JI VERIFICATION REPORT

- 1ST PERIODIC –

YARA AMBÈS NITRIC ACID PLANT

YARA AMBÈS N_2O ABATEMENT PROJECT

ITL PROJECT ID : FR1000148

Monitoring Period: 2010-01-01 TO 2010-06-30
(incl. both days)

Report No: 8000385267 – 10/301

Date: 2010-10-07

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Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8000385267 – 10/301	0	2010-10-07	
Project:	***Title:***		***Registration date:***	***UNFCCC-No.:***
	"Yara Ambès N_2O Abatement Project"		2010-04-16	FR1000148
Project Participant(s):	***Host party:***		***Other involved parties:***	
	France		Norway, Germany, Belgium	
Applied methodology/ies:	***Title:***		***No.:***	***Scope:***
	Project specific methodology: *'Catalytic reduction of N2O at nitric acid plants'*		N/A	5
Monitoring:	***Monitoring period (MP):***		***No. of days:***	***MP No.***
	2010-01-01 to 2010-06-30 - both days included		181	1
Monitoring report:	***Title:***		***Draft version:***	***Final version:***
	"Yara Ambès N_2O Abatement Project"		2010-07-13	2010-10-06
Verification team / Technical Review and Final Approval	***Verification Team:***		***Technical review:***	***Final approval:***
	Alexandra Nebel Sabine Meyer Ulrich Walter		Rainer Winter Emilio Martín	Rainer Winter
Emission reductions: [t CO_{2e}]	***Verified amount***		***As per Draft MR:***	***As per PDD:***
	128,118		127,964	137,184

Summary of Verification Opinion:

Yara Ambés Nitric Acid Plant has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "Yara Ambès N_2O Abatement Project", with regard to the relevant requirements for JI (Track 1) project activities. The project reduces GHG emissions due to reduction of N_2O emissions. This verification covers the period from 2010-01-01 to 2010-06-30 (including both days).

In the course of the verification 3 Corrective Action Requests (CAR) and 13 Clarification Requests (CL) were raised and successfully closed. Furthermore 3 FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, and the monitoring plan as set out in the registered PDD, the determination report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the project design document.
- the monitoring plan is in accordance with the applied country specific methodology: Méthode pour les Projets Domestiques: "Réduction catalytique du N2O dans des usines d'acide nitrique".
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 1st periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **128,118** t CO_{2e}

Including a deduction to 90% according to the Arrêté du 2 mars 2007.

Document information:	*Filename:*	*No. of pages:*
	FDR YARA Ambes 2010-10-07	73

Abbreviations:

AIE	**Accredited Independent Entity**
AMS	**Automated Measuring System**
CA	**Corrective Action / Clarification Action**
CAR	**Corrective Action Request**
CDM	**Clean Development Mechanism**
CL	**Clarification Request**
CO_2	**Carbon dioxide**
CO_{2eq}	**Carbon dioxide equivalent**
DVM	**Determination and Verification Manual**
ER	**Emission Reduction**
ERU	**Emission Reduction Units**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
HnO_3	**Nitric Acid**
JI	**Joint Implementation**
MP	**Monitoring Plan**
MR	**Monitoring Report**
N_2O	**Nitrous Oxide**
PCS	**Process Control System**
PDD	**Project Design Document**
PP	**Project Participant**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
XLS	**Emission Reduction Calculation Spread Sheet**

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1. INTRODUCTION

YARA AMBÉS NITRIC ACID PLANT has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 1st periodic verification of the project

"YARA AMBÈS N_2O ABATEMENT PROJECT"

with regard to the relevant requirements for JI (Track 1) project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered JI project number FR1000148[1].

GHG data for the monitoring period covering 2010-01-01 to 2010-06-30 was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Determination and Verification Manual /DVM/ of the UNFCCC.

This report summarizes the findings and conclusions of this 1st periodic verification of the above mentioned UNFCCC registered project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD,
- compliance with applied approved monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the project design document /PDD/, the monitoring report /MR/, emission reduction calculation spreadsheet /XLS/, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 6 of the Kyoto Protocol /KP/,

[1] http://ji.unfccc.int/JIITLProject/DB/I2VTETQF784CYRLUS5LU1NVRQU7PVY/details

- guidelines for the implementation of Article 6 of the Kyoto Protocol as presented in the Marrakech Accords under decision 9/CMP.1 /MA/, and subsequent decisions made by the JISC and COP/MOP,
- other relevant rules, including the host country legislation,
- JI Validation and Verification Manual /DVM/,
- monitoring plan as given in the registered PDD /PDD/,
- Projet Domestique Methodology: "Catalytic reduction of N_2O at nitric acid plants " Méthode pour les Projets Domestiques: "Réduction catalytique du N2O dans des usines d'acide nitrique"

2. GHG PROJECT DESCRIPTION

2.1. Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	Yara Ambès N_2O Abatement Project		
JI Track	☒ Track 1	☐ Track 2	☐ JPA
Project size	☒ Large Scale	☐ Small Scale	
JI Approach	☒ JI Specific Approach	☐ Approved CDM Methodology	
Project Scope *(according to UNFCCC sectoral scope numbers for CDM)*	☐	1	Energy Industries (renewable- /non-renewable sources)
	☐	2	Energy distribution
	☐	3	Energy demand
	☐	4	Manufacturing industries
	☒	5	Chemical industry
	☐	6	Construction
	☐	7	Transport
	☐	8	Mining/Mineral production
	☐	9	Metal production
	☐	10	Fugitive emissions from fuels (solid, oil and gas)
	☐	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐	12	Solvents use
	☐	13	Waste handling and disposal
	☐	14	Land-use, land-use change and forestry
	☐	15	Agriculture
Methodology:	*Projet Domestique Methodology: "Catalytic reduction of N_2O at nitric acid plants"*		
Technical Area(s):	Q: N_2O		
ITL Project ID No.:	FR1000148		
Crediting period	☐ Renewable Crediting Period (7 y) ☒ Fixed Crediting Period (3 y)		

2.2. Project Verification History

Essential events since the registration of the project are presented in the following Table 2-2.

Table 2-2: Project verification history

#	Item	Time	Status
1	Date of registration	2010-04-16[1)]	-
2	Start of crediting period	2010-01-01	-
3	1st Monitoring period	2010-01-01 to 2010-06-30	open

1) Date of registration is the date of issuing of the LoA by the DFP

2.3. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-3).

Table 2-3: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	France	YARA France SAS
Other Involved Party/ies	Norway Germany Belgium	YARA International ASA N.serve Environmental Services GmbH YARA France SAS

2.4. Project Location

The details of the project location are given in table 2-4:

Table 2-4: Project Location

No.	Project Location
Host Country:	France
Region:	South West, Department: Gironde, Commune: Ambès
Project location:	Plant absorption tower and tail gas stack: 45°00'0 1.50'' N, 0°32'51.64'' W Ammonia burner: 45°00'00.33'' N, 0°32'52.65'' W

2.5. Technical Project Description

The project activity aims to reduce levels of N_2O emissions from the production of nitric acid with secondary N_2O abatement technology (secondary catalyst).

The key parameters for the project are given in table 2-5:

Table 2-5: Technical data of the plant

Parameter	Unit	Value
Ammonia Oxidation Reactor		
Manufacturer	-	YARA
Start of commercial production	-	November 1990
Operating conditions as per specifications (trip point values)		
- Temperature (min/max):	℃	780 / 920
- Pressure (max):	Bar abs	No trip point
- Ammonia to Air ratio (max)	Vol.-%	12.6
Ammonia Oxidation Catalyst		
Manufacturer	-	K.A Rasmussen AS
Type	-	n.a.

Parameter	Unit	Value
Composition:	-	Pt-Rh-Pd
Campaign length	d	170
Absorber		
Design capacity per day (100 %)	$tHNO_3/d$	1,380
Design capacity per day (legal)	$tHNO_3/d$	1,380
Annual production (design)	days/year	340
Annual production (practice)	days/year	340
Secondary Catalyst		
Start of operation	-	April 2009
Manufacturer	-	YARA
Type	-	58-Y1
Composition:	-	cerium dioxide cobalt (ii, iii) oxide dialuminium cobalt tetraoxide
Design efficiency N_2O reduction (guaranteed by supplier)	%	80 %
N_2O Analyzer (stack)		
Manufacturer	-	Dr. Födisch Umweltmesstechnik GmbH
Type	-	MCA 04
Measurement Principle	-	IR absorption
Stack volume flow rate measurement		
Manufacturer	-	Dr. Födisch Umweltmesstechnik GmbH
Type	-	FMD 99
Measurement Principle	-	Differential pressure

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report /MR/ submitted by the client and additional supporting documents with the use of customised verification protocol /CPM/ according to the Determination and Verification Manual /DVM/,
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

The sequence of the verification is given in the table 3.1 below:

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2010-03-17
On-site-visit	From 2010-07-26 till 2010-07-27
Draft reporting finalised	2010-09-07
Final reporting finalised	2010-09-15
Technical review finalised	2010-09-23

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and 2 additional team members, was appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence	Technical competence [4]	Host country Competence	Team Leading competence
☒ Mr. ☐ Ms.	Nebel, Alexandra	TÜV Nord Cert GmbH	TL	A	☒	-	☐	☒
☒ Mr. ☐ Ms.	Walter, Ulrich	TÜV Nord Cert GmbH	TM	E	☒	Q	☐	☐
☐ Mr. ☒ Ms.	Meyer, Sabine	TÜV NORD Cert GmbH	TM	T	☐	-	☒	☐
☒ Mr. ☐ Ms.	Winter, Rainer	TÜV Nord Cert GmbH	TR, FA[3]	SA	☒	Q	☐	☒
☒ Mr. ☐ Ms.	Emilio Martin	TÜV Nord Cert GmbH	TR[3]	E	☒	-	☐	☐

[1] TL: Team Leader; TM: Team Member, TR: Technical review; FA: Final approval

[2] GHG Auditor Status: A: Assessor; E: Expert; SA: Senior Assessor; T: Trainee; TE: Technical Expert

[3] No team member

[4)] As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

3.4. Publication of the Monitoring Report

In accordance with decision 9/CMP.1 (§ 36) the draft monitoring report, as received from the project participants, has been made publicly available on the TÜV NORD Website www.global-warming.de during a 30 days period from 2010-07-24 to 2010-08-23. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
The following potential risks were identified and divided and structured according to the possible areas of occurrence.	*The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding*	*Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of*	*The additional verification testing performed is described. Testing may include:* - *Sample cross checking of manual transfers of data* - *Recalculation* - *Spreadsheet 'walk throughs' to check links and equations*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
	risks. *The following measures are implemented:*	*every verification.*	- *Inspection of calibration and maintenance records for key equipment* - *Check sampling analysis results* *Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.*	

The completed table A-1 is enclosed in the annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a JI project is expected to meet for verification
- It ensures a transparent verification process where the verifying AIE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in table 3-3.

Table 3-3: Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist						
No.	***DVM[2] paragraph / Checklist Item*** *(incl. guidance for the determination team)*	***Initial Finding*** *(Means and results of assessment)*	***Ref.***	***Action requested to project participant*** *(CAR, CL, FAR)*	***Review of PP´s action***	***Conclusion***
Number of the checklist item	*The section gives a reference to the relevant paragraph of the DVM. The checklist items are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further subdivided as per the requirements of the topic and the individual project activity.*	*The section is used to elaborate and discuss the checklist item in detail. It includes the initial assessment of the verification team and how the assessment was carried out.*	*Gives reference to the information source on which the assessment is based on.*	*Assessment based on evidence provided if the criterion is not fulfilled a CAR, CL or FAR (details of each finding are elaborated in chapter 4) is raised otherwise no action is requested. The assessment refers to the draft verification stage.*	*Assessment based on the project participant action in response to the raised CAR, CL or FAR (details of each finding are elaborated in chapter 4). The assessment refers to the final verification stage.*	*Final assessment at the final verification stage is given.*

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in the annex (table A-2) to this report.

3.6. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

[2] JISC 19 Annex 4

- the last revision of the PDD including the monitoring plan/PDD/,
- the last revision of the determination report/DET/,
- the monitoring report, including the claimed emission reductions for the project/MR/,
- the emission reduction calculation spreadsheet/XLS/.

Other supporting documents, such as publicly available information on the UNFCCC / host country website and background information were also reviewed.

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.

The complete verification team attended the site visit.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of Yara Ambés Nitric Acid Plant and N.serve including the operational staff of the plant were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel, Yara Ambés Nitric Acid Plant	- General aspects of the project - Technical equipment and operation - Changes since validation

Interviewed Persons / Entities	Interview topics
2. Consultant, N.serve	- Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring and measurement equipment - Maintenance - - Remaining issues from validation - Monitoring data management - Data uncertainty and residual risks - GHG emission reduction calculation - Procedural aspects of the verification - Environmental aspect -

3.8. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings from the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.9. Resolution of CARs, CLs and FARs

Non-conformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is be issued if:

- information is insufficient or not clear enough to determine whether the applicable JI requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

3.10. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive verification opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative verification opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.11. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.12. Final approval

After successful technical review an overall (esp. procedural) assessment of the complete verification will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report/MR/, the calculation spreadsheet/XLS/, PDD/PDD/, the Determination Report/DET/ and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
A – Project Approvals	0	1	0
B – Project Implementation	1	4	1
C – Monitoring Plan Compliance	0	5	1
D – Monitoring Plan Revision	0	0	0
E – Data Management	2	3	1
SUM	**3**	**13**	**3**

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the verification team. For an in depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Finding:	**A1**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	As Belgium was added as investor country, the PP shall provide documents/correspondence describing the process of application.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The PP provided an email correspondence with the Belgian DFP on 2010-10-07/MAIL, / /APP/.*		

Finding:	A1
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. Belgium participates in Track 1 JI-projects and published relevant rules for application for a LoA/BELGIUM/, /Belgium/ for participation in Track 1 projects. The provided correspondence with Belgian DFP states that the application is complete and the approval procedure will be closed on short term/APP/, /MAIL/.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	B1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The PP shall provide a complete evidenced project history showing important events like i.e. change of ammonia gauzes (start of new campaigns). In this context, the significant decrease of the N_2O concentration in the stack (NCSG) from 2010-04-14 on shall be explained.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Unusual events with effect on N2O emissions during the verification period are summarized in:* *YARA Ambès verification period 1 project history – events.doc* *Regarding the second sentence of H1 above: at the beginning of a production campaign, the conversion efficiency (i.e. the amount of NH_3 and air being successfully converted to NO) of the new primary catalyst gauze is at its highest, and the quantity of by-product gases such as N_2O is therefore much lower. As the conversion efficiency of the primary gauze decreases throughout the course of the campaign, emissions of N_2O increase correspondingly.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The provided list of events /HIST/ have been compared with project history and found to be reasonable to clarify significant shifts of N_2O concentrations in the stack. The second paragraph explains why N_2O concentration generally varies (decreases and increases) over the lifetime of the catalyst. However it has not been justified why the N_2O concentration explicitly decreases from 2010-04-14 on. Further justification is requested.		

Finding:	B1
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	At 14.04.2010 the plant was restarted with a new campaign after the change of the primary catalyst (primary gauze). It is a very common phenomenon at nitric acid plants that the N_2O emissions are low at the beginning of a new campaign and that they are raising during the course of the campaign. Therefore it is expected that the N_2O concentrations are lower after 14.04.2010 compared to the end of the previous campaign (before 12.04.2010). Secondly additional secondary catalyst material was installed during the shutdown (12.04.2010 – 14.04.2010) to optimize the abatement performance. These previously mentioned events are described in the document: YARA Ambès verification period 1 project history – events.doc
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The verification team can confirm through evidences provided during on-site visit and additional documents /HIST/ that the primary catalyst was exchanged and catalyst was added to the basket (see chapter 5.3: Special events). These measures led to decreased N_2O emissions through the stack.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	B2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The JI-UNFCCC and DFP webpage provides only draft determination report and PDD. The PP should arrange to provide these docs from official source if necessary.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The below links show that the final version of the PDD, dated 14th December 2009, is now available on the DFP and UNFCCC websites:* *http://www.developpement-durable.gouv.fr/Liste-des-methodes-referencees-et.html* *http://ji.unfccc.int/JIITLProject/DB/I2VTETQF784CYRLUS5LU1NVRQU7PVY/details* *Since the DRAFT Determination Report forms the basis for the host country LoA, the MEEDDM publishes only the draft report on its website. This has been confirmed by the French DFP.*		

Finding:	B2
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PDD of the YARA Ambès N2O abatement project, Date: 14th December 2009 Version: 04 was found on the JI-UNFCCC-server. This is the version which was included for the project verification.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	B3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The generated ERUs in the 1st verification period are about double of the estimated amounts in this period. Clarification is requested.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The PDD was originally written around 18 months ago when there was very little experience within Europe of installing the maximum possible amount of secondary abatement catalyst into the ammonia burners. Since the Determining AIE insisted on a conservative estimate of the achievable abatement efficiency in the PDD, the PPs were forced to use the minimum supplier guarantee (80%) as the basis for the ERU calculations. In reality, we expected the efficiency to be somewhat higher. However, the catalyst subsequently exceeded even our expectations and performed exceptionally well. The catalyst is also performing similarly well in other European projects, which shows that the supplier's initial minimum guaranteed efficiency was excessively conservative (they have since increased it for similar plant types).*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP can confirm, that, related to other project activities, the PP used a more conservative approach for estimation of abatement catalyst efficiency and ERU-calculation. Other comparable projects listed on JI-UNFCCC-website /unfccc/ show similar catalyst performance characteristics which also exceed the supplier-guarantees.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	B4

Finding:	**B4**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There are some minor mistakes in the QAL2-report No.: M82 450/5 from Müller-BBM, dated 2009-10-30: • More detailed info regarding $DeNO_X$ in Chapter 2.6 should be provided. • Inlet- and outlet-zones of the measurement point of AMS should be exactly described related to the diameter of the stack. • In Chapters 7.7.1 ff, the unit of range value is ppm and not mA. • The header of chapter 5 [velocity] is missing.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*A revised version of the report was provided on 2010-09-19.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP provided an updated version of the QAL2-report /QAL2CALIB_2/, which takes into account all relevant findings.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**B5**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The reference gas for lower value (199.8 ppm) was expired acc. to certificate No.: 27210293-10 (Expiry date: 2010-07-07). The PP should provide measures related to quality procedures to prevent this in future (see FAR B5a).		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*A new bottle of lower range calibration gas has now been ordered, along with a spare bottle of such gas that will be kept in the warehouse. The plant has now implemented a system whereby if a request is made to take the spare bottle from the warehouse, a new order for a replacement bottle will automatically be sent to the supplier. This system ensures that a spare bottle is available at all times.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. On request the PP explained, that after taking a bottle from the warehouse with receipt, an order for purchase will automatically be issued. Since this cannot be checked from verifier office, corresponding FARs (B5, C6) was raised.		

Finding:	B5
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	B5a		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The reference gas for lower value (199.8 ppm) was expired acc. to certificate No.: 27210293-10 (Expiry date: 2010-07-07). The verifier should check the procedure for automatically purchasing.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*			
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*			
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	C1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The plant specific N_2O-concentration expressed in mg/m³ referred to the benchmark of 2.5 kg $N_2O/tHNO_3$ should be calculated and mentioned in the MR Chapter 2 acc. to the methodology Section 4.5.2.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*As an average over the 1st Verification period from 01/01/2010 to 30/06/2010, this regulatory value is equal to 724 mg/Nm3. Updated information is included in the MR.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP included the relevant value in the MR and explained the calculation in the emission reduction calculation /XLS/.		

Finding:	C1
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	C2		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The Table "Overview on all emission sources within the project boundary" should be included in the MR as per methodology (page 6 of MR).		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The Project Boundary table in section 4 of the Monitoring Report has now been changed to conform to the table shown in the methodology.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The relevant table was included in the MR.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	C3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Include description of all AMS devices in section 5.3.3. or remove reference to HNO_3 flow meters.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The reference to the HNO_3 flow meters has now been removed from section 5.3.3 of the MR.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The reference to the HNO_3-flow meters were deleted in the relevant section and included in the description of the complete monitoring equipment.		

Finding:	C3
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	C4		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The internal project number is missing on cover page of MR.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The project identifier (ID) used by the international transaction log (ITL) was inserted in the MR*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The internal project number was inserted in the relevant cell of the cover page. The verification team has cross-checked the ITL by checking the UNFCCC's website.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	C5		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The PP should provide a list of measurement devices of the JI-project (AMS, HNO_3-flow meter incl. Conc. And Temp) and conditions/deviations which will lead to involvement of the supplier regarding maintenance, performance tests and repairing.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*This issue is still being discussed by plant staff and will be reported to TUEV Nord as soon as possible.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*			

Finding:	C5
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding:	C6		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The calibration recordings for the AMS show periods longer then the allowed 1 month (up to two months) between two calibrations. No systematically scheduling of dates is identifiable. The PP should implement a documentation to control all quality-relevant monitoring and measuring equipment of the project activity. This should include calibration and maintenance records of all monitoring and measuring devices (acc. Chapter 4.2.4 of ISO 9001:2008). Each record should include: • Tracking Number. This tracking number is also on the equipment. • Equipment Description, type, Manufacturer and Model Location Calibration requirements • Calibration interval with justification for the interval • Calibration Procedure • Calibration History • Calibration Due Regarding test gas bottles: • Expiry date • Forecast, that expiry date will not be exceeded on next calibration date		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The PP provided an updated QAL 1 certificate[/QAL1A1/], which states a max. maintenance period of 3 months.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The verification team decided not to request any actions related to the verified reporting period, but issued this FAR to ensure a proper documentation of maintenance.		
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	**E1**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The data set of the last hour of each month is not included in the calculation.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The missing data were included and calculations as well as MR were updated accordingly.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The revised version of ER-calculation /XLS/ includes the missing datasets.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**E2**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	According to the methodology, all data sets which include implausible data (VSG, NCSG) should be removed from the ER-calculation (i.e. after start up of new campaign). Implausible criteria shall be defined.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*As a first step of data handling and evaluation implausible results are removed from the data sets: For all N_2O data sets a plausibility check is conducted. All data sets containing implausible values are excluded from further calculations. Any negative results are defined as implausible. Data sets that include at least one implausible result for N_2O concentration or for stack gas flow are excluded from the calculation.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The applicated plausibility criteria • negative results is plausible and was applied to the adjusted ER-calculation /XLS/ and described in the monitoring report /MR-3/. Some minor editorial issues and mistakes are identified in the updated version of ER-calculation and monitoring report and forwarded to the PP. Therefore CAR E2 remains open.		
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The PP provided updated versions of the relevant docs on 2010-09-13 /MR, XLS/.*		

Finding:	E2
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. All issues are reflected in new provided documents.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	E3		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Some of the monitored 10-seconds-data, stored in the EXAQUANTUM system are missing. The PP should provide a reason for this based on supplier info.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The supplier of the AMS was contacted to give some information for this issue. The response (email 31.08.2010) will be submitted to the AIE.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The supplier stated that due to the installed technology (internal filter wheel), there might be a physical delay between two measurements of 5-15 seconds and output values (analog 4-20 mA) will not be updated. Since the device passed the QAL 1 test acc. to EN 14181 and no fixed interval of measurement is requested by the methodology, the determination team can accept the use of this type of AMS. The finding can be successfully closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	E4		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	A project chart showing personal and organisational responsibilities and tasks for plant operation and for project management should be provided.		

Finding:	E4
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*An overview organisational chart was provided: document:* ***Organigramme JI project.pptx***
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The provided organisational structure shows clearly the functions and responsibilities in the project activity. This was supported by a quality management document AGRI-21158 showing the internal procedure of the management of the project activity/LISTE/.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	E5		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	A list of training, including the kind of training, for the staff involved in the project should be provided.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Please find attached the document AGRI 21158 Liste habilitation working copy (3).* *This document (in particular section 5) explains the type of training that staff are to be given when they are involved in the JI project. No documentation was previously available, with the exception of a confirmation from Dr Foedisch that some training was given during the installation of the AMS.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP provided a quality document describing that Mr. Dufour and Mr Darrieumerlou are the responsible persons for Project and AMS managing and that both are included in regular trainings regarding the quality related issues of the project.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	E6		
Classification	☐ CAR	☐ CL	☒ FAR

Finding:	E6
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Weekly maintenance plan AT22540: The PP should include max. allowed deviation for the recorded values. Monthly maintenance plan ANNEX II of AGRI-21135 document: The PP should include max. allowed deviation for factors calculated from calibration values. Notification should be signed by the responsible staff.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The maximum allowed deviations will be included in both the weekly maintenance plan AT22540 and Annex II of the monthly maintenance plan AGRI 21135, and will be checked at the next Verification.*
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CRs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

5.1. Implementation of the project

During the verification a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PDD.

5.2. Project history

During the determination the AIE raised issues that could not be closed or resolved during the validation stage. For this purpose following FAR have been raised.

FAR No. 1:

a. Information according to Annex D of EN14181 has to be available latest for the first verification.

b. QAL 2 tests of AMS according to EN14181 have to be conducted prior to the start of the crediting period.

Furthermore as this is the 1st periodic verification no issues from former verifications are to be considered.

5.3. Special events

Some events have been taken place, which influenced the N_2O-emissions from the plant and as an effect of this, catalyst performance and N_2O release to the atmosphere:

Date	Phenomenon	Event description
2010-01-12–2010-01-18	N_2O decrease	HNO_3 unit rate reduction due to lack of ammonia
2010-01-26	N_2O fluctuations	HNO_3 process trip without machine trip
2010-02-08-2010-02-14	N_2O decrease	HNO_3 unit rate reduction due to technical problems on ammonium nitrate units
2010–2010-02-17	N_2O fluctuations	HNO_3 process & machine trip
2010-04-12–2010-04-14	N_2O fluctuations	HNO_3 unit stop for a schedule catalyst gauze change. N_2O catalyst added on the peripheral part of the burner basket
2010-04-14	N_2O fluctuations	HNO_3 unit start after catalyst gauze change

5.4. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan.

5.5. Monitoring parameters

During the verification all relevant monitoring parameters (as listed in the PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist.

After appropriate corrections were carried out by the project participant it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

5.6. Monitoring report

A draft monitoring report was submitted to the verification team by the project participants. The team has made this report publicly available prior to the start of the verification activities. No comments were received.

During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the monitoring report is complete and transparent and in accordance with the registered PDD and other relevant requirements.

5.7. ER Calculation

During the verification mistakes in the ER calculation were identified. Corresponding CARs were raised. A revised ER calculation was prepared by the PP and presented to the verification team. All raised issues were addressed appropriately so that all corresponding CARs/CLs could be closed out. Thus it is confirmed that the ER calculation is overall correct.

5.8. Quality Management

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this JI project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. Nevertheless, some CLs and CARs were raised in order to improve the quality management system in future.

5.9. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the UNFCCC / host country criteria and relevant guidance provided by the COP/CMP and the JISC (clarifications and/or guidance).

5.10. Hints for next periodic Verification

FAR B5a:

The reference gas for lower value (199.8 ppm) was expired acc. to certificate No.: 27210293-10 (Expiry date: 2010-07-07). The verifier should check the procedure for automatically purchasing.

FAR E6:

Weekly maintenance plan AT22540: The PP should include max. allowed deviation for the recorded values.

Monthly maintenance plan ANNEX II of AGRI-21135 document: The PP should include max. allowed deviation for factors calculated from calibration values. Notification should be signed by the responsible staff.

FAR C6:

The calibration recordings for the AMS show periods longer then the allowed 1 month (up to two months) between two calibrations. No systematically scheduling of dates is identifiable.

The PP should implement a documentation to control all quality-relevant monitoring and measuring equipment of the project activity. This should include calibration and maintenance records of all monitoring and measuring devices (acc. Chapter 4.2.4 of ISO 9001:2008).

Each record should include:

- Tracking Number. This tracking number is also on the equipment.
- Equipment Description, type, Manufacturer and Model Location – Calibration requirements
- Calibration interval with justification for the interval
- Calibration Procedure
- Calibration History

- Calibration Due

6. VERIFICATION OPINION

Yara Ambés Nitric Acid Plant has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "*YARA AMBÈS N_2O ABATEMENT PROJECT*", with regard to the relevant requirements for JI project activities. The project reduces GHG emissions due to the reduction of N_2O emissions from the production of nitric acid with secondary N_2O abatement technology (secondary catalyst). This verification covers the period from 2010-01-01 to 2010-06-30 (including both days).

In the course of the verification 3 Corrective Action Requests (CAR) and 13 Clarification Requests (CR) were raised and successfully closed. Furthermore 3 FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the determination report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the project design document.
- the monitoring plan is in accordance with the applied country specific methodology: Méthode pour les Projets Domestiques: "Réduction catalytique du N2O dans des usines d'acide nitrique".
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 1st periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **128,118** t CO_{2e}

Essen, 2010-10-07	Essen, 2010-10-07
Alexandra Nebel	Rainer Winter
TÜV NORD JI/CDM CP	TÜV NORD JI/CDM CP
Verification Team Leader	Final Approval

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/**AP**/	Arrete Prefectoral issued by the Prefecture de Gironde on 2009-01-22 regarding max. Emission from Nitric Acid plant
/**APP**/	Application for approval of a first track JI project activity, submitted on 2010-07-30 by Yara France SAS to the Belgian DFP
/**CERT**/	ISO 9001, 14001 and OHSAS 18001 Certificates, issued by DNV, valid until 2012-11-13
/**CERTexp**/	ISO 9001, 14001 and OHSAS 18001 Certificates, issued by DNV, valid until 2010-03-31 (expired)
/**CUSUM**/	Cusum Control Sheet acc. DIN EN 14181 regarding drift of AMS
/**FG**/	Announcement in the German Federal Gazette regarding the suitability of the AMS Dr. Foedisch MCA 04
/**FOE**/	Purchase, maintenance and calibration protocol, dated 2010-08-09 – 2009-09-01, issued by Dr. Foedisch
/**HIST**/	Plant history 2010-01-01 – 2010-05-01
/**LISTD**/	Excel-sheet (daily updated plant staff) with comparison of nitric acid concentration lab values/Figure from PCS
/**LISTE**/	Liste d'habilitation du personnel intervenant sur le système automatique de mesure (AMS) dans le cadre du projet de réduction des émissions de N_2O (List of staff involved in the project activity) Document ID : AGRI-21158, Revision date: 28-07-2010
/**LOA**/	LOA issued by the French "Ministère de l'Écologie, de l'Énergie, du Développement Durable et de la Mer, en charge des Technologies vertes et des Négociations sur le climat" on 2010-04-16, Ref-No.: 10007266
/**MAIL**/	Mail correspondence between the project developer/PP N.serve and the Belgian DFP regarding the submission of documents for application of an LoA Submitted to the DFP on 2010-07-30: • Investor LoA application form ('Application T1 JI investor LoA – Yara

Reference	Document
	Ambès N_2O reduction') • Project Design Document ('Yara Ambès N_2O PDD V4 MEEDDM 091214 public FR') • Draft Determination Report ('Draft Determination Report N_2O Yara Ambès FR') • Projet domestique questionnaire • Host country LoA ('Yara Ambès N_2O LoA France Apr 2010') • Document proving authorization of Yara legal representative ('Thierry Loyer Dir. Gen. Proces verbal Yara NL 29.12.2008') • Trade register extract Response by DFP on 2010-08-30: "In attachment you can find the official letter confirming the receipt and completeness of your application…"
/**MR**/	1. Monitoring report of GHGs emission reductions (01.01.2010 – 30.06.2010) "Yara Ambès N_2O Abatement" dated 2010-07-13 issued by N.serve. 2. Final Monitoring report of GHGs emission reductions (01.01.2010 – 30.06.2010) "Yara Ambès N_2O Abatement" dated 26.08.2010, Version: 03 3. Monitoring report of GHGs emission reductions (01.01.2010 – 30.06.2010) "Yara Ambès N_2O Abatement" dated 13.09.2010, Version: 04 4. Monitoring report of GHGs emission reductions (01.01.2010 – 30.06.2010) "Yara Ambès N2O Abatement" dated 13.09.2010, Version: 05 5. Final Monitoring report of GHGs emission reductions (01.01.2010 – 30.06.2010) "Yara Ambès N2O Abatement" dated 06.10.2010, Version: 06
/**ORDER**/	Purchase Order from Yara regarding 4,320 kg catalyst Type 58-Y1, dated 2009-04-10
/**ORGAN**/	Organigramme regarding project organisational structure
/**PLOT**/	Plot of N_2O-Concentrations in verification period (Source: XLS 1.)
/**PROCA**/	"CONTROLE visuel sur Site de l'analyseur cheminée 12O01 de l' atelier NITRIQUE", Procedure for regular check of the AMS
/**PROCD**/	"Stockage et traitment des données dans le cadre du projet de réduction des émissions de N_2O", Procedure for Data management on plant.
/**PROCE**/	"ETALONNAGE sur Site de l'analyseur cheminée 12O01 de l' atelier NITRIQUE", Procedure for calibration of AMS

Reference	Document
/**PROCL**/	"Planification des analyses laboratoire", Procedure for scheduling laboratory analyses
/**PROCM**/	"Gestion du système automatique de mesure (AMS) dans le cadre du projet de réduction des émissions de N_2O", Procedure for management of maintenance and calibration of AMS
/**PROCT**/	"Détermination du titre HNO3", Procedure for determination of concentration of nitric acid from density
/**QAL1A**/	QAL1 Certificate 0000025929 dated 2010-03-10 regarding suitability of the AMS MCA 04 according to DIN EN 14181:2004 issued by TÜV Rheinland
/**QAL1A1**/	QAL1 Certificate 0000025929_1 dated 2010-08-02 regarding suitability of the AMS MCA 04 according to DIN EN 14181:2004 issued by TÜV Rheinland (i.a. with extended calibration periods: 3 months)
/**QAL1VE**/	QAL1 Certificate No: 936/808005/C 2000-04-10 regarding FMD 99 Volumeter, English issued by TÜV Rheinland
/**QAL1VG**/	QAL1 Certificate No: 936/808005/C 2000-04-10 regarding FMD 99 Volumeter, German
/**QAL2CALIB**/	Report on performance tests and calibration of the AMS, report No.: M82 450/5, issued by Müller BBM on 2009-10-30
/**QAL2INST**/	QAL2 check of correct installation of the AMS, report No.: M82 450/7, issued by Müller-BBM on 2009-10-30
/**STACK**/	Screenshot of the PCS of the stack with sampling point of AMS
/**TAG**/	Tag-sheet of the Yokogawa Exaquantum PIMS (Process Information Management System)
/**XLS**/	1. ERU Excel calculation spreadsheet (Monitoring data 1st Verification Jan – Jun 2010_20100715) 2. ERU Excel calculation spreadsheet (Monitoring data 1st Verification Jan – Jun 2010_V3_20100831) 3. Final ERU Excel calculation spreadsheet (Monitoring data 1st Verification Jan – Jun 2010_V5_20100923)

Table 7-2: Background investigation and assessment documents

Reference	Document
/**14181**/	European Standard DIN EN 14181: "Stationary source emissions – Quality assurance of automated measuring systems
/**AM0034**/	Approved baseline and monitoring methodology AM0034: "Catalytic reduction of N_2O inside the ammonia burner of nitric acid plants", version 3.4
/**AR**/	Arrêté du 2 mars 2007 of the 'Ministère de l'écologie et du développement durable (Implementation of the JI-Guidelines in France)
/**BACK**/	Background paper: "N_2O EMISSIONS FROM ADIPIC ACID AND NITRIC ACID PRODUCTION", Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories issued by the NGGIP
/**BELGIUM**/	Rules established by the National Climate Commission for the submission of an application for approval for a project activity…
/**BREF**/	Reference Document on Best Available Techniques for the Manufacture of Large Volume Inorganic Chemicals - Ammonia, Acids and Fertilisers
/**CPM**/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/**DET**/	Determination Report: Yara Ambès Nitric Acid Plant, Report No.: 600500300, dated 2010-06-30, issued by TÜV Sued
/**DVM**/	JI Determination and Verification Manual
/**GUIDE**/	Guidance: Developing a CDM or JI project to reduce greenhouse gas emissions, issued by the: • French Ministry for Economy, Industry and Employment • French Ministry for Ecology, Energy, Sustainable Development and Town and Country Planning • French Global Environment Facility
/**IPCC**/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/**KP**/	Kyoto Protocol (1997)
/**MA**/	Decision 3/CMP. 1 (Marrakesh – Accords)
/**METH**/	Méthode pour les Projets Domestiques

Reference	Document
	Réduction catalytique du N_2O dans des usines d'acide nitrique (Projet Domestique Methodology: Catalytic reduction of N_2O at nitric acid plants)
/METHE/	Projet Domestique Methodology Catalytic reduction of N_2O at nitric acid plants (Translation of /METH/)
/PDD/	Project Design Document Version 04 dated 14.12.2009 "YARA Ambès N2O abatement project"
/SAFE/	SAFETY DATA SHEET, YARA N2O Abatement Catalyst 58-Y1, 58-Y1-S in accordance with EU REACH regulation

Table 7-3: Websites used

Reference	Link	Organisation
/belgium/	http://www.cnc-nkc.be/KLIMAATPLAN/EN/Home/Focalpoint/ApprovalNCC/	Website of the Belgian DFP
/bref/	http://eippcb.jrc.ec.europa.eu/reference/	Website of the European Commission, Joint Research Centre, Institute for Prospective Technological Studies (Provision of BAT-Reference documents)
/dehst/	http://www.dehst.de	German Emissions Trading Authority (DEHSt) at the Federal Environment Agency
/dfp/	http://www.developpement-durable.gouv.fr/	Ministère de l'Écologie, de l'Énergie, du Développement Durable et de la Mer, en charge des Technologies vertes et des Négociations sur le climat
/douane/	http://www.douane.gouv.fr/data/file/6146.pdf	Web-file regarding N_2O emission taxation.
/gw/	http://www.global-warming.de/	TÜV Nord platform hosting projects open for comments at the determination stage
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications

Reference	Link	Organisation
/**lf**/	http://www.legifrance.gouv.fr/	Site of the Legifrance (La service public de la diffusion du droit)
/**mist**/	http://www.ecologie.gouv.fr/Methodologies-de-projets.html	Ministère de l'Écologie, de l'Énergie, du Développement durable et de la Mer (Ministry of ecology and sustainable development)
/**nfg**/	http://www.effet-de-serre.gouv.fr/accueil	Mission interministérielle sur l'effet de serre (French Inter-Ministry Mission on the Greenhouse Effect)
/**qal1**/	http://qal1.de/de/hersteller/foedisch.htm	www-database of federal environment agency for QAL 1certified AMS
/**unfccc**/	http://ji.unfccc.int	JI-FC

Table 7-4: List of interviewed persons

Reference	Mol[1]		Name	Organisation / Function
/**IM01**/	V	☒ Mr. ☐ Ms	Bruno Dufour	Yara Ambés Nitric Acid Plant (Production manager)
/**IM02**/	V	☒ Mr. ☐ Ms.	Joris Darrieumerlou	Yara Ambés Nitric Acid Plant (Monitoring manager)
/**IM03**/	V	☐ Mr. ☒ Ms.	Rebecca Cardani-Strange	N.serve (Project manager)
/**IM04**/	V	☒ Mr. ☐ Ms.	Martin Stilkenbäumer	N.serve (Monitoring Expert)

[1)] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Verification Protocol

A2: Appointment / Authorisation statements

ANNEX 1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
Raw data generation				
• Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of	• Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspect-ions of installed equip-ment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment	• Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures	• Site – visit (maintenance dept., gas supplier) • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of JI manage-ment system	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
technology • Accuracy of values supplied by Third Parties	• Stand-by duty is organized • Training • Internal audit procedures • Internal check of QA/QC measures of involved Third Parties	• Insufficient accuracy • Inappropriate QA/QC measures of Third Parties	• Check of JI related procedures • Application of JI management system procedures • Check of trainings • Check of responsibilities • Check of QA/QC documentation / evidences of involved Third Parties	
Raw data collection and data aggregation				
• Wrong data transfer from raw data to daily and monthly aggregated reporting forms • IT Systems • Spread sheet programming • Manual data transmission	• Cross-check of data • Plausibility checks of various parameters. • Appropriate archiving system • Clear allocation of responsibilities • Application of JI Management system procedures	• Unintended usage of old data that has been revised • Incomplete documentation • Ex-post corrections of records • Ambiguous sources of information • Non-application of management system procedures	• Check of data aggregation steps • Counter-calculation • Data integrity checks by means of graphical data analysis and calculation of specific performance figures • Check of management system certification	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
• Data protection • Responsibilities	• Usage of standard software solutions (Spreadsheets) • Limited access to IT systems • Data protection procedures	• Manual data transfer mistakes • Unintended change of spread sheet programming or data base entries • Problems caused by updating/upgrading or change of applied software	• Check of data archiving system • Check of application of Management system procedures	
Other calculation parameters				
• Emission factors, oxidation factors, coefficients	• The values and data sources applied are defined in the PDD and monitoring plan	• Unintended or intended Modification of calculation parameters • Wrong application of values • Misinterpretations of the applied methodology and/ or the PDD • Missing update of applicable regulatory framework (e.g. IPCC values)	• Update-check of regulatory framework • Countercheck of the applied MP in the MR against the approved version	• **See Table A-2**
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
• Applied formulae • Miscalculation • Mistakes in spread-sheet calculation	• Advanced calculation and reporting tools • A JI coordinator is in charge of the JI related calculations • Usage of tested / counterchecked Excel spreadsheets • Involvement of external consultants	• The danger of miscal-culation can only be minimized.	• Countercheck on the basis of own calculation. • Spread sheet walk-trough. • Plausibility checks • Check of plots	• **See Table A-2**
Monitoring reporting				
• Data transfer to the author of the monitoring report • Data transfer to the monitoring report • Unintended use of outdated versions	• An experienced JI consultant is responsible for monitoring reporting. • JI QMS procedures are defined	• The danger of data transfer mistakes can only be minimized • Inappropriate application of QMS procedures	• Counter check with evidences provided. • Audit of procedure application	• **See Table A-2**

Table A-2: (Project specific) Periodic Verification Checklist

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
A	***Project Approvals by Parties involved***					
A.1	*DVM § 90* Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	*Description:* • This is the 1st verification and no report was issued prior to this verification • The report will be submitted directly to the DFP by the PP because it is a track 1 project. *Means of determination:* DFP-website, LoA, Unfccc-website, MR *Conclusion:* N/A	/LOA/ /dfp/ /unfccc/			OK
A.2	*DVM § 91* Are all the written project approvals by Parties involved unconditional?	*Description:* The French LoA has two conditions, which need to be taking into account: • Only 90 % of the verified emission reductions of one period shall be claimed by the PP. The ERU quantity stated in this report already takes into account the 10% deduction.	/LOA/ /dfp/ /unfccc/			OK

[3] JISC 19 Annex 4

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• The total amount of verified emission reductions until 2012-12-31 is limited to 367,212 tonnes (before 10 % reduction) *Means of determination:* *Conclusion:* OK, • 10 % of the emission reductions are subtracted from the initial result. The ERU quantity stated in this report already takes into account the 10% deduction. • The sum of emission reduction does not exceed the maximum.				
B	***Project implementation***					
B.1	*DVM § 92* Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	*Description:* The project installations (Abatement catalyst, AMS) were checked by the verification team and compared with the description given in the registered PDD. The installation of the abatement catalyst and monitoring system is in line with the PDD. *Means of determination:* PDD, certificates provided by the PP, on-site visit *Conclusion:* The determination EIA raised one FAR (No.1) related to the proper implementation: • Information according to Annex D of EN14181 has to be	/PDD/ /DET/ /QAL1A/ /QAL2 CALIB/ /QAL2INST/ /MR-1/	~~CAR B2~~ ~~CL C4~~ ~~CL B4~~	Pls see Chapter 4	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		available latest for the first verification. • QAL 2 tests of AMS according to EN14181 have to be conducted prior to the start of the crediting period. • In the course of verification, following findings were issued: CAR B2: The actual version of the PDD was not available on the DFP and JI-UNFCCC web-page. CL C4: The ITL No. was not included in the monitoring report. CL B4: There are some minor mistakes in the QAL2-report No.: M82 450/5 from Müller-BBM, dated 2009-10-30: • More detailed info regarding DeNOX in Chapter 2.6 should be provided. • Inlet- and outlet-zones of the measurement point of AMS should be exactly described related to the diameter of the stack. • In Chapters 7.7.1 ff, the unit of range value is ppm and not mA.				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• The header of chapter 5 [velocity] is missing.				
B.2	*DVM § 93* What is the status of operation of the project during the monitoring period?	*Description:* The project is running according to the description provided in the PDD. The abatement efficiency is higher than expected and estimated in the PDD-calculation. *Means of determination:* Calculation sheets annexed to the monitoring report, on-site visit and inspection of implementations, PDD *Conclusion:* CL C4 was raised to request a reason for this higher reduction efficiency. CL B1 was raised to request a complete evidenced project history showing important events like i.e. change of ammonia gauzes (start of new campaigns)	/PDD/ /XLS/ /MR-1/	~~CL C4~~ ~~CL B1~~	Pls see Chapter 4	OK
C	***Compliance with monitoring plan***					
C.1	*DVM § 94* Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	*Description:* Monitored parameter and parameter used for calculation are: • $NCSG_n$ [mg N_2O/m^3] monitored • VSG_n [Nm^3/h] monitored • PE_n [kgN2O] calculated • OH_n [h] monitored	/PDD/ /MR-1/ /14181/	~~CL B4~~ ~~CL B5~~ FAR B5a FAR E5 ~~CL C6~~	Pls see Chapter 4	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• NAP_n [$tHNO_3$] monitored • EF_{BM} [$kgN_2O/tHNO_3$] used for calculation • GWP_{N2O} [tCO_2e/tN_2O] used for calculation • ERU [ERUs (tCO_2e)] calculated The PP refers to the project methodology and European standard 14181 regarding implementation of monitoring equipment and procedures. *Means of determination:* DIN EN 14181, methodology, quality related procedures provided by the plant staff, on-site inspections and interviews. *Conclusion* The verification team can confirm that the monitoring of the relevant parameter implemented in the project and the referenced standards are in accordance with the monitoring plan of the final PDD. Checks details are i.e.: • Measurement frequency • Data source • Measurement procedures • Quality procedures • Measuring points • Cross checks • Data handling, storage and processing				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		Some findings were raised related to minor inconsistencies: CL B4: There are some minor mistakes in the QAL2-report No.: M82 450/5 from Müller-BBM, dated 2009-10-30: • More detailed info regarding DeNOX in Chapter 2.6 should be provided. • Inlet- and outlet-zones of the measurement point of AMS should be exactly described related to the diameter of the stack. • In Chapters 7.7.1 ff, the unit of range value is ppm and not mA. • The header of chapter 5 [velocity] is missing. FAR E6: Weekly maintenance plan AT22540: The PP should include max. allowed deviation for the recorded values. Monthly maintenance plan ANNEX II of AGRI-21135 document: The PP should include max. allowed deviation for factors calculated from calibration values. Notification should be signed by the responsible staff. CL C5: The PP should provide a list of measurement devices of the JI-project (AMS, HNO3-flow meter incl. Conc. and Temp) conditions/deviations which will lead to involvement of the supplier.				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
C.2	*DVM § 95a)* For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	*Description:* The project baseline is set by default values in the methodology which was issued by the French DFP. Default values are expressed in benchmark values [kg N_2O/t HNO_3]: Year: 2010 2011 2012 Value: 2.5 2.5 1.85 These benchmark values are the key factors, which influences the baseline scenario and reduces the accountable emission reductions from realistic baseline emissions to the above mentioned values. The results of risk assessment are extensive measures to prevent a bypass of process gases in the catalyst bed since this will lead to a reduction of catalyst efficiency. Decreasing catalyst efficiency was identified as most important project risk *Means of determination:* French methodology, LoA *Conclusion:* The benchmark values are correctly considered in the calculation of baseline emissions and take into account the sectoral reform policies and legislation (point 23 (b) (i) of DVM). The verification team can confirm, that the result of risk assessment (risks associated with the project) was taken	/METH/ /LoA/ /DVM/		Pls see Chapter 4	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		into account.				
C.3	*DVM § 95b)* Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	*Description:* Parameter and related data sources are: • $NCSG_n$ [mg N_2O/m^3] Dr. Födisch MCA 04 Continuous Emissions N2O Analyser (part of AMS) • VSG_n [Nm^3/h] Dr. Födisch FMD 99 gas volume flow meter (part of AMS) • PE_n [kgN2O] Calculation from measured data • OH_n [h] Production Log – taking into account: plant status signal, NH3 valve status signal, trip point parameters • NAP_n [$tHNO_3$] Nitric acid flow meter • EF_{BM} [$kgN_2O/tHNO_3$] Determined according to French government decision (MEEDDAT)	/PDD/ /MR-1/	~~CAR C2~~ ~~CL B5~~ FAR B5a	Pls see Chapter 4	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• GWP_{N2O} [tCO_2e/tN_2O] Climate Change 1995, The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I Report, page 22. • ERU [ERUs (tCO_2e)] Calculated from measured data *Means of determination:* PDD, methodology, monitoring report, on-site visit of plant, PCS and data server *Conclusion:* The PP could clearly demonstrate that data sources are clearly identified, reliable and transparent. Some findings were raised in this context CAR C2: Since the PP removed some data which are obviously implausible, but without a traceable criteria (fuzzy logic), CAR C2 was raised to request the implausible criteria. CL B5: The reference gas for lower value (199.8 ppm) was expired acc. to certificate No.: 27210293-10 (Expiry date: 2010-07-07). The PP should provide measures related to quality procedures to prevent this in future (see FAR B5a).				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		FAR B5a: The reference gas for lower value (199.8 ppm) was expired acc. to certificate No.: 27210293-10 (Expiry date: 2010-07-07). The verifier should check the procedure for automatically purchasing.				
C.4	*DVM § 95c)* Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	*Description:* As described under C.2., the French DFP sets emission factors as benchmark values. *Means of determination:* Methodology, Monitoring report *Conclusion:* The benchmark values, as set by the French DFP, were correctly included in emission reduction calculation. The stack gas concentration, which correlates with the emission factor, was not mentioned in the report as required per methodology. CL C1: The plant specific N2O-concentration expressed in mg/m³ referred to the benchmark of 2.5 kg N2O/tHNO3 should be calculated and mentioned in the MR Chapter 2 acc. to the methodology Section 4.5.2.	/PDD/ /METH/ /MR-1/ /XLS/	~~CL C1~~	Pls see Chapter 4	OK
C.5	*DVM § 95d)* Is the calculation of emission reductions or enhancements of	*Description:* The calculation includes: • A deduction in baseline emission scenario from 7 to 2.5/1.85 kg N_2O/t HNO_3 (benchmark values) which is a	/PDD/ /METH/		Pls see Chapter 4	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent manner?	reduction to 35/26%. • A 10% reduction of the verified emission reductions *Means of determination:* Methodology *Conclusion:* The implementation of the benchmark values and 10% reduction is a conservative approach.	/MR-1/ /XLS/			
	Applicable to JI SSC projects only					
C.6	*DVM § 96* Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	*Description:* Estimation of total emissions reductions over the crediting period (after the 10% deduction) are: 330,489 (tonnes of CO2e) Average ERUs per year 2010-2012 are: 110,163 (tonnes of CO2e) *Means of determination:* PDD *Conclusion:* The threshold value for small-scale projects is exceeded; the project is classified as large-scale project.				
	Applicable to bundled JI SSC projects only					
C.7	*DVM § 97a)*	*Description:* N/A				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	*Means of determination:* N/A *Conclusion: N/A*				
C.8	*DVM § 97b)* If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
C.9	*DVM § 98* If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, Are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
D	***Revision of monitoring plan***					
	Applicable only if monitoring plan is revised by project participants					
D.1	*DVM § 99a)* Did the project participants provide an appropriate justification for the proposed revision?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
D.2	*DVM § 99b)* Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
E	***Data management***					
E.1	*DVM § 101a)* Is the implementation of data collection procedures in	*Description:* Data collection procedures, quality control and quality assurance are implemented as follows: • Measured values were generated by local measurement	/PDD/ /METH/	~~CAR E2~~	Pls see Chapter 4	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	accordance with the monitoring plan, including the quality control and quality assurance procedures?	and monitoring devices, stored in plant PCS and provided for calculation via EXAQUANTUM data management server. • Default values were determinated and set before start of the projects and included in the PDD. • Calculations are described in the PDD. • During data processing, measured values were evaluated according to statistical methods: • Application of instrument correction factors: The PP chooses a monitoring standard that requires the establishment of a calibration curve (EN14181). The correction factors derived from this calibration curve during the QAL2 audit must be applied onto both VSG and NCSG. • Downtimes: Acc. to the methodology, downtimes of the AMS shall be handled as following: The hourly average will be calculated based on the remaining values for the rest of the hour in question. If these remaining values account for less than 50% of the hourly data for one or more parameters, then this hour must be eliminated from the calculation and substitute values will be used instead	/MR-1/ /PROCD /			

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• Permitted overall uncertainty: The methodology requires that the permitted overall uncertainty of the average hourly annual emissions must be less than 7.5% if technical possible. *Means of determination:* Methodology, Monitoring report, on-.site visit of plant, control room with PCS, server room with Exaquantum data server *Conclusion:* Most procedures related to fulfil the requirements of • quality management of the plant • quality assurance standard of the AMS were implemented as in the methodology. Missing is: Plausibility check: The meth requires a plausibility check of all recorded/monitored data before processing: "For all N_2O data sets a plausibility check is conducted. All data sets containing implausible values are eliminated CAR E2 was raised in this context.				
E.2	*DVM § 101b)*	*Description:* The AMS is included in the quality procedures	/QAL1/	~~CL E5~~	Pls see	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	Is the function of the monitoring equipment, including its calibration status, is in order?	which are established for proper operation of the plant. Additional measures are related to the European Norm EN14181 (2004) "Stationary source emissions - Quality assurance of automated measuring systems". • **Three quality assurance levels of EN 14181**: • QAL 1: performance approval To prove, that the AMS is suitable for purpose and in line with the European norm. The PP provides a QAL1 Certificate 0000025929 dated 2010-03-10 according to DIN EN 14181:2004 issued by TÜV Rheinland • QAL 2: commissioning and validation of an AMS An accredited laboratory (acc. ISO 17025) carries out specific testing procedures to verify that the AMS installation meets the accuracy requirements laid down by EN 14181. The performance of the complete installation was compared against a series of measurements made with approved Standard Reference Methods. • QAL 3: ongoing operation and maintenance The PP implemented a quality assurance system to prove the ongoing compliance of the AMS with the norm. The maintenance activities are monitored and	/FG/ /QAL2 INST/ /QAL2 CALIB/ /FOE/ /CUSUM/ /PROCA/ /PROCC/ /PROCM/	~~CL B4~~ ~~CL B5~~ FAR E6 ~~CL C5~~ FAR C6	Chapter 4	

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		controlled as part of an overall quality assurance programme. • AST: Annual Surveillance Test The PP verifies the continuing validity of the calibration function on yearly basis. The requirements and responsibilities for carrying out the AST tests are the same as for QAL 2. Since QAL2 was carried out in 2010, the AST is not necessary in 2010. *Means of determination:* Methodology, EN14181, QAL1 database of the Federal Environmental Agency, interview with monitoring manager of the plant, check of relevant documents and records *Conclusion:* Some findings were raised in context of maintenance, functionality of monitoring equipment: CL E5: A list of training of staff involved in the project including the kind of training should be provided. CL B4: There are some minor mistakes in the QAL2-report No.: M82 450/5 from Müller-BBM, dated 2009-10-30. CL B5:				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		The reference gas for lower value (199.8 ppm) was expired acc. to certificate No.: 27210293-10 (Expiry date: 2010-07-07). The PP should provide measures related to quality procedures to prevent this in future. FAR E6: Weekly maintenance plan AT22540: The PP should include max. allowed deviation for the recorded values. Monthly maintenance plan ANNEX II of AGRI-21135 document: The PP should include max. allowed deviation for factors calculated from calibration values. Notification should be signed by the responsible staff. CL C5: The PP should provide a list of measurement devices of the JI-project (AMS, HNO3-flow meter incl. Conc. and Temp) conditions/deviations which will lead to involvement of the supplier. FAR C6: The calibration recordings for the AMS show periods longer then the allowed 1 month between two calibrations. No systematically scheduling of dates is identifiable. The PP should implement a documentation to control all				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		quality-relevant monitoring and measuring equipment of the project activity. This should include calibration and maintenance records of all monitoring and measuring devices (acc. Chapter 4.2.4 of ISO 9001:2008). Each record should include: • Tracking Number. This tracking number is also on the equipment. • Equipment Description, type, Manufacturer and Model Location - Calibration requirements • Calibration interval with justification for the interval • Calibration Procedure • Calibration History • Calibration Due Regarding test gas bottles: • Expiry date • Forecast, that expiry date will not be exceeded on next calibration date				
E.3	*DVM § 101c)* Are the evidence and records used for the monitoring	*Description:* All monitoring data are collected from plant via PCS and data server on two second basis. A data extract of hourly mean values is reported to the assessment (at	/XLS/			OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	maintained in a traceable manner?	N.serve), *Means of determination:* Excel-datasheet for ER-calculation, 10-seconds data collections provided by the plant operator during on-site visit (spot-check of single days) *Conclusion:* The verifier can confirm, that all data are traceable from measurement-device to ER-calculation				
E.4	*DVM § 101d)* Is the data collection and management system for the project in accordance with the monitoring plan?	*Description:* The PP could provide a tag-number-sheet to identify all process data relevant to the project activity and prove the proper processing and storage in the PCS. Relevant data were extracted by an Exaquantum data server and stored in a project database. Hourly mean values were automatically calculated. Operating hours of the plant and AMS where generated and stored from 2 second-values (value 0-1) to give the status information for data assessment. *Means of determination:* Records of the PCS, the Exaquantum-data server, compared with methodology and monitoring plan of PDD. *Conclusion:* CL C3: Some of the monitored 10-seconds-data, stored in the EXAQUANTUM system are missing. The PP should provide a reason for this based on supplier info.	/TAG/ /PDD/ /MR/ /XLS/	~~CL C3~~	Pls see Chapter 4	OK

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
F	***Verification regarding programmes of activities (additional elements for assessment)***					
F.1	*DVM § 102* Is any JPA that has not been added to the JI PoA not verified?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
F.2	*DVM § 103* Is the verification based on the monitoring reports of all JPAs to be verified?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
F.3	*DVM § 103* Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
F.4	*DVM § 104* Does the monitoring period not overlap with previous monitoring periods?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
F.5	*DVM § 105* *If the AIE learns of an erroneously included JPA,* has the AIE informed the JISC of its findings in writing?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
	Applicable to sample-based approach only					
F.6	*DVM § 106* *Does the sampling plan prepared by the AIE:* *(a) Describe its sample selection, taking into account that:* *(i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as:*	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	– *The types of JPAs;* – *The complexity of the applicable technologies and/or measures used;* – *The geographical location of each JPA;* – *The amounts of expected emission reductions of the JPAs being verified;* – *The number of JPAs for which emission reductions are being verified;* – *The length of monitoring periods of the JPAs being verified; and* – *The samples selected for prior verifications, if any?* *(ii) If, in its sample selection, the AIE does not identify and take into account such differences among JPAs, then (does the*					

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	sampling plan) provide a reasonable explanation and justification for not doing so? *(b) Provide a list of JPAs selected for site inspections, based on a statistically sound selection of sites for inspection in accordance with the criteria listed in (a) (i) above?*					
F.7	*DVM § 107* *Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?*	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
F.8	*DVM § 108* *Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site*	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				

No.	DVM[3] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?					
F.9	*DVM § 109* *Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)*	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
	Applicable to both sample based and non-sample based approaches					
F.10	*DVM § 110* If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				

ANNEX 2: STATEMENTS OF COMPETENCE OF TEAM MEMBERS

TÜVNORD

CERTIFICATE OF APPOINTMENT

Ms. Alexandra Nebel

born on 1980-07-25

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Assessor

The present appointment will terminate on 2012-11-19
Certification registration No. 09 11 08 - 95

Essen, 2009-11-20

TÜVNORD

CERTIFICATE OF APPOINTMENT

Mr. Ulrich Walter

born on 1954-10-12

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Expert

The present appointment will terminate on 2013-05-24
Certification registration No. 10 05 08 – 149

Essen, 2010-05-25

TÜVNORD

CERTIFICATE OF APPOINTMENT

Mr. Dipl-Ing. Rainer Winter

born on 1963-02-21

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby re-appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2013-07-03
Certification registration No. 04 02 154-03
Initial appointment Assessor: 2004-03-01
Senior Assessor: 2007-07-07

Essen, 2010-07-04