



Industrie Service

**Choose certainty.
Add value.**

Verification Report

Agrícola Super Limitada

Third Periodic Verification

of the registered CDM project

**“Methane capture and combustion from
swine manure treatment for Pocillas and La Estrella”**

in Chile

Report No. 1008942-1

Version 3

08 Aug 2007

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

**Third Periodic Verification of the CDM Project:
 “Methane capture and combustion from swine manure treatment
 for Pocillas and La Estrella” in Chile**



Industrie Service

Page 1 of 1

Report No.	Date of first issue	Version:	Date of this revision	Certificate No.
1008942-1	May 29, 2007	3	Aug 08, 2007	-
Subject:	Third Periodic Verification of a CDM Project			
Executing Operational Unit:	TÜV Industrie Service GmbH TÜV SÜD Group Carbon Management Service Westendstr. 199 - 80686 Munich, Federal Republic of Germany			
Client:	Agricola Super Limitada Camino La Estrella No. 401 Rancagua, 6 th Región, Chile			
Contract approved by:	Werner Betzenbichler			
Report Title:	Third Periodic Verification of the CDM Project: “Methane capture and combustion from swine manure treatment for Pocillas & La Estrella”			
Number of pages	18 (excluding cover page and annexes)			
Summary:				
<p>TÜV SÜD Industrie Service GmbH has performed a verification of the registered CDM project: “Methane capture and combustion from swine manure treatment for Pocillas and La Estrella” in Chile. The verification is based on requirements of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords".</p> <p>The management of Agricola Super Limitada is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the project.</p> <p>The verifier confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions.</p> <p>The verifier can confirm that the GHG emission reduction for the whole monitoring period is calculated without material misstatements. Our opinion relates to the project’s GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated we confirm the following statement:</p> <p><u>Reporting period:</u> From 01-06-2006 to 31-10-2006.</p> <p><u>Verified emission in the above reporting period:</u></p> <p>Base Line Emissions : 183,741 t CO₂ eq</p> <p>Project Emissions (incl. leakage) : 33,204 t CO₂ eq</p> <p>Emission reductions: 150,537 t CO₂ eq</p>				
Work carried out by:			Internal Quality Control by:	
<ul style="list-style-type: none"> Javier Castro, Assessment Team Leader, Environmental Management Systems (ISO 14001) Víctor Abarca, Local expert, GHG auditor Iván Bugueño, GHG auditor Trainee 			Werner Betzenbichler	

Abbreviations

AE	Applicant Operational Entity
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual



Table of Contents		Page
1	INTRODUCTION	4
1.1	Objective	4
1.2	Scope	4
1.3	GHG Project Description	6
2	METHODOLOGY.....	7
2.1	Review of Documents	9
2.2	Follow-up Interviews	9
2.3	Resolution of Corrective and Forward Action Requests	10
3	VERIFICATION FINDINGS.....	11
3.1	Completeness of Monitoring	12
3.2	Accuracy of Emission Reduction Calculations	14
3.3	Quality of Evidence to Determine Emission Reductions	16
3.4	Management System and Quality Assurance	17
4	PROJECT SCORECARD	19
5	VERIFICATION STATEMENT	20

Annex 1: Verification Protocol

Annex 2: Information Reference List

1 INTRODUCTION

1.1 Objective

Agricola Super Limitada (Agrosuper) has commissioned an independent verification by TÜV SÜD Industrie Service GmbH (TÜV SÜD) of its three registered CDM projects among which the project: “Methane capture and combustion from swine manure treatment for Pocillas and La Estrella”, has been selected to start with. Verification is the periodic independent review and ex post determination by the Designated Operational Entity / Independent Entity of the monitored reductions in GHG emissions during the defined verification period.

The objective of verification can be divided in Initial Verification and Periodic Verification:

- Initial Verification:

The objective of an initial verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions. A separate initial verification prior to the project entering into regular operations is not a mandatory requirement.

- Periodic Verification:

The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; further more the periodic verification evaluates the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is “free” of material misstatements; and verifies that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records. If no prior initial verification has been carried out, the objective of the first periodic verification also includes the objectives of the initial verification.

The verification shall consider both quantitative and qualitative information on emission reductions. Quantitative data comprises the monitoring reports submitted to the verifier by the project entity. Qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emissions reports, review and internal audit of calculations/data transfers.

The verification follows 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

Verification scope is defined as an independent and objective review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and the validated project design documents including its monitoring plan. These documents are 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 verification, focusing on the identification of significant risks and reliability of project monitoring and generation of CERs.

**Third Periodic Verification of the CDM Project:
“Methane capture and combustion from swine manure treatment
for Pocillas and La Estrella” in Chile**



Page 5 of 5

The verification 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 monitoring activities.

The audit team has been provided with a Monitoring Report and underlying data records in March 2007, covering the period June 01, 2006 – October 31, 2006 which has been made publicly available on the UNFCCC website as required by the modalities and procedures of the CDM (<http://cdm.unfccc.int/Issuance/MonitoringReports>). Based on this documentation a document review and a fact finding mission in form of an on-site audit has taken place. The final Monitoring Report version submitted on March, 2007 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 audit team performing the verification 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
- Agro-industrial activities
- Technical aspects of waste manure management systems
- Monitoring technologies
- Monitoring concepts
- Laboratory analysis
- 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”:

Javier Castro is the Assessment Team leader, and auditor for environmental management systems at the department “Carbon Management Service” in the head office of TÜV Industrie Service GmbH, TÜV Süd Group in Munich. He is specialised in environmental issues.

Víctor Abarca is a local GHG Auditor, heading the department “Environmental Services” of ccaQualitas in Santiago de Chile, a local company being member of the TÜV SÜD Group. Having an academic education as constructor Engineer and is specialized during their work in waste management is well familiar with the assessment of anaerobic and aerobic treatment of effluents. He is an auditor for environmental management systems (according to ISO 14001) and quality management systems (ISO 9001). He has received extensive training in the CDM validation process, is an appointed auditor for CDM projects and participated already in several CDM project assessments all over Latin America.

Iván Bugueño is a Fishery Engineer and is an auditor for quality management systems (ISO 9001). He has received extensive training in the CDM validation process and now is working as trainee GHG auditor.

**Third Periodic Verification of the CDM Project:
“Methane capture and combustion from swine manure treatment
for Pocillas and La Estrella” in Chile**



Page 6 of 6

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (ALL)
- Environmental and Social Impact Assessment (ALL)
- Skills in environmental auditing (Castro, Abarca)
- Quality assurance (ALL)
- Agro-industrial activities (ALL)
- Technical aspects of waste manure management systems (ALL)
- Monitoring technologies (ALL)
- Monitoring concepts (ALL)
- Laboratory analysis (ALL)
- Political, economical and technical random conditions in host country (ALL)

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

- **Werner Betzenbichler** (Certification Body “climate and energy”)

1.3 GHG Project Description

The project involves the installation of heated bio-digesters at the agro-industrial premises of Agrosuper in Pocillas, which include 8 premises and La Estrella, which include additional 8 premises. Pocillas anaerobic system is followed by an activated sludge treatment system, which entered into operation on January 2004. La Estrella consist of a heated anaerobic system only, which uses part of the self produced methane as heating fuel. By that methane emissions are captured and methane is combusted in a flare.

Project participants are Agricola Super Limitada (Agrosuper) owner of the project and located in Chile, as well as Tokyo Electric Power Company Incorporated (TEPCO), Japan and TransAlta Corporation, Canada.

The project’s starting date is December 01, 2000 and the 7 year renewable crediting period started on January 01, 2003 in the case of La Estrella. For Pocillas, the crediting Period started also on January 01, 2003, but Activated Sludge phase launched on January 01, 2004.

The project has been registered as CDM activity on September 02, 2005 having the reference number 0033 (see: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1120199686.27/view.html>).

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual (for further information see www.vvmanual.info), an initiative of all Applicant Entities and Designated Operational Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a verification 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. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM/JI project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been proved and the result of the verification.

The verification protocol consists of four tables. The different columns in these tables are described in Figure 1.

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

Initial Verification Checklist – table 1			
OBJECTIVE	Ref.	COMMENTS	Concl.(incl FARs/CARs)
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>Description of circumstances and further recommendation to the conclusion.</i>	<i>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 Verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications</i>

**Third Periodic Verification of the CDM Project:
“Methane capture and combustion from swine manure treatment
for Pocillas and La Estrella” in Chile**



Periodic Verification Checklist		
Table 1: Data Management System/Controls		
Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
The project operator’s data management system/controls are assessed to identify reporting risks and to assess the data management system’s/control’s ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.	<p>A score is assigned as follows:</p> <p>Full all best-practice expectations are implemented.</p> <p>Partial a proportion of the best practice expectations is implemented</p> <p>Limited this should be given if little or none of the system component is in place.</p>	<i>Description of circumstances and further commendation to the conclusion. 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 Verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications</i>

Periodic Verification Checklist		
Table 2: GHG calculation procedures and management control testing		
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>Identification of potential reporting risks based on an assessment of the emission estimation procedures.</p> <p>Identification of key source data. Focus on those risks that impact the accuracy, completeness and consistency of the reported data.</p>	<p>Identification of the key controls for each area with potential reporting risks. Assessment of adequacy of the key controls and eventually test that the key controls are actually in operation.</p> <p>Internal controls include, Understanding of responsibilities and roles, Reporting, reviewing and formal management approval of data; Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc.</p>	<p><i>Identification of areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks</i></p> <p><i>Areas where data accuracy, completeness and consistency could be improved are highlighted.</i></p>

Periodic Verification Checklist		
Table 3: Detailed audit testing of residual risk areas and random testing		
Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including FARs)
<p><i>List of residual areas of risks of Periodic Verification Checklist Table 2 where detailed audit testing is necessary.</i></p> <p><i>In addition, other material areas may be selected for detailed audit testing.</i></p>	<p><i>The additional verification testing performed is described. Testing may include:</i></p> <ul style="list-style-type: none"> ▪ <i>Sample cross checking of manual transfers of data</i> ▪ <i>Recalculation</i> ▪ <i>Spreadsheet ‘walk throughs’ to check links and equations</i> ▪ <i>Inspection of calibration and maintenance records for key equipment</i> ▪ <i>Check sampling analysis results</i> <p><i>Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</i></p>	<p><i>Having investigated the residual risks, the conclusions are noted here. Errors and uncertainties are highlighted.</i></p>

Figure 1 Verification Protocol Tables

2.1 Review of Documents

The monitoring report submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached as annex 2 to this report.

2.2 Follow-up Interviews

On March 14, 2007, TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the previous Audit. Representatives of all local companies having influence on data used to determine the emission reductions were interviewed. The procedure to begin the audit consist into define a pair of dates to track them back searching possible mistakes which could be find between the origin of data (Farms) and the processed ones in the main offices (Longovilo and/or Rancagüa).The main topics of the interviews are summarized in Table 1.



Table 1 Interview topics

Interviewed organization	Interview topics
Agrosuper (incl. POCH)	<ul style="list-style-type: none"> ➤ Project design and implementation ➤ Technical equipment and operation ➤ Monitoring plan ➤ Reporting procedures ➤ Quality Management ➤ Quality Assurance and Quality Control ➤ Agro-industrial activities ➤ Monitored data ➤ Data uncertainty and residual risks ➤ GHG calculation ➤ Data archiving ➤ Data uncertainty ➤ Compliance with national laws and regulations
Aguas y Riles	<ul style="list-style-type: none"> ➤ Performance of maintenance work ➤ Reporting procedures ➤ Quality Management ➤ Sample taking procedures

2.3 Resolution of Corrective and Forward Action Requests

The objective of this phase of the verification was to resolve the requests for corrective actions and any other outstanding issues which needed to be clarified for TÜV SÜD’s positive conclusion on the GHG emission reduction calculation. Three Forward Action Requests, raised by TÜV SÜD were found during onsite activities. Forward Action Requests are indicated issues which do not effect the generation of emission reduction in the verified period, but shall be improved in order to ensure the reliability of future data. To guarantee the transparency of the verification process, the concerns raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the verification protocol in annex 1.

3 VERIFICATION FINDINGS

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

The findings from the desk review of the final monitoring report and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Verification Protocol in annex 1.

- 1) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Corrective or Forward Action Request, respectively, have been issued. The Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in annex 1. The verification of the project resulted in one Corrective Action Request and three Forward Action Requests.
- 2) Where Corrective Action Requests have been issued, the exchanges between the Client and TÜV SÜD to resolve these Corrective Action Requests are summarized.
- 3) In the context of Forward Action Requests, risks have been identified, which may endanger the delivery of high quality CERs in the future, i.e. by deviations from standard procedures as defined by the MP. As a consequence, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions. Forward Action Requests are understood as recommendation for future project monitoring; they are stated, where applicable, in the following sections and are further documented in the Verification Protocol in annex 1.
- 4) The final conclusions for verification subject are presented.

The verification findings relate to the project implementation as documented and described in the final monitoring report.

Periodic Verification Findings

3.1 Completeness of Monitoring

3.1.1 Discussion

The reporting procedures reflect the monitoring plan completely. All parameter were determined as prescribed.

No changes to the monitoring plan are required.

EB request for review: Issue 1:

The project participant and the DOE are required to provide:

1. The total nitrogen content and the temperature of the manure are not contained in the monitoring report. Further clarification is required.

Response by the project participants:

The total nitrogen content and the temperature of the manure have been measured as per the monitoring plan. The registries of the total nitrogen content and the temperature are attached in the spreadsheet “**Registries of the monitoring plan for Pocillas Jun_Oct 2006.xls**”. The registries have been included in the “**Final monitoring report Pocillas and La Estrella**”.

The project proponent wants to emphasize that the treatment system of Pocillas is composed by an anaerobic digester and an aerobic post-treatment while La Estrella has only a digester. Then all the parameters from the monitoring plan shall be monitored for Pocillas whereas for La Estrella it is not necessary to measure the following parameters from the monitoring report: manure flow before aerobic treatment stage, manure flow after aerobic treatment, flow of sludge from aerobic treatment, 5 days BOD in manure after aerobic treatment stage, total nitrogen content in manure after aerobic treatment stage and temperature of manure after aerobic treatment stage.

Response by TÜV SÜD:

The attached monitoring report contains the total nitrogen content and the temperature of the manure according to the registered monitoring plan. It is opinion of TÜV SÜD, that the further clarification given by the project participant solves the Issue 1 of this request for review

3.1.2 Findings

Forward Action Request No. 1

It will be necessary to demonstrate that changes made to the final treatment stage (soil application will be replaced by composting) after the monitoring period covered by this verification (June 2006 to October 2006) is compatible with the validated PDD and it should not reduce the features of additionality of the Project activity. (See Annex 1, chapter 2)

EB request for review: Issue 3:

The project participant and the DOE are required to provide:

3. The verification report indicates that the FAR 2 from the previous verification report related to changes made to the final treatment stage still appears as FAR 1 in this verification report. Further clarification is required on why the DOE has not resolved this FAR.

Response by the project participants:

In the verification audit for the third periodic verification Agrosuper demonstrated to the DOE that the changes made to the final treatment stage (soil application will be replaced by composting) are compatible with the validated PDD, therefore the project proponent considers that this FAR is closed.

Response by TÜV SÜD:

The project proponent gave following answer to the FAR1 (as stated in the verification report):

“Project owner showed changes in process stages that were described in the PDD, but also demonstrating that the PDD was registered including the treatment model used now, i.e., eliminating anaerobic treatment and flaring. Nonetheless project proponent indicates to the audit team that this issue will not affect the project activity due to the use of compost for internal uses.”

It can be confirmed that the changes made in the final treatment stage are compatible with the validated PDD.

3.1.3 Conclusion

The final treatment stage is now compatible with the validated PDD. The FAR is closed.

3.2 Accuracy of Emission Reduction Calculations

3.2.1 Discussion

Due to the approved methodology there is no need to make corrections for data uncertainty. But data have to be obtained with high accuracy. The following list indicates the significance and reporting risks for directly metered parameter:

Animal Population: The dates without or with growing or decreasing populations are correctly reflected by the datasets also showing zero populations during two rotation phases. Any hypothetical, additional animal leading to higher emission reductions in principle would result in a lower average weight of animal therefore balancing this calculation error. Hence no significant reporting risk can be determined although this factor has a material impact on the result of the emission reduction calculation.

Average Weight of Animals: Weight data have important impact on the economical success of the agro-industrial activities and therefore maintained very carefully. This factor has also a material impact on the result of the emission reduction calculation. But no significant reporting risk can be determined as long as the agro-industrial activities are not disturbed in larger extent by animal diseases leading to high mortality rates. On the other hand, calibration certificates of the equipment used for weighting animals were shown to the audit team.

Manure Flow after Aerobic Treatment Stage: This parameter is calculated as the difference of the following two parameters.

Manure Flow before Aerobic Treatment: The underlying algorithms as defined by the methodology will suppress an even bigger error by having no material impact on the result of the emission reduction calculation.

Flow of Sludge from Aerobic Treatment: The underlying algorithms as defined by the methodology will suppress an even bigger error by having no material impact on the result of the emission reduction calculation.

5 days BOD in Manure after Aerobic Treatment Stage: No conflict of interest is identifiable for this laboratory which has been founded several years ago without any reference to Agrosuper's overall activities. Sample taking is identified as the main source of potential errors. But again, the underlying algorithms as defined by the methodology will suppress an even bigger error by having no material impact on the result of the emission reduction calculation.

EB request for Review: Issue 2:

The project participant and the DOE are required to provide:

2. The monitoring report states that the five-day Biological Oxygen Demand (BOD) was calculated. This deviates from the registered monitoring plan and the approved methodology which require the measurement of this parameter. The verification report has not appropriately addressed this deviation.

Response by the project participants:

The validation report states that “the BOD₅ of the manure leaving the aerobic treatment stage is measured”. The monitoring report states in Table 2 “5 days BOD in Manure after Aerobic Treatment Stage”.

Agrosuper wants to emphasize that the BOD₅ of liquid effluent has been monitored as per the monitoring plan during the complete period covered in this verification process and these registries are attached in the spreadsheet “**Registries of the monitoring plan for Pocillas Jun_Oct 2006.xls**”. The final monitoring report is making reference to the BOD₅ of liquid effluent not to the BOD₅ of the sludge.

During part of the present verification period there was a contingency and the sludge from Pocillas was disposed anaerobically since 26/08/2006. Due to this contingency the leakages related to the anaerobic management of the sludge have to be accounted. Then, a value of the BOD₅ of the sludge is needed in order to estimate this leakage. The BOD₅ of the sludge was calculated based in the measured BOD₅ of the influent and the measured BOD₅ of the liquid effluent, according to the procedure detailed in the monitoring report. Agrosuper has been monitoring periodically the influent BOD₅ and the effluent BOD₅ for operational purposes and the registries of this monitoring is attached in the spreadsheet “**BOD monitoring Pocillas 2006.xls**”. In order to calculate de BOD of the sludge, a monthly average of the influent BOD measurements and the effluent BOD measurements has been considered.

It is not feasible technically to measure in the laboratory the BOD₅ of a dehydrated sludge because the analysis has a high level of uncertainty and it has to be done with large dilutions in order to have a right lecture in the spectrophotometer, generating an important error in the measurement. Furthermore, in Chile there is not any standard and no laboratory has accreditation to measure the BOD₅ of a dehydrated sludge. For this reason, in order to get a valid and reliable estimation to calculate the leakages related to anaerobic management of the sludge, it was proposed to the DOE to calculate the BOD₅ by means of a mass balance, using the procedure detailed in the page 10 of the final monitoring report. Thus, Agrosuper has monitored BOD₅ at the inlet and outlet of the plant, and with both monitored data, has calculated the BOD₅ of the sludge.

This event is a contingency that occurred after the registration of the project, so the original monitoring plan did not make any reference to the BOD₅ of the sludge.

Response by TÜV SÜD:

As clearly explain by the project participants, the BOD₅ has been measure according to the methodology, the only BOD₅ value that has been calculated is of sludge, which technically is not feasible due to the problems explained above. The DOE has reviewed the documentation related to this calculation and can confirm that the values stated in the monitoring report are correct. Therefore this deviation has been accepted as no reliable information can be obtained as explained above.

Total Nitrogen Content in Manure after Aerobic Treatment Stage: No conflict of interest is identifiable for this laboratory which has been founded several years ago without any reference to Agrosuper’s overall activities. Sample taking is identified as the main source of potential errors. But again, the underlying algorithms as defined by the methodology will suppress an even bigger error by having no material impact on the result of the emission reduction calculation.

Temperature of Manure after Aerobic Treatment Stage: This data is used for logic decision of setting emission reduction calculations valid or not. Significant risk could only occur in case of intended manipulation of data sets. As data is kept on several sites any unrecorded manipulation would require extensive logistic efforts to delete all traces.

Biogas Flow Extracted by Digester: This data is used for logic decision of setting emission reduction calculations valid or not. Significant risk could only occur in case of intended manipulation of data sets. As data is kept on several sites any unrecorded manipulation would require extensive logistic efforts to delete all traces.

CO2 Concentration in Gas Flow: This data is used for logic decision of setting emission reduction calculations valid or not. Significant risk could only occur in case of intended manipulation of data sets. As data is kept on several sites any unrecorded manipulation would require extensive logistic efforts to delete all traces.

3.2.2 Findings

Forward Action Request No. 2

This corresponds to FAR No. 4 from the last periodic verification. A list should be elaborated indicating type, technical performance parameter and origin of all major components, including metering devices, with accuracy, physical or chemical principles of operation and calibration requirements. By that it will be possible during future verification processes to follow up the performance and lifetime of all metering equipment and hence ensure data consistency in time.

Forward Action Request No. 3

This corresponds to FAR No. 5 from the last periodic verification. Measures should be taken in order to avoid failure of monitoring equipment, even if the measured parameter is considered to be secondary, i.e. only for operation performance monitoring, according to the used methodology.

3.2.3 Conclusion

Even though the project complies with the requirements, on the next periodic verification those issues should be scrutinized.

3.3 Quality of Evidence to Determine Emission Reductions

3.3.1 Discussion

Spot checks were made taking animal population data directly from the barn achieves, which were then confirmed in Agrosuper headquarters, where the Monitoring Reports are prepared by integration of raw data. It has been seen that data sets received concerning monthly consolidated data is reproducible by raw data. Data as given by the monitoring report is substantiated by the existing data sets.

Furthermore spot checks have been made on-site verifying the continuous operation of the flare as well as of the aerobic treatment plant. It has been investigated by spot checks whether data from manually written forms has been correctly transferred to the data system. The type, functionality and eligibility of safety equipment (self-ignition and safety-valve), ensuring that no unintended release of methane will occur, has been inspected on-site.

All excel files used to deliver consolidated figures have been investigated excessively. The ways how new data are inserted for new months to be calculated have been discussed.

Excerpts of weekly data sets for biogas volume and physical properties as manually written have been compared with system data in Longovilo Food Plant and Rancagua Headquarters, being consistent.

3.3.2 Findings

None.

3.3.3 Conclusion

The project complies with the requirements.

3.4 Management System and Quality Assurance

3.4.1 Discussion

Calibration sheets for all weighing equipment used for agro-industrial activities by AGROSUPER are available on site. They are stored on the premises have such installations.

No further calibration activities are required for this CDM activity.

Maintenance of metering systems and operation of waste manure treatment systems is contracted to an external service provider having clear advice/duties to use the forms and procedures developed for quality and data management purposes.

Agrosuper has developed a documented procedure entitled: “Procedimiento para sistema de registros MDL; rev. 5”, which is an integral part of the certified management system (ISO9000, ISO14000). Mr. Carlos Andrés Vives and Mrs. Paola Gutiérrez are the only persons having access to the file system containing raw data and consolidated data. Only after consolidation data is available for further users on different folders.

The rights for the file system are protected by IT solutions requiring the correct use of passwords. The IT system is based on standard multi-user server systems and MS-office solutions. Moreover the IT system is ITL certified by EXIN giving clear an accurate data.

The system is designed to give exclusively access to file systems for specifically for each user through the system administrator.

Production data is processed and maintained by a database system able to allocate rights for writing and reading for each record to each type of user separately. The CDM team only has the right to read data and to export data to excel files.

3.4.2 Findings

None

**Third Periodic Verification of the CDM Project:
“Methane capture and combustion from swine manure treatment
for Pocillas and La Estrella” in Chile**

Page 18 of 18



Industrie Service

3.4.3 Conclusion

The project complies with the requirements.

4 PROJECT SCORECARD

The conclusions on this scorecard are based on the revised monitoring report.

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Emission Reductions	
Completeness	Source coverage/ boundary definition	✓	✓	✓	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently.
Accuracy	Physical Measurement and Analysis	✓	✓	✓	State-of-the-art technology is applied in an appropriate manner.
	Data calculations	✓	✓	✓	Data calculations were made correctly.
	Data management & reporting	✓	✓	✓	An eligible data management system is in place. Potential for improvement is indicated by the stated FARs.
Consistency	Changes in the project	✓	✓	✓	Results are consistent to underlying raw data.

5 VERIFICATION STATEMENT

TÜV SÜD Industrie Service GmbH has performed a verification of the registered CDM project: “Methane capture and combustion from swine manure treatment for Pocillas and La Estrella” in Chile. The verification is based on requirements of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords".

The management of Agricola Super Limitada is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the project.

The verifier confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions.

The verifier can confirm that the GHG emission reduction for the whole monitoring period is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated we confirm the following statement:

Reporting period: From 01-06-2006 to 31-10-2006.

Verified emission in the above reporting period:

Base Line Emissions : 183,741 t CO₂ eq

Project Emissions (incl. leakage) : 33,204 t CO₂ eq

Emission reductions: 150,537 t CO₂ eq

Munich, 2007-08-08



Werner Betzenbichler

Certification Body “Climate and Energy”

Munich, 2007-08-08



Javier Castro


Assessment Team Leader

**Third Periodic Verification of the CDM Project:
“Methane capture and combustion from swine manure treatment
for Pocillas and La Estrella” in Chile**



Industrie Service


Annex 1: Verification Protocol

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 1 of 13	
------------------------	------------	---	-----------------	---


1 PERIODIC VERIFICATION CHECKLIST

Table 1: Data Management System/Controls


Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> or <i>Corrective Action Requests</i>)
1. Defined organizational structure, responsibilities and competencies		
Position and roles	Full	<p>The responsibility for compiling and consolidating data as well as for preparing the monitoring report is given to the corporate environmental manager, Mr. Carlos Andrés Vives, who also serves as contact point for the CDM activity as stated by the final PDD version. Continuous data processing as performed and controlled for this period by Mrs. Paola Gutiérrez (not working yet) and replaced today by Mr. José Manuel San Martín, the second person having exclusively access to the CDM data system.</p> <p>For the preparation of the monitoring report Agrosuper contracted consultancy service to Uriquidi, Riesco & Compañía, Mr. Sergio Vives, who has already been involved in the project's development and registration process.</p> <p>For evaluation the results of data requiring chemical analysis, Agrosuper contracted a further consultancy company, POCH, represented by Mr. Alfonso Guijón, who was already involved in the PDD development, too.</p> <p>The installation and operation of all waste manure systems is supervised by Agroforestal Corneche, a further member of the Agrosuper Group under the responsibility of Mr. Manuel Jiménez. This company ordered an independent service company, "Aguas y Riles", to perform the maintenance works of installations covered by the registered CDM activities.</p> <p>In general, a thorough control of the whole operation from the point of view of the positions and roles could be demonstrated.</p>
Responsibilities	Full	The overall responsibility of the project is with Mr. Carlos Andrés Vives (Corporate Affairs Manager).

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 2 of 13	 Industrie Service
------------------------	------------	---	-----------------	--


Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> or <i>Corrective Action Requests</i>)
		The responsibilities of all other persons dealing with information and data required to prepare the monitoring report are clearly indicated and ruled by a solid internal quality management system and relevant service contracts respectively. All the persons interviewed with responsibilities on the monitoring plan have a very professional profile, as demonstrated by their technical competences and availability not only to explain operational details, but also to recognize open questions during verification activities.
Competencies needed	Full	All competences and capabilities are covered by the persons working directly on the CDM project activity (e.g. the agro-industrial activities are considered to be outside the project boundary). There is no doubt about the technical level of competence among the personnel interviewed.
2. Conformance with monitoring plan		
Reporting procedures	Full	The data management system and all reporting procedures reflect the monitoring plan completely. The monitoring report consist of a brief document containing an introduction, a table with the general status of the project activity, a statement on implementation degree, and the list of parameters that have been measured according to the methodology AM0006, followed by tables with the results of the period (baseline and project emissions) on a monthly basis. The Monitoring Report is supported by a CD containing excel files with all data and calculations, using the same procedure as for the first periodic verification.
Necessary Changes	Full	As Agrosuper is only working with the same category of livestock (finishers) within their CDM activities, as already indicated by the PDD, it was assumed for the first periodic verification that there is no necessity to further indicate the category(-ies) of livestock population within the monitoring report. This has been changed in the last version of the monitoring report submitted for the second periodic verification. Changes in manure treatment stages as declared in the PDD, due to elimination of anaerobic treatment and methane generation/flaring as well as intensification of activated sludge phases and composting of sludge are being introduced, but they do not affect the

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 3 of 13	 Industrie Service
------------------------	------------	---	-----------------	--


Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> or <i>Corrective Action Requests</i>)
		<p>second verification period.</p> <p>Between 26/08/06 and 31/10/06 sludge from Pocillas was disposed anaerobically and leakage emissions due to anaerobic management are calculated based on the Biochemical Oxygen Demand (BOD₅) of the sludge as stated on the AM0006 methodology and clearly described on the current Monitoring Report. So FAR 1 of the second Verification Report is solved.</p> <p>In the On-site visit, the audit team saw the final treatment stage from sludge's to composting.</p> <p><u>Forward Action Request No. 1</u></p> <p>It will be necessary to demonstrate that changes made to the final treatment stage (soil application will be replaced by composting) after the monitoring period covered by this verification (June 2006 to October 2006) is compatible with the validated PDD and it should not reduce the features of additionality of the Project activity.</p>
3. Application of GHG determination methods		
Methods used	Full	<p>The calculation procedures reflect the monitoring plan completely. All algorithms as given by AM0006, which are required to calculate the emission reductions, are correctly applied by Excel spreadsheets. The choice of the two different options as provided by the methodology is implemented as stated by the PDD.</p> <p>For each month consolidated emission reduction figures are delivered.</p> <p>For reporting issues monthly emission reductions are linked or copied to separate Excel files summarizing the emission reductions as derived above.</p>
Information/process flow	Full	<p>Input data is kept in retraceable form in multiple paper copies as well as a computer data base (production figures). The calculation spreadsheet is linked to exported excel files of that database not allowing any overwriting to this raw data.</p> <p>All other data coming from the waste manure operation are collected thoroughly by spe-</p>

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 4 of 13	 Industrie Service
------------------------	------------	---	-----------------	--


Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> or <i>Corrective Action Requests</i>)
		<p>cifically developed paper forms, which are available in copies at the data management staff as well as on the treatment facility. This information is inserted to the excel files manually. Implausible data is re-checked interactively and documented by the comment function of MS Excel. The same procedure is applied for analysis results coming from the laboratory of ANAM in Santiago. They are handling over personally analysis records when picking up next samples for later evaluation.</p> <p>About the CAR No. 1 of the last verification regarding the uncontrolled burning, it was corrected and substracted from ER.</p>
Data transfer	Full	<p>Besides the information flow indicated above no further data transfer (e.g. by on-line connection to meters or external data sources) is required.</p> <p>During verification, all transfer mistakes were eliminated. All other data sets were checked on consistency. No further errors could be detected.</p>
Data trails	Full	<p>In principle there is a consistent system concerning the reference to data trails and the administration right concerning reading and writing of data. Spot samples of data were taken from the barns during onsite visit and values could be confirmed without inconsistencies in files used for the monitoring procedure.</p> <p>Nonetheless, during the spot check of data, an error was detected on the tranferred sheets of stocks in the Los Cururos farm (from La Estrella), but it was detected by the system, with other cross checking procedures, and the final data proccess was correctly applied.</p>
4. Identification and maintenance of key process parameters		
Identification of key parameters	Full	The significance and reporting risk of key parameters was discussed in chapters 4.4. and 5.4. of the initial verification checklist.
Calibration/maintenance	Partial	Calibration sheets for all weighing equipment used for agro-industrial activities by Agro-super are available on site. They are stored on the premises using such installations. It is important to note that swine weight is a parameter that is considered for swine pro-

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 5 of 13	 Industrie Service
------------------------	------------	---	-----------------	--

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> or <i>Corrective Action Requests</i>)
		<p>duction purposes in any case, thus controls on equipment maintenance and calibration was always very important for the swine production.</p> <p>A calibration of the flow meter required for determining the emission reductions by the aerobic treatment system has not been necessary during the monitoring period, as this system went into operation in 2004 only, relying on the original calibration of the manufacturer.</p> <p>No further calibration activities are required for this CDM activity.</p> <p>Maintenance of metering systems and operation of waste manure treatment systems is contracted to an external service provider having clear advice/duties to use the forms and procedures developed for quality and data management purposes. Nonetheless, some evidences of peripheral corrosion of metal parts were observed. On the on site audit FAR No. 3 from the last verification was solved and evidences were shown to the audit team.</p> <p>During the 2nd verification, the audit team detects that the minimal linear piping recommended by the provider was not respected. This could affect flow meter accuracy. As stated on the CAR No. 2 was informed to correct this issue. On the on-site audit this issue was solved and on the on site visit the audit team confirms this.</p> <p><u>Forward Action Request No. 2</u></p> <p>This corresponds to FAR No. 4 from the last periodic verification. A list should be elaborated indicating type, technical performance parameter and origin of all major components, including metering devices, with accuracy, physical or chemical principles of operation and calibration requirements. By that it will be possible during future verification processes to follow up the performance and lifetime of all metering equipment and hence ensure data consistency in time.</p>

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 6 of 13	 Industrie Service
------------------------	------------	---	-----------------	--

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> or <i>Corrective Action Requests</i>)
		<u>Forward Action Request No. 3</u> This corresponds to FAR No. 5 from the last periodic verification. Measures should be taken in order to avoid failure of monitoring equipment, even if the measured parameter is considered to be secondary, i.e. only for operation performance monitoring, according to the used methodology.
5. GHG Calculations		
Use of estimates and default data	Full	The use of default data parameter was discussed in chapter 5 of the initial verification checklist. In this verification period, emissions due to electric energy consumption of the project was calculated using an emission factor value of an already validated PDD, as mentioned in the Monitoring Report, even though the subtracted amounts of ERs are negligible. All default data used are listed with reference to their sources in the documents (files) supporting the Monitoring Report.
Guidance on checks and reviews	Full	Agrosuper has developed a documented procedure entitled: "Procedimiento para sistema de registros MDL; rev. 5", which is an integral part of the certified management system (ISO9000, ISO14000). This procedure covers the aspect of internal audits for activities concerning the CDM activity. The overall management system covers the issue of management review for all activities as required for system certification. This is applied correctly in this verification.
Internal validation and verification	Full	Internal checks are provided by the CDM project manager, Mr. Carlos Andrés Vives when receiving monthly consolidated data prepared by Mrs. Paola Gutiérrez for this period. As commented on Section 1, Mrs. Gutiérrez did not work yet in AGROSUPER and their duties are taken by Mr. José Manuel San Martín today for the next verifications.
Data protection measures	Full	Mr. Carlos Andrés Vives and Mrs. Paola Gutiérrez (Mr. José Manuel San Martín yet) are the only persons having access to the file system containing raw data and consolidated data. Only after consolidation data is available for further users on different folders. The files are protected by IT solutions requiring the use of passwords.

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 7 of 13	 Industrie Service
------------------------	------------	---	-----------------	--

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> or <i>Corrective Action Requests</i>)
IT systems	Full	<p>The IT system is based on standard multi-user server systems and MS-office solutions. It designed to give exclusively access to file systems for specifically for each user through the system administrator. Moreover the IT system is under ITIL certification. Evidences were shown to the audit team (certificates). That means a correctly management of data for the project activity.</p> <p>Production data is processed and maintained by a database system able to allocate rights for writing and reading for each record to each type of user separately. The CDM team only has the right to read data and to export data to excel files.</p>




Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 8 of 13	
------------------------	------------	---	-----------------	---

Table 2: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>Potential reporting risks based on an assessment of the emission estimation procedures can be expected to occur in the following fields of action:</p> <ol style="list-style-type: none"> 1. raw data collection 2. calculation methods, <p>Key source data applicable to the project assessed are hereby:</p> <ul style="list-style-type: none"> • Metering records • Laboratory/analytical data • Accounting records. <p>Appropriate calibration and maintenance of equipment resulting in a high accuracy of data supplied should be in place.</p> <p>It is hereby needed to focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include:</p> <ul style="list-style-type: none"> ➤ manual transfer of data/manual calculations, ➤ accuracy due to technological limitations 	<p>Regarding the potential reporting risks identified in the left column the following mitigation measures have been observed during the document review and the on site mission:</p> <p>Raw data collection:</p> <p>As data from agro-industrial production is also required for controlling the swine business, high quality data are delivered for the purposes of the CDM project activity as well.</p> <p>Data collected from the waste manure management system are specifically relevant for the CDM activity. According to the findings of the first periodic verifications, a core risk was seen in the possibility that even no or almost no emission reduction would occur in case of not having the combusting equipment (flare) in operation.</p> <p>All data and measures providing sufficient evidence that methane was flared during the time emission reductions which are claimed for are of decisive importance in the context of verification. The management control procedures address this aspect by delivering routines to perform plausibility checks.</p> <p>Quality control of analytical data should have a clear focus on sample taking activities and a reference to standards, official guidelines and/or accredited labora-</p>	<p>The maintenance records and its proper fillings for the flare and for the aerobic treatment activities have to be scrutinized in detail on-site.</p> <p>The use of excel tools in the calculation requires further assessment.</p> <p>It needs to be assessed whether data coming from the production software can be used without any restrictions (e.g. monthly average of population versus batch population averages).</p>

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 9 of 13	 Industrie Service
------------------------	------------	---	-----------------	--

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
	<p>tories. This is correctly implemented by the management control procedures</p> <p>Calculation methods:</p> <p>The use of excel files is requiring a detailed check of correct transfer of algorithms into this format and a carefully treatment of all "copy and paste" actions to avoid any overwriting of cells. These action is avoided using a macro from the raw data capture system, which permits only a transference of data from the implemented system to an excel sheet without making "copy and paste" actions. Raw data will maintain its incorruptibility.</p> <p>Using averages for populations and animal weight, the algorithms applied have to cover the whole monitoring period, i.e. periods of having reduced or even no population when changing batches should be found in correctly reduced monthly averages.</p> <p>Similar aspects have to be discussed when calculation emissions reductions when having documented failures of the systems operations.</p> <p>A proper use of correct default data form external data sources is necessary. Checks on the correct transfer from literature have to be made.</p> <p>Calibration and Maintenance:</p> <p>Spot checks have been made in order to get proofs for the realization of calibration measures as required.</p>	

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 10 of 13	 Industrie Service
------------------------	------------	---	------------------	--

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
	<p>The maintenance protocols for flare system and aerobic treatment installation are internally checked by the CDM team supervising the contracted service provider "Aguas y Riles". The external laboratory in charge of physical and chemical analysis is being recertified under ISO 17025.</p> <p>No data inconsistencies have been detected this time.</p> <p>Accuracy:</p> <p>Especially the weight of sludge is of limited accuracy. The management control should provide cost-efficient and reliable procedures for this parameter</p> <p>Internal Quality Checks:</p> <p>There is no documentation available whether quality checks have been performed. This approach requires still more detailed investigation to detect any problem cases.</p>	


Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 11 of 13	 Industrie Service
------------------------	------------	---	------------------	--

Table 3: Detailed audit testing of residual risk areas and random testing

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i> and <i>Corrective Action Requests</i>)
The maintenance records and its proper fillings for the flare and for the aerobic treatment activities have to be scrutinized in detail on-site.	Spot checks have been made on-site verifying the continuous operation of the flare as well as of the aerobic treatment plant. Furthermore it has been investigated by spot checks whether data from manually written forms has been correctly transferred to the data system. The type, functionality and eligibility of safety equipment (self-ignition and safety-valve), ensuring that no unintended release of methane will occur, has been inspected on-site.	No inconsistencies could be detected for this aspect. The continuous operation of the methane combustion and the aerobic treatment plant can be confirmed.
The use of excel tools in the calculation requires further assessment.	All excel files used to deliver consolidated figures have been investigated excessively. The ways how new data are inserted for new months to be calculated have been discussed.	No inconsistencies could be detected for this aspect.



Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 12 of 13	
------------------------	------------	--	---------------	---

Table 4: Compilation of open issues

Corrective and Forward Action Requests by audit team	Summary of project owner response	Audit team conclusion
<p><u>Forward Action Request No. 1</u></p> <p>For the next periodic verification it will be necessary to demonstrate that changes made to the final treatment stage (soil application will be replaced by composting) after the monitoring period covered by this verification (June 2006 to October 2006) is compatible with the validated PDD.</p>	<p>Project owner showed changes in process stages that were described in the PDD, but also demonstrating that the PDD was registered including the treatment model used now, i.e., eliminating anaerobic treatment and flaring. Nonetheless project proponent indicates to the audit team that this issue will not affect the project activity due to the use of compost for internal uses.</p>	<p>It can be confirmed that the changes made in the final treatment stage are now compatible with the validated PDD.</p>
<p><u>Forward Action Request No. 2</u></p> <p>A list should be elaborated indicating type, technical performance parameter and origin of all major components, including metering devices, with accuracy, physical or chemical principles of operation and calibration requirements. By that it will be possible during future verification processes to follow up the performance and lifetime of all metering equipment and hence ensure data consistency in time.</p>	<p>This list should be provided by the project proponent.</p>	<p>On the next verification this issue will be scrutinized.</p>
<p><u>Forward Action Request No. 3</u></p> <p>Measures should be taken in order to avoid failure of monitoring equipment, even if the measured parameter is considered to be secondary, i.e. only for operation performance monitoring, according to the used methodology.</p>	<p>Voltage regulators will be installed, according to project owner statement</p>	<p>Installation of voltage regulators should be confirmed during next verification at Pocillas Bio-digestor. Nonetheless</p>

Verification Checklist	2007-08-01	Third Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" in Chile	Page 13 of 13	 Industrie Service
------------------------	------------	---	------------------	--


Corrective and Forward Action Requests by audit team	Summary of project owner response	Audit team conclusion
		less, biogas flow is considered only a parameter to control anaerobic digestion, not being part of ER calculations.

**Third Periodic Verification of the CDM Project:
“Methane capture and combustion from swine manure treatment
for Pocillas and La Estrella” in Chile**




Industrie Service

Annex 2: Information Reference List

Final Report 2007-08-01	Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas and La Estrella" in Chile Information Reference List	Page 1 of 2	 Industrie Service
-------------------------	---	----------------	--

Reference No.	Document or Type of Information																						
1	Final Project Design Document for CDM project "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella", dated July 23, 2004 as available at cdm.unfccc.int																						
2	Validation Report No. 2004-1305 for CDM project "Methane capture and combustion from swine manure treatment for Pocillas & La Estrella" issued by Det Norske Veritas, dated November 04, 2004 as available at cdm.unfccc.int																						
3	Monitoring Report "Methane capture and combustion from swine manure treatment for Pocillas and La Estrella - Reference no. UNFCCC 0033" covering the period June 01, 2006 until October 31, 2006, submitted March 07, 2007																						
4	<p>On-site interviews at the premises of Agrosuper in Rancagua , visiting all facilities, conducted on March 15, 2007 by auditing team of TÜV SÜD</p> <p>Verification team:</p> <table data-bbox="394 791 2157 903"> <tr> <td>Javier Castro</td> <td>TÜV SÜD, Assessment Team Leader.</td> </tr> <tr> <td>Víctor Abarca</td> <td>TÜV SÜD, Local GHG Auditor.</td> </tr> <tr> <td>Iván Bugueño</td> <td>TÜV-SÜD, GHG Auditor trainee.</td> </tr> </table> <p>Interviewed persons:</p> <table data-bbox="394 999 2157 1270"> <tr> <td>Mr. Carlos Andrés Vives</td> <td>Agrosuper, Corporate Affairs Manager</td> </tr> <tr> <td>Mr. José Manuel San Martín</td> <td>Agrosuper, CDM Supervisor</td> </tr> <tr> <td>Mrs. Andrea Rudnick</td> <td>POCH Ambiental, CDM Specialist</td> </tr> <tr> <td>Mrs. Luz Farah</td> <td>POCH Ambiental, CDM Specialist</td> </tr> <tr> <td>Mr. Ernesto Muñoz</td> <td>Agrosuper, IT Business Manager</td> </tr> <tr> <td>Mr. Alexis Pino</td> <td>Agrosuper, Biodigester Manager</td> </tr> <tr> <td>Mr. Mauro Guerrero</td> <td>Aguas y Riles, Water Treatment Plant Administrator</td> </tr> <tr> <td>Mr. Rodrigo Gomez</td> <td>Agrosuper ,Water Treatment Manager.</td> </tr> </table>	Javier Castro	TÜV SÜD, Assessment Team Leader.	Víctor Abarca	TÜV SÜD, Local GHG Auditor.	Iván Bugueño	TÜV-SÜD, GHG Auditor trainee.	Mr. Carlos Andrés Vives	Agrosuper, Corporate Affairs Manager	Mr. José Manuel San Martín	Agrosuper, CDM Supervisor	Mrs. Andrea Rudnick	POCH Ambiental, CDM Specialist	Mrs. Luz Farah	POCH Ambiental, CDM Specialist	Mr. Ernesto Muñoz	Agrosuper, IT Business Manager	Mr. Alexis Pino	Agrosuper, Biodigester Manager	Mr. Mauro Guerrero	Aguas y Riles, Water Treatment Plant Administrator	Mr. Rodrigo Gomez	Agrosuper ,Water Treatment Manager.
Javier Castro	TÜV SÜD, Assessment Team Leader.																						
Víctor Abarca	TÜV SÜD, Local GHG Auditor.																						
Iván Bugueño	TÜV-SÜD, GHG Auditor trainee.																						
Mr. Carlos Andrés Vives	Agrosuper, Corporate Affairs Manager																						
Mr. José Manuel San Martín	Agrosuper, CDM Supervisor																						
Mrs. Andrea Rudnick	POCH Ambiental, CDM Specialist																						
Mrs. Luz Farah	POCH Ambiental, CDM Specialist																						
Mr. Ernesto Muñoz	Agrosuper, IT Business Manager																						
Mr. Alexis Pino	Agrosuper, Biodigester Manager																						
Mr. Mauro Guerrero	Aguas y Riles, Water Treatment Plant Administrator																						
Mr. Rodrigo Gomez	Agrosuper ,Water Treatment Manager.																						
5	UNFCCC homepage http://www.unfccc.int including the CDM section cdm.unfccc.int																						
6	Approved baseline and monitoring methodology AM0006																						
7	Multiple, interactive generated reports (as required on-line by the audit team) on historic data generated by the production management database software (developed by																						

Final Report 2007-08-01	Periodic Verification of the CDM Project: "Methane capture and combustion from swine manure treatment for Pocillas and La Estrella" in Chile Information Reference List	Page 2 of 2	 Industrie Service
-------------------------	---	----------------	--

Reference No.	Document or Type of Information
8	Samples of daily records book of bio-digester and aerobic treatment system
9	Samples of manually documented daily records of swine population at "La Estrella" and "Pocillas"
10	ITIL Certificates issued by EXIN to the IT managers of AGROSUPER, issued on August 11 th , 2006.
11	Complete data records of consolidated emission reduction calculations covering the whole monitoring period
12	1996 Revised IPCC Guidelines
13	IPCC Good Practice Guidance and Uncertainty Management 2000
14	List of equipment and associated CDM parameters for Pocillas and La Estrella.