VALIDATION REPORT

"Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" in Brazil

REPORT NO. 2007-2007

REVISION NO. 02

DET NORSKE VERITAS

VALIDATION REPORT

DET NORSKE VERITAS
CERTIFICATION AS

Veritasveien 1
N-1322 Høvik
Norway
http://www.dnv.com

Date of first issue: 2007-12-12	Project No.: 28624550
Approved by: Mari Grooss Viddal	Organisational unit: DNV Certification, International Climate Change Services
Client: Ultrafertil S/A	Client ref.: Ricardo Prado Santos

Project Name: "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project"
Country: Brazil
Methodology: AM0034
Version: 02
GHG reducing Measure/Technology: "Catalytic reduction of N_2O inside the ammonia burner of nitric acid plants"
ER estimate: 766 884 over 7 years
Size
☒ Large Scale
☐ Small Scale
Validation Phases:
☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues
Validation Status
☐ Corrective Actions Requested
☐ Clarifications Requested
☒ Full Approval and submission for registration
☐ Rejected

In summary, it is DNV's opinion that the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" in Brazil, as described in the revised PDD of 25 February 2008, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AM0034 (Version 02). Hence, DNV will request the registration of the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" as a CDM project activity. Prior to the submission of the validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil and DNA of Switzerland, including the confirmation by the DNA of Brazil that the project assists it in achieving sustainable development.

Report No.:	Date of this revision:	Rev. No.
2007-2007	2008-02-27	02

Report title:
"Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" in Brazil

Work carried out by:
Andrea Leiroz,Venkata Raman Kakaraparthi

Work verified by:
Trine Kopperud (applicant), Michael Lehmann

Key words:

☒ No distribution without permission from the

☐ Limited distribution

☐ Unrestricted distribution

VALIDATION REPORT

Abbreviations

AMS	Automated Measuring System
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
NPV	Net Present Value
ODA	Official Development Assistance
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

VALIDATION REPORT

TABLE OF CONTENTS

VALIDATION REPORT

1 EXECUTIVE SUMMARY – VALIDATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a validation of the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" at the Fosfertil Cubatão nitric acid plant located in the municipality of Cubatão, São Paulo State, Brazil. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host Party criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project participants are Ultrafertil S/A of Brazil and Ecoinvest Carbon S.A. of Switzerland. The participating Parties - Brazil as host Party and Switzerland as Annex I Party - meet all relevant participation requirements.

The "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" consists of the installation of a secondary catalyst to abate N_2O inside the reactor once it is formed in the nitric acid plant at the Fosfertil Cubatão nitric acid plant located in the municipality of Cubatão, São Paulo State, Brazil, operated by Ultrafertil S/A.

The project correctly applies the approved baseline and monitoring methodology AM0034 titled "Catalytic reduction of N2O inside the ammonia burner of nitric acid plants". The baseline methodology has been correctly applied and the assumptions made for the selected baseline scenario are sound. As required by AM0034, the baseline scenario was identified using the procedure for the "Identification of baseline scenario" described in the approved methodology AM0028 (Version 04.1) - "Catalytic N2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants". It is sufficiently demonstrated that the project is not a likely baseline scenario. An analysis of the economic attractiveness of the project alternative without the revenue from carbon credits demonstrates that the project is not a likely baseline scenario.

The total emission reductions from the project are estimated to be on the average 109 555 t CO_2e per year over the selected 7 year crediting period. The emission reduction forecast has been checked and is deemed likely that the stated amount is achieved given that the underlying assumptions do not change. Emission reduction calculations are transparently documented using the formulas established by AM0034. The algorithm and methodologies for accounting GHG emissions are appropriate and the emission factors are deemed to be of sufficient accuracy.

The monitoring methodology has been correctly applied. The monitoring plan sufficiently specifies the monitoring requirements.

In summary, it is DNV's opinion that the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project", as described in the project design document of 25 February 2008, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology AM0034 (Version 02). Hence, DNV will request the registration of the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" as a CDM project activity.

Prior to the submission of the validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil and DNA of

VALIDATION REPORT

Switzerland, including the confirmation by the DNA of Brazil that the project assists it in achieving sustainable development.

2 INTRODUCTION

Ultrafertil S/A has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" at the Fosfertil Cubatão nitric acid plant located in the municipality of Cubatão, São Paulo State, Brazil. This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, 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 the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the 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).

2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AM0034 (Version 02) /17/. The validation team has, based on the recommendations in the Validation and Verification Manual /16/ employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

3 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the project design documents

II follow-up interviews with project stakeholders

III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

3.1 Desk Review of the Project Design Documentation

The following table lists the documentation that was reviewed during the validation:

/1/ MGM International Ltda: *Project Design Document for the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project"*. Version 2 of 7 December 2007.

/2/ MGM International Ltda: *Project Design Document for the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project"*. Version 3 of 25 February 2008.

/3/ Ultrafertil emissions calculation datasheet (Fosfertil Cubatão NAP 4 – Baseline Emission factor calculation.xls)

/4/ Spreadsheet of operation conditions (Fosfertil Cubatão NAP4 - Operation Conditions.xls)

/5/ Spreadsheet of campaign length (Fosfertil Cubatão NAP4 - Campaign length.xls)

/6/ Spreadsheet of nameplate capacity (Fosfertil Cubatão NAP4 - Name Plate.xls)

/7/ Spreadsheet of operation conditions (Dados Históricos 6 Últimas Campanhas - UNAN - NAP4.xls)

/8/ Spreadsheet of Calculation of Investment analysis (NPV) (NPV NAP 4 Cost`s CER`s until 2015 with and without revenues.xls)

/9/ Ultrafertil - Operation Licence # 25000435 issued on 31 March 2006.

/10/ Ultrafertil - Letters sent to local stakeholder and the comments received.

/11/ Gauze operation condition – Umicore Brasil Ltda (5 July 2007).

/12/ Gauze composition: chemical analysis certification – OMG Brasil Ltda (2002) and Umicore Brasil Ltda (2003 - 2007).

/13/ QAL1 tests reports for the N2O Analyser (ABB) and QAL1 tests report for the flow meter (IPT – 28 September 2007).

/14/ QAL 2 test report: N_2O measurements at Fosfertil nitric acid plant – SGS Environmental Services (December 2007).

/15/ Uncertainty of the monitoring system (UNC calculations-Fofertil Cubatão NAP4-QAL1.xls)

/16/ International Emission Trading Association (IETA) & the World Bank's Prototype

Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/17/ CDM-EB: *Approved Baseline and Monitoring Methodology AM0034 - "Catalytic reduction of N_2O inside the ammonia burner of nitric acid plants"*. Version 02.

/18/ CDM-EB: *Approved Baseline and Monitoring Methodology AM0028 - "Catalytic N_2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants"*. Version 04.1.

/19/ CDM EB: *Tool for the demonstration and assessment of additionality*. Version 04.

3.2 Follow-up Interviews with Project Stakeholders

	Date	Name	Organization	Topics
/20/	2007-12-17	María Inés Hidalgo	MGM International Ltda	• Evidence to demonstrate additionality of the project • Monitoring plan • Environmental legal compliance • Campaign length historical data • Nameplate capacity
/21/	2007-12-17	Ricardo Rodrigues da Costa	MGM International Ltda	
/22/	2007-12-17	Paulo Tossi	Ultrafertil S/A	
/23/	2007-12-17	Antonio Carlos Vicente	Ultrafertil S/A	
/24/	2007-12-17	Fernando Ferreira Luiz	Ultrafertil S/A	
/25/	2007-12-17	Salvador Guirado	Ultrafertil S/A	
/26/	2007-12-17	Luiz Gustavo B. Fernandes	Ultrafertil S/A	

3.3 Resolution of Outstanding Issues

The objective of this phase of the validation was to resolve any outstanding issues which needed be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in a transparent manner the 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 the figure below. The completed validation protocol for the "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" is enclosed in Appendix A to this report.

VALIDATION REPORT

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities		
Requirement	***Reference***	***Conclusion***
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**)**,** a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.

Validation Protocol Table 2: Requirement checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.	*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 c**orrective action request (CAR)** due to non-compliance with the checklist question (See below). A request for clarification (CL) 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 CAR or a CL, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the CAR or CL is explained.*	*The responses given by the 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

Findings established during the validation can either be seen as a non-fulfilment of CDM criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;
ii) CDM and/or methodology specific requirements have not been met; or
iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

3.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation Team

Role/Qualification	Last Name	First Name	Country
Team leader/CDM validator	Leiroz	Andrea	Brazil
Sector expert	Kakaraparthi	Venkata Raman	India
Technical reviewer (applicant)	Kopperud	Trine	Norway
Technical reviewer	Lehmann	Michael	Norway

The qualification of each individual validation team member is detailed in Appendix B to this report.

4 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation of 25 February 2008.

4.1 Participation Requirements

The Project participants are Ultrafertil S/A of Brazil and Ecoinvest Carbon S.A. of Switzerland. The participating Parties - Brazil as host Party and Switzerland as Annex I Party - meet all relevant participation requirements.

Prior to the submission of the validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil and DNA of Switzerland, including the confirmation by the DNA of Brazil that the project assists it in achieving sustainable development.

4.2 Project Design

The "Fosfertil Cubatão NAP4 Nitrous Oxide Abatement Project" consists of the installation of a secondary catalyst to abate N_2O inside the reactor once it is formed. The project is at the Fosfertil Cubatão nitric acid plant located in the municipality of Cubatão, São Paulo State, Brazil, operated by Ultrafertil S/A. N_2O is generated as a by-product during the production of nitric acid and is released into the atmosphere in the absence of any regulations preventing this, and hence contributes to an increase of greenhouse gases in the atmosphere.

Nitrous oxide is formed during the catalytic oxidation of ammonia. Over a suitable catalyst, typically 92-96% of the fed ammonia is converted to nitric oxide (NO). The remainder participates in undesirable side reactions that lead to N_2O, among other compounds.

The current project activity consists of the installation of a new (not previously installed) catalyst below the oxidation gauzes (a "secondary catalyst") whose sole purpose is the decomposition of N_2O.

The selected technology, a "secondary" catalyst that decomposes N_2O without affecting nitric acid production, is supplied by Johnson Matthey. Typically, the catalyst has a very high activity for N_2O decomposition (more than 85% of N_2O abatement can be reached).

The current nameplate capacity of the plant is 271.59 t HNO_3/day. Information the historical nitric acid production was assessed to confirm this estimate /5//6/.

A 7 years renewable crediting period is selected (with the potential of being renewed twice), starting on 21 September 2008. The starting date of the project activity (installation of catalyst) is expected to be 21 September 2008 with an expected operational lifetime of 25 years.

The project is expected to contribute to sustainable development objectives of the Brazilian Government focusing on industrial technology transfer and environmental impacts. In addition, the project activity will not cause job losses and will not impact on the local communities.

The project does not involve public funding, and the validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.

4.3 Baseline Determination

The project applies the approved consolidated baseline methodology AM0034 (Version 02) - "*Catalytic reduction of N2O inside the ammonia burner of nitric acid plants*" /17/. This methodology is applicable to the project as this project consists of the installation of a dedicated decomposition device to convert the N_2O into nitrogen, and thereby preventing its release to the atmosphere. The project meets the methodology's applicability criteria:

- the plant is in operation since 1974;
- there is no existing N_2O destruction equipment in the plant and the project will thus not result in the shut down of any existing N_2O destruction or abatement facility or equipment in the plant;
- the nitric acid production level will not be affect by the project;
- there is no regulation that requires abatement of N_2O in Brazil;
- there is no existing N_2O destruction or abatement technology installed;
- there will be no increase of NO_X emissions;
- the existing NO_X abatement catalyst system is not a Non Selective Catalytic Reduction (NSCR) DeNOx unit;
- the project activity will not lead to any new process emissions of greenhouse gases, directly or indirectly;
- the continuous real-time measurements of N_2O concentration and total gas flow rate can be carried out in the exit of the process.

As required by AM0034, the baseline scenario was identified using the procedure for the "*Identification of baseline scenario*" described in the approved methodology AM0028 (Version 04.1) - "*Catalytic N2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants*" /18/.

The methodology application first involves an identification of possible baseline scenarios, and eliminating those that do not qualify. The analysis demonstrates that the only feasible baseline is a continuation of the status quo, which meets current regulations, and requires neither additional investments nor additional running costs. Therefore, the continuation of the current situation can be selected as the baseline scenario.

The explanation of methodological choices is clearly described. Baseline emissions are determined by measuring N_2O concentration and total flow rate in the tail gas of the nitric acid plant. At the time of writing this report the baseline campaign is still being carried out. The campaign started in 10 November 2007 and will not finish until September 2008.

The PDD only contains an estimate for the baseline emissions factor representing the average N_2O emissions per tonne of nitric acid. The results from the baseline campaign and thus the actual baseline emissions factor being used to determine baseline emissions will be subject to verification by the verifying DOE.

4.4 Additionality

In accordance with AM0034, the additionality of the project is demonstrated through the "*Tool for the demonstration and assessment of additionality*" which includes the following steps:

Step 1 - Identification of alternatives to the project activity consistent with current laws and regulations: The possible scenarios are identified, i.e. i) current situation where there will be no installation of technology for destruction or abatement of N_2O, ii) switch to alternative production method not involving ammonia oxidation process, iii) alternative use of N_2O, iv) installation of an N_2O destruction or abatement technology (secondary approach).

The provided alternatives are in compliance with the legal and regulatory requirements.

As required by AM0034, the baseline scenario was identified using the procedure for "Identification of baseline scenario" described in the approved methodology AM0028 (Version 04.1) - *"Catalytic N2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants"* /18/. The selection of alternative scenarios was as described in section 4.3 of this report.

Step 2 - Investment analysis:

Sub-step 2a. Determine appropriate analysis method: As catalytic N_2O destruction facilities generate no financial or economical benefits other than CDM related income, a simple cost analysis is applied.

Sub-step 2b. – Apply simple cost analysis: The proposed CDM project activity is, without the revenues from the sale of certified emission reductions, less economically and financially attractive than the baseline scenario. The investment analysis provided shows that the only revenue arises from sales of CER's. The investment consists of the engineering, construction, shipping, installation and commissioning of the secondary catalyst and the measurement equipment. The operating costs consist of the regular change of the catalyst as well as personnel costs for the supervision of the measurement equipment. The NPV for the sum of investments and associated costs was considered for a project time horizon of 9 years. In addition, an investment analysis considering the income from the CER's was presented for the entire crediting period.

Step 3 - Barrier analysis: A barrier analysis is not used for demonstrating additionality in this project.

Step 4 - Common practice analysis: N_2O secondary abatement is not common practice in Brazil. Usually the nitric acid industry releases into the atmosphere the N_2O generated as a by-product of the nitric acid production, as it does not have any economic value or toxicity at typical emission levels.

Given the above, it is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions are thus additional.

4.5 Monitoring

The project applies the approved consolidated monitoring methodology AM0034 (Version 02) - "*Catalytic reduction of N_2O inside the ammonia burner of nitric acid plants*".

The monitoring plan takes into account baseline emissions and project emissions, considering the quality control and quality assurance for data monitoring. The nitric acid plant has

installed continuous gas analyzers and flow meters in the stack. The European norm EN14181:2004, which is referred to in AM0034 for the selection and operation of the automatic measuring system (AMS), has been used. All three levels of quality assurance are clearly described in the PDD comprising the following:

QAL 1: Suitability of the AMS for the specific measuring task

QAL 2: Validation of AMS following installation

QAL 3: Ongoing quality assurance during operation

The QAL 2 tests, including measurements with a standard reference method, were performed by a laboratory which has an accredited quality assurance system according to EN ISO/IEC 17025 /14/.

4.5.1 Parameters monitored ex-post

Details of the data to be collected, the frequency of data recording, its certainty, and format are described. The format for data archiving seems appropriate for the project. All data will be kept until two years after the end of the crediting period.

4.5.2 Management system and quality assurance

Responsibilities and authorities for project management, monitoring and reporting project activities as well as for organizing and training of the staff in the appropriate monitoring, measurement and reporting techniques and QA/QC procedures are clearly defined. The project will require additional training and project maintenance as described in the PDD.

Ultrafertil's plant is ISO 9001:2000 certified and is working on the implementation of ISO 14001:2004 certification. All necessary procedures related to the monitoring of the project will be fully integrated into Ultrafertil's quality and environmental management system.

4.6 Estimate of GHG Emissions

The project boundary comprises the physical, geographical site of Fosfertil NAP4 at the Cubatão site and equipment for the complete nitric acid production process from the inlet to the ammonia burner to the stack.

The project activity only comprises the GHG N_2O. No leakage calculations are required according to AM0034.

Emission reduction calculations are correctly applied and transparently documented using the formulas established by AM0034.

The estimated amount of GHG emission reductions from the project is 766 884 tones CO_2 equivalents (tCO_2e) during the renewable 7 years crediting period, resulting in estimated average annual emission reductions of 109 555 tCO_2e.

The calculation of emission reductions for the project activity is based on the baseline campaign data obtained at the time of validation. Since N_2O emissions tend to increase at the end of the campaign (related to the reduced efficiency of the primary catalyst for ammonia oxidation), applying the baseline data obtained so far results in a conservative emission reduction estimate. A spreadsheet for the calculation of the emission reductions was provided to confirm this estimate.

The uncertainty of the monitoring system is estimated and uncertainties are considered in the calculation of the estimated emission reductions as required by AM0034.

The baseline emission factor, to be used for calculation of emission reduction during the crediting period, will be established when the baseline campaign is finished. The final baseline emission factor for the plant shall be adjusted in accordance to the results of the entire baseline campaign length, the results of the QAL 2 test (adjustments according to the calibration functions for N_2O analyser and stack gas flow), and the recommendations given to include a filter for excluding incorrect data (such as N_2O concentration values measured during zero and span calibration). The final baseline emission factor shall be verified as the first step of the verification by the DOE performing the Verification of this CDM project.

4.7 Environmental Impacts

Ultrafertil S/A has been granted an Operational Licence #25000435 issued on 31 March 2006 by the Environmental Agency of the State of São Paulo (CETESB) and this licence is valid until 31 March 2008. Ultrafertil reported the implementation of the project activity to CETESB. As stated in the national regulation, an EIA is not necessary for this activity.

4.8 Comments by Local Stakeholders

Local stakeholders, such as the municipal government, the state and municipal agencies, the Brazilian forum of NGOs, the Alderman Chamber, the justice prosecution, the centre of industries and the workers syndicate, were invited to comment on the project, in accordance with the requirements of Resolution 1 of the Brazilian DNA.

The letters sent to the local stakeholders were verified during the desk review.

Two comments were received. However, both comments were positive and the project design did not require any significant modification.

4.9 Comments by Parties, Stakeholders and NGOs

The PDD of 7 December 2007 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 13 December 2007 to 11 January 2008. No comments were received.

APPENDIX A

CDM VALIDATION PROTOCOL

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

Requirement	Reference	Conclusion
About Parties		
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 A.2.1 The PDD identifies Ecoinvest Carbon S.A. (Switzerland) as Annex I project participants.
2. 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 A.2.
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	Prior to the submission of the validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil and DNA of Switzerland, including the confirmation by the DNA of Brazil that the project assists it in achieving sustainable development.
4. 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, CDM Modalities and Procedures §40a	Table 2, Section A.2 Prior to the submission of the validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil and DNA of

Requirement	Reference	Conclusion
		Switzerland, including the confirmation by the DNA of Brazil that the project assists it in achieving sustainable development.
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	The Brazilian designated national authority for the CDM is the Comissão Interministerial de Mudança Global do Clima. The Swiss designated national authority for the CDM is the Federal Office for the Environment FOEN, Climate Unit.
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	Brazil has ratified the Kyoto Protocol on 23 August 2002. Switzerland has ratified the Kyoto Protocol on 9 July 2003.
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	The assigned amount of emissions for Switzerland is 92% of that in 1990.
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto	CDM Modalities and	A national system for Switzerland has been established and it reports

Requirement	Reference	Conclusion
Protocol Article 5 and 7.	Procedures §31b	its national inventory to UNFCCC regularly.
About additionality		
10. Reduction in GHG emissions shall be additional to any that would occur in the 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, CDM Modalities and Procedures §43	Table 2, Section B.3.1
About forecast emission reductions and environmental impacts		
11. 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 B.4 to B.7
For large-scale projects only		
12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	Table 2, Section D.
About stakeholder involvement		
13. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	Table 2, Section E.
14. 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.	CDM Modalities and Procedures §40	The PDD of 7 December 2007 was made publicly available on DNV's climate change website and Parties, stakeholders and NGOs were through the CDM website

Requirement	Reference	Conclusion
		invited to provide comments during a 30 days period from 13 December 2007 to 11 January 2008. No comments were received.
Other		
15. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	Table 2, Section B.1.1
16. 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.	CDM Modalities and Procedures §45c,d	Table 2, Section B.2
17. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	Table 2, Section B.2
18. The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	The project design document conforms to version 03.1 of the CDM-PDD.
19. 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.	CDM Modalities and Procedures §37f	Ok.

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 boundaries (geographical) clearly defined?	/1/ /2/	DR	The project is at the Fosfertil Cubatão nitric acid plant located in the municipality of Cubatão, São Paulo State, Brazil.		OK
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/ /2/	DR	The project boundary comprises the physical, geographical site of Fosfertil NAP 4 at Cubatão site and equipment for the complete nitric acid production process from the inlet to the ammonia burner to the stack.		OK
A.2. Participation Requirements *Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.*					
A.2.1. Which Parties and project participants are participating in the project?	/1/ /2/	DR	The project participants are Ultrafertil S/A of Brazil and Ecoinvest Carbon S.A. of Switzerland. The participating Parties - Brazil as host Party and Switzerland as Annex I Party - meet all relevant participation requirements.		OK
A.2.2. Have all involved Parties provided a valid and	/1/	DR	Prior to the submission of the validation	--	--

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
complete letter of approval and have all private/public project participants been authorized by an involved Party?	/2/		report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil and DNA of Switzerland, including the confirmation by the DNA of Brazil that the project assists it in achieving sustainable development.		
A.2.3. Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority	/1/ /2/	DR	Yes, Brazil and Switzerland fulfil all requirements.		OK
A.2.4. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	/1/ /2/	DR	The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards Brazil.		OK
A.3. 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.3.1. Does the project design engineering reflect current good practices?	/1/ /2/	DR	The project involves the installation of a secondary catalyst in the ammonia oxidation reactor in the nitric acid production process to abate nitrous oxide inside the reactor. The project does not involve any major changes with regard to the manufacturing technology		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			and reflects current good practices.		
A.3.2. 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/	DR	This project activity uses a catalyst that has the property of decomposing N_2O.		OK
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/1/ /2/	DR	No procedures for training of monitoring personnel are mentioned in the monitoring plan. DNV requests further clarifications about the training.	~~CL 2~~	OK
A.4. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development?	/1/ /2/	DR	Prior to the submission of the validation report to the CDM Executive Board, DNV will have to receive the written approval of voluntary participation from the DNA of Brazil and DNA of Switzerland, including the confirmation by the DNA of Brazil that the project assists it in achieving sustainable development.	–	--
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/1/ /2/	DR	The project is expected to contribute to sustainable development objectives of the Brazilian government focusing on industrial technology transfer and environmental impacts. In addition, the project activity will not cause job losses and will not impact on the local communities.		OK

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

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. Does the project apply an approved methodology and the correct version thereof?	/1/ /2/	DR	The project applies the approved baseline methodology AM0034 *"Catalytic reduction of N_2O inside the ammonia burner of nitric acid plans"* and the steps for the identification of the baseline scenario of the approved methodology AM0028 *"Catalytic N_2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants"*.		OK
B.1.2. Are the applicability criteria in the baseline methodology all fulfilled?	/1/ /2/	DR	Yes, the project fulfils the conditions under which AM0034 is applicable.		OK
B.2. Baseline Scenario Determination *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.*					
B.2.1. What is the baseline scenario?	/1/ /2/	DR	Baseline scenario has been defined as the continuation of the current situation, where there will be no installation of technology for the destruction or abatement of N_2O.		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/ /2/	DR	**Step 1a:** The baseline scenario alternatives should include all possible options that are technically feasible to handle N_2O emissions. The possible baseline scenarios are: • Continuation of *status quo*. The continuation of the current situation, where there will be no installation of technology for the destruction or abatement of N_2O. • Switch to alternative production method not involving ammonia oxidation process • Alternative use of N_2O, such as: o Recycling N_2O as a feedstock o Use of N_2O for external purposes • The installation of an N_2O destruction or abatement technology: o Primary approach o Secondary approach o Tertiary approach, including Non Selective Catalytic Reduction (or NSCR De NO_X) o Quaternary (or end of pipe) approach. The options include the CDM project activity not implemented as a CDM project. The only feasible baseline is the continuation of the *status quo*, which meets current regulations, and requires neither additional		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			investments nor additional running costs.		
B.2.3. Has the baseline scenario been determined according to the methodology?	/1/ /2/	DR	As required by AM0034, the baseline scenario was identified using the procedure for the "*Identification of baseline scenario*" described in the approved methodology AM0028 (Version 04.1) - *"Catalytic N2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants"*. The methodology application first involves an identification of possible baseline scenarios, and eliminating those that would not qualify. It is demonstrated that the only feasible baseline is a continuation of the *status quo*, which meets current regulations, and requires neither additional investments nor additional running costs. Therefore, the continuation of the current situation can be selected as the baseline scenario.		OK
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /2/	DR	Baseline scenario has been defined as the continuation of the current situation, where there will be no installation of technology for the destruction or abatement of N_2O in accordance with AM0028 as required by AM0034.		OK
B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/ /2/ /9/	DR	In Brazil there is currently no regulation that requires abatement of N_2O and the relevant air pollution control legislations pertain only to NO_x levels in stacks (250 ppmv).		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			NOx levels at Fosfertil Cubatão NAP 4 is lower than or equal at 200 ppmv.		
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/ /2/	DR	See B.2.2. All literature and sources are clearly referenced.		OK
B.2.7. Have the major risks to the baseline been identified?	/1/ /2/	DR	The methodology also takes into account the possible risk of changing regulation with proper adjustments to the baseline N_2O decomposition rates.		OK
B.3. Additionality Determination *The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.*					
B.3.1. Is the project additionality assessed according to the methodology?	/1/ /2/	DR	In accordance with AM0034, the additionality of the project is demonstrated through the "*Tool for the demonstration and assessment of additionality*".		OK
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/1/ /2/	DR	Yes		OK
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/1/ /2/ /8/	DR	*Step 2 - Investment analysis:* *Sub-step 2a. Determine appropriate analysis method:* As catalytic N_2O destruction facilities generate no financial or economical benefits other than CDM related income, a		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			simple cost analysis is applied. *Sub-step 2b. – Apply simple cost analysis:* The proposed CDM project activity is, without the revenues from the sale of certified emission reductions, less economically and financially attractive than the baseline scenario. The investment analysis provided shows that the only revenue arises from sales of CER's. The investment consists of the engineering, construction, shipping, installation and commissioning of the secondary catalyst and the measurement equipment. The operating costs consist of the regular change of the catalyst as well as personnel costs for the supervision of the measurement equipment. The investment analysis including the income from CER's should also be provided. In addition, evidence is to be provided for the investment and operation and maintenance costs. *Step 3 - Barrier analysis:* A barrier analysis is not used for demonstrating additionality in this project. *Step 4 - Common practice analysis:* N_2O secondary abatement is not common practice in Brazil. Usually the nitric acid industry releases into the atmosphere the N_2O	~~CL 1~~	

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			generated as a by-product of the nitric acid production, as it does not have any economic value or toxicity at typical emission levels.		
B.3.4. If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity?	/1/ /2/	DR	The starting date of the project activity (installation of the catalyst) is expected to be 21 September 2008. The starting date is thus after the date of validation.		OK
B.4. Calculation of GHG Emission Reductions – Project emissions *It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
B.4.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /2/ /14/	DR	The ex-ante estimation of the project emission has been based on the following assumptions: the reduction in the N_2O in the tail gases will be 85% and the nitric acid production has been considered to be 94 512 t/year based on the average daily production observed during 5 historical campaigns and number of operating days per year of 348 days. An overall uncertainty of 5.95% is used in the estimation. The stack gas flow and the N_2O concentration are based on baseline campaign data obtained at the time of validation.		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.4.2. Have conservative assumptions been used when calculating the project emissions?	/1/ /2/	DR	See B.4.1.		OK
B.4.3. Are uncertainties in the project emission estimates properly addressed?	/1/ /2/	DR	See B.4.1.		OK
B.5. Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /2/	DR	Emission reduction calculations are correctly applied and transparently documented using the formulas established by AM0034. The HNO_3 production has been considered at 94 512 t/year. The final baseline emission factor shall be calculated and verified after the end of the baseline campaign when all data are available. Updated spreadsheet shall be submitted to the verifying DOE. A spreadsheet for the calculation of the emission reductions was provided to confirm this estimate.		OK
B.5.2. Have conservative assumptions been used when calculating the baseline emissions?	/1/ /2/	DR	See B.5.1 and B.4.1.		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.5.3. Are uncertainties in the baseline emission estimates properly addressed?	/1/ /2/	DR	See B.5.1 and B.4.1.		OK
B.6. Calculation of GHG Emission Reductions – Leakage *It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /2/	DR	As per AM0034, leakage is not to be considered.		OK
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/1/ /2/	DR	See B.6.1.		OK
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/ /2/	DR	See B.6.1.		OK
B.7. Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
B.7.1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/ /2/	DR	The project is expected to reduce CO2 emissions to the extent of 766 884 tCO2e (109 555 tCO2e/year on average) during the first renewable 7 years crediting period.		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			The uncertainty of the monitoring system is estimated and uncertainties are considered in the calculation of the estimated emission reductions as required by AM0034.		
B.8. Monitoring Methodology *It is assessed whether the project applies an appropriate monitoring methodology.*					
B.8.1. Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/ /2/	DR	Yes, the approved monitoring methodology which is in conjunction with the baseline methodology AM0034 has been used.		OK
B.8.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/ /2/	DR	Details of the data to be collected, the frequency of data recording, its certainty, and format are described. The format for data archiving seems appropriate for the project. All data will be kept until two years after the end of the crediting period.		OK
B.9. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
B.9.1. 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/	DR	Details of the data to be collected, the frequency of data recording, its certainty, and format are described. The format for data archiving seems appropriate for the project. All parameters measured during projects campaigns will be archived in electronic and paper format for at least two years.		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.9.2. Are the choices of project GHG indicators reasonable and conservative?	/1/ /2/	DR	See B.9.1		OK
B.9.3. Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/1/ /2/	DR	See B.9.1		OK
B.9.4. Is the measurement equipment described and deemed appropriate?	/1/ /2/	DR	Yes. The N_2O concentration is measured by an infrared gas analyzer and the stack gas flow is measured by an ANNUBAR device with automatically compensation for stack pressure and temperature. The nitric acid production is measured by using a magnetic flow meter.		OK
B.9.5. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/ /2/	DR	See B.9.1		OK
B.9.6. Is the measurement *interval* identified and deemed appropriate?	/1/ /2/	DR	See B.9.1		OK
B.9.7. Is the *registration, monitoring, measurement* and *reporting* procedure defined?	/1/ /2/	DR	The monitoring plan is straightforward and the established QA/QC procedures will be included in the quality and environmental management system, certified as ISO		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			9001/2000 and ISO 14001/2004.		
B.9.8. Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /2/	DR	The procedures for maintenance of monitoring equipment and reporting are identified in the PDD. Maintenance and service logs will be kept at Fosfertil Cubatão NAP 4 and made available for auditing purposes. For AMS, a QAL 3 according to EN14181, is described in the PDD and states that documented calibration procedure for weekly zero and span checks as well as resulting Shewart charts will be available on site for validation and future verifications.		OK
B.9.9. 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/	DR	Details of the data to be collected, the frequency of data recording, its certainty, and format are described. The format for data archiving seems appropriate for the project. All parameters measured during projects campaigns will be archived in electronic and paper format for at least two years.		OK
B.10. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.*					
B.10.1. 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/ /11/ /12/	DR	In line with the methodology, the baseline emissions will be calculated from the concentration of N_2O monitored in the stack gas, the volume stack gas flow and the operating hours of the campaign.		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			The baseline emission factor (t N_2O/ t HNO_3) is to be arrived from the parameters monitored during the baseline campaign, the GWP of N_2O, the operating hours and the nitric acid produced during the campaign. During the crediting period of the project the baseline emission factor is to be reassessed in case of change in the catalyst composition/changes in the regulations. Since Brazil does not have any regulation for the abatement of N_2O, the baseline emission factor will be used as such. The nitric acid production and the operating hours are monitored. The baseline campaign for the determination of the baseline emission factor is in progress. All the data available up to the date of validation have been submitted by the project participant, including spreadsheet calculations showing the statistical procedures used according to the requirement in AM0034. Due to lack of sufficient historical data, the permitted operating ranges for the ammonia oxidation temperature and pressure are determined from the design data. For the determination of the maximum ammonia flow and the ammonia/air ratio, data from the gauze supplier are used. The		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			precious metal gauze composition used in the baseline campaign is the same as the gauzes used in the historical campaigns. The normal campaign length is determined from 5 historical campaigns. The spreadsheets including all baseline campaign data and campaign length are to be presented for verification. All parameters measured during the baseline campaign will be archived in electronic and paper format during the entire crediting period.		
B.10.2. Are the choices of baseline GHG indicators reasonable and conservative?	/1/ /2/	DR	N_2O is the only GHG indicator that needs to be accounted for in the baseline and it has been taken care of in the monitoring plan.		OK
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/ /2/	DR	Yes, it will be possible to monitor the specified baseline indicators.		OK
B.10.4. Is the measurement *equipment* described and deemed appropriate?	/1/ /2/	DR	Yes. The N_2O concentration is measured by an infrared gas analyzer and the stack gas flow is measured by an ANNUBAR device with automatically compensation for stack pressure and temperature. The nitric acid production is measured by using a magnetic flow meter.		OK
B.10.5. Is the measurement *accuracy* addressed and deemed appropriate? Are procedures in place on	/1/ /2/	DR	Yes. The monitoring procedures will be fully integrated into the Quality and		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
how to deal with erroneous measurements?			Environmental Management System.		
B.10.6. Is the measurement *interval* for baseline data identified and deemed appropriate?	/1/ /2/	DR	Yes. The baseline stack flow and N_2O concentration are measured during a complete campaign before project implementation and recorded every two seconds. The nitric acid production is measured daily.		OK
B.10.7. Is the registration, *monitoring, measurement* and *reporting* procedure defined?	/1/ /2/	DR	Yes. The monitoring plan is straightforward and the established QA/QC procedures will be included in the quality and environmental management system, certified as ISO 9001/2000 and ISO 14001/2004.		OK
B.10.8. Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /2/	DR	The procedures for maintenance of monitoring equipment and reporting are identified in the PDD.		OK
B.10.9. 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/	DR	Details of the data to be collected, the frequency of data recording, its certainty, and format are described. The format for data archiving seems appropriate for the project. All parameters measured during the baseline campaign will be archived in electronic and paper format during the entire crediting period.		OK
B.11. Monitoring of Leakage *It is assessed whether the monitoring plan provides for*					

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
reliable and complete leakage data over time.					
B.11.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/ /2/	DR	As per AM0034, leakage is not to be considered.		OK
B.11.2. Are the choices of project leakage indicators reasonable and conservative?	/1/ /2/	DR	See B.11.1.		OK
B.11.3. Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/1/ /2/	DR	See B.11.1.		OK
B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/ /2/	DR	The monitoring methodology AM0034 does not require the monitoring of social and environmental indicators.		OK
B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/ /2/	DR	See B.12.1		OK
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host	/1/	DR	See B.12.1		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
Country?	/2/				
B.13. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
B.13.1. Is the authority and responsibility of overall project management clearly described?	/1/ /2/	DR	The authority and responsibility of the project management are clearly described. The plant manager will be responsible for the ongoing operation and maintenance of the N_2O monitoring system.		OK
B.13.2. Are procedures identified for training of monitoring personnel?	/1/ /2/	DR	The authority and responsibility for registration, monitoring, measurement and reporting are described. All trainings required as consequence of the implementation of the CDM project activity were already developed by Ultrafertil and included as part of the ISO 9000 standard procedures.		OK
B.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/ /2/	DR	Procedures for emergency preparedness for cases where emergencies can cause unintended emissions have not been addressed and need clarification.	~~CL 3~~	OK
B.13.4. Are procedures identified for review of reported results/data?	/1/ /2/	DR	Yes. The monitoring technician will be responsible to analyze data and assure appropriate and consistent procedural application during report preparation.		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/ /2/	DR	Yes.		OK
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 evidenced?	/1/ /2/	DR	The expected project starting date is 21 September 2008. The expected lifetime of the project is 25 years.		OK
C.1.2. Is the start of the crediting period clearly defined and reasonable?	/1/ /2/	DR	A renewable 7-year crediting period (with the potential of being renewed twice) was selected, starting on 21 September 2008.		OK
D. 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.*					
D.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/ /2/	DR	Ultrafertil S/A has been granted an Operational Licence #25000435 issued on 31 March 2006 by the Environmental Agency of the State of São Paulo (CETESB) and this licence is valid until 31 March 2008. DNV requests documented evidences that Ultrafertil already reported the implementation of the project activity to CETESB. As stated in the national regulation, an EIA is	~~CL 4~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			not necessary for this activity.		
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /2/	DR	According to the PDD, an EIA is not necessary for this activity. DNV requests documented evidences that Ultrafertil already reported the implementation of the project activity to CETESB.	~~CL 4~~	OK
D.1.3. Will the project create any adverse environmental effects?	/1/ /2/	DR	The project will not affect the environment in any adverse way.		OK
D.1.4. Are transboundary environmental impacts considered in the analysis?	/1/ /2/	DR	There are no transboundary environmental impacts.		OK
D.1.5. Have identified environmental impacts been addressed in the project design?	/1/ /2/	DR	The project does not have any adverse environment impact.		OK
D.1.6. Does the project comply with environmental legislation in the host country?	/1/ /2/	DR	See D.1.1	~~CL 4~~	OK
E. Stakeholder Comments *The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*					
E.1.1. Have relevant stakeholders been consulted?	/1/ /2/	DR	Local stakeholders, such as the municipal government, the state and municipal agencies, the Brazilian forum of NGOs, the Alderman Chamber, the justice prosecution, the centre of industries and the workers		OK

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

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			syndicate, were invited to comment on the project, in accordance with the requirements of Resolution 1 of the Brazilian DNA. The letters sent to the local stakeholders were verified during the desk review. Two comments were received. However, both comments were positive and the project design did not require any significant modification.		
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/ /2/	DR	See E.1.1		OK
E.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?	/1/ /2/	DR	See E.1.1		OK
E.1.4. Is a summary of the stakeholder comments received provided?	/1/ /2/	DR	See E.1.1		OK
E.1.5. Has due account been taken of any stakeholder comments received?	/1/ /2/	DR	See E.1.1		OK

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

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
CL 1 The investment analysis including the income from CER's should also be provided. In addition, evidence is to be provided for the investment and operation and maintenance costs.	B.3.3	Fosfertil showed the datasheet during the validation site visit.	A copy of the investment analysis spreadsheet (Fosfertil Project Investment and Costs - NAP4.xls) was provided. This CL is closed.
CL 2 No procedures for training of monitoring personnel are mentioned in the monitoring plan. DNV requests further clarifications about the training.	A.3.3	Changes have been introduced into PDD. See page 56.	Version 3 of the PDD was assessed and the changes done in the monitoring plan are sufficient. Also, documented evidences for the initial training were sent to the DOE. This CL is closed.
CL 3 Procedures for emergency preparedness for cases where emergencies can cause unintended emissions have not been addressed and need clarification.	B.13.3	Fosfertil showed the procedures during the validation site visit	Documented evidences for the emergency procedures were available during the site visit. The procedures for emergency are included in the ISO 9000 standard procedures. This CL is closed.
CL 4 DNV requests documented evidences that Ultrafertil already reported the implementation of the project activity to CETESB.	D.1.1 D.1.2 D.1.6	A letter was sent to CETESB reporting the implementation of the CDM Project and resulted in approval letter. According with CONANA Resolution 237, an EIA is not necessary because the project does not affect the environment.	A copy of the letter sent to CETESB was sent to the DOE. This CL is closed.

APPENDIX B

CERTIFICATES OF COMPETENCE

CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3 & 9		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0028, AM0034*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0030*	Yes
ACM0004	Yes	*AM0031*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0032*	Yes
ACM0007	Yes	*AM0035*	Yes
ACM0008	Yes	*AM0038*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0041*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0034*	Yes
AM0009, AM0037	Yes	*AM0043*	
AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I	Yes	*AM0046*	
AM0014	Yes	*AM0047*	
AM0017	Yes	*AMS-II.A-F, AM0044*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0021	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Trine Kopperud

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	--	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 5		
Technical Reviewer for (group of) methodologies:			

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Andrea Leiroz

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 18 July 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Raman Venkata Kakaraparthi

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 5		
Technical Reviewer for (group of) methodologies:			
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes		

Høvik, 22 December 2006

Einar Telnes
Director, International Climate Change Servicer

Michael Lehmann
Technical Director