Validation Report

AgCert Canada Co.

Validation of the Granja Becker GHG Mitigation Project

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Industrie Service

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Contract approved by:	Werner Betzenbichler
Report Title:	Validation of the Granja Becker GHG Mitigation Project
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Summary:

The Certification Body "Climate and Energy" has been ordered by AgCert Canada Co. to perform a validation of the above mentioned project.

Using a risk based approach, the validation of this project has been performed by document reviews and on-site inspection, audits at the locations of the project and interviews at the offices of the project developer and the project owner.

In summary, it is TÜV SÜD´s opinion that the "GRANJA BECKER GHG MITIGATION PROJECT", as described in the revised project design document of December 2004, 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 "Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations".

Hence TÜV SÜD will recommend the "GRANJA BECKER GHG MITIGATION 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 Brazil and Canada, 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 50.860 tonnes CO_{2e} over a crediting period of ten years, resulting in a calculated annual average of 5.086 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)) • Klaus Nürnberger (Lead auditor Energy Certification, Technical expert, GHG auditor - trainee) • Wilson Tomao (GHG auditor, Local expert)	Internal Quality Control by: Thomas Kleiser Dieter Reiml Werner Betzenbichler

Abbreviations

AE	Applicant Operational Entity
AWMS	Animal Waste Management Systems
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	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

Table of Contents Page

Appendix 1: Validation Checklist
Appendix 2: Information Reference List

1 INTRODUCTION

1.1 Objective

AgCert Canada Co. has commissioned TÜV Industrie Service GmbH TÜV SÜD Group (TÜV SÜD) to validate the Granja Becker GHG Mitigation Project. The validation serves as a 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 August 2004. 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 CLs indicated in the audit process. The final PDD version submitted in December 2004, which has undergone a renewed document review, serves as the basis for the 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:

- 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 biodigester operation
- Monitoring concepts
- 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":

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.

Klaus Nürnberger is head of the division energy certification at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of verification and certifications processes for electricity production based on renewable sources. The division has assessed more than 600 plants and sites all over Europe. He has received extensive training in the CDM and JI validation processes and participated already in several CDM and JI project assessments.

Wilson Tomao is a consultant for quality and environmental management systems (according to ISO 9001 and ISO 14001) at Ingwaass Qualidade Continua. He is based in Sao Paulo. In his position he is responsible for the implementation of management systems. He has received extensive training in the CDM validation process and participated already in several CDM project assessments.

The audit team covers the above mentioned requirements as follows:

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

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":

- Thomas Kleiser (GHG lead auditor)
- Dieter Reiml (Technical expert)
- Werner Betzenbichler (project manager, GHG lead auditor)

1.3 GHG Project Description

Granja Becker is a 48 ha farm situated in Southeast Brazil in the State of Minas Gerais. The farm is in operation now for 17 years and combines pork production with coffee production. The operation of the farm conforms with industrialised pork production practices. Currently the farm uses a multi lagoon system. The objective of the Granja Becker GHG Mitigation Project 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 will also result in other environmental benefits, such as improved water quality and reduced odour.

The proposed Granja Becker GHG Mitigation Project is located in Minas Gerais, Brazil. The farm is located in a rural area nearby the town Patos de Minas.

Project participants are AgCert Canada Co. and Granja Becker.

The project starting date is September 10, 2003. The 10 year non renewable crediting period starts July 1, 2004.

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 Appendix 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 August 2004. The final PDD version submitted in December 2004 serves as the basis for the assessment presented herewith.

2.2 Follow-up Interviews

In the period of October 12 -14, 2004, TÜV SÜD performed interviews (see Appendix B "Information Reference List to this report") with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Granja Becker and AgCert Canada were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Granja Becker	➢ Project design ➢ Technical equipment ➢ Sustainable development issues ➢ Additionality ➢ Crediting period ➢ Monitoring plan ➢ Management system ➢ Environmental impacts ➢ Stakeholder process
AgCert Canada	➢ Project design ➢ Technical equipment ➢ Sustainable development issues ➢ Baseline determination ➢ Additionality ➢ Crediting period ➢ Monitoring plan ➢ Environmental impacts ➢ Stakeholder process ➢ Approval by the host country

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD`s positive conclusion on the project design. The Corrective Action Requests 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. The underlying
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 four 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 participants are AgCert Canada Co., Canada and Granja Becker, Brazil. Both participating Parties, Brazil as the host Party and Canada as the Annex I Party, meet 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 Granja Becker GHG Mitigation Project 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 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 a training has taken place and/or is envisaged, but no 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 environmental licence valid until November 24, 2004 has 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:

The project has not obtained a Letter of Approval/ Letter of Authorization from the Canadian and Brazilian government so far. No documentation has been submitted to the validation team. The issuance of these documents will also demonstrate whether the project is in line with sustainable development policies of the host country

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:

A more detailed description of the design and technical characteristics of the applied equipment should be submitted to the validation team.

Response:

A detailed description of the design and technical characteristics of the applied equipment has been submitted to the validation team.

Clarification Request No. 2:

The respective documentation regarding training needs and plans should be submitted to the validation team.

Response:

Respective documentation on executed training activities has been submitted. Moreover the operations and maintenance plan includes provisions for training and maintenance.

Clarification Request No. 3:

As the validation will not be completed before November 24, 2004 the documents demonstrating application for the new license as well as subsequently the renewed licence should be prepared and submitted to the validation team.

Response:

An application for renewal has been submitted to the audit team. This is considered to fulfil the obligations regarding the legal status of the project as the submission of an application acts as a valid operational license until a decision is reached to approve or deny the application.

3.1.3 Conclusion

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

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 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, econimic 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

None

3.2.3 Conclusion

The project does comply with the requirements.

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 to calculate the baseline and project 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 Canada. The company operates also trained staff in Brazil. Granja Becker 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 Granja Becker, 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

None

3.3.3 Conclusion

The project does comply with the requirements.

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 50.860 tonnes CO_{2e} over a crediting period of ten years.

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. 4:

The appropriateness of the chosen source should be documented.

Response:

Additional calculations have been provided which demonstrate that the project activity will either cause no negative leakage effects or even taking the most conservative assumptions (no electricity would be generated at the project site due to a non operation of the generator) and figures (out of IEA, 2002), the effect would be insignificant (0.3 t CO_{2e} / year). This result is in line with the statement in the PDD.

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

None

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 representatives of the City of Patos de Minas and the State of Minas Gerais. In addition neighbours to the site have been interviewed.

The stakeholders have been invited to two meetings, one of which has been extensively published in local and regional newspapers.

No stakeholder process is required according to national legislation.

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

None

3.6.3 Conclusion

The project does comply with the requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on its website on December 20, 2004 and invited comments within 30 days, until January 19, 2005 by Parties, stakeholders and non-governmental organisations. No comments were received.

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the Granja Becker GHG Mitigation Project in Brazil. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and subsequent decisions by the CDM Executive Board.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria.
In our opinion, the project as described in the revised and resubmitted project design document of December 2004, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0016 ”Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations”. Hence TÜV SÜD will recommend the “GRANJA BECKER GHG MITIGATION 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 Brazil and Canada, 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 amounts of emission reductions of annually 5.086 tonnes CO_{2e} over a crediting period of ten years represents a conservative 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, 2005-08-29

Werner Betzenbichler

Head certification body “climate and energy“

Munich, 2005-08-29

Michael Rumberg

Project Manager

Appendix 1:
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	☑	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	☑	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.	☑	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 the Canadian and 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	☑	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	☑	Table 2, Section B.2

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords	☑	The funding for the project does not lead to a diversion of official 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	☑	Both Parties involved have designated national authorities for the CDM in place.
9. The host country and the participating Annex 1 Party shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	☑	Brazil has ratified the Kyoto Protocol on August 23, 2002. Canada has ratified the Kyoto Protocol on December 17, 2002.
10. The participating Annex 1 Party's assigned amount shall have been calculated and recorded	Marrakech Accords, CDM Modalities §31b	☑	Canada's assigned amount is 94% of the emissions in 1990.
11. The participating Annex 1 Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	Marrakech Accords, CDM Modalities §31b	☑	Canada has reported the GHG emissions last time in May 2004 up to the year 2002.
12. 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	☑	Table 2, Section G
13. 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	Marrakech Accords, CDM Modalities §37c	☑	Table 2, Section F

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
impact assessment in accordance with procedures as required by the Host Party shall be carried out.			
14. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	☑	Table 2, Section B.1.1 and D.1.1
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	Marrakech Accords, CDM Modalities §37f	☑	Table 2, Section D
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	☑	The PDD was published on the TÜV SÜD website (Link: http://www.netinform.de/KE/Wegweiser/Guide2E.aspx?Ebene1_ID=159). Parties, stakeholders and accredited observers were through the UNFCCC website invited to comment on the project in the period from December 20, 2004 to January 19, 2004. No comments have been received.
17. 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	☑	Table 2, Section B.2

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
18. 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	☑	Table 2, Section B.2
19. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	☑	The final PDD is in conformance with the currently valid 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, 3	DR, I	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.	☑	☑
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1, 3	DR, I	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.	☑	☑

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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, 7-11, 14, 15	DR, I	Yes, 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.	☑	☑
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1, 2, 3, 7-11, 14, 15	DR, I	Yes, the project does apply state of the art equipment. <u>Clarification Request No. 1:</u> A more detailed description of the exact technical characteristics of the applied equipment should be submitted to the validation team.	CL 1	☑
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 2, 3, 7-11, 14, 15	DR, I	No, the project equipment can be expected to run for the whole project crediting period of 10 years and it can not be expected that it will be replaced by more efficient technologies.	☑	☑
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, 7-11,	DR, I	Yes, initial training and maintenance efforts are required. In the PDD and during the visit on site the project developer confirmed that	CL 2	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	14-18		such a training has taken place and/or is envisaged, but no documentation on executed and/or planned training activities has been submitted. Clarification Request No. 2: The respective documentation should be submitted to the validation team.		
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1, 2, 3, 7-11, 14-18	DR, I	See comment A.2.4	CL 2	☑
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, 22-24	DR, I	The project is in line with the relevant legislation and plans in the host country. The environmental licence valid until November 24, 2004 has been submitted to the validation team. Clarification Request No. 3: As the validation will not be completed before November 24, 2004 the documents demonstrating application for the new license as well as subsequently the	CL 3	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			renewed licence should be prepared and submitted to the validation team.		
A.3.2. Is the project in line with host-country specific CDM requirements?	1, 2, 3	DR, I	It is not clear whether Brazil requires any specific CDM requirements to be fulfilled. The question can finally be answered after the issuance of the Letter of Approval by the Brazilian DNA.	☑	
A.3.3. Is the project in line with sustainable development policies of the host country?	1, 2, 3	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. The question can finally be answered after the issuance of the Letter of Approval by the Brazilian DNA.	☑	
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	1, 2, 3	DR, I	Yes. 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.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	1, 2, 3, 43	DR, I	Yes, the project is based on the approved baseline 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.	☑	☑
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1, 2, 3, 43	DR, I	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 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 criteria are fulfilled as follows:	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			• The captured gas flared or used to produce energy but no emission reductions are claimed for displacing or avoiding energy from other sources. • The proposed project activity manages livestock populations under confined conditions in a competitive market • The proposed project activity comprises swine populations • The AWMS – in the baseline as well as in the project scenario – are in accordance with the regulatory framework of Brazil and are excluding the discharge of manure into natural water resources. • The project activity introduces AWMS practices and technology change with the purpose to reduce GHG emissions.		

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, 43	DR, I	Yes, 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.	☑	☑
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1, 2, 3, 25, 26, 43	DR, I	Yes, the baseline is been determined using conservative 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 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 conservative 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.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.2.3. Has the baseline been established on a project-specific basis?	1, 2, 3, 43	DR, I	Yes, the baseline has been based on project specific data.	☑	☑
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1, 2, 3, 19-21, 43	DR, I	Yes, the baseline scenario sufficiently takes into account the respective trends. 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.	☑	☑
B.2.5. Is the baseline determination compatible with the available data?	1, 2, 3, 4, 6, 43, 45, 46	DR, I	Yes, the available data has been used to determine the baseline.	☑	☑
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	1, 2, 3, 19-21, 43	DR, I	Yes, it has been made plausible that the chosen baseline scenario is the one deemed most realistic under the given frame conditions.	☑	☑
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	1, 2, 3, 7, 19-21, 25,	DR, I	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	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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)?	26, 43, 47		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 results 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). It is described in detail and based on defined dates how the CDM has been taken into account from the beginning of the project.		
B.2.8. Have the major risks to the baseline been identified?	1, 2, 3, 43	DR, I	Yes. 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.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			This assessment is considered as being plausible.		
B.2.9. Is all literature and sources clearly referenced?	1, 2, 3, 6, 25, 43, 45, 46	DR, I	Yes, references have been made to all data sources used.	☑	☑
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	DR, I	The project starting date and the operational lifetime are clearly defined. The project starting date is September 10, 2003.	☑	☑
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	DR, I	The crediting period is clearly defined. The 10 year non renewable crediting period starts July 1, 2004.	☑	☑
C.1.3. Is it assured that in case the start of the crediting period is before the registration of the project that the project activities starting date falls in the period between 1 January 2000 and the registration of the first clean development mechanism project?	1, 2, 3, 43, 44	DR, I	During the validation process the validation 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.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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, 44	DR, I	Yes, the project is based on an approved monitoring 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.	☑	☑
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	1, 2, 3, 44	DR, I	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.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			The criteria are fulfilled as follows: • The captured gas flared or used to produce energy but no emission reductions are claimed for displacing or avoiding energy from other sources. • The proposed project activity manages livestock populations under confined conditions in a competitive market • The proposed project activity comprises swine populations • The AWMS – in the baseline as well as in the project scenario – are in accordance with the regulatory framework of Brazil and are excluding the discharge of manure into natural water resources. The project activity introduces AWMS practices and technology change with the purpose to reduce GHG emissions.		
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	1, 2, 3, 44	DR, I	Details of the methodology as parameters to be obtained, recording frequency and archiving methods are considered being reasonable and appropriate. Relevant operating instructions are described in the operations and maintenance manual. The	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			monitoring methodology reflects good monitoring and reporting practice.		
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	1, 2, 3, 4, 5, 11, 44	DR, I	The projects 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.	☑	☑
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*	1, 2, 3, 44				
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, 44	DR, I	Yes, the monitoring plan does include all relevant parameters to determine project emissions. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.	☑	☑
D.2.2. Are the choices of project GHG indicators reasonable?	1, 2, 3, 44	DR, I	Yes. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.	☑	☑
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1, 2, 3, 11,	DR, I	Yes, it is possible to monitor and/or measure the currently specified GHG indicators. The indicators which are not	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	44		measured can be obtained from IPCC documents.		
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	1, 2, 3, 11, 44	DR, I	The parameters defined allow to calculate the project emissions in a proper manner.	☑	☑
D.2.5. Will the indicators enable comparison of project data and performance over time?	1, 2, 3, 11, 44	DR, I	Yes, all data will be recorded on a regular basis and stored until the end of the crediting period hence allowing a comparison of project data and performance over time.	☑	☑
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, 44, 49	DR, I	Yes, 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 technology. In the project assessed herewith leakage emissions are expected not to occur. In order to ensure a conservative approach respective parameters are nevertheless included in the monitoring plan.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.3.2. Have relevant indicators for GHG leakage been included?	1, 2, 3, 44, 49	DR, I	Yes, all relevant parameters have been included. A leakage effect is not to be expected. But as electrical power will be used by the project activity, the respective parameters are monitored and 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.	☑	☑
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1, 2, 3, 44	DR, I	Yes, respective parameters (no. 17 and 20) are includ3ed in the monitoring plan.	☑	☑
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	1, 2, 3, 44	DR, I	Yes, it is possible to monitor and/or to measure the currently specified GHG indicators.	☑	☑
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*	1, 2, 3, 44				
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, 44	DR, I	Yes, the monitoring plan does include all relevant parameters to determine project emissions. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.	☑	☑
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1, 2, 3, 44	DR, I	Yes. Due to the choice made regarding the monitoring approach only the relevant parameters have been selected.	☑	☑

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.4.3. Will it be possible to monitor the specified baseline indicators?	1, 2, 3, 44	DR, I	Yes, it is possible to monitor and/or to measure the currently specified GHG indicators. The indicators which are not measured can be obtained from IPCC documents.	☑	☑
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, 44	DR, I	No. 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.	☑	☑
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	1, 2, 3, 44	DR, I	No choice has been made. See comment D.5.1	☑	☑
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	1, 2, 3, 44	DR, I	See comment D.5.1	☑	☑
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	1, 2, 3, 44	DR, I	See comment D.5.1	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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, 11, 12, 13	DR, I	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 Canada. The company operates also trained staff in Brazil. Granja Becker supports the AgCert staff during the on site audits and does the daily supervision of the project components and their performance. The responsibilities for each task are clearly defined and allocated to the Granja Becker, AgCert and the service providers. The quality and environmental management system (QMS and EMS), currently under implementation within AgCert, will help to	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			support the project participants in operating the respective organisational structure.		
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	1, 2, 3, 11, 12	DR, I	The overall responsibility for registration, monitoring, measurement and reporting is with AgCert Canada.	☑	☑
D.6.3. Are procedures identified for training of monitoring personnel?	1, 2, 3, 11, 12, 16-18	DR, I	Yes, such procedures have been already executed and also provisions for further training are defined. The Operations and Maintenance Manual describes in chapter 4.2 and 6 the respective procedures for each relevant project component.	☑	☑
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1, 2, 3, 11, 12	DR, I	Yes. The Operations and Maintenance Manual describes in chapter 4.2 the respective procedures for each relevant project component.	☑	☑
D.6.5. Are procedures identified for calibration of monitoring equipment?	1, 2, 3, 11, 12	DR, I	Yes. The Operations and Maintenance Manual describes in chapter 6 the respective procedures for each relevant project component.	☑	☑
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	1, 2, 3, 11, 12, 14,	DR, I	The maintenance of monitoring equipment will be performed by the project participants itself and the companies providing the respective installations. Service obligations have been reviewed and deemed to be sufficient.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	15		The Operations and Maintenance Manual describes in chapter 4.2 and 6 the respective procedures for each relevant project component.		
D.6.7. Are procedures identified for monitoring, measurements and reporting?	1, 2, 3, 5, 11, 12	DR, I	Monitoring, measurements and reporting will be performed by staff trained in advance. The Operations and Maintenance Manual describes in chapter 4.2 and 6 the respective procedures for each relevant project component.	☑	☑
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)	1, 2, 3, 11, 12	DR, I	Yes, a description of the treatment of day to day records exist and it has been defined how data has to be stored and further processed in order to allow the issuance of monitoring reports.	☑	☑
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1, 2, 3, 11, 12	DR, I	Yes, crosschecks performed will allow to identify necessary data adjustments.	☑	☑
D.6.10. Are procedures identified for review of reported results/data?	1, 2, 3, 11, 12	DR, I	Yes, procedures for internal audits and performance reviews are established.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	1, 2, 3, 11, 12	DR, I	Yes, procedures for internal audits and performance reviews are established.	☑	☑
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	1, 2, 3, 11, 12	DR, I	Yes, procedures for internal audits and performance reviews are established.	☑	☑
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	1, 2, 3, 11, 12	DR, I	The monitoring approach chosen will be reviewed periodically in order to optimize the monitoring procedures and results in most accurate monitoring and reporting documents.	☑	☑
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	DR, I	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	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			oxide (N_2O) and carbon dioxide (CO_2) emissions have been considered.		
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	1, 2, 3, 4	DR, I	Yes, the calculations resulting in the final numbers have been submitted. The formulae used are correctly applied.	☑	☑
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1, 2, 3, 4	DR, I	Plausible estimates have been made for the population of swine at the farm site.	☑	☑
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1, 2, 3, 4	DR, I	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.	☑	☑
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	1, 2, 3, 4	DR, I	Yes. Methane (CH_4), nitrous oxide (N_2O) and carbon dioxide (CO_2) emissions have been considered.	☑	☑
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	DR, I	Leakage emissions from increased electrical power consumption have been	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			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. But this effect is in accordance with the methodology not taken into account.		
E.2.2. Have these leakage effects been properly accounted for in calculations?	1, 2, 3, 4	DR, I	The leakage effects have been properly accounted for in the calculations. As the effect is a positive leakage effect, it does not change the calculations of the emission reductions.	☑	☑
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	1, 2, 3, 4	DR, I	The approach chosen is in line with the applied methodology.	☑	☑
E.2.4. Are the calculations documented in a complete and transparent manner?	1, 2, 3, 4, 49, 50	DR, I	Yes the calculations resulting in the final numbers have been submitted. The formulae used are correctly applied.	☑	☑
E.2.5. Have conservative assumptions been used when calculating leakage?	1, 2, 3, 4, 49, 50	DR, I	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. 4:	CL 4	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			The appropriateness of the chosen source should be documented.		
E.2.6. Are uncertainties in the leakage estimates properly addressed?	1, 2, 3, 4	DR, I	As leakage effects in general are expected not to occur or to be very small also the risk of uncertainties are expected to be low.	☑	☑
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	DR, I	Yes, the calculations include all relevant parameters to determine baseline emissions. Due to the choice made regarding the calculation approach only the relevant parameters have been selected. These parameters reflect the most likely operational characteristics.	☑	☑
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1, 2, 3, 4	DR, I	Yes, the boundaries are clearly and correctly defined. 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.	☑	☑
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1, 2, 3, 4	DR, I	Yes, the calculations resulting in the final numbers have been submitted. The formulae used are correctly applied.	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	1, 2, 3, 4	DR, I	Plausible estimates have been made for the population of swine at the farm site.	☑	☑
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1, 2, 3, 4	DR, I	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.	☑	☑
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	DR, I	The project baseline reflects the assumptions of the project emissions.	☑	☑
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	DR, I	Yes. The project emissions will be reduced compared to the baseline scenario by 50.860 tonnes CO_{2e} over a crediting period of ten years	☑	☑

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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	DR, I	Yes, the environmental impacts can be seen as being low. These low impacts have been sufficiently described in the PDD.	☑	☑
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,	DR, I	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.	☑	☑
F.1.3. Will the project create any adverse environmental effects?	1, 2, 3	DR, I	No, negative environmental effects are not expected to be created by the project. Given the nature of the project design this seems to be reasonable.	☑	☑
F.1.4. Are transboundary environmental impacts considered in the analysis?	1, 2, 3	DR, I	No, but as the project site is far from the national boundary, such effects are not expected.	☑	☑
F.1.5. Have identified environmental impacts been addressed in the project design?	1, 2, 3	DR, I	As no significant environmental impacts are expected, such impacts have not influenced the project design.	☑	☑
F.1.6. Does the project comply with environmental legislation in the host country?	1, 2, 3, 19, 22-24	DR, I	The project is in line with the relevant legislation and plans in the host country. The environmental licence valid until November 24, 2004 has been submitted to the validation team. See Comment A.3.1	CL 3	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
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?	27-42	DR, I	Relevant stakeholders have been consulted. The stakeholders consulted included people from the local community and representatives of the City of Patos de Minas and the State of Minas Gerais. In addition neighbours to the site have been interviewed.	☑	☑
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	27-42	DR, I	Yes, the stakeholders have been invited to two meeting, one of which has been extensively published in local and regional newspapers. In addition interviews with direct neighbours have been carried out.	☑	☑
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	27-42	DR, I	A stakeholder process is not required.	☑	☑
G.1.4. Is a summary of the stakeholder comments received provided?	27-42	DR, I	Yes, all responses received so far are positive.	☑	☑
G.1.5. Has due account been taken of any stakeholder comments received?	27-42	DR, I	No action has been undertaken as all comment received so far have been positive.	☑	☑

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
Clarification Request No. 1: A more detailed description of the design and technical characteristics of the applied equipment should be submitted to the validation team.	A.2.2	A detailed description of the design and technical characteristics of the applied equipment has been submitted to the validation team.	☑
Initial training and maintenance efforts are required. In the PDD and during the visit on site the project developer confirmed that such a training has taken place and/or is envisaged, but no documentation on executed and/or planned training activities has been submitted. Clarification Request No. 2: The respective documentation should be submitted to the validation team.	A.2.4 und A.2.5	Respective documentation on executed training activities has been submitted. Moreover the operations and maintenance plan includes provisions for training and maintenance.	☑
The project is currently in line with the relevant legislation and plans in the host country. The environmental licence valid until November 24, 2004 has been submitted to the validation team. Clarification Request No. 3:	A.3.1	An application for renewal has been submitted to the audit team. This is considered to fulfil the obligations regarding the legal status of the project as the submission of an application acts as a valid operational license until a decision is reached to approve or deny	☑

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
As the validation will not be completed before November 24, 2004 the documents demonstrating application for the new license as well as subsequently the renewed licence should be prepared and submitted to the validation team.		the application.	
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. <u>Clarification Request No. 4:</u> The appropriateness of the chosen source should be documented.	E.2.5	Additional calculations have been provided which demonstrate that the project activity will either cause no negative leakage effects or even taking the most conservative assumptions (no electricity would be generated at the project site due to a non operation of the generator) and figures (IEA, 2002), the effect would be insignificant (0.3 t CO_{2e} / year). This result is in line with the statement in the PDD.	☑

Industrie Service

Appendix 2:
Information Reference List

Reference No.	Document or Type of Information
1	On-site interview at the offices and on site of Granja Becker in Patos de Minas with the project developer and the project owner conducted on October 12, 2004 by auditing team of TÜV SÜD **Validation team on-site:** Michael Rumberg — TÜV Industrie Service GmbH TÜV SÜD Group Wilson Tomao — Ingwaass Qualidade Continua **Interviewed persons:** William Eugenio — Granja Becker Michael Mirda — AgCert
2	On-site interview at the offices of AgCert in Patos de Minas with the project developer conducted on October 14, 2004 by auditing team of TÜV SÜD **Validation team on-site:** Michael Rumberg — TÜV Industrie Service GmbH TÜV SÜD Group Wilson Tomao — Ingwaass Qualidade Continua **Interviewed persons:** Miguel Gastao de Oliveira — AgCert Michael Mirda — AgCert

Reference No.	Document or Type of Information
3	Project Design Document “Granja Becker GHG Mitigation Project”, AgCert Canada, December 2004
4	Calculation of baseline and project emissions “Granja Becker GHG Mitigation Project”, AgCert Canada, excel file, December 2004
5	Pre-Assessment Data Collection Document, AgCert Canada, August 2004
6	Production Data June 2001 – May 2004, Granja Becker (confidential)
7	Technical planning, submitted November 17, 2004 (confidential)
8	Technical specification of the PVC flexible film (biodigester cover) submitted November 17, 2004 (confidential)
9	Technical specification on flare unit, submitted November 17, 2004 (confidential)
10	Technical specification on biodigester, submitted November 17, 2004 (confidential)
11	Operations and Maintenance Plan for Granja Becker Greenhouse Gas (GHG) Mitigation Project, dated November 16, 2004 (confidential)
12	AgCert Quality and Environmental Management System Handbook, August 2004
13	Pre-Assessment Checklist for ISO 9001/ISO14001 certification, issued by QMI
14	Flare Unit Service Specifications, submitted November 17, 2004 (confidential)
15	Gasflow Meter Service Specifications, submitted November 17, 2004 (confidential)
16	Training Attendance Roster regarding the introduction to the supplier management system, June 21 until June 21, 2004
17	Training Attendance Roster regarding the introduction to the supplier management system, April 5 until April 5, 2004
18	Training Attendance Roster regarding the digester equipment operation, May 1 until June 1, 2004
19	Letter issued b y Instituto Estadual de Florestas, March 22, 2004

Reference No.	Document or Type of Information
20	Letter issued by Mr. Paulo Furtado, environmental consultant, March 30, 2004
21	Letter issued by SETAGRO LTDA, March 22, 2004
22	Environmental License, Certificado LO No. 023/00, November 29, 2000
23	Environmental License Application, November 21, 2004
24	Resolucao Conama No. 237, December 19, 1997
25	Detailed economic analysis of project and alternative scenarios, excel sheet, August 2004
26	External expert opinion of the presented economic analysis, December 15, 2004
27	Letter issued by Secretary of the State Ministry of Environment and Sustainable Development, March 24, 2004
28	Letter issued by IBAMA of Minas Gerais, April 5, 2004
29	Letter issued by SETAGRO LTDA, October 18, 2004
30	Invitation to stakeholder meeting performed September 25, 2003 , email text
31	Minutes of the stakeholder meeting performed September 25, 2003
32	List of participants of the stakeholder meeting performed September 25, 2003
33	Audio tape of the Stakeholder Meeting performed September 25, 2003
34	Presentation given at the stakeholder meeting performed September 25, 2003.
35	Invitation letter to the Brazilian Designated National Authority regarding the stakeholder meeting, September 8, 2003
36	Response to the invitation letter regarding the stakeholder meeting by the Governor of Minas Gerais, September 21, 2003.
37	Invitation to stakeholder meeting performed July 21, 2004 , email text
38	Invitations to stakeholder meeting performed July 21, 2004, articles in the following newspapers: “Estado de Minas”, Minas Gerais,

Reference No.	Document or Type of Information
	July 17, 2004; “CORREIO”, Uberlandia, July 10, 2004; “Patrocinio Hoje”, Patrocinio, July 15, 2004 and “Folha Patense”, Patos de Minas, July 17, 2004.
39	Minutes of the stakeholder meeting performed July 21, 2004
40	List of participants of the stakeholder meeting performed July 21, 2004
41	Memo on stakeholder process (neighbouring farms), December 15, 2004
42	Article about Granja Becker Project in “Campo & Negocios”, September 2004
43	Approved baseline methodology AM0016: Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations. UNFCCC, 2004
44	Approved monitoring methodology AM0016: Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations. UNFCCC, 2004
45	IPCC: Revised 1996 Guidelines for National Greenhouse Gas Inventories
46	IPCC: 2000, Good Practice Guidance
47	UNFCCC, CDM: Tool for the demonstration and assessment of additionality” approved by the EB (EB 16, annex 1).
48	Validation and Verification Manual, IETA/World Bank (PCF), http://www.vvmanual.info