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Validation Report

AGCERT INTERNATIONAL LIMITED, IRELAND

VALIDATION OF THE AWMS GHG MITIGATION PROJECT BR05-B-03, BRAZIL

Report No. 645204, Revision 01

2005, September 30

TÜV Industrie Service GmbH TÜV SÜD Group

Carbon Management Service
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Client:	AgCert International PLC, Ireland Sandyford Business Park The Apex Building Dublin 18 Ireland
Contract approved by:	Werner Betzenbichler
Report Title:	Validation of the project AWMS GHG Mitigation Project BR05-B-03, Brazil
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Summary:

The Certification Body "Climate and Energy" has been ordered by AgCert International LLC, 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 Mitigation Project BR05-B-03, Brazil", as described in the revised project design document of September 2005, 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 AM0016 / Ver. 02 entitled "*Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations*."

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.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 1,820,790 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 182,079 tonnes CO_2 represents a reasonable estimation using the assumptions given by the project documents.

Work carried out by:	• Michael Rumberg (Project manager, GHG lead auditor, Auditor Environmental Management Systems (ISO 14001)) • Markus Knödlseder (GHG lead auditor, Auditor Environmental Management Systems) • Tomao Wilson (GHG auditor, ISO 14001Auditor Local expert) • Johann Thaler (GHG auditor - trainee)	**Internal Quality Control by:** Werner Betzenbichler

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Abbreviations

AE	Applicant Operational Entity
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
TÜV SÜD	TÜV Industrie Service GmbH TÜV SÜD Group
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 Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the AWMS GHG Mitigation Project BR05-B-03, 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 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 validation is based on the information made available to TÜV SÜD and the engagement conditions detailed in this report. TÜV SÜD can not guarantee the accuracy or correctness of this information. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on this report.

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.

The audit team has been provided with a draft PDD in April 2005. 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 guidance given by the approved methodology and the CRs indicated in the audit process. This PDD version was submitted in July 2005 and published from July 12 to August 10, 2005. This public version which has also undergone a renewed document review, serves as the starting point for the assessment. This version submitted in September 2005 serves as the basis for the final assessment presented herewith.

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

- Ø Knowledge of Kyoto Protocol and the Marrakech Accords
- Ø Environmental and Social Impact Assessment
- Ø Skills in environmental auditing (ISO 14000, EMAS)
- Ø Quality assurance

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- Ø Agricultural operations especially regarding manure management
- Ø Technical aspects of gas flaring and biodigester operation
- Ø Monitoring concepts
- Ø Political, economical and technical random conditions in host country

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

Markus Knödlseder: After his professional training as chemical assistance Mr. Knödlseder studied environmental engineer at the University of Applied Science in Bingen, Germany. Beside his main focus in studies of environmental technologies, he dealt with environmental management and environmental controlling issues. He has been a staff at the department “Carbon Management Service” located in the head office of TÜV Industrie Service GmbH, TÜV SÜD Group in Munich since Oct. 2001. He has been involved in the topic of environmental auditing, baselining, monitoring and verification due to the requirements of the Kyoto Protocol with special focus on renewable energies. Mr. Knödlseder is also an auditor for environmental management systems (ISO 14.000).

Michael Rumberg is head of the division CDM/JI at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of validation, verification and certifications processes for greenhouse gas mitigation projects in the context of the Kyoto Protocol. Before entering this company he worked as an expert for renewable energy, forestry, environmental issues, climate change and sustainability within the environmental branch of an insurance company. His competences are covering risk assessments, quality and environmental auditing (EMS auditor), baseline setting, monitoring and verification due to the requirements of the Kyoto Protocol.

Mr. Wilson Tomao is lead auditor and former manager of TÜV Bayern Brazil. He is familiar with local laws and regulations and the assessment of technical installations. He assisted Mr. Betzenbichler during the on-site inspections and by evaluating documents submitting in Portuguese language.

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. Due to his emigration to Brazil he has been working for TÜV SÜD as a GHG auditor as a free lancer since March 2005.

The audit team covers the above mentioned requirements as follows:

- Ø Knowledge of Kyoto Protocol and the Marrakech Accords (Rumberg/Knödlseder/Tomao)
- Ø Environmental and Social Impact Assessment (All)
- Ø Skills in environmental auditing (ISO 14000, EMAS) (All)
- Ø Quality assurance (Knödlseder/Tomao)
- Ø Agricultural operations especially regarding manure management (Knödlseder/Tomao)
- Ø Technical aspects of gas flaring and biodigester operation (Knödlseder/Tomao)
- Ø Monitoring concepts (All)

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”:

- Ø Werner Betzenbichler (GHG lead auditor)

1.3 GHG Project Description

This project proposes to apply to multiple swine Confined Animal Feeding Operations (located in Minas Gerais, Mato Grosso, Mato Grosso do Sul and Goias, Brazil) a GHG mitigation methodology which is applicable to intensive livestock operations. The proposed project activities will mitigate AWMS GHG emissions in an economically sustainable manner, and will result in other environmental benefits, such as improved water quality and reduced odour. 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.

Project participants is AgCert Do Brasil Solucuoes Ambientas Ltda. The host party for this project activity is Brazil. In total 28 farmers with 31 sites are contracted in the states of Minas Gerais, São Paulo, Mato Grosso, Mato Grosso do Sul and Goais, Brazil.

The category of the project activity is in Sectoral Scope 13 - Waste Handling and Disposal, and Sectoral Scope 15 – Agriculture.

The starting date of the project activity is 20/04/04. The 10 year non renewable crediting period starts 01/03/2005.

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 customised 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 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 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 sub-divided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **Clarification** 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 summarised in this section.*	*This section should summarise 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 project design document underwent several revisions addressing changes to the baseline and monitoring methodology requested by the CDM Executive Board and clarification requests issued by TÜV SÜD. The audit team has been provided with a draft PDD in April 2005. The final PDD version submitted in July 2005 serves as the basis for the assessment presented herewith.

2.2 Follow-up Interviews

In the period of April 25 – May 5, 2005, 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 Solucuoes Ambientas Ltda were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Representatives of the farms	Ø Project design Ø Technical equipment Ø Sustainable development issues Ø Additionality Ø Crediting period Ø Monitoring plan Ø Management system Ø Environmental impacts Ø Stakeholder process
AgCert Brazil	Ø Project design Ø Technical equipment Ø Sustainable development issues Ø Baseline determination Ø Additionality Ø Crediting period Ø Monitoring plan Ø Environmental impacts Ø Stakeholder process Ø 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 and Clarification Requests 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 will be given are summarised in chapter 3 below and documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

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

1) The findings from the desk review of the project design documents and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the project resulted in no Corrective Action Requests and 32 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 summarised.
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 Project Design

3.1.1 Discussion

The project is developed by AgCert Do Brasil Solucuoes Ambientas Ltda, being also a project participant. Brazil as the host Party meets all relevant participation requirements. But the project has not been approved by the national DNAs yet and no Letter of Authorization has been issued.

The objective of the Project ” BR05 -B-03, 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 total 28 farmers with 31 sites are contracted for installations of digesters in the states of Minas Gerais, São Paulo, Mato Grosso, Mato Grosso do Sul and Goais, Brazil. During this assessment TÜV SÜD visited/contacted all farms indicated by the PDD. As the project participant is operating/developing several similar CDM projects in the same or neighbouring region, the validation process has shown that no farm of this project is included in any other existing (draft) 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 licences are valid and have been submitted to the validation team.

It is not clear whether Brazil requires any specific CDM requirements to be fulfilled. But 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 question can finally be answered after the issuance of the Letter of Approval by the Brazilian DNA.

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

Outstanding issue:

Letter of Approval given by involved parties are not submitted to the validation team.

> Response: The response will be given by the issuance of the Letter of Approval. This has not happened so far as the approval of the project depends on the review of the validation report which has to be submitted in advance.

Clarification Request No. 1:

The name of Fazenda Paraiso exists 3 times; table B1 in PDD is not transparent enough according to those farms.

> Response: A revised more transparent PDD was submitted.

Clarification Request No. 2:

Consideration of extra ordinary situation in the old manure management like the use of solid separators or the use of chemicals in order to treat the manure has to be described in detail. The numbers of planed bio digesters are not transparent enough in the PDD. Number of modules and size of each a/o in total has to be added.

> Response: A revised PDD was submitted, and information about envisaged engineering of bio digester is available in the office of AbCert in São Paulo. That information was reviewed by the validation team.
>
> The use of solid separators is not mandatory in Brazil. Some farmers use them to reduce the solid load to the lagoons. The solid separators separate bigger chunks like straw, sand or feed from the liquid manure.
>
> The validation team confirms that that treatment does not effect the calculation of emission reduction, because used IPCC default values do reflect only liquid manure.
>
> In contrary farmers that have not used solid separators in the past have produced actually more methane than calculated: The additional biogenic material that generates

methane under anaerobic conditions are not considered in the baseline calculation, that underlines a conservative approach.

Clarification Request No. 3:

At the farm of Fazenda Brejao were only 4 lagoons identifiable and not 6 like stated in the PDD. Has to be adjusted.

Response: A correct revised PDD was submitted. That updated information was reviewed by the validation team in the office of AgCert Brazil, also.

Clarification Request No. 4:

The PDD is not transparent how many old a/o new lagoons will be closed and how many will be in operation further on.

Response: A revised correct PDD was submitted. Additional, AgCert "Form B" contains lagoon information prior to the project; it is validated in AgCerts office in Brazil.

Clarification Request No. 5:

At the farm of Fazenda Alvorado were only 2 lagoons in operation and 2 lagoons which contain already solid parts. The PDD states 7 lagoons that indicate inconsistency.

Response: A correct revised PDD was submitted.

Clarification Request No. 6:

At the farms of COOAGRIL UPD 1, were only 4 lagoons identifiable and not 6 like stated in the PDD.

Response: A revised correct PDD was submitted. Additional, AgCert "Form B" contains lagoon information prior to the project and can be viewed at the office in Brazil. Further information like AWMS spreadsheet is forwarded.

Clarification Request No 7:

Table B1 in the PDD is regarding the farms of Fazenda Rio Doce – Talhado e Talhado. The numbers of baseline lagoons are not correct.

Response: A correct revised PDD was submitted.

Clarification Request No. 8:

The two farms of Paraiso (in the county of Goias) have 3 lagoons each and not 6 like stated in the PDD.

Response: A correct revised more transparent PDD was submitted.

Clarification Request No 9:

The manner of operation of the old lagoons is different from one farmer to the other. Also the connection is sometimes in parallel and sometimes in series, also the total time of retentions (from the barns until it is pumped to the fields) varies. The PDD should describe the old manure management in more detail and individually.

Response: A correct revised PDD was submitted.

Clarification Request No. 10:

The size of the old lagoons should be mentioned in the PDD.

Response: Additional acceptable information was submitted.

Clarification Request No. 11:

At the farm of Sinoeste II, where only 3 lagoons identifiable and not 4 like stated in the PDD.

Response: Both statements are correct depending on definition of lagoon. Appropriate information was checked during the second office audit in Brazil. The stated information in the revised PDD can be confirmed.

Clarification Request No. 12:

Yes, the project design does reflect current good practice. The design has been professionally developed. But a validation of the compatibility of the single components could not be evidenced during the visit on site. Documentation demonstrating such compatibility (check list after finishing construction and in the beginning commission phase) should be submitted to the assessment team.

Response: Demanded information was submitted.

Clarification Request No. 13:

The project does apply state of the art equipment. However, more detailed description of the design and technical characteristics of the applied equipment should be submitted to the validation team. It should be mentioned how the biogas will be used.

Response: Technical specifications are submitted. Biogas use can be found in section A.4.3 of the PDD.

Clarification Request No. 14:

Initial training and maintenance efforts are required. During the visit at the project site the project developer confirmed that such training has taken place and/or is envisaged. The respective documentation (signed participation list and/or date and content of the scheduled trainings) of all farms should be submitted to the validation team.

Response: Updated information about conducted and scheduled trainings is submitted.

3.1.3 Conclusion

The clarification requests have been resolved and the project does comply with the requirements. However the outstanding issue has to be answered before the project can be submitted for registration.

Further details to that conclusion are documented in annex 1 of that validation report.

3.2 Baseline and Additionality

3.2.1 Discussion

The project is based on the approved methodology: AM0016 “Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations”. The methodology has been approved by the CDM Executive Board at its 16th meeting in October 2004. 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. During the exhaustive visit on site the availability of such comprehensive data could be observed and also plausible explanation to changes in the size of the population was given. Hence plausible data has been provided from traceable sources ensuring the reliability of the parameter. As the parameter is moreover monitored ex-post 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.

Concluding 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 demonstrates via an economic analysis and 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 PDD does moreover elaborate on the starting date of the project activity and hereby successfully responds to the requirements defined in “step 0” of the “tool for the demonstration and assessment of additionality” approved by the EB (EB 16, annex 1). During the validation process the audit team obtained the information and evidenced that the start of project activities has been before the registration date of the first clean development mechanism project. It is described in detail and based on defined dates how the CDM has been taken into account from the beginning of the project.

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

Clarification Request No. 15:

The old manure management is described very generally. The process and retention time of the old system is not mentioned.

> Response: Submission of an updated PDD, the statement that with the exception of Minas Gerais retention time was 30 days, Minas Gerais would require a retention time of 60 days and additional information about old system.

Clarification Request No. 16:

The race of pigs should be mentioned for each farmer.

Response: Submission of an updated PDD, Table B1 indicates the general type of animal for each farm. Annex I country genetic sources will be identified on a by exception basis in Table B1 of the PDD.

Clarification Request No. 17:

The stated tables and numbers of pigs, listed in annex 3 of submitted PDD are not correct.

Response: An updated PDD was submitted.

Clarification Request No. 18:

The determination of the baseline is not transparent. Neither the calculation base for the new bio digester nor the determination method for getting the figures from the farmer is documented. It is not clear which data are used for the baseline calculation, hence its determination is unclear so far.

Response: Emission calculations have been submitted. AgCert uses the “most recent” 12 months data to determine the baseline. The AgCert “Form B” has been designed with the appropriate categories for capturing animal data regardless of the animal management system used by the farm site.

Clarification Request No. 19

The project demonstrates via an economic analysis and the description of various barriers that it is not the baseline scenario. Moreover is has been evidenced at a single site that the farmer faced economic losses in the last two years. The project has been partially implemented although a registration of the project as a CDM activity has not taken place. Please describe based on defined dates how the CDM has been taken into account from the beginning of the project in order to demonstrate the additionality of the project.

Response: Additional interviews with project developer clarified that AgCert was founded only for the purpose to develop and to run CDM projects.

Clarification Request No 20:

PDD does not address transparently where data about population comes from and which year(s) they represent.

Response: An updated PDD was submitted.

Clarification Request No 21:

The project starting date could be proven by the signed contracts between AgCert and the farmers. The operational lifetime is defined in a reasonable manner. The actual scheduled date of operation start of each project site should be submitted to the validation team.

Response: An updated PDD and all contracts with the farmers were submitted for demonstration additional the project developer noted that these dates were rough estimates. It is their understanding that actual start of credit period would be determined during initial verification audit. Further, start date of crediting period for non-prompt start projects could only begin after project registration, in which case the starting date will also be an estimate.

3.2.3 Conclusion

The on site audit identified strong differences in the farmers inventories and PDD, because the first submitted PDD was based on interviews. After addressing that finding in the draft report the project developer revised the figures based on sales balances of the farmers, which is the most reliable data source. Those values where checked again by the validation team and they meet the results from the onsite audit. That issue is resolved.

After scrutinizing the additional information and revised PDD, the validation team confirms that the project does comply with the requirements. The clarification requests have been resolved and the project does comply with the requirements. Further details to that conclusion are documented in annex 1 of that validation report.

Additional information about old AWMS is accepted and can be confirmed by on site assessments and plausibility checks.

3.3 Monitoring Plan

3.3.1 Discussion

The project is based on an approved monitoring methodology. The methodology has been approved by the CDM Executive Board at its 16th meeting in October 2004.

The selected methodology has been designed for this project and hence the project is part of the methodology it is build upon. Therefore 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 is described in detail and in a transparent manner. It is made clear that option “a) determination of GHG emissions using IPCC default parameters” has been chosen. 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.

The monitoring plan does include all relevant parameters to determine leakage emissions. In general, leakage emissions in the proposed project activity type depend on practice changes imposed and do not apply to all projects carried out under the respective methodology. In the project assessed herewith leakage emissions are expected not to occur. In order to ensure a conservative approach respective parameters (electrical power use) are nevertheless included in the monitoring plan. Other potential leakage effects have been evaluated and it has been demonstrated that these effects do not apply to this specific project.

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 organisational structure is already implemented and/ or planned. During the visit on site the validation team moreover realised 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 organisational structure.

3.3.2 Findings

Clarification Request No.22:

The monitoring plan shall include all parameters according to the approved methodology. Parameters which shall not be monitored have to be addressed in the PDD clearly and reasoned why they are not monitored. If these parameters are relevant for plausibility, calculation or transparency issues, the monitoring plan has to address clearly how these issues are handled and demonstrate that their negligence will not be a risk for verification.

Response: An updated PDD and additional information of QA/QC were submitted. Referring to chapter D.2.1. of PDD, as stated, not “All” parameters will be applicable to every project.

Clarification Request No.23:

The QA/QC measures defined in chapter D.3 should correspond with the approach in the methodology applied. The QA/QC procedures should be submitted to audit team and if documents are relevant it should be ensured that the farmer has a copy and is aware of the corresponding instructions.

Response: An updated PDD and additional information of QA/QC were submitted.

Clarification Request No.24:

The project developer shall address that risk clearly in the PDD and monitoring plan. The project developer shall describe how the risk of each leakage can be minimized.

Response: An updated PDD and additional information of QA/QC were submitted.

Clarification Request No.25:

The currently valid operation and maintenance guidelines and instructions currently developed to operate the project should be submitted. 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 organisational structure. In the PDD it is made reference to this system at various chapters.

Response: An updated PDD and additional information of QA/QC were submitted.

Clarification Request No.26:

As most of the variable data is obtained directly at the site of the project owner, it should be made clear, how the QMS and EMS system do help to direct the owner and ensure proper data handling before the data enters the data management system of AgCert. The certification of the currently implemented management systems through an independent auditor demonstrates the correct implementation of the system.

Response: An updated PDD and additional information of QA/QC were submitted.

Clarification Request No.27:

The last page of the contract signed with the owner should be submitted to the audit team.

Response: An updated PDD and additional information of QA/QC were submitted.

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Clarification Request No.28:

The PDD and the applied methodology include any kind of equipment for biogas treatment; the validation team however identified different responsibilities. If the farmer do not use the biogas for anything else than just burning with AgCerts given equipment than AgCert take responsibility about; in cases where the farmer wants to use the gas (heat, electricity, etc.), than the responsibility about monitoring and maintenance is up to the farmer. The monitoring and quality assurance system shall describe clearly and transparent the roles of all participants.

Response: An updated PDD and additional information of QA/QC were submitted.

Clarification Request No.29:

The responsibilities for all project participants are not clearly described.

Response: An updated PDD and additional information of QA/QC were submitted.

3.3.3 Conclusion

The QA/QC manual for all involved staff is sufficiently. The validation team accept that according to AM0016 not all parameters are necessary to estimate the baseline emissions. However, it should be noticed that most of the other parameters can be used for demonstrating the plausibility of measured data.

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.

3.4 Calculation of GHG Emissions

3.4.1 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 (CH_4), nitrous oxide (N_2O) and carbon dioxide (CO_2) 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. In addition the uncertainty of parameters applied has been evaluated and is documented in Table E1-1 in section E of the PDD. The approach is deemed sufficient.

Leakage emissions from increased electrical power consumption have been identified as being theoretically a source of leakage. But in the project leakage emissions are expected not to occur. In order to ensure a conservative approach the respective parameters are nevertheless calculated resulting in a positive leakage effect. The emission factor is hereby derived from one of the options mentioned in the methodology, but is not specifically

addressed to the project site. The positive leakage effect is in accordance with the methodology not taken into account.

Concluding it can be stated that the project emissions will be reduced compared to the baseline scenario by 1,820,790 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 182,079.

3.4.2 Findings

No negative leakage effects are expected out of the project activity. This is due to the project design and has been demonstrated by reliable calculations. The emission factor is hereby derived from one of the options mentioned in the methodology, but is not specifically addressed to the project site.

Clarification Request No.30:

The calculations resulting in the final numbers have not been submitted. The respective calculations should be submitted.

Response: Submission of underlying calculations

3.4.3 Conclusion

The project does comply with the requirements.

3.5 Environmental Impacts

3.5.1 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.

3.5.2 Findings

Clarification Request No.31:

Environmental licenses are necessary in order to comply with the regulations. Whether these requirements for approval have been fulfilled cannot be assessed as long as the licenses are not submitted to the audit team. Valid licences should be submitted.

Response: Valid licenses were submitted.

3.5.3 Conclusion

The project does comply with the requirements.

3.6 Comments by Local Stakeholders

3.6.1 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 State of Minas Gerais and São Paulo. 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.

A stakeholder process is required according to national CDM regulation.

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.

3.6.2 Findings

Clarification Request No.32:

Evidences of conducted stakeholder processes should be available to the validation team.

Response: Submission of information about conducted stakeholder meetings.

3.6.3 Conclusion

Comments of stakeholders were throughout 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 12 to August 10, 2005 and invited comments within 30 days, by Parties, stakeholders and non-governmental organisations. Published on http://www.netinform.de/KE/Wegweiser/Ebene1.aspx?Ebene1_ID=26.

4.1 Content of the comments received

A comment has been submitted on July, 23rd 2005 by Axel Michaelowa, Hamburger Welt-Wirtschafts-Archiv (HWWA). HWWA is an accredited observer organisation to the United Nations Framework Convention on Climate Change Conference of the Parties.

The comment has the following content:

"Dear colleagues,

This project and all the other AWMS projects currently under validation by TÜV Süd are bundling sites that are geographically dispersed. Bundling is only allowed for small-scale projects and the AWMS projects do not apply small-scale project rules but AM 0016. The AWMS projects would fall under category III.D and only can be bundled up to the maximum threshold of 15,000 t CO2 equivalent per year. […] my comment refers to […] AWMS GHG Mitigation Project BR05-B-03, Minas Gerais and Sao Paulo, […] "

4.2 Response by TÜV SÜD

The comment has been submitted during the 30 days stakeholder period and is submitted by an accredited observer organisation. Hence the comment had to be considered in the validation process.

TÜV SÜD has included the aspects addressed by the comment already in the discussions on-site and in his additional claims (CARs/CRs) in order to provide more details on the argumentation in the PDD.

TÜV SÜD came to the following conclusion:

The validation team does not follow that argumentation. The validation team can not identify any regulation which does not allow bundling of several sites. Furthermore such rules would contradict the definition of small scale project according to the Kyoto Protocol that a small scale project must not be part of a debundled project.

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5 VALIDATION OPINION

The Certification Body ”Climate and Energy” has been ordered by AgCert International LLC, 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 Mitigation Project BR05-B-03, Brazil”, as described in the revised project design document of September 2005, 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 AM0016 / Ver. 02 entitled “*Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations*.”

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.

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 economic comparison with alternative scenarios and an analysis of the investment and technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented 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 1,820,790 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 182,079 tonnes CO_2 represents a reasonable estimation using the assumptions given by the project documents.

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, 2005-09-29

Werner Betzenbichler

Head certification body “climate and energy“

Munich, 2005-09-29

Michael Rumberg

Project Manager

Industrie Service

Appendix A: Validation Protocol

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

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	See below	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a	See below	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	See below	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a	Outstanding issue	The project has not obtained such an approval from Brazilian government so far. No documentation has been submitted to the validation team.
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	See below	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43	See below	Table 2, Section B.2
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Ac-	þ	The funding for the project does not lead to a diversion of official

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
	cords		development assistance as ODA does not contribute to the financing of the project.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	Outstanding issue	Brazil as Host Country has a designated national authority (DNA) for the CDM in place. However Ireland does not have established a DNA yet. Recommendation: As far as Ireland has no DNA the project should be unilateral.
9. The host country shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §29	þ	Brazil has ratified the Kyoto Protocol on August 23, 2002.
10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Accords, CDM Modalities §37b	See below	Table 2, Section G
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be CRried out.	Marrakech Accords, CDM Modalities §37c	See below	Table 2, Section F
12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	See below	Table 2, Section B.1.1 and D.1.1
13. Provisions for monitoring, verification and reporting shall be in	Marrakech Ac-	See below	Table 2, Section D

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	cords, CDM Modalities §37f		
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 29 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	þ	A global public stakeholder process on the UNFCCC website has taken place.
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, CDM Modalities, §45c,d	See below	Table 2, Section B.2
16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, CDM Modalities, §47	See below	Table 2, Section B.2
17. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	þ	The PDD is in conformance with the CDM Project Design Document (version 02).

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	1,2, 3,4	DR, I	The project spatial boundaries are clearly described.	þ	þ
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1,2, 3,4	DR, I	The projects components are defined. Following adjustments are recommended: **Clarification Request No** 1: The name of Fazenda Paraiso exists 3 times; table B1 is not transparent enough according to those farms. Has to be adjusted. **Clarification Request No** 2: The numbers of bio digesters are not transparent and the extra ordinary circumstances shall be addressed clearly. **Clarification Request No** 3: At the farm of Fazenda Brejao were only 4 lagoons identifiable and not 6 like stated in the PDD. **Clarification Request No** 4: The PDD is not transparent how many old a/o new lagoons will be closed and how many will be	CR 1 - CR 11	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			in operation further on. **Clarification Request No** 5: At the farm of Fazenda Alvorado were only 2 lagoons in operation and 2 lagoons which contain already solid parts. The PDD states 7 lagoons. Has to be adjusted. Additional the PDD shall notice extraordinary situation. **Clarification Request No** 6: At the farms of COOAGRIL UPD 1, were only 4 lagoons identifiable and not 6 like stated in the PDD. Has to be adjusted. **Clarification Request No** 7: Table B1 in the PDD is regarding the farms of Fazenda Rio Doce – Talhado e Talhado. The numbers of baseline lagoons are not correct. Has to be adjusted. **Clarification Request No** 8: The two farms of Paraiso (in the county of Goias) have 3 lagoons each and not 6 like stated in the PDD. Has to be adjusted and clarified. **Clarification Request No** 9: The manner of operation of the old lagoons is different from one farmer to the other. Also the connection is sometimes in parallel and sometimes in series, also the total time of retentions (from the barns until it is pumped to the fields) varies. The PDD should describe the old manure manage-		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			ment in more detail and individually. **Clarification Request No 10:** The size of the old lagoons should be mentioned in the PDD. **Clarification Request No 11**: At the farm of Sinoeste II, were only 3 lagoons identifiable and not 4 like stated in the PDD. Has to be adjusted.		
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?	1,2, 3,4,5 9,	DR, I	Yes, the project design does reflect current good practice. The design has been professionally developed. But a validation of the compatibility of the single components could not be evidenced during the visit on site. **Clarification Request No** 12: Documentation demonstrating such compatibility (check list after finishing construction and in the beginning commission phase) should be submitted to the assessment team.	CR 12	þ
A.2.2. Does the project use state of the art technology or would the technology result in a significantly	1,2, 3,4,5	DR, I	Yes, the project does apply state of the art equipment.	CR 13	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
better performance than any commonly used technologies in the host country?	9,14, 15, 16, 20		**Clarification Request No 13**: A more detailed description of the design and technical characteristics of the applied equipment should be submitted to the validation team. It should be mentioned how the biogas will be used. See also: CR 2:The numbers of planed bio digesters are not transparent enough in the PDD. Number of modules and size of each a/o in total has to be added. CR 4:The PDD is not transparent how many old a/o new lagoons will be closed and how many will be continuingly in operation. Should be adjusted.		
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,2, 3,4,5 7, 9, 14, 15, 16, 20	DR, I	No, 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, but additional components could be added using biogas to heat the barns a/o produce electricity. Should be mentioned, see CR 13	þ	þ
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2, 3,4,5 9,14, 15, 16,	DR, I	Yes, initial training and maintenance efforts are required. During the visit at the project site the project developer confirmed that such training has taken place and/or is envisaged.	CR 14	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	20		**Clarification Request No** 14: The respective documentation (signed participation list and/or date and content of the scheduled trainings) of all farms should be submitted to the validation team.		
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1,2,3 4, 5, 10	DR, I	See comment above.	CR 14	þ
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	1,2,3 4, 5, 11	DR, I	The project is generally in line with the relevant legislation and plans in the host country. The audit team assessed the existence of the environmental licenses at the single sites and checked whether the necessary actions to comply with the requirements formulated as a result of the last assessment process haven been undertaken.	þ	þ
A.3.2. Is the project in line with host-country specific CDM requirements?	1,2,3 4, 5, 11	DR, I	Brazil has published any specific CDM requirements.	þ	þ
A.3.3. Is the project in line with sustainable development policies of the host country?	1,2,3 4, 5, 11	DR, I	Yes, the project is 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.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	1,2,3 4, 5	DR, I	Yes. It can be expected that the project will create additional environmental benefits by reducing emissions of Volatile Organics Compounds (VOCs) by better fertilizing output. Additionally, the old manure management will be improved, which helps to protect the environmental.	þ	þ
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate & whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	1,2,3 4, 5	DR, I	Yes, the project is based on an approved methodology: AM0016 “GHG emission reduction from manure management systems”.	þ	þ
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1,2,3 4, 5	DR, I	Yes, the methodology is one out of two existing for the respective project type being most applicable for this project.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1,2,3 4, 5	DR, I	Yes, the application is transparent. The determination of the baseline is neither correct nor transparent. The determination of the baseline is generally based on the old manure management, the determination of the amount of pigs, their number of themselves and the retention time of the manure in the old lagoons (and maybe its treatment where relevant). Following finding are identified and must be corrected: **Clarification Request No** 15: The old manure management is described very generally. The process and retention time of the old system is not mentioned. **Clarification Request No** 16: The race of pigs should be mentioned for each farmer. **Clarification Request No** 17: The stated tables and numbers of pigs, listed in annex 3 of submitted PDD are 90% wrong. **Clarification Request No** 18: The determination of the baseline is not trans-	CR 15 - CR 18	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			parent. Neither the calculation base for the new biodigester nor the determination method for getting the figures from the farmer is documented. It is not clear which data are used for the baseline calculation, hence its determination is unclear so far.		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1,2,3 4, 5	DR, I	Can not be assessed so far, because underlying data is almost completely wrong (see B.2.1.). Recommendation: As mentioned above the old manure management (how often foes the famer cleans the barns, how much water he uses, manure treatment, etc.), the size of the old lagoons (retention time, connecting system of the lagoons) and the population (changes in future /history) affects the baseline. Hence, those have to be considered in a conservative determination approach.	Open	þ
B.2.3. Has the baseline been established on a project-specific basis?	1,2,3 4, 5	DR, I	Yes, the baseline has mainly been based on project specific data but the data for Step 3 “Economic comparison” is not project specific but refers to a typical swine farm and is reviewed by economist.	þ	þ
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspi-	1,2,3 4, 5	DR, I	Yes, the baseline scenario sufficiently takes into account the respective effects.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
rations?					
B.2.5. Is the baseline determination compatible with the available data?	1,2,3 4, 5	DR, I	See comment B.2.2	open	þ
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	1,2,3 4, 5	DR, I	Yes, it has been made plausible that the chosen baseline scenario is the one deemed most realistic under the given frame conditions.	þ	þ
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	1,2,3 4, 5, 7	DR, I	The project demonstrates via an economic analysis and the description of various barriers that it is not the baseline scenario. Moreover is has been evidenced at a single site that the farmer faced economic losses in the last two years. **Clarification Request No** 19 The project has been partially implemented although a registration of the project as a CDM activity has not taken place. Please describe in chapter B2 (i.e. as step 0) and based on defined dates how the CDM has been taken into account from the beginning of the project in order to demonstrate the additionality of the project.	CR 19	þ
B.2.8. Have the major risks to the baseline been identified?	1,2,3 4, 5	DR, I	Can not be assessed completely so far because underlying data is almost completely wrong (see B.2.2.) or background data about the old manure management and system are not submitted.	Open	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			As already mentioned the manner of determination of the population and the change of population is one of the major risks. Should be addressed in the PDD.		
B.2.9. Is all literature and sources clearly referenced?	3, 4, 5	DR, I	**Clarification Request No 20**: PDD does not address transparently where data about population comes from and which year(s) they represent. Should be added.	CR 20	þ
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1,2,3 4, 5	DR, I	The project starting date could be proven by the signed contracts between AgCert and the farmers. The operational lifetime is defined in a reasonable manner. **Clarification Request No** 21: The actual scheduled date of operation start of each project site should be submitted to the validation team.	CR 21	þ
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	1,2,3 4, 5	DR, I	Yes, the crediting period should start on 15. Jul. 2005. <u>Recommendation</u> Due to that lot bio digesters have not been started with construction during the on-site audit in week 17/2005, the project owner	open	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			shall prove that that date is still realistic. Need for a statement.		
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	1,2,3 4, 5, 24, 25, 27	DR, I	Yes, the project is based on an approved methodology.	þ	þ
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	1,2,3 4, 5, , 24, 25, 27	DR, I	Yes.	þ	þ
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	1,2,3 4, 5, 24, 25, 27	DR, I	Yes.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	1,2,3 4, 5, 24, 25, 27	DR, I	Yes.	þ	þ
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. 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?	1,2,3 4, 5, 17, 18, 19, 22, 23, 24, 25,	DR, I	Yes, the monitoring plan does include all parameters to determine project emissions according to the requirements of the methodology, but it does not consider all parameters, which have to be monitored according to the methodology. **Clarification Request No** 22: The monitoring plan shall include all parameters according to the approved methodology. Parameters which shall not be monitored have to be addressed in the PDD clearly and reasoned why they are not monitored. If these parameters are relevant for plausibility, calculation or transparency issues, the monitoring plan has to address clearly how these issues are handled and demonstrate that their negligence will not be a risk for verification. **Clarification Request No** 23: The	CR 22 - CR 24	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			QA/QC measures defined in chapter D.3 should correspond to the approach in the methodology applied. The QA/QC procedures should be submitted to audit team and if documents are relevant it should be ensured that the farmer has a copy and is aware of the corresponding instructions.		
D.2.2. Are the choices of project GHG indicators reasonable?	1,2,3 4, 5	DR, I	Yes	þ	þ
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1,2,3 4, 5	DR, I	Yes, it is possible to monitor and/or measure the currently specified GHG indicators.	þ	þ
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	1,2,3 4, 5	DR, I	Yes.	þ	þ
D.2.5. Will the indicators enable comparison of project data and performance over time?	1,2,3 4, 5	DR, I	Yes.	þ	þ
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1,2,3 4, 5	DR, I	It has been demonstrated in a plausible manner that leakage emissions are not expected to occur in a different manner between both scenarios. Recommendation: It is advisable to report the cases and the duration when the flare does not work regularly and biogas emits by water seal.	CR 24	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			The monitoring plan and procedure shall consider that aspect. Additional, the construction team should consider that aspect by installing any waning systems at the combustion unit when anything (e.g. pump or flare) does not work properly or gas passes off through the water seal. The monitoring plan also does not consider so far any defects of the layer. Leaks in the layer are the most obvious leakages. The current monitoring plan gives no option for plausibility checks and no option for comparability between amounts of animal, produced manure including used water. So leakages being occurred by lower retention time due to too small bio digesters or manure which is not treated by the bio digester can not be identified. **Clarification Request No** 24: The project developer shall address that risk clearly in the PDD and monitoring plan. The project developer shall describe how the risk of each leakage can be minimized.		
D.3.2. Have relevant indicators for GHG leakage been included?	-	DR, I	See comment D.3.1	Open	þ
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	-	DR, I	See comment D.3.1	Open	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	-	DR, I	See comment D.3.1	Open	þ
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	1,2,3 4, 5, 13, 17, 18, 19, 22, 23, 24, 25, 26	DR, I	Yes, the monitoring plan does include all minimum parameters to determine baseline emissions according to the requirements of the methodology. See recommendations D.2.1. Recommendation: As above mentioned the risk of data mixing and data losses by transferring the population data from the farmer to AgCert is real. Hence, it is very advisable to document the procedures. The monitoring plan shall consider that systems on both sides of data determination can change in future.	þ	þ
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1,2,3 4, 5	DR, I	No, current PDD does not explain why the monitoring plan neglect to monitor specific parameter, which has to be monitored according to the applied methodology. See D.2.1., also.	open	þ
D.4.3. Will it be possible to monitor the specified baseline indicators?	1,2,3 4, 5	DR, I	Yes, it is possible to monitor and/or measure the currently specified GHG indicators.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	1,2,3 4, 5	DR, I	No, as a monitoring of such data is not required by the applied monitoring methodology.	þ	þ
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	-	DR, I	See comment D.5.2	þ	þ
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	-	DR, I	See comment D.5.2	þ	þ
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	-	DR, I	See comment D.5.2	þ	þ
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	1,2,3 4, 5, 13, 17, 18, 19, 22, 23,	DR, I	The PDD does not clearly indicate the authority and responsibilities within the given project structure and no further documentation has been submitted so far. During the visit AgCert has described in detail how the respective organisational structure is already implemented and/ or planned. Further documents should reflect	CR 25 - CR 29	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	24, 25, 26		the actual and/or planned situation on site. The audit findings on site showed that the responsibilities are defined and communicated. **Clarification Request No** 25: The currently valid operation and maintenance guidelines and instructions currently developed to operate the project should be submitted as soon as possible. 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 organisational structure. In the PDD it is made reference to this system at various chapters. **Clarification Request No** 26: As most of the variable data is obtained directly at the site of the project owner, it should be made clear, how the QMS and EMS system do help to direct the owner and ensure proper data handling before the data enters the data management system of AgCert. The certification of the currently implemented management systems through an independent auditor demonstrates the correct implementation of the system. **Clarification Request No** 27:		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			The last page of the contract signed with the owner should be submitted to the audit team. **Clarification Request No** 28: The PDD and the applied methodology include any kind of equipment for biogas treatment; the validation team however identified different responsibilities. If the farmer do not use the biogas for anything else than just burning with AgCerts given equipment than AgCert take responsibility about; in cases where the farmer wants to use the gas (heat, electricity, etc.), than the responsibility about monitoring and maintenance is up to the farmer. The monitoring and quality assurance system shall describe clearly and transparent the roles of all participants.		
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	1,2,3 4, 5, 13,	DR, I	The responsibilities for all project participants are not clearly described in the PDD. **Clarification Request No** 29: Should be added	CR 29	þ
D.6.3. Are procedures identified for training of monitoring personnel?	1,2,3 4, 5, 13,	DR, I	See comment CR 25	CR 26	þ
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1,2,3 4, 5, 13,	DR, I	No, procedures for emergency cases are not described in the PDD. However, it is ruled in the management system of Ag-	CR 24	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Cert. See D.3.1.		
D.6.5. Are procedures identified for calibration of monitoring equipment?	-	DR, I	See comment CR 25	CR 25	þ
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	-	DR, I	See comment CR 25	CR 25	þ
D.6.7. Are procedures identified for monitoring, measurements and reporting?	-	DR, I	See comment CR 25	CR 25	þ
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	-	DR, I	See comment CR 25	CR 25	þ
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	-	DR, I	See comment CR 25	CR 25	þ
D.6.10. Are procedures identified for review of reported results/data?	-	DR, I	See comment CR 25	CR 25	þ
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	-	DR, I	See comment CR 25	CR 25	þ
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	-	DR, I	See comment CR 25	CR 25	þ
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	-	DR, I	See comment CR 25	CR 25	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Predicted Project GHG Emissions *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	1,2,3 4, 5, 6,	DR, I	Yes, all significant aspects are covered by the current approach.	þ	þ
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	1,2,3 4, 5, 6,	DR, I	No, the calculations resulting in the final numbers have not been submitted. **Clarification Request No** 30. The respective calculations should be submitted.	CR 30	þ
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1,2,3 4, 5, 6,	DR, I	See comment E 1.2 If conservative assumptions are used cannot be assessed as long as the calculations have not been submitted	CR 30	þ
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1,2,3 4, 5, 6,	DR, I	No. **Clarification Request No** 31: The PDD should cover this issue in a reasonable manner.	CR 31	þ
E.1.5. Have all relevant greenhouse gases and source	1,2,3	DR,	Yes.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
categories listed in Kyoto Protocol Annex A been evaluated?	4, 5, 6,	I			
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	1,2,3 4, 5, 6,	DR, I	Yes.	þ	þ
E.2.2. Have these leakage effects been properly accounted for in calculations?	1,2,3 4, 5, 6,	DR, I	Not validated See comment E 1.2	CR 30	þ
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	1,2,3 4, 5, 6,	DR, I	Yes.	þ	þ
E.2.4. Are the calculations documented in a complete and transparent manner?	1,2,3 4, 5, 6,	DR, I	Not validated See comment E 1.2	CR 30	þ
E.2.5. Have conservative assumptions been used when calculating leakage?	-	DR, I	Not validated See comment E 1.3	CR 30	þ
E.2.6. Are uncertainties in the leakage estimates properly addressed?	1,2,3 4, 5, 6,	DR, I	Yes.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.3. Baseline Emissions *The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	1,2,3 4, 5, 6,	DR, I	In general yes, but the results of determination of the raw data have to be adjusted. See above.	Open	þ
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1,2,3 4, 5, 6,	DR, I	Yes.	þ	þ
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1,2,3 4, 5, 6,	DR, I	Not validated See comment E 1.2	CR 32	þ
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	1,2,3 4, 5, 6,	DR, I	Not validated See comment E 1.2	CR 30	þ
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1,2,3 4, 5, 6,	DR, I	Not validated See comment E 1.4	CR 31	þ
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	1,2,3 4, 5, 6,	DR, I	Yes.	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1,2,3 4, 5, 6,	DR, I	Yes.	þ	þ
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1,2,3 4, 5	DR, I	Yes, the environmental impacts can be seen as being low. These low impacts have been sufficiently described in the PDD.	þ	þ
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1,2,3 4, 5	DR, I	Environmental licenses are necessary in order to comply with the regulations. Whether these requirements for approval have been fulfilled cannot be assessed as long as the licenses are not submitted to the audit team. **Clarification Request No** 32: Valid licences should be submitted.	CR 32	þ
F.1.3. Will the project create any adverse environmental effects?	1,2,3 4, 5	DR, I	No, negative environmental effects are not expected to be created by the project.	þ	þ
F.1.4. Are transboundary environmental impacts considered in the analysis?	1,2,3 4, 5	DR, I	Positive transboundary environmental impacts are expected, due to the new	þ	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			equipment and the need for regular monitoring accidents can be identified easier.		
F.1.5. Have identified environmental impacts been addressed in the project design?	1,2,3 4, 5	DR, I	As no significant environmental impacts are expected, such impacts have not influenced the project design.	þ	þ
F.1.6. Does the project comply with environmental legislation in the host country?	1,2,3 4, 5	DR, I	Yes.	þ	þ
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	1,2,3 4, 5, 12	DR, I	Yes, the stakeholders included people from the local community and representatives of the appropriate states where the farms are located. The project was published in a regional newspaper and several letters from the local authorities supporting the project were received. **Clarification Request No** 33 Evidences of conducted stakeholder processes should be available to the validation team.	CR 33	þ
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1,2,3 4, 5, 12	DR, I	Yes, the stakeholders have been invited to a meeting. See G.1.1.	CR 33	þ
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the	1,2,3 4, 5,	DR, I	A stakeholder process is required. **Clarification Request No** 33:	CR 33	þ

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
stakeholder consultation process been CRried out in accordance with such regulations/laws?	12		The provided evidences shall demonstrate transparent that the host country requirements are fulfilled.		
G.1.4. Is a summary of the stakeholder comments received provided?	1,2,3 4, 5, 12	DR, I	According to the project developer no comments received; the global stakeholder process is still open.	Open	þ
G.1.5. Has due account been taken of any stakeholder comments received?	1,2,3 4, 5, 12	DR, I	Open see G.1.4.	open	þ

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Following adjustments are recommended: Clarification Request No. 1: The name of Fazenda Paraiso exists 3 times; table B1 is not transparent enough according to those farms. Has to be adjusted.	Table 2, A.1.1	An updated PDD has been submitted.	The issue CR 1 is solved in the new PDD. þ
Clarification Request No. 2: The numbers of planed bio digesters are not transparent enough in the PDD. Number of modules and size of each a/o in total has to be added. Extra ordinary situation in the old manure management like the use of solid separators or the use of chemicals in order to treat the manure has to be described in detail.		To 2: Acquisition of tech. documents is on going. Will forward upon receipt. Extra information will be adopted in future PDDs.	The PDD describe the basic engineering of the bio digester. The applied technology and a pool of potential equipment supplier were validated in the engineering department and through document review there. In general at the time of validation concrete engineering is not mandatory. Submitted documents were sufficient in order to validate that constructed bio digesters will be big enough. þ The use of solid separators is not mandatory in Brazil. Some farmers use them to reduce the solid load to the lagoons. The solid separators separate bigger chunks like straw, sand or feed from the liquid manure. The validation team confirms that that treatment does not effect the calculation of emission reduction, because used IPCC default values do reflect

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
	Table 2, A.1.1		only liquid manure. In contrary farmers that have not used solid separators in the past have produced actually more methane than calculated: The additional biogenic material that generates methane under anaerobic conditions are not considered in the baseline calculation, that underlines a conservative approach. <u>Recommendation</u>: However, extra ordinary situation in the old manure management like the use of solid separators or the use of chemicals in order to treat the manure has to be described in detail.
<u>Clarification Request No. 3</u>: At the farm of Fazenda Brejao were only 4 lagoons identifiable and not 6 like stated in the PDD. Has to be adjusted.		To 3: PDD Ver. 2 contains corrected quantity of 4.	Can be confirmed through a document review of submitted inventories. þ
<u>Clarification Request No. 4:</u> The PDD is not transparent how many old a/o new lagoons will be closed and how many will be in operation further on. Should be adjusted.		To 4: AgCert "Form B" contains lagoon information prior to the project and can be viewed at the office in Brazil. See also forwarded AWMS spreadsheet	The project envisages that anaerobic lagoons will not been operated anymore. Depending of local circumstances the project design includes using old lagoons for a new purpose: Some old lagoons will really replaced by the digester, some will be fulfilled and some lagoons will be used as a store lagoon for treated manure after the bio digester. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Clarification Request No. 5: At the farm of Fazenda Alvorado were only 2 lagoons in operation and 2 lagoons which contain already solid parts. The PDD states 7 lagoons. Has to be adjusted. Additional the PDD shall notice extraordinary situation. Clarification Request No. 6: At the farms of COOAGRIL UPD 1, were only 4 lagoons identifiable and not 6 like stated in the PDD. Has to be adjusted. Clarification Request No 7: Table B1 in the PDD is regarding the farms of Fazenda Rio Doce – Talhado e Talhado. The numbers of baseline lagoons are not correct. Has to be adjusted. Clarification Request No. 8: The two farms of Paraiso (in the county of Goias) have 3 lagoons each and not 6 like stated in the PDD. Has to be adjusted and clarified. Clarification Request No 9: The manner of operation of the old lagoons is different from one farmer to the other. Also the connection is sometimes in parallel and sometimes in series, also the total time of re-tentions (from the barns until it is pumped to the fields) varies. The PDD should describe		To 5- 9: PDD Ver. 2, Table B1, corrected. Also see A4.1.4 of PDD for site configuration.	Issue CR5 to CR9 are resolved. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
the old manure management in more detail and individually.			
Clarification Request No. 10: The size of the old lagoons should be mentioned in the PDD.			The information about the old size of lagoons is available at AgCert do Brazil office in São Paulo. The retentions time of manure in the old system is high enough for application the chosen methodology. þ
Clarification Request No. 11: At the farm of Sinoeste II, were only 3 lagoons identifiable and not 4 like stated in the PDD.		10: See CR 4 above.	Rejected issue is adjusted in revised PDD and can be accepted. þ
		See above CR 5 to CR 9	
Clarification Request No. 12: The project design does reflect current good practice. The design has been professionally	Table 2, A.1.1	12: Site configuration document can be found in Annex 5.	Additional information is considered in the conclusion of the validation team. The project design reflects good practice.

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
developed. But a validation of the compatibility of the single components could not be evidenced during the visit on site. Documentation demonstrating such compatibility (check list after finishing construction and in the beginning commission phase) should be submitted to the assessment team.		See also CR 2 above.	þ
Clarification Request No. 13: A more detailed description of the design and technical characteristics of the applied equipment should be submitted to the validation team. It should be mentioned how the biogas will be used. See also: CR 2:The numbers of planed bio digesters are not transparent enough in the PDD. Number of modules and size of each a/o in total has to be added. CR 4:The PDD is not transparent how many old a/o new lagoons will be closed and how many will be continuingly in operation. Should be adjusted.	Table 2, A.1.1	Technical specifications are submitted. 13: Biogas use can be found in section A.4.3 of the PDD. See also CR 2 above.	See above. þ
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, but additional components could be added using biogas to heat the barns a/o produce electricity.	Table 2, A.2.1	Technical specifications are submitted.	Information about planed installation of equipment and components of the bio digester are sufficient. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Should be mentioned, see CR 13			
Initial training and maintenance efforts are required. During the visit at the project site the project developer confirmed that such training has taken place and/or is envisaged. Clarification Request No. 14: The respective documentation (signed participation list and/or date and content of the scheduled trainings) of all farms should be submitted to the validation team.	Table 2, A.2.2	Updated information about conducted and scheduled trainings is submitted.	The submitted information demonstrate transparent the schedule of envisaged trainings. Evidence of training that have been conducted already is submitted, also. The validation team is convinced that all involved farmers get the training and knowledge to operate and to monitor the bio digester in an appropriate way. þ
The determination of the baseline is neither correct nor transparent. The determination of the baseline is generally based on the old manure management, the determination of the amount of pigs, their number of themselves and the retention time of the manure in the old lagoons (and maybe its treatment where relevant). Following finding are identified and must be corrected: Clarification Request No. 15: The old manure management is described very generally. The process and retention time of the old system is not mentioned. Should be added.	Table 2, A.2.2	Submission of an updated PDD 15: With the exception of Minas Gerais HRT is 29 days. Minas Gerais requires a retention time of 60 days.	Additional information is accepted and can be confirmed by on site assessments and plausibility checks. þ
Clarification Request No. 16: The race of pigs should be mentioned for	Table 2, A.2.4	See CR 4 above. 16: Table B1 indicates	According to the onsite audits the validation team can confirm that North American genetics are

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
each farmer. Should be added in the PDD.		genetics for each farm. Annex I country genetic sources will be identified on a by exception basis in Table B1 of the PDD.	commonly used in current farms in Brazil. þ *<u>Recommendation</u>:* *Regarding CR 16: Table B1 states only the species (swine), but not the race or type, that information however is important for validation, because the default values used in calculation are based on North American races/types. Maybe, that information could be stored.*
<u>Clarification Request No. 17</u>: The stated tables and numbers of pigs, listed in annex 3 of submitted PDD are 90% wrong. Must be corrected.	Table 2, B.2.1	17: Corrected in PDD Ver. 2.	The stated inventories in the first PDD were based on interviews. Now, the corrected ones are based on sales balances, which are reliable. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Clarification Request No. 18: The determination of the baseline is not transparent. Neither the calculation base for the new bio digester nor the determination method for getting the figures from the farmer is documented. It is not clear which data are used for the baseline calculation, hence its determination is unclear so far.		18: Emission calculations have been submitted. AgCert uses the "most recent" 12 months data to determine the baseline. The AgCert "Form B" has been designed with the appropriate categories for capturing animal data regardless of the animal management system used by the farm site.	The calculation follows the methodology and in respective the IPCC rules. Issue is resolved. þ
Clarification Request No. 19 The project has been partially implemented although a registration of the project as a CDM activity has not taken place. Please describe in chapter B2 (i.e. as step 0) and based on defined dates how the CDM has been taken into account from the beginning of the project in order to demonstrate the additionality of the project.		Additional interviews with project developer.	AgCert was founded only for the purpose to develop and to run CDM projects. Issue is resolved. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Clarification Request No 20: The PDD from 12/04/2005 does not address transparently where data about population comes from and which year they represent.		Submission of an up-dated PDD	The period of used pig inventories for calculation the baseline scenario is stated in the new PDD of 15/09/2005 sufficiently. þ
Clarification Request No 21: The actual scheduled date of operation start of each project site should be submitted to the validation team.	Table 2, B.2.7	Submission of an up-dated PDD and all con-tracts with the farmers 21: These dates are rough estimates. It is our understanding that actual start of credit period is determined during initial verification audit. Further, start date of crediting period for non-prompt start projects can only begin AFTER project registra-tion, in which case the starting date will also	The contracts demonstrate clear the project start, which can be confirmed by the validation team. Regarding the conservative approach; the project developer shall demonstrate that all demonstrate that all farmers and bio digesters are ready to generate emission reductions from Jul. 15th 2005. The validation agrees that stated start date of crediting period has to seen as an envisaged date, date has to be verified in the verification. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
		be an estimate.	
Clarification Request No 22: The monitoring plan does include all parameters to determine project emissions according to the requirements of the methodology, but it does not consider all parameters, which have to be monitored according to the methodology. The monitoring plan shall include all parameters according to the approved methodology. Parameters which shall not be monitored have to be addressed in the PDD clearly and reasoned why they are not monitored. If these parameters are relevant for plausibility, calculation or transparency issues, the monitoring plan has to address clearly how these issues are handled and demonstrate that their negligence will not be a risk for verification.	Table 2, B.2.9	22: Please reference D.2.1. As stated, not "All" parameters will be applicable to every project.	The validation team accept that according to AM0016 not all parameters are necessary to estimate the baseline emissions. However, it should be noticed that most of the other parameters can be used for demonstrating the plausibility of measured data. þ
Clarification Request No 23: The QA/QC measures defined in chapter D.3 should correspond to the approach in the methodology applied. The QA/QC procedures should be submitted to audit team and if documents are relevant it should be ensured that the farmer has a copy and is aware of the corresponding instructions.	Table 2, C.1.1 & C.1.2	Submission of an updated PDD and additional information of QA/QC.	The QA/QC manual for all involved staff is sufficiently. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
It has been demonstrated in a plausible manner that leakage emissions are not expected to occur in a different manner between both scenarios. The monitoring plan also does not consider so far any defects of the layer. Leaks in the layer are the most obvious leakages. The current monitoring plan gives no option for plausibility checks and no option for comparability between amounts of animal, produced manure including used water. So leakages being occurred by lower retention time due to too small bio digesters or manure which is not treated by the bio digester can not be identified.	Table 2, D.2.1	Submission of an updated PDD and additional information of QA/QC.	The QA/QC manual for all involved staff and their responsibility regarding monitoring is ruled sufficiently. Signed contracts are submitted to the validation team. þ *Recommendation:* *It is advisable to report the cases and the duration when the flare does not work regularly and biogas emits by water seal. The monitoring plan and procedure shall consider that aspect. Additional, the construction team should consider that aspect by installing any waning systems at the combustion unit when anything (e.g. pump or flare) does not work properly or gas passes off through the water seal.*
Clarification Request No 24: The project developer shall address that risk clearly in the PDD from 12/04/2005 and monitoring plan. The project developer shall describe how the risk of each leakage can be minimized.		Additional interviews with AgCert responsible.	According to applied technology and guarantees from manufacturers leakage is minimized. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
The PDD from 12/04/2005 does not clearly indicate the authority and responsibilities within the given project structure and no further documentation has been submitted so far. During the visit AgCert has described in detail how the respective organisational structure is already implemented and/ or planned. Further documents should reflect the actual and/or planned situation on site. The audit findings on site showed that the responsibilities are defined and communicated. Clarification Request No 25: The currently valid operation and maintenance guidelines and instructions currently developed to operate the project should be submitted as soon as possible.	Table 2, D.3.1	Submission of additional information of QA/QC.	The QA/QC manual for all involved staff and their responsibility regarding monitoring is ruled sufficiently. Relevant management system and underlying documentation were submitted to the validation team. That is sufficient. þ
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 organisational structure. In the PDD it is made reference to this system at various chapters. Clarification Request No 26: As most of the variable data is obtained directly at the site of the project owner, it should be made clear, how the QMS and		Submission of additional information of QA/QC.	The QA/QC manual for all involved staff and their responsibility regarding monitoring is ruled sufficiently. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
EMS system do help to direct the owner and ensure proper data handling before the data enters the data management system of Ag-Cert. The certification of the currently implemented management systems through an independent auditor demonstrates the correct implementation of the system.			
Clarification Request No 27: The last page of the contract signed with the owner should be submitted to the audit team.	Table 2, D.6.1	Submission of underlying calculations	Calculation is correct. þ

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
Clarification Request No 28: The PDD and the applied methodology include any kind of equipment for biogas treatment; the validation team however identified different responsibilities. If the farmer do not use the biogas for anything else than just burning with AgCerts given equipment than AgCert take responsibility about; in cases where the farmer wants to use the gas (heat, electricity, etc.), than the responsibility about monitoring and maintenance is up to the farmer. The monitoring and quality assurance system shall describe clearly and transparent the roles of all participants.			
Clarification Request No 29: The responsibilities for all project participants are not clearly described in the PDD. Should be added			

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
No, the calculations resulting in the final numbers have not been submitted. Clarification Request No 30: The respective calculations should be submitted.			
Uncertainties are not properly addressed in the GHG emissions documentation. Clarification Request No 31: The PDD should cover this issue in a reasonable manner.	Table 2, D.6.2	Submission of a revised PDD from 14/09/2005	Uncertainties are addressed according to applied methodology þ
Environmental licenses are necessary in order to comply with the regulations. Whether these requirements for approval have been fulfilled cannot be assessed as long as the licenses are not submitted to the audit team. Clarification Request No 32: Valid licences should be submitted.	Table 2, E.1.2	Submission of valid licenses.	The validation team confirms that the project is in line with national environmental law. þ
Clarification Request No 33: Evidences of conducted stakeholder proc-	Table 2, E.1.4	Submission of information about conducted	The validation team confirms that the project informed relevant stakeholders.

Draft report clarifications and Clarification Requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
esses should be available to the validation team.		stakeholder meetings.	þ

Appendix B: Information Reference List

Reference No.	Document or Type of Information
1.	On-site interview in the office of the project developer on September 14th, 2005 by auditing team of TÜV SÜD **Validation team on-site:** Markus Knödlseder — TÜV Industrie Service GmbH TÜV SÜD Group **Interviewed persons:** Miguel Gastao de Oliveira — AgCert Do Brasil Solucuoes Ambientas Ltda. Dave Lawrence — AgCert Do Brasil Solucuoes Ambientas Ltda. Hamilton — AgCert Do Brasil Solucuoes Ambientas Ltda.
2.	On-site interviews at following farms by auditing team of TÜV SÜD **Validation team on-site:** Markus Knödlseder — TÜV Industrie Service GmbH TÜV SÜD Group Wilson Tomao Johannes Thaler **Interviewed farms and persons:** Thursday, 28.04.05, Fazenda Monte Azul, (Cooperative Cooasco), Sao Gabriel do Oeste, Mato Grosso do Sul, owner: Gilson Ferruzio Pinesso and others, Jose Pinesso (gerente) Thursday, 28.04.05, Fazenda Breijao (Cooperacao COOASCO), owner: Balduino Maffissoni, Arlindo Wilemann, Rene Miglivacca, contact: Luis Carlos (gerente) Friday, 29.04.05, Fazenda Belvedere (Cooperative COOASCO), owner: Valmor Placido Brum, contact: Fernando Brum (manager), Friday, 06.05.2005, **Fazenda Ana Bela,** owner: Marcelo Gomes de Araujo, contact: Renato Martins Nunes Thursday, 28.04.05, Fazenda Alvorada (Cooperative COOASCO), owner: Balduino Maffissoni, contact: Luis Carlos (gerente **Tuesday, 26.04.2005, Fazenda Texas, BR05-B-03, Brazil,** Owner: Luzineth Podboy, contact: Manager: Paulo Podboy Thursday, 28.04.05,Suinoeste II (Cooperative COOASCO), owner: Sergio Luiz Marcon, Clovis Fronza Fontana, Udo

Reference No.	Document or Type of Information
	Klaesener, Paulo Zanella, Celso Sergio Marcon, contact: Wesley Fernandez (manager), **Wednesday, 27.04.05, Fazenda Suinoeste I (Cooperative COOASCO)**, owner: Sergio Luiz Marcon, Clovis Fronza Fontana, Udo Klaesener, Paulo Zanella, Celso Sergio Marcon, contact: Wesley Fernandez (manager), Friday, 29.04.2005, **Fazenda Santa Cruz (Cooperative COOASCO),** owner: Zelio Antonio Pessatto Saturday, 30.04.05, Fazenda Rancho Alegre (Cooperative COOASCO), owner: Arao Antonio Morais, contact: Waldemar Ullmann Friday, 29.04.2005, **Fazenda Ponto Alto (Cooperative COOASCO),** owner: Angelo Brizot, contact: Amalia Maffissoni Brizot Wednesday, 04.05.2005, **Fazenda Paraiso,** Piedade de Ponte Nova, Minas Gerais, owner: Jose Ricardo Brandao Martins, contact: Henrique de Souza (manager), 02/05 – 05/05/05 **São Tomaz Cachoeirinha I and II, Mr**. Luiz Cardozo da Silva, Mr. Adecir Cardozo da Silva**; Fazenda Monta Alegre,** Mr. José Antonio Nogueire jr.; **Fazenda Rio Doce Talhado I, II and III**, Mr. Orestes Wanz. Mr. Direu Wanz, Mr. Diniz Wanz; Fazenda Paraíso VI + VII and LC I + LC II, Mr. José Parassu and Mr. José Parassu Neto 17/05 – 20/05/05 **Cooperativa Agrpecuaria e Industrial Luverdense – UPD 1 – 2 / UPL 3 / UT 3,** Mr. José Eduardo de Macedo Soares (Director), Mr. Airton Klagenberg (Coordinator), Mr. Ivair Rohr (Farm Mananger) and Mr. Claudir Klagenberg (farm manager); **Cooperativa Agrpecuaria e Industrial Luverdense– Fazenda Nadin,** Mr. Clair Nadin (owner), Mr. Volmir Solmir Santos (manager); Granja Coopermutum, Mr. Valdomir Natal Ottonelli (Director), Mr. Alcindo Ruggieri (Director), Mr. Luis Paulo Panesso (Coordinator)
3.	Project Design Document "AWMS GHG Mitigation Project BR05-B-03, Brazil", AgCert International Ltd, April 2005
4.	Project Design Document "AWMS GHG Mitigation Project BR05-B-03, Brazil", AgCert International Ltd, September 2005
5.	Carbon Contracts with each farm, pdf-files on CD, submitted September 2005
6.	Calculation of baseline and project emissions "AWMS GHG Mitigation Project BR05-B-03, Brazil", AgCert, excel file, July 2005
7.	Economic Analysis, Word file on CD, submitted July 2005
8.	Farm Production Data of the last three years of each farm, pdf-files on CD, submitted July 2005 (confidential)
9.	AWMS Technical Specifications, Word-files on CD, submitted July 2005
10.	Training Documentation, Participants list, Training Schedule, Presentation, Word-, Excel-, pdf-Files on CD; submitted July 2005

Reference No.	Document or Type of Information
11.	Licenses and Permits, pdf-Files on CD, submitted on July 2005
12.	Correspondence Stakeholder, Published invitations to Stakeholder Meeting in newspapers, emails and pdf-files on CD, submitted July 2005-08-09
13.	Project Management, Responsibilities and Process flow, word-files on CD, submitted July 2005
14.	Technical specification of the PVC flexible film (biodigester cover) submitted July 17, 2005 (confidential)
15.	Technical specification on flare unit, submitted July 17, 2005 (confidential)
16.	Technical specification on biodigester, submitted July 17, 2005 (confidential)
17.	Operations and Maintenance (O&M) Plan for AWMS Greenhouse Gas (GHG) Mitigation Projects, dated 23 May 2005 (confidential)
18.	AgCert Quality and Environmental Management System Handbook, August 2004
19.	Pre-Assessment Checklist for ISO 9001/ISO14001 certification, issued by QMI
20.	Flare Unit Service Specifications, submitted submitted July 17, 2005 (confidential)
21.	Gasflow Meter Service Specifications, submitted submitted July 17, 2005 (confidential)
22.	Invitation to stakeholder meeting performed January 2005
23.	Minutes of the stakeholder meetings performed on: 01/24/2005 in Belo Horizonte 01/26/2006 in Lucas do Rio Verde (MT), Sao Gabriel doe Oeste (MS), Uberlandia (MG) and Rio Verde
24.	Approved baseline methodology AM0016: Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations. UNFCCC, 2004
25.	Approved monitoring methodology AM0016: Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations. UNFCCC, 2004
26.	IPCC: Revised 1996 Guidelines for National Greenhouse Gas Inventories
27.	IPCC: 2000, Good Practice Guidance
28.	UNFCCC, CDM: Tool for the demonstration and assessment of additionality" approved by the EB (EB 16, annex 1).
29.	Validation and Verification Manual, IETA/World Bank (PCF), http://www.vvmanual.info
30.	Calculation of leakage effect based on IEA (2002) figures, January 2005
31.	IEA (2002): Road-Testing Baselines for Greenhouse Gas Mitigation Projects in the Electric Power Sector