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# Validation Report

AGCERT INTERNATIONAL LIMITED, IRELAND

## Validation of the AWMS Methane Recovery Project BR07-S-34, Bahia, Espirito Santo, MINAS GERAIS, and São Paulo, Brazil

**Report No. 949525, rev. 0**

**May 31st, 2007**

TÜV SÜD Industrie Service GmbH
Carbon Management Service
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Industrie Service

| Report No. | Date of first issue | Revision No. | Date of this revision | Certificate No. |
|---|---|---|---|---|
| 949525 | May 31st, 2007 | 0 | --- | --- |
| **Subject:** | | Validation of a CDM Project | | |
| **Executing Operational Unit:** | | TÜV SÜD Industrie Service GmbH<br>Carbon Management Service<br>Westendstr. 199 - 80686 Munich<br>Federal Republic of Germany | | |
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| **Contract approved by:** | | Werner Betzenbichler | | |
| **Report Title:** | | Validation of the AWMS Methane Recovery Project BR07-S-34, Bahia, Espirito Santo, Minas Gerais and São Paulo , Brazil | | |
| **Number of pages** | | 18 (excluding annexes and cover page) | | |

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 Methane Recovery Project BR07-S-34, Bahia, Espirito Santo, Minas Gerais and São Paulo , Brazil”, as described in the revised project design document of May 16, 2007 meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board and that the project furthermore meets all relevant host country criteria and correctly applies the baseline and monitoring methodology Type III, Other Project Activities, Category III.D., Methane recovery in agricultural and agro industrial activities, version 11 for small-scale projects.

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

Additionally the assessment team reviewed the estimation of the projected emission reductions. TÜD SÜD confirms that the indicated amount of emission reductions of 60,093 tonnes $CO_{2e}$ over a crediting period of seven years, resulting in a calculated annual average of 8,585 tonnes $CO_{2e}$ represents a reasonable estimation using the assumptions given by the project documents.

| | | | |
|---|---|---|---|
| Work carried out by: | Markus Knödlseder<br>Sandro Marostica | Internal Quality Control by: | Javier Castro |

## Abbreviations

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

## Table of Contents

# 1 INTRODUCTION

## 1.1 Objective

AgCert International PLC, Ireland (AgCert International) has commissioned TÜV Industrie Service GmbH TÜV SÜD Gruppe (TÜV SÜD) to validate the AWMS Methane Recovery Project BR07-S-34, Bahia, Espirito Santo, Minas Gerais and São Paulo , Brazil. The validation serves as design verification and is a requirement of all CDM projects. The purpose of a validation is to have an independent third party assess of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

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

## 1.2 Scope

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

The audit team has been provided with the first PDD-version in January 2007. Based on this documentation a document review and a fact finding mission in form of an on site audit has taken place. The demanded additional information is addressed in annex 1. Requested information was given and the PDD was updated accordingly. That final PDD version 4 was submitted on May 16th, 2007and serves as the basis for the final assessment presented herewith. The changes were not significant as only some information was added and adapted to the final PDD, thus the global stakeholder process was not repeated.

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

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

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

**Markus Knödlseder** is an auditor for climate change projects and GHG emission inventories at the department “Carbon Management Service” in the head office of TÜV SÜD in Munich. He has been involved in the topic of environmental auditing, baselining, monitoring and verification due to the requirements of the Kyoto Protocol since Oct. 2001. His main focus lies on renewable energies.

**Sandro Marostica** is a Food Engineer with an MBA from IMD, Lausanne Switzerland. He has acquired his first experiences in the CDM market in 2004 through the creation of his broker dealer company in the UK to negotiate CER forward contracts from CDM projects in Brazil. Based in Brazil he has been working for TÜV SÜD since April 06 as General Manager and GHG auditor, and is familiar with local laws and regulations.

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”:

Javier Castro (project manager, GHG lead auditor)

## 1.3 GHG Project Description

This project proposes to apply to multiple swine Confined Animal Feeding Operations (located in Bahia, Minas Gerais and São Paulo States, 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. In total 4 farms with 4 sites are contracted in the States of Bahia, Minas Gerais and São Paulo, Brazil.

The original bundle of projects considered a farm from Espirito Santo that needs to be removed from the PDD, because during validation that project was not eligible for CDM due to missing documents.

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

The category of the project activity is in Scope 13 - Waste Handling and Disposal, and Scope 10 – Agriculture. The approved and applied baseline and monitoring methodology is Type III, Other Project Activities, Category III.D. Methane recovery in agricultural and agro industrial activities for small scale project activities, version 11. According to the PDD and involved parties the starting date of the project activity is May 2nd, 2005. The crediting period is committed as 7 years renewable crediting period and it starts on 01/11/2007.

# 2 METHODOLOGY

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

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

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

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

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

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

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

| **Validation Protocol Table 2: Requirement checklist** | | | | |
|---|---|---|---|---|
| **Checklist Question** | **Reference** | **Means of verification (MoV)** | **Comment** | **Draft and/or Final Conclusion** |
| The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further subdivided. The lowest level constitutes a | 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 | 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 |

| | | | | |
|---|---|---|---|---|
| checklist question. | | | conclusions reached. | further clarification. |

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

Figure 1 Validation Protocol Tables

## 2.1 Review of Documents

The project design document submitted by the client and additional background documents related to the project design and baseline were reviewed. The audit team has been provided with the first PDD-version issued on January, 2007, which had been made public on www.netinform.de. The project design document was assessed by some revisions addressing changes to the baseline and monitoring methodology requested by the CDM Executive Board and clarification requests issued by TÜV SÜD. The final updated PDD version 4, issued on May 16th, 2007 serves as the basis for the assessment presented herewith.

## 2.2 Follow-up Interviews

In March 2007 TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of the farms and AgCert Do Brasil Solucoes Ambientas Ltda were interviewed. The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

| **Interviewed organization** | **Interview topics** |
|---|---|
| Representatives of the farms | • Project design<br>• Technical equipment<br>• Sustainable development issues<br>• Additionality<br>• Crediting period<br>• Monitoring plan<br>• Management system |

| | |
|---|---|
| | • Environmental impacts<br>• Stakeholder process |
| AgCert Brasil | • Project design<br>• Technical equipment<br>• Sustainable development issues<br>• Baseline determination<br>• Additionality<br>• Crediting period<br>• Monitoring plan<br>• Environmental impacts<br>• Stakeholder process<br>• Approval by the host country |

## 2.3 Resolution of Clarification and Corrective Action Requests

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

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

# 3 VALIDATION FINDINGS

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

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

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

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

4) The final conclusions for validation subject are presented.

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

## 3.1 General Description of Project Activity

### 3.1.1 Discussion

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

The objective of the project ” AWMS Methane Recovery Project BR07-S-34, Bahia, Espirito Santo, Minas Gerais and São Paulo , 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 includes 4 farms with installations of digesters at 4 sites being contracted in the State of Bahia, Minas Gerais and São Paulo, Brazil. During this assessment TÜV SÜD contacted and visited the sites indicate on the Information Reference List. As the project participant is operating/developing several similar CDM projects in the same or neighboring region, the validation process has shown that no farm of this project is included in any other existing PDD.

There is no indication that farms from this project are close to another CDM project violating the debundling criteria.

The project equipment can be expected to run for the whole project period and it can not be expected that it will be replaced by more efficient technologies.

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

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

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

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

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

### 3.1.2 Findings

**Corrective Action Request 1:**

Site Fazenda Pimenta appears with a different name in the environmental license. It is requested that the name is changed in the PDD in order to match environmental license.

**Response:**

The posted Environmental License is for the complete Farm system, not just a single site.

**Corrective Action Request 2:**

Number of heads cannot be audited neither confirmed in the sites Esperança, Esmeralda and Pimenta, due to change of software, missing data or not appropriated management of periods.

The validation team requests a report showing the number of heads on the PDD can be confirmed in each farm system and can be easily re-produced when requested. Alternatively the number of heads on the PDD could be changed to match a period when data is reliable and retraceable on each farm system.

For sites Courotex and S. Miguel, it is requested that a copy of the number of heads data directly from the system be provided.

**Response:**

Producer inventories have been posted to the PDD supporting documents portal. Additionally the PDD has been adjusted accordingly.

Reply1>A copy of inventory with producer's signature and stamp has been posted to the PDD supporting documents portal.

Regarding the software used for Site Courotex, please reference: http://www.anitec.com.br/

All information provided previously reflects the producer's inventory at the time of assessment. However during the investigation for this CAR, AgCert acquired more recent inventory data for the site Pimenta. The PDD has been updated accordingly.

**Clarification request 1**

An evidence of the date when a solids separator has been disactivated at site F. Pimenta is requested.

**Response:**

A letter from the producer stating the date of solid separator de-activation has been posted to the PDD supporting documents portal.

**Clarification request 2**

The number of biodigestor modules and its size should be mentioned in the PDD.

**Response:**

Biodigester design documents have been posted to the PDD supporting documents portal.

**Corrective Active Request 3:**

Installed Flow meters should be calibrated and sealed

**Response:**

Flow meters are supplied by the manufacturer calibrated and sealed. They are supplied with a certificate of calibration. This certificate can been found on the PDD supporting documents portal.

Reply1>

As this is a Verification Issue, seals are being prepared and will be ready when verification takes place.

The site of installation can be seen on right top of certificates. Moreover, all files have been labeled with corresponding site names and site ID's.

Reply2>

This issue is being monthly controlled by monitoring team in monitoring documents and these documents are provided to Verification Team as request.

This issue has already been pointed out by Verification auditors and we have been working in order to accomplish with all requests.

**Clarification Request 3:**

A schedule for implementation of biodigesters and training for Faz Pimenta, Courotex and S. Miguel should be provided.

**Response:**

The training schedule for Faz Pimenta and Courotex has been posted to the PDD supporting documents portal. Faz Sao Miguel was removed from this PDD.

### 3.1.3 Conclusion

The Clarification Request and Corrective Action Requests are considered to be resolved. The validation team was keen on auditing verifiable and retraceable inventories of animals. Calibration and sealing of flair equipment was a concern of the validation team, but according to the project developer comments, it will be worked out by its monitoring team.

## 3.2 Baseline Methodology

### 3.2.1 Discussion

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

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

The baseline is been determined using reliable assumptions. The parameter “population” as one of the decisive parameters for the quantitative prognosis is determined by using reliable data and is moreover based on date obtained from a year period in the past. During the visit on site the availability of such comprehensive data could be observed predominantly. Hence plausible data has been provided from traceable sources ensuring the reliability of the parameter.

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

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

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

References have been made to all data sources used.

### 3.2.2 Findings

**Clarification Request 4**

The project developer shall add the Version number to the title of the approved baseline methodology, in order to create a clear reference.

**Response:**

Versions can be found on Pg. 2 IN the revision history list, Section A.1 Title of the Small Scale Activity. Table B.1 Titles and reference of the approved baseline and monitoring methodology.

**Corrective Action Request 4:**

At site Faz Pimenta, the length of one of the concrete basins is 21,6 m and should be corrected on the PDD .

**Response**:

The concrete basin dimension has been adjusted in the PDD.

**Clarification Request 5:**

For site Faz. Pimenta, the retention time calculation of the 2 concrete basins before the biodigester is requested. It is not clear whether the 2 basins are in parallel or serial position.

**Response:**

Design documents can be found on the PDD supporting documents portal.

Reply1>

The two concrete basins before the biodigester are used for sending manure to the biodigester. A pump sends the manure to the biodigester. Thus, manure is not kept in the basins.

Reply2>

HRT is of 1 day.

Those boxes are just a “pump up” box, and manure stays for no more than 2 hours in them.

Reply 3>

The farmer uses a flush system. These two concrete basins are not used to store manure. These basins have a automate pump that turns on once the level of the manure in the basin reaches a certain height which takes no more than two hours. Once the pump turns on, the manure is sent to the digester and is treated there. By the end of the day the basins are emptied completely with all the manure going to the digesters and the pump automatically turns itself off once there is no more manure in the basin.

### 3.2.3 Conclusion

It can be stated that the chosen baseline scenario is the one deemed most realistic under the given frame conditions.

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

## 3.3 Duration of the Project / Crediting Period

### 3.3.1 Discussion

Both the starting date of the project activity and the crediting period are clearly determined as well as the lifetime of the project activity and the length of the renewable crediting period of 7 years.

### 3.3.2 Findings

Some Corrective Actions and Clarification Requests from previous sections apply to these sections as well, and were responded accordingly.

### 3.3.3 Conclusion

Duration of the Project and its Crediting Period are appropriated.

## 3.4 Monitoring Plan

### 3.4.1 Discussion

The project is based on the approved monitoring methodology “Type III, Other Project Activities, Category III.D, “Methane recovery in agricultural and agro industrial activities” for small-scale projects, version 11. The methodology has been approved by the CDM Executive Board. The selected methodology has been designed for this project and hence the project is part of the methodology 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 are described in detail and in a transparent manner. During the visit on site the implementation of the operations and maintenance manual and the data management system in order to ensure a proper implementation of the monitoring plan could be evidenced.

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

According to the methodology no leakage calculation is required.

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

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

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

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

### 3.4.2 Findings

**Clarification Request 6**:

Please provide training procedures and assignment of monitoring personnel for Faz. Esmeralda.

**Response**:

This site has yet to be built. Training will be accomplished upon construction completion. Estimated construction completion dates can be found in the sites descriptions of the PDD.

### 3.4.3 Conclusion

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

The validation team can not identify any risks due to inadequate management structure or quality assurance.

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

## 3.5 Calculation of GHG Emissions by Source

### 3.5.1 Discussion

The project spatial boundaries are clearly described and limited to the farm site. An exact and correct description of the project boundaries is included in chapter B.4 of the PDD. The PDD hereby also reflects correctly that emissions from barn systems and barn flushing systems are not considered as these emissions are not affected by the proposed practice change.

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

Details of direct and indirect emissions are discussed in the PDD in an appropriate manner. All aspects are covered by the current approach. All methane (CH4) emissions have been considered. The calculations resulting in the final numbers have been submitted. The formulae used are correctly applied.

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

A leakage calculation is not necessary according to the methodology.

Concluding it can be stated that the project emissions will be reduced compared to the baseline scenario by 60,093 tonnes CO2e over a crediting period of seven years, resulting in a calculated annual average of 8,585 tonnes.

### 3.5.2 Findings

Some Corrective Actions and Clarification Requests from previous sections apply to this section as well, and were responded accordingly.

### 3.5.3. Conclusion

The calculation of GHG emissions and used data are according to applied methodology and its requirements. Further details to that conclusion are documented in annex 1 of that validation report.

## 3.6 Environmental Impacts

### 3.6.1 Discussion

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

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

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

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

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

### 3.6.2 Findings

None

### 3.6.3 Conclusion

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

## 3.7 Comments by Local Stakeholders

### 3.7.1 Discussion

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

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

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

### 3.7.2 Findings

None

### 3.7.3 Conclusion

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

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

## 4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on its website from **January 31 to March 01, 2007.** and invited comments within 30 days, by Parties, stakeholders and non-governmental organizations.

Published:

http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=2558&Ebene1_ID=26&Ebene2_ID=761&mode=1

During the commenting period there have been no comments received.

Industrie Service

# 5 VALIDATION OPINION

The Certification Body ”Climate and Energy” has been ordered by AgCert International LLC, Ireland (AgCert International) to validate the project AWMS Methane Recovery Project BR07-S-34, Bahia, Espirito Santo, Minas Gerais and São Paulo , Brazil.

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

Additionally the assessment team reviewed the estimation of the projected emission reductions. TÜV SÜD confirms that the indicated amount of emission reductions of 60,093 tonnes $CO_{2e}$ over a renewable crediting period of seven years, resulting in a calculated annual average of 8,585 tonnes $CO_{2e}$ represents a reasonable estimation using the assumptions given by the project documents.

It is opinion of TÜV SÜD that the project as described in the final project design document issued on May 16th, 2007 meets all relevant UNFCCC requirements for the CDM, set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board; furthermore that the project meets all relevant host country criteria and correctly applies the baseline and monitoring methodology “Type III, Other Project Activities, Category III.D, “Methane recovery in agricultural and agro industrial activities” for small-scale projects, version 11.

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

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

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

Munich, 31.05.2007

**Werner Betzenbichler**
Head certification body
“climate and energy“

Munich, 31.05.2007

**Markus Knödlseder**
Project Manager

## Annex 1: Validation Protocol