parameters may be included in chapter B.6.2 and monitoring plan.																				
Parameter 1: amount of the waste or raw material	---	<table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>	Data Checklist	Yes / No / NA	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA	p	p
Data Checklist	Yes / No / NA																					
Title in line with methodology?	NA																					
Data unit correctly expressed?	NA																					
Appropriate description of parameter?	NA																					
Source clearly referenced?	NA																					
Correct value provided?	NA																					
Has this value been verified?	NA																					
Choice of data correctly justified?	NA																					
Measurement method correctly described?	NA																					
Parameter 2: most recent IPCC tier 2 (i.e. Vs, Bo, MCF)	1,2,3 ,15,1 6	<table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No / NA	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	p	p
Data Checklist	Yes / No / NA																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD																		
Parameter 3 (only for Animal WMS):population and type of animals.	1,2,3,15,16	<table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table> <p>If the recovered methane is used for heat or electricity generation, please include the corresponding protocol: Even though electricity is generated by the proposed project activity, CER credits are only claimed for methane avoidance, thus no additional protocol is necessary.</p>	Data Checklist	Yes / No / NA	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	p	p
Data Checklist	Yes / No / NA																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
B.6.3. Ex-ante calculation of emission reductions																						
B.6.3.1. Does the emission reduction achieved by the project activity was estimated ex-ante in the PDD by the formulae described in the Methodology?	1,3,15,16	The emission reduction achieved by the project activity was estimated ex-ante by using the TIER 2 IPCC approach as described in the methodology.	p	p																		
B.6.3.2. Will the actual emissions reduction achieved by the project during the crediting period be calculated using the formulae described in the Methodology?	1,,3,15,16	The formulae described in the methodology are applied to calculate the actual emissions reduction.	p	p																		

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B.6.3.3. Is the projection based on the same procedures as used for future monitoring?	1,3,1 1, 12, 15, 16, 18,	Yes, it is.	p	p
B.6.3.4. Are the GHG calculations documented in a complete and transparent manner?	1,3	See A.4.3.2.	See CAR 10 See CAR 11	p p
B.6.3.5. If there is more than one component of the project activity, then, are emission reduction calculations provided separately for each component?	----	Not applicable, as CER credits are only claimed for the reduction of methane emissions.	p	p
B.6.3.6. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	1,3,1 1, 12, 15, 16, 18	See A.4.3.2.	See CAR 11	p
<b>B.6.4. Summary of the ex-ante estimation of emission reductions</b>				

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B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1,2,3	The project will definitely result in fewer GHG emissions than the baseline scenario.	p	p
B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	3	Yes. Project emissions, baseline emissions, leakage emissions and emission reductions are indicated in the Table of B.6.4.	p	p
B.6.4.3. If the project activity involves more than one component, is separate table included for each of the component.	----	Not applicable.	p	p
B.6.4.4. Do these values comply with small-scale criteria for every year?	1,3,15	Yes. Annual emission reductions are below the limit of 60.000 tCO <sub>2</sub> e.	p	p
B.6.4.5. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	1,3	See A.1.3. and A.3.2.	See CAR 1 See CAR 2	p p
B.6.4.6. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	1,3,11, 12,  15, 16, 18	See A.4.3.2.	See CAR 8 See CAR 9	p p
<b>B.7. Application of the monitoring methodology and description of the monitoring plan</b>				
<i>B.7.1. Data and parameters monitored</i>				
B.7.1.1. Will the yearly emission reductions be the direct measurement of the amount of	3,15	The yearly emission reductions will be the direct measurement of the amount of biogas flared and fuelled in motors.	p	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD								
methane fuelled or flared?		the amount of biogas flared and fuelled in motors.										
B.7.1.2. Will the amount of methane recovered and fuelled or flared be monitored ex-post using flow meters?	1,3, 15	Yes, flow meters will be used, according to PDD.	p	p								
B.7.1.3. Will the fraction of methane in the bio-gas be measured with a continuous analyser or, alternatively, with periodical measures at a 95% confidence level.	1,3,1 5	The fraction of methane will be measured and recorded on a daily basis, according to the PDD. A 95 % confidence level will be ensured through maintenance and calibration of gas sensors.	p	p								
B.7.1.4. If the project activity includes an enclosed flare, one of the two following options shall be used to determine the efficiency of the flaring process: a. to adopt a 90% default value or b. to perform a continuous monitoring of the efficiency.	1,3, 15, 29, 32, 40, 44, 57	<b><u>Corrective Action Request No.16.</u></b>  1. Please provide evidence that contracts and procurement of enclosed flare has already started and that this type of flare is likely to be used in the project.  2. Please indicate in the PDD that a continuous check of compliance with the manufacturer’s specifications of the flare device will be done.  3. Please inform how the engine efficiency in combusting biogas can be determined  4. Please provide evidences that the procurement for the engine which will be used in the project has already started. <table border="1"><tr><td>Enclosed flare checklist</td><td>Yes / No / NA</td></tr><tr><td>Option discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>no</td></tr><tr><td>Compliance verified?</td><td>yes</td></tr></table>	Enclosed flare checklist	Yes / No / NA	Option discussed in the PDD?	Yes	Compliance provable?	no	Compliance verified?	yes	CAR 16	p
Enclosed flare checklist	Yes / No / NA											
Option discussed in the PDD?	Yes											
Compliance provable?	no											
Compliance verified?	yes											

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B.7.1.5. If option a. is chosen, will a continuous check of compliance with the manufacturer's specification of the flare device be done? Is it included in the PDD?	1,3, 15,	See B.7.1.4.	See CAR 16	p	
B.7.1.6. If option b. is chosen, will the Methodological Tool to determine project emission from flaring gases containing methane be used? Is it included in the PDD?	---	Not applicable, as option (a) is chosen.	p	p	
B.7.1.7. If the project activity includes an open flare, will the 50% default value be used? Is it included in the PDD?	-----	Not applicable, as the project uses an enclosed flare.	p	p	
B.7.1.8.Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	1,3, 15, 32, 40, 44 57,	<p>The list of parameters is not considered to be complete.</p> <p><b><u>Corrective Action Request No.17.</u></b></p> <p>The parameter BG<sub>burnt</sub> should be included into B.7.1. with all its specifications.</p> <p><b><u>Clarification Request No. 2.</u></b></p> <p>It is not clear to the validation team how the efficiency of the engine which will be fuelled by biogas can be determined and monitored. If it is the case, please include parameters for this item on chapter B.7.1.</p>	CAR 17 CR 2	p p	
B.7.1.9.Comment on any line answered with “No”					
Parameter 1: BG <sub>burnt</sub> (biogas flow in m3)	1,3, 15	See B.7.1.8.	See CAR 17	p	
		Monitoring Checklist			Yes / No
		Title in line with methodology?			No
		Data unit correctly expressed?	No		

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD																								
		<table><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>	Data unit correctly expressed?	No	Appropriate description of parameter?	No	Source clearly referenced?	No	Correct value provided for estimation?	No	Has this value been verified?	No	Measurement method correctly described?	No	Correct reference to standards?	No	Indication of accuracy provided?	No	QA/QC procedures described?	No	QA/QC procedures appropriate?	No							
Data unit correctly expressed?	No																												
Appropriate description of parameter?	No																												
Source clearly referenced?	No																												
Correct value provided for estimation?	No																												
Has this value been verified?	No																												
Measurement method correctly described?	No																												
Correct reference to standards?	No																												
Indication of accuracy provided?	No																												
QA/QC procedures described?	No																												
QA/QC procedures appropriate?	No																												
Parameter 2: biogas temperature	1,3, 15	<table><tr><td>Monitoring Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes		p	p
Monitoring Checklist	Yes / No																												
Title in line with methodology?	Yes																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	Yes																												
Source clearly referenced?	Yes																												
Correct value provided for estimation?	Yes																												
Has this value been verified?	Yes																												
Measurement method correctly described?	Yes																												
Correct reference to standards?	Yes																												
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												

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Parameter 3: biogas pressure	1,3, 15	Monitoring Checklist		Yes / No	p	p
		Title in line with methodology?		Yes		
		Data unit correctly expressed?		Yes		
		Appropriate description of parameter?		Yes		
		Source clearly referenced?		Yes		
		Correct value provided for estimation?		Yes		
		Has this value been verified?		Yes		
		Measurement method correctly described?		Yes		
		Correct reference to standards?		Yes		
		Indication of accuracy provided?		Yes		
		QA/QC procedures described?		Yes		
		QA/QC procedures appropriate?		Yes		
		Parameter 4: fraction of CH <sub>4</sub>	1,3, 15	Monitoring Checklist		
Title in line with methodology?				Yes		
Data unit correctly expressed?				Yes		
Appropriate description of parameter?				Yes		
Source clearly referenced?				Yes		
Correct value provided for estimation?				Yes		
Has this value been verified?				Yes		
Measurement method correctly described?				Yes		
Correct reference to standards?				Yes		
Indication of accuracy provided?				Yes		
QA/QC procedures described?				Yes		



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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD																								
		<table><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>		QA/QC procedures appropriate?	Yes																								
QA/QC procedures appropriate?	Yes																												
Parameter 5: flare efficiency	1,3, 15, 32, 57	<p><b><u>Corrective Action Request No.18.</u></b> Regarding the parameter “flare efficiency”: Please revise measurement method.</p> <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>		Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	No	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	CAR 18	p
Monitoring Checklist	Yes / No																												
Title in line with methodology?	Yes																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	Yes																												
Source clearly referenced?	Yes																												
Correct value provided for estimation?	Yes																												
Has this value been verified?	Yes																												
Measurement method correctly described?	No																												
Correct reference to standards?	Yes																												
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												
Parameter 6: Methane flared or fuelled (combusted gas)	1,3, 15, 57	<p><b><u>Corrective Action Request No.19.</u></b> Regarding the parameter “methane flared or fuelled”: Please revise the title, description and measurement method of the parameter bearing in mind the use of motors.</p> <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr></table>		Monitoring Checklist	Yes / No	Title in line with methodology?	No	Data unit correctly expressed?	Yes	Appropriate description of parameter?	No	CAR 19	p																
Monitoring Checklist	Yes / No																												
Title in line with methodology?	No																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	No																												

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		Appropriate description of parameter?	No		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	No		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
Parameter 7: Temperature of the exhaust gas (fraction of time in which the gas is combusted in the flare)	1,3, 15, 57	Monitoring Checklist	Yes / No	p	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
Parameter 8: Sludge removal	57	Monitoring Checklist	Yes / No	p	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD																								
		<table><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>		Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes						
Data unit correctly expressed?	Yes																												
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Correct value provided for estimation?	Yes																												
Has this value been verified?	Yes																												
Measurement method correctly described?	Yes																												
Correct reference to standards?	Yes																												
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												
Parameter 9: TM <sub>RG,h</sub> (Mass flow rate of methane in the residual gas)	57	<p><b><u>Corrective Action Request No.20.</u></b></p> <p>Regarding the parameter “mass flow rate of methane in the residual gas”: Please revise description and applied value.</p> <table><tr><td>Monitoring Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>		Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	No	Source clearly referenced?	Yes	Correct value provided for estimation?	No	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	CAR 20	p
Monitoring Checklist	Yes / No																												
Title in line with methodology?	Yes																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	No																												
Source clearly referenced?	Yes																												
Correct value provided for estimation?	No																												
Has this value been verified?	Yes																												
Measurement method correctly described?	Yes																												
Correct reference to standards?	Yes																												
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD																								
Parameter 10: GWP CH4	57	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	p	p
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	Yes																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	Yes																											
Has this value been verified?	Yes																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	Yes																											
QA/QC procedures described?	Yes																											
QA/QC procedures appropriate?	Yes																											
Parameter 11: Density of methane	57	<p><b><u>Corrective Action Request No.21.</u></b></p> <p>Regarding the parameter “Density of methane”: The value applied for the estimation of emission reductions should be indicated including the source.</p> <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	No	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	CAR 21	p		
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	Yes																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	No																											
Has this value been verified?	Yes																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	Yes																											
QA/QC procedures described?	Yes																											

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		QA/QC procedures appropriate?	Yes									
B.7.2. Description of the monitoring plan												
B.7.2.1.Is the operational and management structure clearly described and in compliance with the envisioned situation?	1,3, 15	Yes, section 7.2 and Annex 4 clearly describes them.			p	p						
B.7.2.2.Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1,3, 15	Yes, section 7.2 and Annex 4 clearly describes them.			p	p						
B.7.2.3. The method for integration of the terms in equation of the methodology to obtain the results for one year of measurements within the confidence level.	1,3, 15	<table><tr><td>Monitoring checklist</td><td>Yes / No</td></tr><tr><td>Described in the PDD?</td><td>Yes</td></tr><tr><td>Will be monitored during the crediting period?</td><td>Yes</td></tr></table>			Monitoring checklist	Yes / No	Described in the PDD?	Yes	Will be monitored during the crediting period?	Yes	p	p
Monitoring checklist	Yes / No											
Described in the PDD?	Yes											
Will be monitored during the crediting period?	Yes											
B.7.2.4. Methods and instruments used for metering, recording and processing the data obtained.	1,3, 15	<table><tr><td>Monitoring checklist</td><td>Yes / No</td></tr><tr><td>Described in the PDD?</td><td>Yes</td></tr><tr><td>Will be monitored during the crediting period?</td><td>Yes</td></tr></table>			Monitoring checklist	Yes / No	Described in the PDD?	Yes	Will be monitored during the crediting period?	Yes	p	p
Monitoring checklist	Yes / No											
Described in the PDD?	Yes											
Will be monitored during the crediting period?	Yes											
B.7.2.5. In case of soil application of the final sludge, is the proper application (not resulting in methane emissions) included in the monitoring plan?	1,3, 15	The item “proper application of the final sludge” is mentioned in B.7.1. and B.7.2. of the PDD.			p	p						
B.7.2.6. Are on-site inspections for each verification period for each individual farm included in the monitoring plan?	1,3, 15	The information that on-site inspections for each verification period will be realized by AMAZON is mentioned in the PDD.			p	p						
B.7.2.7.If the project activity is under a pro-	---	Not applicable.			p	p						

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gramme of activities, are the conditions for use of this methodology in a project activity under a programme of activities applied?				
B.7.2.8.Does the monitoring plan provide current good monitoring practice?	1,3, 15	Yes, see B.7.2.3.-B.7.2.6.	p	p
B.7.2.9.If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1,3, 15	Yes, it does	p	p
<b>B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)</b>				
B.8.1.1.Is there any indication of a date when the baseline was determined?	1,3	Yes, the date is clearly indicated.	p	p
B.8.1.2.Has dd/mm/yyyy format been used to indicate the date.	3	Yes	p	p
B.8.1.3.Is this consistent with the time line of the PDD history?	1,3, 57	See A.3.2.	See CAR 4	p
B.8.1.4.Is the information on the person(s) / entity (ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	1,3	The PDD informs that Amazon Carbon S/S Ltda. has been responsible for the application of the baseline and monitoring methodology. This is consistent with the actual situation.	p	p
B.8.1.5.Is information provided whether this person / entity is also considered a pro-	1,3	Yes. Amazon Carbon S/S Ltda. is project participant.	p	p

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ject participant?				
<b>C. Duration of the project activity / crediting period</b>				
<b>C.1. Duration of the project activity</b>				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1,3	Starting date is 01/10/2008 and operational lifetime is 25 years, but starting date may change because some contracts between farmers and Amazon Carbon as well as the equipment's purchase contract have still to be submitted. See A.1.3. and A.3.2.	See CAR 1-2 See CAR 4	p p
<b>C.2. Choice of the crediting period and related information</b>				
C.2.1. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	1,3	The crediting period is defined as fixed crediting period of 10 years. The beginning is determined for 01/12/ 2008 in the GSP PDD, but had to be finally changed to 01/02/2009. It seems to be reasonable.	p	p
C.2.2. Has dd/mm/yyyy format been used to indicate the start date of the crediting period.	3	Yes	p	p
<b>D. Environmental impacts</b>				
<b>D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:</b>				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved? If yes answer also D.1.2 to D.1.4	1,3	There is no EIA necessary for this kind of project activity.	p	p
D.1.2. Has the analysis of the environmental impacts of the project activity been sufficiently described?	1,3	Yes. The analysis of the environmental impacts of the project activity has been sufficiently described. There are only positive environmental impacts.	p	p

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		ronmental impacts.		
D.1.3. Will the project create any adverse environmental effects?	1,3	There are no adverse environmental effects related due to the project activity.	p	p
D.1.4. Were transboundary environmental impacts identified in the analysis?	1,3	There are no transboundary environmental impacts related with the project activity, as stated in section D.1.	p	p
<b>D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party</b>				
D.2.1. Have the identified environmental impacts been addressed in the project design sufficiently?	1,3	Yes. Only positive environmental impacts are related with the project activity.	p	p
D.2.2. Does the project comply with environmental legislation in the host country?	1,3,4 , 35, 39 49, 53, 54, 57	<p><b><u>Corrective Action Request No.22.</u></b> For Ch. Paraiso, the Installation license 040/06 is valid until 01/06/07. Please provide new license or protocol allowing the farm to operate.</p> <p><b><u>Clarification Request No.3.</u></b> Please provide calculation of anaerobic lagoon system retention times for all the farms in the PDD. Please inform how storage lagoons, when they exist, are considered in the calculation.</p>	CAR 22 CR 3	p p



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<b>E. Stakeholders' comments</b>				
<b>E.1. Brief description how comments by local stakeholders have been invited and compiled</b>				
E.1.1. Have relevant stakeholders been consulted?	1,3, 33, 38, 46,	<b>Clarification Request No. 4.</b> Please provide evidence that local stakeholder meetings have happened, or invitations for comments have been sent.	CR 4	p
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	1,3, 33, 38, 46,	See E.1.1.	See CR 4	p
E.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?	1,3, 33, 38, 46,	The Brazilian DNA gives guidance how the local stakeholder process has to be conducted. See E.1.1.	See CR 4	p
E.1.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	1,3, 33, 38, 46,	See E.1.1.	See CR 4	p

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<b>E.2.Summary of the comments received</b>				
E.2.1. Is a summary of the received stakeholder comments provided?	1,3, 33	No written comments have been received so far.  <b>Clarification Request No. 5.</b> Please react to test made on the website where the project is available for comments.	CR 5	p
<b>E.3.Report on how due account was taken of any comments received</b>				
E.3.1. Has due account been taken of any stakeholder comments received?	1,3	No negative comments were received so far, according to PDD. See E.2.1.	See CR 5	p
<b>F. Annexes 1 - 4</b>				
<b>F.1.Annex 1: Contact Information</b>				
F.1.1. Is the information provided consistent with the one given under section A.3?	1,3	The information provided in Annex 1 is consistent with the one given in section A.3.	p	p
F.1.2. Is the information on all private participants and directly involved Parties presented?	1,3	Yes. Information on all private participants is presented.	p	p
<b>F.2.Annex 2: Information regarding public funding</b>				
F.2.1. Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1,3	No public funding is involved. This information is consistent with the actual situation presented by the project participants.	p	p
F.2.2. If necessary: Is an affirmation	1,3	Not applicable.	p	p

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available that any such funding from Annex-I countries does not result in a diversion of ODA?				
<b>F.3. Annex 3: Baseline information</b>				
F.3.1. If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	1,3,1 1, 12,	Yes. The information is consistent with data presented by other sections of the PDD. However, see A.4.3.2.	See CAR 10 See CAR 11	p p
F.3.2. Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	1,3,1 1, 12, 16, 18	See A.4.3.2.	See CAR 10 See CAR 11	p p
F.3.3. Does the additional information substantiate / support statements given in other sections of the PDD?	1,3,1 1, 12, 16, 18	The additional information supports statements given in other sections of the PDD. However, see A.4.3.2.	See CAR 10 See CAR 11	p p

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<b>F.4. Annex 4: Monitoring information</b>				
F.4.1. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1 3,15	Yes. Information is consistent with data presented in other sections of the PDD. See B.7.2.3. through B.7.2.9.	p	p
F.4.2. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1,2 3,15	The provided information is verifiable and sufficient evidence has been provided to the validation team. However, see B.7.1.4.	See CAR 16	p
F.4.3. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1,3, 15	The additional information substantiates statements given in other sections of the PDD. However, see B.7.1.4.	See CAR 16	p

**Table 2 Resolution of Corrective Action and Clarification Requests**

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
<b>Corrective Action Request</b>			
<b><u>Corrective Action Request No.1.</u></b> 1. Starting date of the project activity should be the date of the signature of the first contract with farms participating in the project or the equipment's purchase contract, whatever comes first. Such signed contract has	A.1.3	Answer 16/6: Altered Answer 04/07: See annex file name ("Contrato Fernando de Castro_AmazonCarbon" and "Contrato Fernando de Castro Traduzido")	Sub items 1 and 2 are resolved. For sub item 3, the evidence of CDM consideration has to be provided in Portuguese and English.

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<p>still to be presented for the farms S. Geraldo and Esperanca.</p> <p>2. Please correct starting date of project activity according to farm contracts or according to the equipment's purchase contract, whatever is first. Please inform which contract will be used as reference.</p> <p>3. In the case that project's starting date is before the date of validation, please submit an evidence that CDM was seriously considered to proceed with the project activity. This evidence should be submitted in original as well as translated in English language.</p>			<p>Answer 09.07:</p> <p>The first contract signed between Amazon and a farmer (Fernando de Castro) has been submitted to the validation team in English and Portuguese language.</p> <p>CAR 1 is considered to be resolved. <b>p</b></p>
<p><b><u>Corrective Action Request No.2.</u></b></p> <p>For sites Chacara Paraiso, Emerson Fernandes and Rancho Cosmo, date for finishing biodigesters should be corrected.</p>	A.1.3	Answer 16/6: Altered	CAR 2 is resolved. <b>p</b>
<p><b><u>Corrective Action Request No.3.</u></b></p> <p>A.2. mentions that one open flare will be used to combust the produced biogas in rare situations, when the motors are not operational, such as oil change and any other replacement needs, however does not mention anything about the enclosed combustion system. Other parts of the PDD, as e.g. in A.4.2., talk of an enclosed combustion system (enclosed flare) besides the motor use. Please indicate more details in A.2. of the PDD regarding the enclosed combustion system.</p>	A.2.4.	<p>Answer 16/6: Was previously wrong described. Now altered</p> <p>Answer 04/07: See annex file name (Descrição Flare)</p> <p>Answer 29/07: See annex file name (Descrição Flare assinada)</p>	<p>Please provide manufacturer name, model and further details of the enclosed flare which can support that statement that it is an enclosed flare system.</p> <p>9/7&gt; Please provide a copy of the description contract duly signed by the parties.</p> <p>Signed description has been provided and CAR 3 is closed. <b>p</b></p>

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<b><u>Corrective Action Request No.4.</u></b> A contract between farms S. Geraldo and Esperança and Amazon Carbon dully signed has to be presented to confirm the voluntary participation in the PDD.	A.3.2.	Answer 16/6: Annex file name (Contrato Geral do Ferro da Silva_AmazonCarbon)	Contracts have been submitted and CAR 4 is resolved. p
<b><u>Corrective Action Request No.5.</u></b> 1. Please update address of Amazon Carbon in the PDD 2. PDD session 4.1.4 should be corrected for farm Antonio Durval Gois regarding lagoons. There are 3 lagoons onsite. 3. PDD should be corrected for G. Antonio J. Figueiredo Fo. Regarding number of lagoons = 2 4. . PDD should be corrected for Chacara Paraíso regarding number of lagoons = 2 5. PDD should be corrected for Chacara Paraíso regarding dimensions of biodigestors to be built. 6. PDD should be corrected for Faz. Emerson Fernandes regarding dimension of 1 <sup>st</sup> lagoon = 12x20. 7. PDD should be corrected for Rancho Cosmo regarding number of barns = 5	A.4.1.1.	Answer 16/6: 1. The address of Amazon Carbon Was already altered 2. Altered 3. Altered 4. Altered 5. Altered 6. Altered 7. Altered  Answer 04/07: Altered	6. Dimensions for 1 <sup>st</sup> lagoon of Faz. Emerson has not been corrected as requested. Please correct. CAR 5 is resolved. p
<b><u>Corrective Action Request No.6.</u></b> Please submit evidences (like land registries or acquisition contracts) for all farms participating in the proposed project activity (except A. Durval Góis farm and Chacara Paraíso) showing that the project proponents can im-	A.4.1.2.	Answer 16/6: Annex folder name (Propriedade) with all registries inside A critical of these corrective action was the not requirement of these documents at the on site conference, what cause a embarrassment to get these documents after the on site conference	1. Sitio Esperança: please correct PDD to include "Lote 13, quadra 8". 2. A. J. Figueiredo F. = lote nr. In PDD is not matching land registry (71, 67 or 69?).

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plement the project at their sites.		<p>after the on site conference</p> <p>Answer 04/07: 1. Altered, 2. Altered (this farmer have two sites where the swine are confined for the same farm) 3. See annex folder name (Propriedade Emerson Fernandes)</p> <p>Answer 29/07: This farmer have two sites where the swine are confined for the same project. The both sites are included in the PDD.</p>	<p>Please change PDD or clarify what is the correct land registry.</p> <p>15Ago &gt; Please correct farm address in the PDD.</p> <p>3. Land registry for Emerson Fernandes was not submitted. Please send.</p> <p>CAR 6 is resolved. <b>p</b></p>
<p><b><u>Corrective Action Request No.7.</u></b></p> <p>An evidence for the lifetime of the motors should be submitted to the validation team.</p>	A.4.2.8.	Answer 16/6: Annex file name (Declaração Trigás)	Evidence has been submitted and CAR 7 is resolved. <b>p</b>
<p><b><u>Corrective Action Request No.8.</u></b></p> <p>Please provide training schedules for people involved in all sites.</p>	A.4.2.9.	Answer 16/6: Annex file name (Declaração de treinamento pag 1 and Declaração de treinamento pag 2)	Declaration of the biodigester provider stating that he will provide training has been submitted, and CAR 8 is resolved. <b>p</b>
<p><b><u>Corrective Action Request No.9.</u></b></p> <p>Please include into the PDD a project implementation schedule (biodigester commissioning, etc..) for all participating farms. In the case that project's starting date is before the validation date, CDM consideration should be included into the project's implementation schedule.</p>	A.4.2.11.	<p>Answer 16/6: Included.</p> <p>Answer 04/07: A complete schedule is provide on page 17. The CDM consideration was previously arranged at the contract signed, the contracts between Amazon Carbon and farmers was sent to the validation team</p>	<p>Please provide declaration for CDM consideration.</p> <p>Answer 09/07/2008: CDM consideration was included into the project's implementation schedule of the last submitted PDD.</p> <p>CAR 9 is considered to be resolved. <b>p</b></p>
<p><b><u>Corrective Action Request No.10.</u></b></p> <p>1. Evidences of number of heads presented</p>	A.4.3.2.	Answer 16/6: 1. Altered	9/07> Please inform company details (website pref-

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<p>during the onsite visits do not match the figures indicated in the PDD. Please correct figures in the PDD, attach evidences to it, and send new calculation spreadsheets of baseline, project emissions and emission reductions.</p> <p>2. Evidences about the genetics used in each farm (except for the farms Antonio Durval Gois and Sítio Nossa Senhora Aparecida) and feed formulae if there is any farm participating which is not integrated in SEARA should be provided to the validation team.</p>		<p>2. The documents about the genetics and feed formule was previously delivery by e-mail after the on site conference on 18/04/2008.</p> <p>Answer 04/07: Montly report for Goíz, N. Sra. Aparecida and Sítio Esperança annexed folder name (monthly report). Data for for all farms are revised</p> <p>Answer 29/07: Company details of Agriness at website: <a href="http://www.agriness.com.br/">http://www.agriness.com.br/</a></p> <p>The mistake in Grando spreadsheet was fixed. Default values are taken from 2006 IPCC, Annex 10A.2, Table 10A-7and 10A-8). See annex file (V4_10_Ch10_Livestock). IPCC default animal weights were used to obtain <u>Adjusted volatile solids excretion (Vs<sub>site</sub>)</u>, taking in consideration site specific animal weight, This is described in Sections B.4, B.6.1 and B.6.2 of the PDD.</p> <p>Emissions reductions for N.S. Aparecida, Goiz and Esperança were correct, since IPCC values for adult animal weights were used in the calculation of VS<sub>site</sub>.</p>	<p>erably) responsible for the nr. of heads report Agriness S2. Agriness has provided copy or their reports and it matches what has been presented to the validation team. Therefore evidences for number of heads are acceptable for farms using such software.</p> <p>Mistakes were found in the calculations spreadsheets (for instance Grando) for emissions reductions, please revise. Farms N.S. Aparecida, Goiz and Esperanca use IPCC values for adult animal weights. Please provide copy of the source of those default values (2006 IPCC, Annex 10A.2, Table 10A-7and 10A-8).</p> <p>Errors have been corrected.</p> <p>2.Declaration for genetics and feedstock formulae has been received and it is acceptable.</p> <p>CAR 10 is resolved. <b>p</b></p>
<b><u>Corrective Action Request No.11.</u></b>	A.4.3.2.	Answer 16/6: Altered	Figures are still not consis-



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The figure for total estimated emission reductions is not consistent between A.2. and A.4.3. and B.6.4. Please provide consistent information.		Answer 04/07: Altered Answer 29/07: See item above. (CAR10)	tent. Please correct PDD. Figures are consistent amongst the sessions, however CAR10 has to be resolved to close this CAR11. Wait for calculations to confirm. CAR 11 is resolved. <b>p</b>
<b><u>Corrective Action Request No.12.</u></b> A.4.5. mentions: "There are no other registered (...) large-scale CDM project activities....". Please correct to: "There are no other registered (...) small scale CDM project activities...".	A.4.5.1.	Answer 16/6: Altered	PDD has been corrected and CAR 12 is resolved. <b>p</b>
<b><u>Corrective Action Request No.13.</u></b> Please update the information about barriers as discussed during the on-site visit.	B.5.14.	Answer 16/6: Altered. Answer 04/07: The source of the costs is evidenced, now, in the PDD on pag 30. File annexed (Declaração preço m3) contains the investments for each farmer	The source for the investment costs should be indicated in the PDD. Answer 09/07/2008: The source of investment costs was included in the last submitted PDD. CAR 13 is considered to be resolved. <b>p</b>
<b><u>Corrective Action Request No.14.</u></b> However, it is contradictionary to mention regarding anaerobic digesters that "this system is easy to operate.." and later on (in Technological barriers) is indicated that "the lack of knowledge to operate anaerobic digesters was a serious barrier to the adoption	B.5.17.	Answer 16/6: Altered Answer 04/07: Altered	Statement in the "Included scenarios" section of the PDD is still there. Please change. Statement has been corrected and CAR 14 is resolved. <b>b</b>

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of such system in Brazil...". Please revise information provided in "Included scenarios".			solved. <b>p</b>
<b><u>Corrective Action Request No.15.</u></b> Those parameters, which have to be monitored during the crediting period, should not be mentioned in B.6.2. of the PDD. Please take them out from B.6.2. as according to the guidelines.	B.6.2.1.	Answer 16/6: Altered	Parameters which are monitored parameters have been excluded from B.6.2. as according to the guidelines. CAR 15 is considered to be resolved. <b>p</b>
<b><u>Corrective Action Request No.16.</u></b> 1. Please provide evidence that contracts and procurement of enclosed flare has already started and that this type of flare is likely to be used in the project. 2. Please indicate in the PDD that a continuous check of compliance with the manufacturer's specifications of the flare device will be done. 3. Please inform how the engine efficiency in combusting biogas can be determined 4. Please provide evidences that the procurement for the engine which will be used in the project has already started.	B.7.1.4.	Answer 16/6: 1. Will be sent declaration of FLARE 2. Continuous check indicated 3. The engine efficiency on combusting biogas will be determined by monitoring the same parameters used to determine the flare efficiency, as described in Section b.7 4. Will be sent declaration of Trigás Answer 04/07: 1. See annex file name (Declaração Flare Fechado) 4. See annex file name (Declaração de instalação de equipamentos) Answer 29/07: See annex file name (Descrição Flare assinada)	Signed description has been provided and CAR 16 is closed. <b>p</b>
<b><u>Corrective Action Request No.17.</u></b> The parameter BG <sub>burnt</sub> should be included into B.7.1. with all its specifications.	B.7.1.8.	Answer 16/6: Included	Parameter has been added to PDD and CAR 17 is resolved. <b>p</b>
<b><u>Corrective Action Request No.18.</u></b>	B.7.1.9.	Answer 16/6: Revised	Why does the measurement

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Regarding the parameter “flare efficiency”: Please revise measurement method.		Answer 04/07: This parameter was removed from Section B.7.1, since default values are used. However, information on flare efficiency was added as a comment on ExGT, to further clarify how flare efficiency default values will be adopted.	method only refer to the motor efficiency and not to the flare efficiency? Please include. Answer 09/07/2008: Answer given by the project participants is accepted. CAR 18 is considered to be resolved. <b>p</b>
<b><u>Corrective Action Request No.19.</u></b> Regarding the parameter “methane flared or fuelled”: Please revise the title, description and measurement method of the parameter bearing in mind the use of motors.	B.7.1.9.	Answer 16/6: Redescribed Answer 04/07: Altered	Please refer in the title as well to the use of motors. Answer 09/07/2008: A separate parameter “methane flared on motors” has been indicated in the last submitted PDD. CAR 19 is considered to be resolved. <b>p</b>
<b><u>Corrective Action Request No.20.</u></b> Regarding the parameter “mass flow rate of methane in the residual gas”: Please revise description and applied value.	B.7.1.9.	Answer 16/6: Altered Answer 04/07: This parameter was removed, since the <i>Tool to determine project emissions from flaring gases containing methane</i> is no longer used.	Answer 24.06.2008: In description: flare should be included (as it is relevant in emergency cases).  Answer 09/07/2008: Answer given by the project participants is accepted. CAR 20 is considered to be resolved. <b>p</b>

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<p><b><u>Corrective Action Request No.21.</u></b> Regarding the parameter "Density of methane": The value applied for the estimation of emission reductions should be indicated including the source.</p>	B.7.1.9.	Answer 16/6: Altered	Answer 24.06.2008: Regarding the parameter: "Density of methane": The value as well as the source were indicated in the last submitted PDD. CAR 21 is considered to be resolved. <b>p</b>
<p><b><u>Corrective Action Request No.22.</u></b> For Ch. Paraiso, the Installation license 040/06 is valid until 01/06/07. Please provide new license or protocol allowing the farm to operate.</p>	D.2.2.	<p>Answer 16/6: The license document was previously delivery by e-mail after the on site conference</p> <p>Answer 04/07: Was previously delivery by e-mail on 19/06/2008.</p> <p>Answer 29/07: Correcting the answer 16/6: the protocol license was delivery by e-mail after on site conference. The IMASUL, responsible for the license approval, declares that are no specification time to the license approval be issued and, therefore, the farm have no problem with the environmental police since the protocol was emitted.</p>	<p>Protocol has been presented. Please inform when the license is expected to be issued.</p> <p>IMASUL has been contacted by the validation team, and evidences have been provided that the requirements for the new license have been addressed and IMASUL is very likely issue the new license.</p> <p>CAR 22 is resolved <b>p</b></p>
<p><b>Clarification Requests</b></p>			
<p><b><u>Clarification Request No. 1.</u></b> Please inform how the efficiency of the engine which will combust the biogas can be determined ex-ante, and if it is the case, how its efficiency will be monitored during the crediting period. Depending on the answer to this request, additional parameters may be included in chapter B.6.2 and monitoring</p>	B.6.2.1.	<p>Answer 16/6: The engine efficiency on combusting biogas will be determined by monitoring the same parameters used to determine the flare efficiency, as described in Section b.7</p> <p>Answer 04/07: See B.6.1 (emissions from inefficiency in methane flaring (<math>PE_{flare}</math>)) altered</p>	<p>The engine ex-ante efficiency has not yet been described. Please provide evidences for the efficiency and include statements into the PDD.</p> <p>Explanation is accepted and CR 1 is resolved. <b>p</b></p>

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included in chapter B.6.2 and monitoring plan.			
<b><u>Clarification Request No. 2.</u></b> It is not clear to the validation team how the efficiency of the engine which will be fuelled by biogas can be determined and monitored. If it is the case, please include parameters for this item on chapter B.7.1.	B.7.1.8.	Answer 04/07: The engine's efficiency on methane destruction will be determined following the same procedures for determine flare efficiency. This is in accordance with paragraph 12 of AMS.III.D, as indicated in Section B.6.1. Parameters and procedures for monitoring methane flared on flares and on engines are described in Section B.7.	The engine ex-ante efficiency has not yet been described. Please provide evidences for the efficiency and include statements into the PDD. Explanation is accepted and CR 2 is resolved. <b>p</b>
<b><u>Clarification Request No. 3.</u></b> Please provide calculation of anaerobic lagoon system retention times for all the farms in the PDD. Please inform how storage lagoons, when they exist, are considered in the calculation.	D.2.2.	Answer 16/6: Annex file name (Retention time.xls) Answer 04/07: See annex file name (Manual de manejo dos dejetos) About the spreadsheet please see annex file name (Retention time) Answer 29/07: See CAR 10 above	Please provide copy of the reference document: OLIVEIRA, P.A.V de, Manual de manejo e utilização dos dejetos de suínos. EMBRAPA-CNPISA. Documentos, 27. Page 13 On the spreadsheet, the statement: “As described in the PDD, A fraction of animal waste is destined to lagoon one, and flows to lagoons two and three. The other fraction of waste is destined directly to the third lagoon. Therefore the system has a retention time of more than 30 days.” is repeated for every farm. It seems not to be the case.

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			Please revise statement and if needed, revise calculations. Finally statement and calculations have been revised and thus CR 3 is resolved. <b>p</b>
<b><u>Clarification Request No. 4.</u></b> Please provide evidence that local stakeholder meetings have happened, or invitations for comments have been sent.	E.1.1.	Answer 16/6: These document was previously delivery at the on site conference by e-mail on 15/04/2008. Answer 04/07: See annex folder name (A.R.s)	Copies of mail receipts sent to stakeholders have to be presented. Scanned copies have been submitted and CR 4 is resolved. <b>p</b>
<b><u>Clarification Request No. 5.</u></b> Please react to test made on the website where the project is available for comments.	E.2.1.	Answer 16/6: An e-mail message sent by the auditing team as a test was replied on 25/04/2008.	Response email received and CR 5 is resolved. <b>p</b>

**Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)**


Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

## **Annex 2: Information Reference List**


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Reference No.	Document or Type of Information																								
1	<p>On-site visits realized from 14/04/2008-16/04/2008</p> <p><b>Validation team on-site:</b></p> <table> <tr> <td>Wilson Tomao</td><td>TÜV SÜD Industrie Service GmbH</td></tr> </table> <p><b>Interviewed persons:</b></p> <table> <tr> <td>Jorge Bernardo Silva</td><td>Amazon Carbon</td></tr> <tr> <td>Thiago Othero</td><td>Amazon Carbon</td></tr> <tr> <td>Fábio Manhães</td><td>Biomassa</td></tr> <tr> <td>Antonio Durval Gois</td><td>Farmer – Antonio Durval Gois farm – 14/04/08</td></tr> <tr> <td>Fernado de Castro</td><td>Farmer – Sitio Nossa Senhora Aparecida – 14/04/08</td></tr> <tr> <td>Luis Henrique Amaral</td><td>Farmer – Chacara Paraíso – 16/04/08</td></tr> <tr> <td>Reginaldo dos Santos</td><td>Manager – Osmar Rodrigues Caires farm – 15/04/08</td></tr> <tr> <td>Dulcemar José Grando</td><td>Farmer – Dulcemar José Grando farm – 15/04/08</td></tr> <tr> <td>Fabio Dones</td><td>Manager – Emerson Fernandes farm – 15/04/08</td></tr> <tr> <td>Antonio José Figueiredo</td><td>Farmer – Antonio José Figueiredo farm – 15/04/08</td></tr> <tr> <td>Cezr Janzeski</td><td>Farmer – Rancho Cosmo – 16/04/08</td></tr> </table>	Wilson Tomao	TÜV SÜD Industrie Service GmbH	Jorge Bernardo Silva	Amazon Carbon	Thiago Othero	Amazon Carbon	Fábio Manhães	Biomassa	Antonio Durval Gois	Farmer – Antonio Durval Gois farm – 14/04/08	Fernado de Castro	Farmer – Sitio Nossa Senhora Aparecida – 14/04/08	Luis Henrique Amaral	Farmer – Chacara Paraíso – 16/04/08	Reginaldo dos Santos	Manager – Osmar Rodrigues Caires farm – 15/04/08	Dulcemar José Grando	Farmer – Dulcemar José Grando farm – 15/04/08	Fabio Dones	Manager – Emerson Fernandes farm – 15/04/08	Antonio José Figueiredo	Farmer – Antonio José Figueiredo farm – 15/04/08	Cezr Janzeski	Farmer – Rancho Cosmo – 16/04/08
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Antonio José Figueiredo	Farmer – Antonio José Figueiredo farm – 15/04/08																								
Cezr Janzeski	Farmer – Rancho Cosmo – 16/04/08																								
2	<p>Installation License 002/2006 issued by IMAP in 17/01/06 – Antonio Durval Gois farm – paper copy</p> <p>Operation License Requirement 23/100946/2007 issued by IMAP in 16/04/2007 – Antonio Durval Gois farm – paper copy</p> <p>Installation license 069/2005 issued by IMAP in 05/10/05 – Fernando de Castro – Sitio Nossa Senhora Aparecida – paper copy</p>																								




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Reference No.	Document or Type of Information
	<p>Operation License Requirement 23/104022/2006 issued by IMAP in 10/10/06 – Fernando de Castro – Sitio Nossa Senhora Aparecida – paper copy</p> <p>Installation License 040/2006 issued by IMAP in 01/06/06 – Luis Henrique do Amaral – Chacara Paraiso – paper copy</p> <p>Operation license 195/05 issued by IMAP in 27/07/05 – Osmar Rodrigues Caires farm – paper copy</p> <p>Operation license 001/2006 issued by IMAP in 18/01/06 - Dulcemar Grando farm – paper copy</p> <p>Previous license 507/02 issued by IMAP in 23/10/02 – Emerson Fernades farm – paper copy</p> <p>Operation license requirement 102463 issued by IMAP in 18/07/03 - Emerson Fernades farm – paper copy</p> <p>Operation license 189/04 issued by IMAP in 23/05/04 – José Figueiredo Filho farm – paper copy</p> <p>Renewal requirement 23/106373/2007 issued by IMAP in 26/20/07– José Figueiredo Filho farm – paper copy</p> <p>Operation license 008/2003 issued by IMAP in 19/02/03 - Cezar Janzeski – Rancho Cosmo – paper copy</p> <p>Renewal requirement 23/100116/2006 issued by IMAP in 15/06/05 – Cezar Janzeski – Rancho Cosmo – paper copy</p>
3	Project Design Document “Amazon Carbon Swine Waste Management System “, version 01, dated 09/03/08
4	<p>List of participants – Antonio Durval Gois farm</p> <p>List of participants – Sitio Nossa Senhora Aparecida</p> <p>List of participants – Chacara Paraiso</p> <p>List of participants Osmar Rodrigues Caires farm</p> <p>List of participants Dulcemar Grando farm</p> <p>List of participants Emerson Fernandes farm</p> <p>List of participants José Figueiredo Filho farm</p> <p>List of participants Rancho Cosmo</p>
5	Farm Public registry 5011 issued by Regional Public Office in 04/12/87 – Antonio Durval Góis farm – paper copy

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Reference No.	Document or Type of Information
	Public contract of acquisition issued by Regional Public Office in 08/01/82 - Luiz Henrique do Amaral – Chacara Paraíso – paper copy
6	Table “ Lançamentos realizados no periodo “(1/12/06 to 31/02/07) – Antonio Durval Gois farm – paper copy
7	Seara’s Account Table – 06/02/07 and 30/07/07 – Luiz Henrique do Amaral – Chácara Paraíso – paper copy Seara’s Account Table – 15/03/07 and 13/09/07 - Osmar Rodrigues Caires farm – paper copy Seara’s Account Table – 28/02/08 - Dulcemar Grando farm – paper copy Seara’s account Table - 09/05/07 – José Figueiredo Filho and Lucilene Figueiredo – paper copy Seara’s account Table - 15/10/07 - José Figueiredo Filho and Lucilene Figueiredo – paper copy Seara’s account Table - 30/11/07 – Cezar Jazenski and Pedro Jazenski – Rancho Cosmo – paper copy Seara’s account Table - 22/06/07 – Cezar Jazenski and Pedro Jazenski – Rancho Cosmo - paper copy
8	First Brazilian inventory of greenhouse gas emissions (Primeiro Inventario Brasileiro de emissões antropicas de gases de efeito estufa), Science and Technology ministry, 2006, paper-copy, presented on November 13, 2007.
9	Technical plans about the biodigesters, paper-copies, submitted on November 14, 2007.
10	Methodology AMS III-D: methane recovery in agricultural and agro industrial activities, version 13.
11	IPCC: Revised 2006 Guidelines for National Greenhouse Gas Inventories
12	IPCC: 2000, Good Practice Guidance
13	Baseline calculation excel-sheets, submitted on April 2008.
14	Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.
15	Validation and Verification Manual, IETA/World Bank (PCF), <a href="http://www.vvmanual.info">http://www.vvmanual.info</a>
16	Technical specifications, Pressure Transmitter LD301, pdf-file, submitted on January 23, 2008.
17	Technical specifications, Roots Meter, pdf-file, submitted on January 23, 2008.

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Reference No.	Document or Type of Information
18	National Standards, INMETRO, N° 114 from 16.10.1997, pdf-file, submitted on January 23, 2008.
19	International Recommendation, OIML R 32, 1989, International Organization of legal metrology, pdf-file, submitted on January 23, 2008.
20	First Brazilian Inventory of anthropogenic greenhouse gas emissions, Background reports, EMBRAPA, MST, 2002, pdf-file, submitted on February 11, 2008
21	EMBRAPA Solids Separator1, pdf-file, submitted on February 11, 2008
22	EMBRAPA Anaerobic lagoon1, pdf-file, submitted on February 11, 2008.
23	EMBRAPA Anaerobic digester1, pdf-file, submitted on February 11, 2008.
24	Seara's letter concerning genetic and feedstock formulae form 18/04/08 – electronic file presented
25	Seara's Bulletin 04561 from 12/11/2007 identifying the genetic Topigs (darland) – Antonio Durval Gois farm – paper copy presented
26	Invoice 10723 from 27/03/08 identifying the genetic Topigs (darland) – Sitio Nossa Senhora Aparecida – paper copy presented
27	Contract between farm. S. Geraldo and Amazon Carbon, pdf file sent by email on 16/6/08
28	Land Registries for PDD farms. Scan copies attached to email sent to TUV SUD on 16/6/08
29	Declaration of engine provider Trigas. Pdf file sent on the 16/6/08 by email to TUV SUD.
30	Contracts between Amazon Carbon and farms. Pdf files CONTRATO GERAL DO FERRO DA SILVA_AMAZONCARBON, AND CONTRATO MARCIO MURAOCA_AMAZONCARBON, SENT BY EMAIL ON 16/6/08 TO TUV SUD.
31	Declaration by the biodigester's provider that training will be provided by the company. Jpg files declaração de treinamento pag1 and declaração de treinamento pag 2 submitted by email to TUV SUD on the 16/6/2008.
32	PDD version 02 submitted by email to TUV SUD on the 16/06/08
33	Reply to email sent through Amazon website link for comments to projects. Response email received on 25/04/2008.
34	Declaration of Seara, the farm integrator, about genetics and feed formulae. PDF file called “documento” sent by email on 18/04/2008.

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Reference No.	Document or Type of Information
35	Retention time calculation spreadsheet. Exel file called retention time, sent by email on the 16/6.
36	Contract between farmer Geraldo Ferro da Silva and Amazon Carbon, defining starting date of project activity. Pdf file called “Contrato Geraldo Ferro da Silva_AmazonCarbon” sent by email on 16/06/2008.
37	Protocol for request of renewal of environmental licence for Ch. Paraíso. Jpg file called “Protocolo Luiz Henrique”, sent by email on the 19/06/2008.
38	General invitation letter for stakeholders to attend project presentation and/or send comments. Pdf file “Convite Apresentação” sent on 19/06/08
39	“Retention time” spreadsheet send on 04/07/08 by email
40	Declaration about enclosed flare. Jpg file called “Declaração Flare Fechado” sent by email on 04/07/08
41	Manual for manure management. Pdf file called “Manual de manejo dos dejetos”, sent by email on 04/07/08
42	Translated copy of the contract between Amazon Carbon and farmer Fernando de Castro. Pdf file called “Contrato Fernando de Castro Traduzido”, sent by email 04/07/08
43	Price proposal for installation of biodigesters, Biomassa, Jpg “Declaração preço m3” sent by email 04/07/08
44	Maintenance planning and declaration about engines to be used in the project. “Declaração de Instalação de equipamentos.pdf” sent by email on 04/07/07
45	Evidence for CDM consideration and project’s starting date: Copy of contract between Amazon Carbon and farmer Fernando de Castro. Pdf file called “Contrato Fernando de Castro_Amazon Carbon” sent by email 04/07/08; also submitted in English language.
46	Mail receipts of invitations sent to local stakeholders to attend presentation or send comments. Copy of receipts sent by email on 04/07/08
47	Monthly reports of number of heads for farms Goiz, Nossa Sra. Aparecida and Sitio Esperança. Jpg files sent by email on 04/07/08.
48	Land Registry of farm Emerson Fernandes. Jpg files of scanned registries sent by email on 04/07/08.
49	Scan copy of protocol of request for operational license for Luiz Henrique Jordao do Amaral. “Protocolo Luiz Henrique.jpg” sent by

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Reference No.	Document or Type of Information
	email 29/07/08
50	Description of enclosed flare by equipment supplier. “Descrição Flare_Assinada.pdf” sent by email on 29/07/08
51	File emissions from livestock and manure management – 2006 IPCC Guidelines. Pdf file sent on 29/07/08
52	Emissions reductions spreadsheet. “Planilhas reducoes.xls” sent by email 07/08/08.
53	Phone call made by the validation team to IMASUL regarding the status of Ch. Paraiso environmental license on 08/08/08.
54	Documents sent as responses of Ch.Paraiso to IMASUL, related to documents needed to issue license. Email sent on 12/08/08 called “Contato Imasul”.
55	Inmet average temperature within Brazil. “Temperaturas medias.gif” sent by email on 20/08/08.
56	Spreadsheets for emissions reductions. “Planilhas Reducoes.zip” sent by email on 20/08/08.
57	Final PDD version 5, dated 02/10/2008.
58	Request for the environmental operational licence, Sitio São Geraldo, IMASUL, protocol N° 23/100118/2008, dated 11/01/2008, submitted on 05/09/2008
59	Request for the environmental operational licence, Sitio Esperança, IMAP, protocol N° 23/104222/06, dated 01/11/2006, submitted on 05/09/2008.