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Validation Report

AGCERT INTERNATIONAL LIMITED, IRELAND

Validation of the AWMS GHG Methane Recovery Project BR06 - S -27, Goiás, Brazil

Report No. 849996, rev. 1

April 25, 2007

TÜV SÜD Industrie Service GmbH
Carbon Management Service
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Industrie Service

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Contact:	www.tuev-sued.de
Client:	AgCert International PLC, Ireland Sandyford Business Park The Apex Building Dublin 18, Ireland
Contract approved by:	Werner Betzenbichler
Report Title:	Validation of the AWMS GHG Methane Recovery Project BR06-S–27, Goiás, Brazil
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Summary:

The Certification Body ”Climate and Energy” has been ordered by AgCert International PLC, Ireland (AgCert International) to perform a validation of the above mentioned project.

In summary, it is TÜV SÜD´s opinion that the project “AWMS GHG Methane Recovery Project BR06-S–27 in Goiás, Brazil”, as described in the revised project design document of December , 2006, meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board and that the project furthermore meets all relevant host country criteria and correctly applies the baseline and monitoring methodology Type III, Other Project Activities, Category III.D, Methane Recovery version 11 for Small-Scale projects.

Prior to the submission of this validation report to the CDM Executive Board, TÜV SÜD will have to receive the written approval of the DNA of involved parties, including confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

Hence, TÜV SÜD will recommend the project for registration as CDM project activity by the CDM Executive Board.

Additionally the assessment team reviewed the estimation of the projected emission reductions. TÜV SÜD confirms that the indicated amount of emission reductions of 110,013 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 11,001 tonnes CO_{2e} represents a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	Markus Knödlseder Wilson Tomao	Internal Quality Control by:	Werner Betzenbichler

Abbreviations

AgCert Brazil	AgCert Do Brasil Solucoes Ambientais Ltda.
AgCert International	AgCert International PLC, Ireland
AWMS	Animal Waste Management Systems
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DOE	Designated Operational Entity
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
PDD	Project Design Document
SSC	Small Scale Project
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

AgCert International PLC, Ireland (AgCert International) has commissioned TÜV SÜD Industrie Service GmbH (TÜV SÜD) to validate the AWMS Methane Recovery Project BR06-S-27, **Goiás, Brazil**. The validation serves as design verification and is a requirement of all CDM projects. The purpose of a validation is to have an independent third party assess of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The audit team has been provided with the first PDD-version in June 2006. Based on this documentation a document review and a fact finding mission in form of an on site audit has taken place. The demanded additional information is addressed in annex 1. Requested information was given and the PDD was updated accordingly. That final PDD version was submitted in December 2006 and serves as the basis for the final assessment presented herewith. The changes were not significant as only some information was added and adapted to the final PDD, thus the global stakeholder process was not repeated.

Studying the existing project documentation, it was obvious that the competence and capability of the validation team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance
- Agricultural operations especially regarding manure management
- Technical aspects of gas flaring and bio digester operation
- Monitoring concepts
- Political, economical and technical random conditions in host country

According to these requirements TÜV SÜD has assembled a project team in accordance with the appointment rules of the TÜV certification body "climate and energy":

Markus Knödlseder is an auditor for environmental management systems at the department "Carbon Management Service" in the head office of TÜV SÜD. He has been involved in the topic of environmental auditing, baselining, monitoring and verification due to the requirements of the Kyoto Protocol since Oct. 2001. His main focus lies on renewable energies.

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.

In order to have an internal quality control of the project, a team of the following persons has been composed by the certification body "climate and energy":

Werner Betzenbichler (Head of Certification Body, GHG lead auditor)

1.3 GHG Project Description

This project proposes to apply to multiple swine Confined Animal Feeding Operations (located in Goiás, Brazil) a GHG Methane Recovery methodology which is applicable to intensive live-stock operations. The proposed project activities will mitigate AWMS GHG emissions in an eco-nomically sustainable manner, and will result in other environmental benefits, such as improved water quality and reduced odor. The project proposes to move the designated farms from a high-GHG AWMS practice; an open air lagoon, to a lower-GHG AWMS practice; an ambient temperature anaerobic digester with the capture and combustion of the resulting biogas. The concluding purpose of this project is to mitigate animal effluent related GHG by improving AWMS practices. In total 3 farms with 3 sites are contracted in the state of Goiás, Brazil.

Project participant is AgCert Do Brasil Solucoes Ambientais Ltda. Host Party of the project activ-ity is Brazil.

The category of the project activity is in Scope 13 - Waste Handling and Disposal, and Scope 10 – Fugitive emissions from fuels (solid, oil and gas). The approved and applied baseline and monitoring methodology is Type III, Other Project Activities, Category III.D Methane Recovery for small scale project activities, Version 11. According to the PDD and involved parties the starting date of the project activity is August 4th, 2005. The crediting period is committed as a 10 years non renewable crediting period and it starts on 01/06/2007.

2 METHODOLOGY

The validation of the project consists of the following three phases:

- Desk review
- Follow-up interviews
- Resolution of clarification and corrective action requests

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

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

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

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

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

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

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

Figure 1 Validation Protocol Tables

2.1 Review of Documents

The project design document submitted by the client and additional background documents related to the project design and baseline were reviewed. The audit team has been provided with the first PDD-version issued on June 01, 2006 which had been made public on www.netinform.de. The project design document was assessed by some revisions addressing changes to the baseline and monitoring methodology requested by the CDM Executive Board and clarification requests issued by TÜV SÜD. The final updated PDD version 3 issued on December, 2006 serves as the basis for the assessment presented herewith.

2.2 Follow-up Interviews

In July 2006, see ref. 2, TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of the farms and AgCert Do Brasil Solucoes Ambientas Ltda were interviewed. The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Representatives of the farms	• Project design • Technical equipment • Sustainable development issues • Additionality • Crediting period • Monitoring plan • Management system • Environmental impacts • Stakeholder process
AgCert Brasil	• Project design

	• Technical equipment • Sustainable development issues • Baseline determination • Additionality • Crediting period • Monitoring plan • Environmental impacts • Stakeholder process • Approval by the host country

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the project design. The Corrective Action Requests (CAR) and Clarification Requests (CR) raised by TÜV SÜD were resolved during communications between the Client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the validation protocol in Annex 1.

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.

3 VALIDATION FINDINGS

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

1) The findings from the desk review of the project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Annex 1.

2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to fulfil project objectives, a Clarification Request or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Annex 1. The validation of the project resulted in Corrective Action Requests and Clarification Requests.

3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and TÜV SÜD to resolve these Clarification or Corrective Action Requests is summarized.

4) The final conclusions for validation subject are presented.

The validation findings relate to the project design as documented and described in the final project design documentation.

3.1 General Description of Project Activity

3.1.1 Discussion

The project participant is AgCert Do Brasil Solucuoes Ambientais Ltda. The project is developed by AgCert International PLC, Ireland. Brazil as the host Party meets all relevant participation requirements.

The objective of the project ”AWMS GHG Methane Recovery Project BR06-S–27 in the State Goiás, Brazil” is to apply to the farm GHG mitigation measures which will mitigate GHG emissions in an economically sustainable manner. The project foresees to replace the open air lagoons by positive pressure covered lagoon cells, creating ambient temperature anaerobic digesters.

The project design does reflect current good practice. The design has been professionally developed. A validation of the compatibility of the single components carried out by the project developer resulted in a positive conclusion. The project does moreover apply state of the art equipment.

The project boundaries are clearly defined. The project bundles 3 farms with installations of digesters at 3 sites being contracted in the State of Goiás, Brazil. During this assessment TÜV SÜD contacted and visited 3 sites indicated on the Information Reference List. As the project participant is operating/developing several similar CDM projects in the same or neighboring region, the validation process has shown that no farm of this project is included in any other existing PDD.

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.

Initial training and maintenance efforts are required. In the PDD and during the visit on site the project developer confirmed that such training has taken place and/or is envisaged. Documentation on executed and/or planned training activities has been submitted.

The project is currently in line with the relevant legislation and plans in the host country. The required environmental licenses are valid and have been submitted to the validation team.

The project is considered to be in line with the sustainable development policies of Brazil as improvements to manure management as well as energy supply are relevant issues in the national Brazilian policy. The final Letter of Approval by the Brazilian DNA will confirm the opinion of the DOE.

It can be expected that the project will create additional environmental benefits by reducing emissions of Volatile Organics Compounds (VOCs). The project does moreover improve the quality of the fertilizer produced as a by-product to the farming activities.

The funding for the project does not lead to a diversion of official development assistance, as according to the information obtained by the audit team, ODA does not contribute to the financing of the project.

The project starting date and the operational lifetime are clearly defined. The crediting period is clearly defined.

3.1.2 Findings

Corrective action request 1

It has to be added in the description of the project activity that project emissions occur and a short description of what such project emissions are.

Answer

Section A.2 of the PDD describes emissions of VOC's.

Clarification request 1:

The description of the technology to be applied provides a sufficient and transparent input to evaluate its impact on the greenhouse gas balance. However, it is not clear to the validation team whether the farms use an enclosed flare as it is described in the PDD. The validation team asks for a technical description including a technical drawing of the flare, where it is mentioned that farms are equipped with an enclosed flare and not an open flare, and for manufacturer evidence about the estimated efficiency

Answer:

Technical descriptions have been posted to the PDD supporting documents portal. An updated drawing of the enclosed flare has been posted to the PDD supporting documents portal. Please see Plano I Ground Level Flare in the "Components/Users Manuals" section.

Clarification request 2:

The number of bio digester modules and its size should be mentioned in the PDD. See also requested information of CR 1.

Answer:

The PDD clearly states digesters shall be sized sufficiently per project.

Clarification request 3

AgCert should inform the validation team when the construction of bio digesters will begin, where they have not started yet, and if it will be finished before the starting date of the crediting period.

Answer:

Construction will not begin until the project is registered.

Clarification request 4

In cases of increasing animal population where a new bio digester will be built within 2 years in a distance of less than one km from an existing one and the new bio digester will be part of another PDD, debundling occurs. AgCert should explain how it can be guaranteed that debundling will not take place over the time. AgCert should inform the validation team what monitoring measures do exist to guarantee that no debundling occurs.

Answer:

Site expansion can still be considered as part of the existing project activity.

Clarification request 5

The project developer is asked to be precise on the GPS coordinates in order to clearly locate bio digesters.

Answer:

Precise GPS coordinates have been included in version3 of PDD.

3.1.3 Conclusion

All Corrective Action Requests and Clarification Requests are considered to be reasonably resolved for the Validation. The validation team informed AgCert about the fact that if the beginning of the construction of bio digesters is after project registry and can not be finished until the start of the crediting period, the project activity may not generate the amount of CER credits as predicted.

The project is in line with appropriate regulations.

3.2 Baseline Methodology

3.2.1 Discussion

The project is based on the approved methodology: “Type III, Other Project Activities, Category III.D., Methane Recovery for small-scale projects, Version 11”. .The methodology has been approved by the CDM Executive Board. The selected methodology has been designed for this project and hence the project is part of the methodology on which it is build upon. Therefore the respective baseline methodology is deemed to be the most applicable one for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the baseline methodology.

The application of the methodology and the discussion and determination of the baseline are transparent. The application follows exactly each of the steps outlined in the methodology and answers the corresponding sections in a proper manner.

The baseline is been determined using reliable assumptions. The parameter “population” as one of the decisive parameters for the quantitative prognosis is determined by using reliable data and is moreover based on date obtained from a three year period in the past. In case of expected growth at the farm it has been considered in the PDD as well. During the visit on site the availability of such comprehensive data could be observed predominantly. Hence plausible data has been provided from traceable sources ensuring the reliability of the parameter. As the parameter is moreover monitored ex-post and compared with the metered data for biogas flow the correct amount of emissions reductions will be determined in the verification process.

The baseline has been based on project specific data and does sufficiently take into account policies and developments regarding legal, economic and social issues. There is no legal requirement to capture and combust greenhouse gases produced by swine manure in AWMS. There is currently also no planned legislation that is directed towards the emission of GHG as related to AWMS. The open air lagoon is hence considered the common AWMS practice in Brazil.

The project demonstrates via the description of barriers that it is not the baseline scenario. Each step of the respective section of the methodology has hereby been applied in a correct manner. The elaborations in the PDD got substantiated by an external expert review. Concluding it has been made clear that the continuation of the AWMS by operating open air lagoons would be the most attractive course of action and hence the baseline scenario. During the visit on site the project owner substantiated these arguments by describing the financial result of the operations in the last two years.

The economic performance, the legal constraints and the common practice have been identified as potential risks to the baseline. The subsequent evaluation resulted in the assessment that no major risks to the baseline exist. This assessment is considered as being plausible.

References have been made to all data sources used.

3.2.2 Findings

Corrective action request 2

The indicated population in the sites Ponta Verde and Paraiso wasn’t conservative and Agcert must review the PDDs data.

Answer:

Inventory information has been corrected.

Clarification request 6

Within the project boundary it should be mentioned the occurrence of project emissions and in those cases what project emissions, according to the methodology definition (CO2 emissions from use of fossil fuels or electricity for the operation of the facility), will occur after the implementation of the project activity and include them in the figure “B1 project boundary

Answer:

Direct project emissions are addressed in the version3 of PDD.

Clarification request 7:

It has to be indicated in the PDD date of completion in *DD/MM/YYYY a*nd contact information and indicate whether the person/entity is also a project participant, as listed in Annex 1.

Answer:

This information is included in version3 of PDD.

3.2.3 Conclusion

It has been used the version of the methodology, namely version 11. The baseline data, mainly population data, have been verified and are correct. The Clarification Requests are considered to be resolved as the Corrective Action Request as well.

To conclude,, it can be stated that it has been made plausible that the chosen baseline scenario is the one deemed most realistic under the given frame conditions.

The project is in line with appropriate regulations.

3.3 Duration of the Project / Crediting Period

3.3.1 Discussion

Both the starting date of the project activity and the crediting period are clearly determined as well as the lifetime of the project activity and the length of the fixed crediting period of 10 years.

3.3.2 Findings

The information provided was clear and no questions were raised.

3.3.3 Conclusion

Both duration of the project and crediting period are clearly defined in the PDD.

The project is in line with appropriate regulations.

3.4 Monitoring Plan

3.4.1 Discussion

The project is based on the approved monitoring methodology “Type III, Other Project Activities, Category III.D., Methane Recovery for small-scale projects, Version 11”. The methodology has been approved by the CDM Executive Board.

The respective monitoring methodology is deemed to be the most applicable one for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the monitoring methodology.

Details of the methodology as parameters to be obtained, recording frequency and archiving methods are considered being reasonable and appropriate.

The methodology and its application are described in detail and in a transparent manner. During the visit on site the implementation of the operations and maintenance manual and the data management system in order to ensure a proper implementation of the monitoring plan could be evidenced.

The monitoring plan does include all relevant parameters to determine baseline and project emissions and it is possible to monitor and/or measure the currently specified GHG indicators. The indicators which are not measured can be obtained from IPCC documents. The parameters defined allow calculating the baseline and projecting emissions in a proper manner.

According to the methodology no leakage calculation is required.

The project is considered to have no negative environmental, social and economic effects and a monitoring of such data is also not required by the applied monitoring methodology. This approach is deemed sufficient.

The PDD in combination with the Operations and Maintenance Manual does clearly indicate the authority and responsibilities within the given project structure. During the visit on site it has been described in detail how the respective organizational structure is already implemented and/ or planned. During the visit on site the validation team moreover realized that the project owner is well aware of the tasks and responsibilities.

The overall management responsibility is with AgCert International, Ireland. The company operates also trained staff in Brazil. The farm owner or representatives supports the AgCert staff during the on site audits and carries out the daily supervision of the project components and their performance. The responsibilities for each task are clearly defined and allocated to the Farm owners, AgCert and the service providers.

The quality and environmental management system (QMS and EMS), currently under implementation within AgCert, will help to support the project participants in operating the respective organizational structure.

3.4.2 Findings

Clarification request 8

It has not been possible to identify whether the flow meters are calibrated or to see any evidence of such as a calibration certificate, like indicated in the point 11 of the monitoring methodology III.D Methane recovery

Answer:

Flow meters are supplied by the manufacturer calibrated and sealed. They are supplied with a certificate of calibration.

Clarification request 9:

The monitoring of project emissions is not explicitly required according to applied methodology, however AgCert is requested to comment on how they would like to monitor potential project emissions in case they occur.

Answer:

This information is included as a requirement in version3 of PDD.

Clarification request 10

It has to be explained by AgCert what are the components of project emissions (e.g. methane part, which could not be captured by the bio digester and is released to the atmosphere after having passed the bio digester cells and still causes methane emissions or e.g. project emissions from additional pumping systems). It shall be explained by AgCert how project emission will be monitored.

Answer:

Components are identified in the project boundary diagram which was updated in the PDD. Additionally, project activity components direct emissions have been included in version3 of PDD.

Clarification request 11

How does Agcert guarantee that the flow meter which measures the amount of biogas produced is sealed and fully calibrated?

This is a key for a proper monitoring of the project. During the on-site visits the validation team could not always identify a seal of an authorized company and not persuade itself of a fully calibrated flow-meter. Agcert shall explain which monitoring measures are taken in order to guarantee sealed and fully calibrated flow-meters.

Answer:

Flow meters are supplied by the manufacturer calibrated and sealed. They are supplied with a certificate of calibration.

Clarification request 12:

Agcert should explain to the validation team how the proper monitoring loops like to guarantee that each farm uses North American and/or European genetics. Is there any monitoring/verification done at Agcert

Answer:

As has been previously discussed, pork producers cannot sustain a profitable business without the use of North American and/or European genetic stock.

Clarification request 13:

Table E6 of the PDD shows the uncertainty of parameters. However, it is not determined the uncertainty level for each ID. AgCert should add this information.

Answer:

Uncertainty factors are addressed in the Monitoring Plan.

Clarification request 14

There were no documented procedures to do the monitoring activity or assure the data quality.

Answer:

The “draft” Monitoring Plan can be found on the PDD supporting documents portal.

Clarification request 15

There were no documented procedures for training of monitoring personnel.

Answer:

The “draft” Monitoring Plan can be found on the PDD supporting documents portal.

Clarification request 16

There were no documented procedures for emergency preparedness for cases where emergencies can cause unintended emissions.

Answer:

The “draft” Monitoring Plan can be found on the PDD supporting documents portal.

3.4.3 Conclusion

The QA/QC manual for all involved staff and their responsibility regarding monitoring is ruled sufficiently. Signed contracts are submitted to the validation team.

The validation team can not identify any risks due to inadequate management structure or quality assurance. The above mentioned requests are answered sufficiently.

Regarding Clarification Request on calibration: The answer is acceptable at the early stage of the project; it can be expected that the certificate of calibration will be presented to the verification team.

Concerning genetics: the answer is plausible and it was confirmed during the on site visits. The project is in line with appropriate regulations.

3.5 Calculation of GHG Emissions by Source

3.5.1 Discussion

The project spatial boundaries are clearly described and limited to the farm site. An exact and correct description of the project boundaries is included in chapter B.4 of the PDD. The PDD

hereby also reflects correctly that emissions from barn systems and barn flushing systems are not considered as these emissions are not affected by the proposed practice change.

The projects components are clearly defined in the PDD and described in figure B1 of the PDD. During the visit on site the given information has been confirmed.

Details of direct and indirect emissions are discussed in the PDD in an appropriate manner. All aspects are covered by the current approach. Methane (CH4), nitrous oxide (N2O) and carbon dioxide (CO2) emissions have been considered.

The calculations resulting in the final numbers have been submitted. The formulae used are correctly applied.

Since most estimates are derived from accepted international sources, it seems reasonable to assume that they are accurate. The approach is deemed sufficient.

A leakage calculation is not necessary according to the methodology.

Concluding it can be stated that the project emissions will be reduced compared to the baseline scenario by 110,013 tonnes CO2e over a crediting period of ten years, resulting in a calculated annual average of 11,001 tonnes CO2 over a crediting period of ten years.

3.5.2 Findings

None.

3.5.3. Conclusion

The calculation of GHG emissions and used data are according to applied methodology and its requirements. The Clarification Request is considered to be resolved.

3.6 Environmental Impacts

3.6.1 Discussion

The environmental impacts can be seen as being low. These low impacts have been sufficiently described in the PDD.

The legislation does not require an EIA for this type of project. But an environmental license for the site is necessary. This requirement for approval has been fulfilled.

Negative environmental effects are not expected to be created by the project. Given the nature of the project design this seems to be reasonable.

Transboundary effects are not expected as the project site is far from the national boundary.

As no significant environmental impacts are expected, such impacts have not influenced the project design.

3.6.2 Findings

None

3.6.3 Conclusion

The project does comply with the environmental requirements. All environmental licences and respectively environmental protocols have been submitted to the validation team.

3.7 Comments by Local Stakeholders

3.7.1 Discussion

A formal consultation process with local stakeholders has taken place and corresponding information has been submitted to the audit team. The stakeholders consulted included people from the local community and also the representatives of the local communities and the states. In addition neighbours to the site have been interviewed.

The stakeholders have been invited to meetings via post and electronic mail and which has also been published in local and regional newspapers.

The comments to the project design have been recorded and provided. As all comments have been positive, the project design has not been changed due to stakeholder comments.

3.7.2 Findings

None

3.7.3 Conclusion

The Comments of the stakeholders were without exception positive. The project does comply with the requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on its website from **July 11 to August 9, 2006** and invited comments within 30 days, by Parties, stakeholders and non-governmental organizations.

Published:

http://www.netinform.de/KE/Wegweiser/Guide2.aspx?ID=1896&Ebene1_ID=26&Ebene2_ID=546&mode=1

During the commenting period there have been no comments received.

5 VALIDATION OPINION

The Certification Body ”Climate and Energy” has been ordered by AgCert International LLC, Ireland (AgCert International) to validate the project AWMS GHG Methane Recovery Project BR06-S–27 in the State of Goiás, Brazil .

By avoiding GHG emissions from open air lagoons, the project results in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the investment, technological and legal barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 110,013 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 11,001 tonnes CO_{2e} represents a reasonable estimation using the assumptions given by the project documents.

It is opinion of TÜV SÜD that the project as described in the final project design document issued on December, 2006, meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board; furthermore that the project meets all relevant host country criteria and correctly applies the baseline and monitoring methodology “Type III, Other Project Activities, Category III.D., Methane Recovery for small-scale projects, Version 11”.

Hence, TÜV SÜD will recommend the project for registration as CDM project activity by the CDM Executive Board.

Prior to the submission of this validation report to the CDM Executive Board, TÜV SÜD will have to receive the written approval of the DNA of involved parties, including confirmation by the DNA of Brazil that the project assists in achieving sustainable development.

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, 25.04.2007

Werner Betzenbichler
Head certification body
“climate and energy“

Munich, 25.04.2007

Markus Knödlseder
Project Manager

Industrie Service

Annex 1: Validation Protocol

Industrie Service

Table 1 Project's Environment

REQUIREMENT	REFERENCE	Comment	CONCLUSION
1. The host country shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	Brazil has ratified the Kyoto Protocol on August 23, 2002	☑
2. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	The Inter-Ministerial Commission on Global Climatic Change is the designated national authority for the CDM in Brazil.	☑
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	Yes. Section A2	☑
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved.	Kyoto Protocol Art. 12.5a, Marrakech Accords, CDM Modalities §40a	The Letter of Approval issued by the host country should be submitted to the audit team before registration.	Open issue
5. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3. A letter of approval for participants originating from Annex-I-Countries should be available.	Kyoto Protocol Art.12.2	Yes.	☑

REQUIREMENT	REFERENCE	Comment	CONCLUSION
6. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	The global stakeholder process has taken place from June 13, 2006 until July 12, 2006. No comments have been received.	☑
7. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	The PDD is in conformance with the currently valid CDM Project Design Document for small-scale project activities (version 02).	☑
8. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	The MoC issued by the project participants should be submitted to the audit team before registration	Open issue

Table 2 PDD

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity					
A.1. Project Title					
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	2,4	DR, I	Yes, the bundling is clearly defined and explains in the PDD and Bundling Form.	☑	☑
A.1.2. Are there an indication of a revision number and the date of the revision?	4	DR, I	Yes	☑	☑
A.1.3. Is this in consistency with the time line of the project's history?	1,2,4	DR, I	Yes	☑	☑
A.2. Description of the project activity					
A.2.1. Is the description delivering a transparent overview of the project activities?	2,4	DR, I	Yes, Activity project is clearly defined in the PDD.	☑	☑
A.2.2. Is all information provided in compliance with actual situation or planning?	2,4	DR, I	Yes	☑	☑
A.2.3. Are proofs available evidencing all information with relevance for the validity, for the determination of baseline and project emissions and for emission projections?	2,4	DR, I	The description of the project activity does not mention anything about project emissions which are calculated later in the PDD. **Corrective Action Request 1:** It has to be added in the description of the project activity that project emissions occur and a short description what does project emission include.	CAR 1	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.2.4. Is all information provided in consistency with details provided by further chapters of the PDD?	4	DR, I	See A.2.3	CAR 1	☑
A.3. Project Participants					
A.3.1. Is the form required for the indication of project participants correctly applied?	4	DR, I	Yes	☑	☑
A.3.2. Is the voluntary participation of all listed entities or Parties confirmed by each of them?	1,2,4	DR, I	Yes. The signed contracts between AgCert and the farmers is the confirmation of the voluntary participation.	☑	☑
A.3.3. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	4	DR, I	Yes	☑	☑
A.4. Technical description of the project activity					
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	2,4	DR, I	Yes	☑	☑
A.4.2. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	1,2,4	DR, I	Yes	☑	☑
A.4.3. Is the category(ies) of the project activity correctly identified?	4	DR, I	The category of the bundling are clearly identified in the PDD	☑	☑
A.4.4. Does the project design engineering reflect current good practices?	4	DR, I	Yes	☑	☑
A.4.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas	2,4,	DR, I	**Clarification request No 1**: The description of the technology to be ap-	CR 1	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
balance?			plied provides a sufficient and transparent input to evaluate its impact on the green-house gas balance. However, it is not clear to the validation team whether the farms use an enclosed flare as it is described in the PDD. The validation team asks for a technical description including a technical drawing of the flare, where it is mentioned that farms are equipped with an enclosed flare and not an open flare, and for an manufacturer evidence about the estimated efficiency.		
A.4.6. Is the brief explanation how the project will reduce greenhouse gas emission transparent and suitable?	4	DR, I	Yes, however see comment above.	☑	☑
A.4.7. Is all information provided in compliance with actual situation or planning as available by the project participants?	1,2	DR, I	Yes.	☑	☑
A.4.8. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1,2,4	DR, I	Yes, the technology used is not common in the host country and the project will improve the system. **Clarification request No 2** The number of bio digester modules and its size should be mentioned in the PDD.	CR 2	☑
A.4.9. Is the project technology likely to be substituted	1,2,4	DR,	See A.4.5	CR 1	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
by other or more efficient technologies within the project period?		I			
A.4.10. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2,4	DR, I	Yes, the training and a maintenance plan are considered. A manual in the host country language with this information and records training were submitted to the audit team.	☑	☑
A.4.11. Does the project make provisions for meeting training and maintenance needs?	1,2,4	DR, I	Yes.	☑	☑
A.4.12. Is a schedule available on the implementation of the project and are there any risks for delays?	1,2,4 ,14	DR, I	**Clarification request No 3** AgCert should inform the validation team when the construction of bio digesters will begin, where they have not started yet, and if it will be finished before the starting date of the crediting period.	CR 3	☑
A.4.13. Is the form required for the indication of projected emission reductions correctly applied?	4	DR, I	Yes.	☑	☑
A.5. Public Funding					
A.5.1. Is all information on public funding provided in compliance with actual situation or planning as available by the project participants?	1,2,4	DR, I	The project does not use any public funding. Section A.4.4. According to the information obtained by the audit team ODA does not contribute to the financing of the project	☑	☑
A.5.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 2)?	4	DR, I	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.6. Bundling/Debundling					
A.6.1. Is all information provided that the project activity is not a debundled component of a larger project activity?	4	DR	All information is provided in the PDD that the project activity is not a debundled component of a larger project activity. **Clarification request No 4** In cases of increasing animal population where a new bio digester will be built within 2 years in a distance of less than one kilometre from an existing one, and the new bio digester will be part of another PDD, debundling occurs. AgCert should explain how it can be guaranteed that debundling will not take place over the time. AgCert should inform the validation team what monitoring measures do exist to guarantee that no debundling occurs. **Clarification request No 5** The project developer is asked to be precise on the GPS coordinates in order to clearly locate bio digesters.	CR 4 CR 5	☑
B. Baseline Methodology					
B.1. Choice and Applicability					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	4,10	DR, I	The project developer shall add the Version number to the title of the approved baseline methodology, in order to create a clear reference.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.1.2. Is the choice of the methodology correctly justified by the PDD?	4,10	DR, I	Yes	☑	☑
B.1.3. Is the baseline methodology the one deemed most applicable for this project?	2,4, 10	DR, I	Yes. The methodology AMS III. D. is the only approved small-scale methodology applicable for this project	☑	☑
B.1.4. Is the project in conformance with all applicability criteria of the applied methodology?	2,4, 10	DR, I	Yes	☑	☑
B.2. Application of the Baseline Methodology / Identification of the Baseline Scenario					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	2,4, 10	DR, I	Yes.	☑	☑
B.2.2. Does the application consider all potential baseline scenarios in the discussion?	4,10	DR, I	Yes.	☑	☑
B.2.3. Is conservativeness addressed in the way of identifying the baseline?	4	DR, I	Yes. Confirmed during the on-site audit.	☑	☑
B.2.4. Has the baseline been established on a project-specific basis?	1,2,4	DR, I	Yes.	☑	☑
B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1,2,4	DR, I	Yes.	☑	☑
B.2.6. Is the baseline determination compatible with the available data?	2,4	DR, I	**Corrective Action Request 2** The indicated population in the sites Ponta	CAR 2	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Verde and Paraiso wasn't conservative and Agcert must review the ppd's data. Comment of the validation team: During the on-site visits it was not possible to get all the feed stock formula used, as they are all integrated farms and the owner of the animals is not the farmer himself, but a slaughterhouse. AgCert has to make sure that it is always informed about the feed stock formula for each farm and could react in case of dramatic changes of the formula.		
B.2.7. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	4	DR, I	Yes.	☑	☑
B.2.8. Does the PDD follow the approach for identifying the baseline scenario as given by the approved methodology?	4	DR, I	Yes.	☑	☑
B.2.9. Is all literature and sources clearly referenced?	4	DR, I	Yes.	☑	☑
B.3. Additionality					
B.3.1. Is the discussion of how emission reductions are archived by the project scenario in comparison to the identified project scenario provided in a transparent manner?	2,4	DR, I	Yes. The discussion of how emission reductions are achieved by the project scenario in comparison to the baseline scenario is provided in a transparent manner through a barrier analysis. The indicated barriers are plausible and could be partly verified on-site by the validation team.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.3.2. In case of using calculation models in order to demonstrate emission reductions: Are all formulae and input data based on provable records?	4	DR, I	For demonstrating the additionality no computer models have been applied	☑	☑
B.3.3. Does the PDD clearly demonstrate the additionality using the approach as given by the methodology?	4,10	DR, I	Yes. Section B3.	☑	☑
B.3.4. In case of using the additionality tool: Are all steps followed in a transparent and provable manner?	-	DR, I	Not relevant, because the additionality tool has not been used.	☑	☑
B.3.5. Does the discussion sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1,2,4	DR, I	Yes. Section B3.	☑	☑
B.3.6. Does the CDM registration have any impact on the implementation of the project?	1,2,4	DR, I	Without the CDM registration the project would not be implemented. The CDM registration plays a key role for the project.	☑	☑
B.3.7. Is the approach for demonstrating additionality provided by the most recent (or still applicable) methodology correctly applied?	4,10	DR, I	Yes. Section B3.	☑	☑
B.3.8. Are other proofs than anecdotal evidence for all assumptions and statements used by the additionality discussion?	4	DR, I	According to common practise and experience of the validation team it seems to be obvious that the operation of open lagoon system is the baseline scenario and that the farmers will not switch to bio digesting without the investment from AgCert.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.4. Project Boundary					
B.4.1. Are all emission related to the baseline scenario clearly identified and described in a complete manner?	2,4	DR, I	Yes. Section B4.	☑	☑
B.4.2. In case of grid connected electricity projects: Is the relevant grid correctly identified due to the EB guidance and the underlying methodology?	4	DR, I	Yes	☑	☑
B.4.3. Are all emission related to the project scenario clearly identified and described in a complete manner?	2,4	DR, I	Nothing is said about the project emissions which are mentioned in the PDD. **Clarification request No 6** Within the project boundary it should be mentioned the occurrence of project emissions and in those cases what project emissions, according to the methodology definition (CO_2 emissions from use of fossil fuels or electricity for the operation of the facility), will occur after the implementation of the project activity and include them in the figure “B1 project boundary	CR 6	☑
B.4.4. Are all emission related to leakage clearly identified and described in a complete manner?	-	DR, I	Not applicable as a leakage calculation is not required, according to the methodology.	☑	☑
B.5. Detailed Baseline Information					
B.5.1. Is there any indication of a date when determine the baseline?	4	DR, I	The data used to calculate the baseline emission is based on the inventory data of 12 months and is different to each one site. However it is not indicated in the PDD when	CR 7	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			the baseline was determined. **<u>Clarification request No 7</u>** It has to be indicated in the PDD the date of completion in *DD/MM/YYYY a*nd contact information and indicate whether the person/entity is also a project participant as listed in Annex 1.		
B.5.2. Is this in consistency with the time line of the PDD history?	4	DR, I	See B.5.1.	See CR 7	☑
B.5.3. Is all data required provided in a complete manner by annex 3 of the PDD?	4	DR, I	The baseline is given in the methodology. Small scale projects do not have an annex 3	☑	☑
B.5.4. Is all data given in compliance with the methodology?	4,10	DR, I	Yes	☑	☑
B.5.5. Is all data evidence by official data sources or replicable records?	4	DR, I	Yes. The use of farm software or Agcert form was evidenced.	☑	☑
B.5.6. Is the vintage of the baseline data correct?	2,4	DR, I	Even though if for almost each farm the population data is indicated for different months because of different dates of assessment by AgCert, the data vintage may be accepted by the validation team as for each farm the vintage of one year is guaranteed.	☑	☑
C. **Duration of the Project / Crediting Period**					
C.1.1. Are the project's starting date and operational	2,4	DR,	Yes. Section C.1.1.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
lifetime clearly defined and reasonable?		I			
C.1.2. 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)?	4	DR, I	Yes. Section C 1.2.	☑	☑
D. Monitoring Plan					
D.1. Monitoring Methodology					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	4,11	DR, I	Yes. The monitoring methodology AMS III.D "Methane Recovery" has been approved on May 12, 2006.	☑	☑
D.1.2. Is the choice of the methodology correctly justified by the PDD?	4,11	DR, I	Yes. Section D2.	☑	☑
D.1.3. Is the project in conformance with all applicability criteria of the applied methodology?	4,11	DR, I	**Clarification request No 8** It has not been possible to identify whether the flow meters are calibrated or to see any evidence of such as a calibration certificate, like indicated in the point 11 of the monitoring methodology III.D Methane recovery	CR 8	☑
D.1.4. Does the monitoring methodology provide a consistent approach in the context of all parameter to be monitored and further information provided by the PDD?	4,11	DR, I	The PDD includes the necessary parameters for the calculations.	☑	☑
D.1.5. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	4,11	DR, I	The applied and approved methodology does not specify the monitoring of project emissions	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.2. Monitoring of Project Emissions (if applied)					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	2,4,	DR, I	The monitoring plan does include relevant parameters to determine project emissions. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected. **Clarification Request 9** The monitoring of project emissions is not explicitly required according to applied methodology, however AgCert is requested to explain how project emissions would be monitored in case they occur.	CR 9	☑
D.2.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	2,4, 11	DR, I	Yes. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.	☑	☑
D.2.3. Will it be possible to determine the specified project GHG indicators?	2,4	DR, I	Yes, it is possible to monitor and/or measure the currently specified GHG indicators. Data is collected by the farmer in an Agcert's form and collected by Agcert representative. See CAR 2	See-CAR 2	☑
D.2.4. Will the indicators enable comparison of project data and performance over time?	2,4	DR, I	Yes	☑	☑
D.2.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation	2,4	DR, I	**Clarification Request 10** It has to be explained by AgCert what components project emissions do include (e.g.	CR 10	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
of the monitoring plan?			methane part, which could not be captured by the bio digester and is deliberated to the atmosphere after having passed the bio digester cells and still causes methane emissions or e.g. project emissions from additional pumping systems). It shall be explained by AgCert how project emission will be monitored		
D.2.6. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	2,4,	DR, I	Yes.	☑	☑
D.2.7. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	2,4	DR, I	Yes.	☑	☑
D.2.8. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	2,4	DR, I	Not all parameters used for the determination of project emissions are clearly described. Besides, it is not explained in the PDD by AgCert, what components project emissions do include. However, according to the methodology project emissions do not have to be monitored and may be therefore not requested by the validation team.	☑	☑
D.3. Monitoring of Baseline Emissions (if applied)					
D.3.1. Does the monitoring plan provide for the collec-	2,4	DR,	Yes, the monitoring plan does include all	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
tion and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions of the baseline emissions during the crediting period?		I	relevant parameters to determine project emissions. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.		
D.3.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	2,4	DR, I	Yes. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.	☑	☑
D.3.3. Will it be possible to determine the specified project GHG indicators?	2,4	DR, I	It is possible to monitor and/or measure the currently specified GHG indicators. In case of indicators which are not measured, they can be obtained from IPCC documents. **Clarification request 11** How does Agcert guarantee that the flow meter which measures the amount of biogas produced is sealed and fully calibrated? This is a key for a proper monitoring of the project. During the on-site visits the validation team could not always identify a seal of an authorized company and not persuade itself of a fully calibrated flow-meter. Agcert shall explain which monitoring measures are taken in order to guarantee sealed and fully calibrated flow-meters	CR 11	☑
D.3.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation	2,4	DR, I	Yes.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
of the monitoring plan?					
D.3.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	2,4	DR, I	Yes.	☑	☑
D.3.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	2,4	DR, I	Yes.	☑	☑
D.3.7. Are all formulas used to determine baseline emission clearly indicated and in compliance with the monitoring methodology.	2,4	DR, I	**Clarification Request 12** Not all formulae and parameters used to determine baseline emission are clearly indicated. The following abbreviations used in the Table E2 has to be explained in the PDD: - Days OB - BW kg - Cap EF It shall be explained, how the emission factors for finisher (33,82) and nursery (7,85) were calculated. Even if it is less than the calculated emission factor of 49,52 and hence more conservative, it should be made a note with a brief explanation. Those default values shall be noted in the PDD. Agcert should explain to the validation team	CR 12	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			how the proper monitoring loos like to guarantee that each farm uses North American and/or European genetics. Is there any monitoring/verification done at Agcert that identifies cases immediately if the genetics is changing.		
D.4. Direct Monitoring of Emission Reductions (if applied)					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring directly the greenhouse gas emissions reductions during the crediting period?	2,4	DR, I	All relevant data necessary for estimation or measuring the GHG emission reductions are provided.	☑	☑
D.4.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	2,4	DR, I	Yes. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.	☑	☑
D.4.3. Will it be possible to determine the specified project GHG indicators?	2,4	DR, I	Yes, it is possible to monitor and/or measure the currently specified GHG indicators. The indicators, which are not measured, can be obtained from IPCC documents.	☑	☑
D.4.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	2,4	DR, I	Yes.	☑	☑
D.4.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of po-	2,4	DR, I	Yes.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
tential for biases or intended or unintended changes in data records?					
D.4.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	2,4	DR, I	Yes.	☑	☑
D.4.7. Are all formulae used to determine project emission reductions clearly indicated and in compliance with the monitoring methodology.	2,4	DR, I	Yes.	☑	☑
D.5. Monitoring of Leakage (if applicable)					
D.5.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring of leakage emissions during the crediting period?	-	-	Not applicable as the project activity does not require a leakage calculation according to the methodology.	☑	☑
D.5.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	-	-	Not applicable.	☑	☑
D.5.3. Will it be possible to determine the specified project GHG indicators?	-	-	Not applicable	☑	☑
D.5.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	-	-	Not applicable	☑	☑
D.5.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of po-	-	-	Not applicable	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
tential for biases or intended or unintended changes in data records?					
D.5.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	-	-	Not applicable	☑	☑
D.5.7. Are all formulas used to determine leakage emissions clearly indicated and in compliance with the monitoring methodology.	-	-	Not applicable	☑	☑
D.6. Determination of Emission Reductions					
D.6.1. Are all formulas used to determine leakage emissions clearly indicated and in compliance with the monitoring methodology.	-	DR, I	Not applicable	☑	☑
D.6.2. Is the information given for each calculated variable sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	2,4	DR, I	Yes	☑	☑
D.7. Quality Control (QC) and Quality Assurance (QA) Procedures					
D.7.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	4	DR, I	Yes.	☑	☑
D.7.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	4	DR, I	**Clarification Request 13** Table E6 of the PDD shows the uncertainty parameters. However, it is not determined the uncertainty level for each ID. AgCert should add this information.	CR 13	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl	
D.7.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	4	DR, I	**Clarification Request 14** There were no documented procedures to do the monitoring activity or assure the data quality.	CR 14	☑	
D.7.4. Is it ensured that data will be bound to national or internal reference standards?	4	DR, I	Yes.	☑	☑	
D.7.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	4	DR, I	Yes.	☑	☑	
D.8. Operational and management structure						6,42
D.8.1. Is the authority and responsibility of project management clearly described?	2,4	DR, I	Yes. Confirmed in the audit.	☑	☑	
D.8.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	2,4	DR, I	Yes.	☑	☑	
D.8.3. Are procedures identified for training of monitoring personnel?	2,4, 12	DR, I	**Clarification Request 15** There were no documented procedures.	CR 15	☑	
D.8.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	2,4	DR, I	**Clarification Request 16** There were no documented procedures to cover those situations	CR 16	☑	
D.9. Monitoring Plan (Annex 4)						
D.9.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	4,12	DR, I	Yes. AgCert has developed a set of instruments in order to monitor the project in a specific manner. Nevertheless, the updated	☑	☑	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			PDD includes additional information providing more transparency		
D.9.2. Does the monitoring plan completely describes all measures to be implemented for monitoring all parameter required?	4,12	DR, I	Yes. Corresponding documents completely describe all measures to be implemented for monitoring all parameter required.	☑	☑
D.9.3. Does the monitoring plan completely describes all measures to be implemented for ensuring data quality of all parameter to be monitored?	4, 12	DR, I	The monitoring plan completely describes all measures to be implemented for ensuring data quality of all parameter to be monitored.	☑	☑
D.9.4. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	4,12	DR, I	Yes. The monitoring plan provides information on monitoring equipment and respective positioning in order to safeguard a proper installation.	☑	☑
D.9.5. Are procedures identified for calibration of monitoring equipment?	4,12	DR, I	See CR 9	CR 9	☑
D.9.6. Are procedures identified for maintenance of monitoring equipment and installations?	4,12	DR, I	Yes. The document “Especificação do Método” submitted to the validation team, describes such procedures in chapter 4.0.	☑	☑
D.9.7. Are procedures identified for monitoring, measurements and reporting?	4,12	DR, I	The processes for “Collecting” and “Handling” of data are described in the O &M Plan. Including QA/QC measures. Besides, the document “Especificação do Método” submitted to the validation team, describes such procedures in chapter 6.0 and 7.0.	☑	☑
D.9.8. Are procedures identified for day-to-day records	4,12	DR,	Yes. The document “Especificação do	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
handling (including what records to keep, storage area of records and how to process performance documentation)		I	Método" submitted to the validation team, describes such procedures in chapter 6.0.		
D.9.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	4,12	DR, I	Yes. The document "Especificação do Método" submitted to the validation team, describes such procedures in chapter 4.2 and 4.3.	☑	☑
D.9.10. Does the monitoring plan provide procedures identified for troubleshooting allowing redundant reconstruction of data in case of monitoring problems?	4,12	DR, I	The procedures for Emergency Maintenance notification are described in 4.3.1 of the O&M Plan. "Alternative Operating Procedures" designed to prevent unintended emissions are found in 4.2.2.7, 4.2.3.6, 4.2.4.5, and 4.2.5.5 of the O&M Plan. Besides, the document "Especificação do Método" submitted to the validation team, describes such procedures in chapter 4.2 and 4.3.	☑	☑
D.9.11. Are procedures identified for review of reported results/data?	1,4, 12	DR, I	Yes. Procedures are identified for review of reported results/data.	☑	☑
D.9.12. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	4	DR, I	Yes. See document I020-2, QA Process-Product Audits from 11/05/03.	☑	☑
D.9.13. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	4	DR, I	Yes. See document P025, Control of Measuring & Monitoring Devices (MMD) and document I031-5 Receiving Inspection from 19.02.04.	☑	☑
D.9.14. Are procedures identified for corrective actions	4	DR,	Yes .See document I005-1, Corrective and	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
in order to provide for more accurate future monitoring and reporting?		I	Preventive Actions from 21.07.03.		
E. Calculation of GHG Emissions by Source					
E.1. Predicted Project GHG Emissions					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	1,2,4	DR, I	Not all aspects related to direct and indirect GHG emissions are captured in the project design. See D.2.1.	See CR 10	☑
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	4	DR, I	Not all GHG calculations are documented in a complete and transparent manner. See D.2.1.	See CR 10	☑
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	4	DR, I	See D.2.1	See CR 10	☑
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	2,4 10	DR, I	Yes.	☑	☑
E.1.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	-	DR, I	Yes.	☑	☑
E.1.6. Is the projection based on provable input parameter?	-	DR, I	The projection is based on historical inventory data.	☑	☑
E.2. Leakage					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	-	DR, I	Not applicable as methodology does not require the calculation of leakage.	☑	☑
E.2.2. Have these leakage effects been properly accounted for in calculations?	-	DR, I	Not applicable	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.2.3. Have conservative assumptions been used to calculate leakage emissions?	-	DR, I	Not applicable	☑	☑
E.2.4. Are uncertainties in the leakage estimates properly addressed in the documentation?	-	DR, I	Not applicable	☑	☑
E.2.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	-	DR, I	Not applicable	☑	☑
E.2.6. Is the projection based on provable input parameter?	-	DR, I	Not applicable	☑	☑
E.3. Baseline Emissions					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	2,4, 10	DR, I	Yes.	☑	☑
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	2,4	DR, I	Yes	☑	☑
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	2,4	DR, I	Not all GHG calculations are documented in a complete and transparent manner. See D.2.1.	See CR 10	☑
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	4	DR,I	Yes. Confirmed in the audit.	☑	☑
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	4	DR, I	Yes	☑	☑
E.3.6. Is the projection based on same procedures as	-	DR,	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
used for later monitoring or acceptable alternative models?		I			
E.3.7. Is the projection based on provable input parameter?	2,4	DR, I	Yes	☑	☑
E.4. Emission Reductions					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	2,4	DR, I	Yes	☑	☑
E.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	4	DR, I	Yes.	☑	☑
E.4.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	2,4, 14	DR, I	Yes	☑	☑
F. Environmental Impacts					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	2,4	DR, I	Yes	☑	☑
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	2,4	DR, I	An EIA is not necessary.	☑	☑
F.1.3. Will the project create any adverse environmental effects?	2,4	DR, I	No	☑	☑
F.1.4. Are transboundary environmental impacts considered in the analysis?	2,4	DR, I	Yes	☑	☑
F.1.5. Have identified environmental impacts been addressed in the project design?	2,4	DR, I	Yes	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F.1.6. Does the project comply with environmental legislation in the host country?	2,4	DR, I	Yes	☑	☑
G. Stakeholder Comments					
G.1.1. Have relevant stakeholders been consulted?	2,3,4	DR, I	Yes	☑	☑
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	2,4	DR, I	Yes	☑	☑
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	-	DR, I	Yes	☑	☑
G.1.4. Is the undertaken stakeholder process described in a complete and transparent manner?	-	DR, I	Yes	☑	☑
G.1.5. Is a summary of the stakeholder comments received provided?	2,4	DR, I	Yes	☑	☑
G.1.6. Has due account been taken of any stakeholder comments received?	2,4	DR, I	No relevant comments form the Stakeholders.	☑	☑

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in tables 1 and 2	Summary of project owner response	Validation team conclusion
Open issue The MoC issued by the project participants should be submitted to the audit team before registration	Table 1	**OI –** The MoC will be posted to the PDD supporting documents portal upon receipt of the Final Report.	Issue is considered to be resolved. ☑
Clarification Request 1: The description of the technology to be applied provides a sufficient and transparent input to evaluate its impact on the greenhouse gas balance. However, it is not clear to the validation team whether the farms use an enclosed flare as it is described in the PDD. The validation team asks for a technical description including a technical drawing of the flare, where it is mentioned that farms are equipped with an enclosed flare and not an open flare, and for an manufacturer evidence about the estimated efficiency.	Table 2 A.4.5	**CR1 –** Technical descriptions have been posted to the PDD supporting documents portal. An updated drawing of the enclosed flare has been posted to the PDD supporting documents portal. Please see Plano I Ground Level Flare in the "Components/Users Manuals" section.	The envisioned flare is considered to be enclosed. ☑

Clarification Request 2 The number of bio digester modules and its size should be mentioned in the PDD.	Table 2 A.4.8	**CR2 –** The PDD clearly states digesters shall be sized sufficiently per project.	By submitting technical documents the validation team has been convinced that the biodigesters will be sufficiently sized. ☑
Clarification Request 3 AgCert should inform the validation team when the construction of bio digesters will begin, where they have not started yet, and if it will be finished before the starting date of the crediting period.	Table 2 A.4.12	**CR3 –** Construction will not begin until the project is registered.	The response is acceptable at the stage of validation. ☑
Clarification Request 4 In cases of increasing animal population where a new bio digester will be built within 2 years in a distance of less than one kilometre from an existing one, and the new bio digester will be part of another PDD, debundling occurs. AgCert should explain how it can be guaranteed that debundling will not take place over the time. AgCert should inform the validation team what monitoring measures do exist to guarantee that no debundling occurs.	Table 2 A.6.1	**CR4 –** Site expansion can still be considered as part of the existing project activity.	The PDD consider potential site expansions in appropriate chapters. ☑
Clarification Request 5 The project developer is asked to be precise on the GPS coordinates in order to clearly locate bio digesters.	Table 2 A.6.1	**CR5 -** Precise GPS coordinates have been included in the version 3 PDD.	Issue is considered to be resolved. ☑

Clarification Request 6 Within the project boundary it should be mentioned the occurrence of project emissions and in those cases what project emissions, according to the methodology definition (CO2 emissions from use of fossil fuels or electricity for the operation of the facility), will occur after the implementation of the project activity and include them in the figure "B1 project boundary	Table 2 B.4.3	CR6 – Direct project emissions are addressed in the version 3 PDD .	ssue is considered to be resolved. ☑
Clarification Request 7 It has to be indicated in the PDD the date of completion in *DD/MM/YYYY a*nd contact information and indicate whether the person/entity is also a project participant as listed in Annex 1.	Table 2 B.5.1	**CR7 –** This information is included in version 3 PDD.	Issue is considered to be resolved. ☑
Clarification Request 8 It has not been possible to identify whether the flow meters are calibrated or to see any evidence of such as a calibration certificate, like indicated in the point 11 of the monitoring methodology III.D Methane recovery	Table 2 D.1.3	**CR8 –** Flow meters are supplied by the manufacturer calibrated and sealed. They are supplied with a certificate of calibration.	The response is acceptable at the stage of validation. ☑
Clarification Request 9 The monitoring of project emissions is not explicitly required according to applied methodology; however AgCert is requested to explain how project emissions would be monitored in case they occur.	Table D.2.1	**CR9 –** This information is included as a requirement in the version 3 PDD.	Issue is considered to be resolved. ☑

Clarification Request 10 It has to be explained by AgCert what are the components of project emissions (e.g. methane part, which could not be captured by the bio digester and is released to the atmosphere after having passed the bio digester cells and still causes methane emissions or e.g. project emissions from additional pumping systems). It shall be explained by AgCert how project emission will be monitored.	Table D.2.5	**CR10 –** Direct project emissions are addressed in the version 3 PDD.	Project emissions have been addressed. Issue is considered to be resolved. ☑
Clarification Request 11 How does Agcert guarantee that the flow meter which measures the amount of biogas will measure correct. This is essential for a proper monitoring of the project. During the on-site visits the validation team could not always identify a seal of an authorized company and not persuade itself of a fully calibrated flow-meter. Agcert shall explain which monitoring measures are taken in order to guarantee sealed and fully calibrated flow-meters.	Table D.3.3	**CR11 –** Flow meters are supplied by the manufacturer calibrated and sealed. They are supplied with a certificate of calibration.	The response is acceptable at the stage of validation. ☑
Clarification Request 12 Agcert should explain to the validation team how the proper monitoring loos like to guarantee that each farm uses Nort American and/or European genetics.Is ther any monitoring/verification done at Agcert	Table D.3.7	**CR12 –** As has been previously discussed, pork producers cannot sustain a profitable business without the use of North American and/or European genetic stock.	The response is acceptable at the stage of validation. Issue is considered to be resolved. ☑

Clarification Request 13 Table E6 of the PDD shows the uncertainty parameters. However, it is not determined the uncertainty level for each ID. AgCert should add this information.	Table D.7.2	**CR13 –** Uncertainty factors are addressed in the Monitoring Plan.	Issue is considered to be resolved. ☑
Clarification Request 14 There were no documented procedures for the monitoring activity or assure the data quality.	Table D.7.3	**CR14 –** The "draft" Monitoring Plan can be found on the PDD supporting documents portal.	Issue is considered to be resolved. ☑
Clarification Request 15 There were no documented procedures.	Table D.8.3	**CR16 –** The "draft" Monitoring Plan can be found on the PDD supporting documents portal.	Issue is considered to be resolved. ☑
Clarification Request 16 There were no documented procedures to cover those situations	Table D.8.4	**CR17 –** The "draft" Monitoring Plan can be found on the PDD supporting documents portal.	Issue is considered to be resolved. ☑
Corrective Action Request 1 It has to be added in the description of the project activity that project emissions occur and a short description of what such project emissions are.	Table 2 A.2.3	**CAR1 –** Section A.2 of the PDD describes emissions of VOC's.	Issue is considered to be resolved. ☑
Corrective Action Request 2 The indicated population in the sites Ponta Verde and Paraiso wasn't conservative and Agcert must review the ppd's data..	Table 2 D.2.3	**CAR2 –** Inventory information has been corrected.	Issue is considered to be resolved. ☑

Annex 2: Information Reference List

Reference No.	Document or Type of Information
1	On-site interview at the offices of Agcert in São Paulo with the project developer conducted on June 16, 2006 by auditing team of TÜV SÜD **Validation team on-site:** Wilson Roberto Tomao TÜV SÜD Industrie Service GmbH **Interviewed persons:** Miguel Gastão Agcert David Lawrence Agcert
2	On-site interview at the sites by auditing team of TÜV SÜD on 08/08 and 09/08/2006 **Validation team on-site:** Wilson Roberto Tomao TÜV SÜD Industrie Service GmbH **Interviewed persons:** Wagner R. Caetano Agropecuária Ponta Verde Jefferson Fetter Fazenda Paraiso Luis Carlos Vilela Fazenda Paraiso Wilson S. Bueno Fazenda Bom Sucesso Raimundo P. Santos Fazenda Bom, Sucesso Gilson V. Duarte Agcert
3	O Popular Newspaper, December 06, 2005
4	Project Design Document AWMS GHG Methane Recovery Project BR06-S–27, Goiás, Brazil, DOCUMENT ID: BR06-S-27 VER 3, 8 DEC 2006
5	UNFCCC homepage http://www.unfccc.int

Reference No.	Document or Type of Information
6	Interim Measures for Operation and Management of Clean Development Mechanism Projects, NDRC, June 2004
7	Operation/Environmental Licenses
8	http://www.ambientebrasil.com.br
9	http://www.gaemg.org.br
10	Approved baseline methodology Type III, Other Project activities, Category III.D Methane recovery
11	Approved monitoring methodology Type III, Other Project activities, Category III.D Methane recovery
12	Form MS 004 – Flare monitoring
13	Carbon Contracts with each farm, pdf-files on TUV Support Documentation Portal,
14	Monitoring Documentation “Especificacao do Metodo”, submitted in October 2005.
15	Validation and Verification Manual, IETA/World Bank (PCF), http://www.vvmanual.info
16	Training records of Bom Sucesso Farm
17	Project Design Document AWMS GHG Methane Recovery Project BR06-S–27, Goiás, Brazil, version 1 from June 27 submitted in July 2006