JI VERIFICATION REPORT

- 1ST PERIODIC –

YARA PARDIES NITRIC ACID PLANT

YARA PARDIES N_2O ABATEMENT PROJECT

ITL PROJECT ID : FR1000186

Monitoring Period: 2010-08-12 TO 2010-12-31
(incl. both days)

Report No: 8000392251-11/020

Date: 2012-09-12

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Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8000392251-11/020	1	2012-03-02	2012-09-12
Project:	***Title:***		***Registration date:***	***UNFCCC-No.:***
	"Yara Pardies N_2O Abatement Project"		2010-08-12	FR1000186
Project Participant(s):	***Host party:***		***Other involved parties:***	
	France		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.***
	2010-08-12 to 2010-12-31 - both days included		142	1
Monitoring report:	***Title:***		***Draft version:***	***Final version:***
	"Yara Pardies N_2O Abatement Project"		Version01 2011-01-20	Version 5 2012-08-01
Verification team / Technical Review and Final Approval	***Verification Team:***		***Technical review:***	***Final approval:***
	Rainer Winter Dirk Speyer	Stefan Winter Sabine Meyer	Emilio Martin Ulrich Walter	Eric Krupp
Emission reductions: [t CO_{2e}]	***Verified amount***		***As per Draft MR:***	***As per PDD:***
	25,834		28,686	24,876 (63,943 per year)

Summary of Verification Opinion:

Yara Pardies Nitric Acid Plant has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "Yara Pardies 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 2010-08-12 to 2010-12-31 (including both days).

The revision (1) of this Verification Report was necessary as the original emission reductions are calculated incorrect; during the on-site visit for the second verification it has been identified that the processing of the monitoring data during first monitoring period was erroneous. The N_2O concentrations in the stack gas measured in ppm were not converted in mg/Nm^3 as indicated in the raw data sheet neither in the DCS or Excel program. Therefore the project emissions were about 1.96 times higher than reported .

In the course of the verification 13 Corrective Action Requests (CAR) and 0 Clarification Requests (CL) were raised and successfully closed. Furthermore 0 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: **25,834** t CO_{2e} Including a deduction of 10% according to the Arrêté du 2 mars 2007.	
Document information:	*Filename:*	*No. of pages:*
	2012_09_12 FVR YaraPARDIES_1VER_(REV1)_fin.docx	88

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**

Table of Contents *Page*

1. INTRODUCTION

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

"YARA PARDIES 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 FR1000186[1].

GHG data for the monitoring period covering 2010-08-12 to 2010-12-31 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 reports /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/TZLM2JQ5F6I5W6QA5KCX7QQH8ZYX66/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 Pardies 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.:	FR1000186		
Crediting period	☐ Renewable Crediting Period (7 y) ☒ Fixed Crediting Period (2.39y)*)		

*) Until the end of the 1st Kyoto Commitment period on 31/12/2012, in accordance with the host country LoA.

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	2010-08-12a)	-
2	Start of crediting period	2010-08-12	-
3	1st Monitoring period	2010-08-12 to 2010-12-31	open

a) Date of registration is the date of issuing of the LoA by the French DFP (MEEDDM); a revised version was issued on 14/01/2011

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 (Nanterre) YARA International ASA, Oslo (Norway) N.serve Environmental Services GmbH (Germany)
Other Involved Party	Belgium	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:	Region: South West; Department: Pyrénées-Atlantiques; Commune: Pardies;
Project location:	Plant absorption towers and tail gas stacks: 43°22'20.90"N & 0°35'10.08"W; Ammonia burners: 43°22'21.32"N & 0°35'10.20"W;

2.5. Technical Project Description

The project activity aims to reduce levels of N_2O emissions from the production of nitric acid with a secondary N_2O abatement technology: the project involves the installation of a secondary N_2O reduction catalyst at the nitric acid production plant. The emission reductions are a result of the catalytic decomposition of nitrous oxide. Nitrous oxide which is formed as by-product of the nitric acid production will be removed by the catalyst installed below the standard precious metal gauze pack in the ammonia burner. The nitrous oxide would otherwise be emitted as part of the tail gas of the nitric acid plant to the atmosphere.

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

Table 2-5: Technical data of the plant

Parameter	Unit	Value
2 Ammonia Oxidation Reactors		
Plant type		3.6 medium pressure plant
Start of commercial production	-	November 1960
Numbers adsorption towers		11
Products		53% and 63% concentrated nitric acid, high Concentrated Nitric Acid (CAN) and Nitrogen Peroxide
Operating conditions as per specifications (trip point values)		
- Temperature (min/max):	℃	750 - 890
- Pressure (max):	Bar abs	No trip point
- Ammonia to Air ratio (max)	Vol.-%	8 to 12
Ammonia Oxidation Catalyst		
Manufacturer	-	K.A. Rassmussen AS
Type	-	n.a.
Composition:	-	Pt-Rh-Pd
Design campaign legth	days	300
Absorber		
Design capacity per day (100 %)	$tHNO_3/d$	430
Design capacity per day (legal)	$tHNO_3/d$	460 incl. 30t N_2O_4
Annual production (design)	days/year	340
Annual production	$tHNO_3$	160,140
Secondary Catalyst		
Start of operation	-	August 2009
Manufacturer	-	YARA
Type	-	58-Y1
Composition:	-	cobalt (ii, iii) oxide dialuminium cobalt tetraoxide Cu, Fe, Mn, Ni, Ce
Design efficiency N_2O reduction (guaranteed by supplier)	%	About 88-95 %
2 X N_2O Analyzers (2 stacks)		
Manufacturer	-	Dr. Födisch Umweltmesstechnik GmbH
Type	-	MCA 04
Measurement Principle	-	IR absorption
2 X 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	2011-01-05
On-site-visit	From 2011-02-02 till 2011-02-03
Draft reporting finalised	2011-07-14
Final reporting finalised	2012-03-02
Technical review finalised	2012-03-02
Revision 1 finalised taking the corrections into account regarding erroneous processing of the monitoring data.	2012-09-12

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 3 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.	Winter, Rainer	TÜV Nord Cert GmbH	TL,	SA	☒	5.1 Q	☐	☒
☒ Mr. ☐ Ms.	Winter, Stefan	TÜV Nord Cert GmbH	TM	SA	☒	-	☐	☒
☐ Mr. ☒ Ms.	Meyer, Sabine	TÜV NORD Cert GmbH	TM	LA	☒	-	☒	☒
☒ Mr. ☐ Ms.	Speyer, Dirk	TÜV NORD Cert GmbH	TM	A	☒	5.1	☐	☐
☒ Mr. ☐ Ms.	Emilio Martin	TÜV Nord Cert GmbH	TR[3]	LA	☒	-	☐	☒

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence	Technical competence [4]	Host country Competence	Team Leading competence
☒ Mr. ☐ Ms.	Walter, Ulrich	TÜV Nord Cert GmbH	TR[3]	LA	☒	5.1 Q	☐	☒
☒ Mr. ☐ Ms.	Eric Krupp	TÜV Nord Cert GmbH	FA[3]	SA	☒	-	☐	☒

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

[2] GHG Auditor Status: LA: Lead Assessor; A: Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert, OT: Observer

[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 2011-03-11 to 2011-04-10. Comments received are taken into account in the course of the verification, if applicable. No comments were received.

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 risks.* *The following measures are implemented:*	*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 every verification.*	*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* - *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.*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

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.

[2] JISC 19 Annex 4

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:

- 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 following verification team members attended the site visit: S. Winter and D. Speyer.

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 Pardies 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 Pardies Nitric Acid Plant	- General aspects of the project - Technical equipment and operation - Changes since validation - 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
2. Consultant, N.serve	- 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	3	0	0
B – Project Implementation	2	0	0
C – Monitoring Plan Compliance	6	0	0
D – Monitoring Plan Revision	0	0	0
E – Data Management	2	0	0
SUM	**13**	**0**	**0**

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)*	Clarification is requested why Norway and Germany are considered as involved parties.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Norway and Germany have been removed from the list of 'involved parties' in the table of section 2.1.*		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	OK. Both parties Norway and Germany have been removed. Therefore CAR A1 has been closed out.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**A2**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The investor party (Belgium) LoA is still pending.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*A footnote has been added on page 5 of the monitoring report explaining that an investor LoA has been applied for, but is still pending. A copy of the LoA will be made available to Tüv Nord as soon as possible*.		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	Ok. The LoA, dated 04 April 2011, (DPF Ref: NKC/FP/4) was issued by the Belgian National Climate Commission which is the Belgian Designated Focal Point as mentioned on the JI-SC website.. The LoA stipulates in the text: Belgium has ratified Kyoto Protocol on 31st May 2002; Belgium meets the requirements and fulfil the participation requirements throughout the Kyoto commitment period; Belgium approves this project and authorises Yara France S.A.S to participate in this proceject. The project participant Yara France S.A.S and the project title are clearly named on LoA. Therefore CAR A2 has been closed out.		

Finding:	A2
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	A3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	As per the French Letter of Approval (host county LoA) the crediting period of the project is limited to the 1st Kyoto commitment period. The exact crediting period shall be indicated in the MR.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The exact crediting period of the project has now been indicated in section 1 as 2.39 years, in accordance with the host country LoA.*		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	OK. In the revised Monitoring Report the exact crediting period (2.39 years) is now included Therefore CAR A3 has been closed out.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	B4		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	A further detailed description of the project history (e.g. campaign data), production issues and key events regarding plant operation, downtimes and AMS status should be included in the Monitoring Report or as supporting document.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*An additional table has been added in Annex 2, which contains information relating to plant operation during the first verification period.*		

Finding:	B4
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	OK. The provided table on key events at the plant and AMS status has been included in annex 2 "Details on Events relevant for the Monitoring" of the revised Monitoring Report: Plant shut down for maintenance Line 2 shut down Line 2 shut down for maintenance Line 1 shut down for maintenance Line 2 shut down Therefore CAR B4 has been closed out.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first 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 simplified process flow chart of the plant in the MR (p. 7) is incomplete: the output of N_2O_4 is not considered.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The output of N_2O_4 has now been included in the simplified process flow chart on page 7 of the MR. It is located just above the storage of 100% HNO_3 on the diagram.*		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	Not OK. The simplified process flow chart includes an output of N_2O_4 but the N_2O_4 output has been depicted at the same point where the high concentrated HNO_3 flow comes out from the bottom of the absorber column. Further clarification is requested on the step in the process N_2O_4 is produced and the output measured. CAR B5 is still open.		
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details*	*The simplified process flow chart on page 7 has now been changed to show an additional distillation column, from which the N_2O_4 comes out the top and the 100% HNO_3 comes out the bottom.* *In addition, a few words have been added to section 4 on page 6 to explain this layout.*		

Finding:	B5
IAE Assessment #2 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	The revised process flow chart depicted now the point of N_2O_4 output flow on the head of the column D2330. This distillation column separates the N_2O_4 from the *100%* concentrated nitric acid. CAR B5 has been closed out.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first 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 simple plant diagram should include the position of all Monitoring Equipments included in the Monitoring Report.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The simple plant diagram on page 7 now shows the location of the relevant monitoring equipment for the project.*		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	OK. The simple diagram depicting the main parts of the project and the monitoring equipments has been included in the revised Monitoring Report. The verification team confirms that this diagram reflects the real situation observed during the on-site visit. CAR C6 has been closed out.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**C7**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During onsite visit it has been identified that the Flexim mass flow meters as indicated in PDD have not been installed. Therefore 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 written in early 2010 when the plant had fully intended to install nitric acid flow meters before the start of the crediting period. Unfortunately, the installation of these meters was delayed beyond expectations and they are now only expected to be operational in Q2 of 2011. It is now stated in section 5.3.4 of the MR that three flow meters are expected to be installed in Q2, 2011.* *In addition, the section 5.3.4 has been elaborated to provide more details of the way in which the NAP was calculated for the first verification period.*		

Finding:	C7
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	Please revise section 5.3.4, in order to further clear elaborate how the total amount of NAP is determined taking all four flows, with their respective measurement methods and related quality assurances. 1) Is the determination of NAP based on the calculation of NH_3 flow (NH_3 consumption and conversion efficiency) and crosschecked with calculated production figures as described in answer of CAR C11 but contrary to description in the MR? 2) Production of 53% HNO_3: It should be described how the Technical Ammonium Nitrate products are determined, as it does directly intervene in the calculation of NAP. It is first described that the measurements from the HNO_3 storage tank levels are compared with Coriolis flow meters, however this is not the case with the 53% concentrated nitric acid flow, where only stoichiometric analysis are used for the cross-check. Information about total storage tank volume and uncertainty of the measurement is missing. 3) Production of 53% and CNA HNO_3: The concentration of the nitric acid should be checked regularly through samples taken from every truck. However please describe the concentration measurement method and area of responsibility. Information about total storage tank volume together with the accuracy of tank level measurement are missing. 4) N_2O_4: Please describe the physical state and terms during storage. Also the total storage tank volume should be given together with the accuracy of tank level measurement. CAR C7 is still open.

Finding:	C7
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*1) The project proponents do not understand this first point. The answer to CAR C11 already does explain that the calculation of NAP based on the NH3 consumption is no longer being used and all the NAP data from the 1st Verification Period has been re-calculated based on the mass balance calculation (as described in section 5.3.4 of version 2 of the MR). As explained in the MR (V2), the NH_3 consumption and conversion efficiency serve only as a cross-check. CAR C11 therefore does not contradict the description in the MR.* *2) Production of 53% HNO_3:* - *Information has been added to point 1) of section 5.3.4 explaining how the weight of the produced Ammonium Nitrate is determined.* - *Information has been added to point 1) of section 5.3.4 explaining how the weight of HNO_3 used in the production of ammonium nitrate is calculated.* - *An additional bullet point has been added in the last paragraph of section 5.3.4 to explain the situation with regard to cross-checking of the acid at 53% concentration.* *3) Section 5.3.4 states that samples are taken from every truck for laboratory analysis of the concentration. For more details of the procedure for laboratory analysis, please see the document* 'PRD-10301-lab procedure for sample analysis from trucks' *that has been provided to the auditing team.* *A paragraph has been added to section 5.3.4 to show how the accuracy of the storage tank levels is taken into account. The following additional documentation has been sent to the auditing team that shows the specifications of the storage level transmitters and the relevant calibration and maintenance procedures:* - 'spec transmitter 53% HNO3 storage level' - 'spec transmitter 63% HNO3 storage level' - 'spec transmitter CNA storage level' - 'Cal sheet N2O4 storage' - 'PRD-10237 cal and maint procedure tank level transmitters' *4) A sentence has been added to point 4) of section 5.3.4 to describe the physical state of the N_2O_4 during storage.*

<table>
<tr><th>Finding:</th><th>C7</th></tr>
<tr><td>IAE Assessment #2</td><td>The verification team misinterpreted initially the answer to CAR C11 caused by the used wording of “mass balance calculation”. The PP used “mass balance calculation” in this context for the complete NAP determination process based on production figures and not for the calculation of the NAP estimation based on the stoichometric conversion of Ammonia flow.
The verifier accepts the exacter way of NAP determination since production figures and results of NAP calculation based on daily Ammonia conversion (mass balance) are higher:
<table>
<tr><th></th><th>total AFR/Nm^3 NH_3</th><th>Theoretical amount of NAP 100% based on NH_3 consumption and a conservative conversion efficiency of 95%</th><th>measured amount of NAP 100% used for ER</th></tr>
<tr><td>Line 1</td><td>9678993,5</td><td>25 849 t</td><td></td></tr>
<tr><td>Line2</td><td>8053344,5</td><td>22 639 t</td><td></td></tr>
<tr><td>Sum</td><td>17732338</td><td>48 488 t</td><td>45 463 t</td></tr>
</table>

The verification team has carefully checked the monitoring methods and production records for the four separate product lines and concludes that the monitored amount of NAP was calculated and determined in line with relevant requirements and on a sufficient and exact way.
The provided information on NAP determination has been included in section 5.3.4 of revised MR. The verification team confirms also that this information reflects the real situation observed during the on-site visit.
CAR C7 has been closed out</td></tr>
<tr><td>Conclusion
Tick the appropriate checkbox</td><td>☐ To be checked during the first periodic verification
☒ Appropriate action was taken
☒ Project documentation was corrected correspondingly
☐ Additional action should be taken
☒ The project complies with the requirements</td></tr>
</table>

Finding:	**C8**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Clarification is requested why the Trip-Point value based on lowest temp and low NH_3-air ratio is not indicated in MR and used for plausibility check (chapter 5.3.3. of MR) (Excel-file of the monitoring data). Besides during onsite visit it has been identified that the trip value for NH_3-air ratio is inconsistent to the value indicated in the MR.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The upper and lower ranges for both AOR temperature and NH_3-air ratio have now been indicated in section 5.3.3. In addition, the max AIFR figure has now been adjusted to 12%, in accordance with information seen during the on-site visit.* *These trip point values have also been taken into account in the analysis of the monitored data for determining the operating hours of the plant during the verification period, although this does not have any actual affect on the final ERU calculation.*		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	OK. The trip point values are now correctly included in the MR and implemented in the Excel-file of the monitoring data. Therefore CAR C8 has been closed out.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**C9**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During onsite visit it has been identified that the production of N_2O_4 and its output, calculated as HNO_3 100% equivalent, is not described in the MR (also not in the PDD). Four separate product lines are produced by Pardies nitric acid plant.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*N_2O_4 has now been added to the list of products that are produced by the Pardies nitric acid plant in section 5.3.4.* *The calculation of the total NAP value, including the N_2O_4, has now been described in more detail in this section.*		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	Not OK. Further justification on the equivalency between N_2O_4 and HNO_3 and how the equivalent to HNO_3 determined has to be given. Please note that N_2O_4 was not reported in the PDD and therefore sufficient information has to be reported in order to understand how the NAP is calculated. CAR C9 is still open		
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*A calculation has now been added to point 4) in section 5.3.4, explaining how the weight of HNO_3 can be calculated from the weight of N_2O_4.* *The design production capacity of the Pardies nitric acid plant was given in the PDD and MR as 430 tonnes 100% nitric acid per day, since that was the design capacity officially stated in section 1.2, Article 1, Annexe 2 of the plant-specific Arrêté Préféctoral No99/IC009 dated 25th Jan 1999. However, this did not take into account the 30 tonnes per day of nitrogen peroxide, also specified in the same section of the same document. In accordance with the calculation in point 4) of section 5.3.4 of the MR, 30 tonnes of N_2O_4 are equivalent to 41 tonnes of nitric acid. The design capacity of the plant has therefore now been updated in section 2 of the MR to take into account the tonnes of N_2O_4 produced.*		

IAE Assessment #2 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	OK. Nitrogen Peroxide is produced by down cooling of Nitrogen Dioxide (NO_2 forms an equilibrium mixture with N_2O_4): $2\ NO_2 \rightleftharpoons N_2O_4$ The nitric acid plant at Pardies produces four separate products: - 53% concentrated nitric acid, which is used as a raw material for the production of technical Ammonium Nitrate on-site at Pardies. - 63% concentrated nitric acid, which is exported to customers. - High Concentrated Nitric Acid (CAN), which is exported to customers - Nitrogen Peroxide or Dinitrogen Tetroxide (N_2O_4), which is used in the plant for CAN production and exported to customers. Nitric acid (53%) and (63%) are manufactured by solving of nitrogen dioxide (NO_2) in water in absorption columns: $3\ NO_2 + H_2O \rightarrow 2\ HNO_3 + NO$ $2\ NO_2 + H_2O \rightarrow HNO_3 + HNO_2$ $3\ HNO_2 \rightarrow HNO_3 + NO + H_2O$. (The nitric oxide (NO) produced by the reaction is re-oxidized by oxygen in secondary air to produce additional nitrogen dioxide (NO_2).) High Concentrated Nitric Acid (CAN) is produced by mixing of low concentrated nitric acid with Nitrogen Peroxide (N_2O_4). This species reacts with water to give nitric acid and nitrous acid which is re-oxidized by oxygen to nitric acid: $N_2O_4 + H_2O + 0{,}5O_2 \rightarrow 2\ HNO_3$. Therefore the verification confirms that one ton Nitrogen Peroxide is equivalent to 1.369 ton of 100% conc. Nitric acid As per plant permit from 1999 (Prefecture des Pyrenees-Atlantiques) the production capacity of the whole nitric acid unit is stated as 430t HNO_3/day plus 30t/day of Nitrogen Peroxide. Therefore the verification team confirms that the production of Nitrogen Peroxide is part of the nitric acid process in the plant as well a resulting annual production capacity of 160,140t HNO3 equivalent (based on 340 operation days). Supporting information concerning the list of products that are produced by the Pardies nitric acid plant, production capacity and the calculation of the total NAP value have now been implemented in the MR. CAR C9 has been closed out.

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

Finding:	**C10**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Following issues w.r.t. emission reduction calculation have been identified and subsequent clarification is requested: 1. For several hours in the emission reduction calculation spreadsheet hours a trip occurred but these specific hour has been included for ER calculation. 2. The extra hour at 2010-10-31 (summer - winter time change) should be taken into account for emission calculation (Excel-file of the monitoring data).		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*1. For the hours during which the plant is starting up or shutting down and for hours during which the plant tripped (i.e. where the plant is in operation for only part of one hour), it is more conservative to include these datasets in the calculation of ERs. This is because the project emissions during these hours are therefore taken into consideration. Since the NAP calculation is based on daily, not hourly values, if the project emissions related to these hours of start-up/shutdown/trip were to be excluded, but the NAP remains the same, then the project emissions factor for the period would be lower, thus resulting in more ERUs.* *2. The extra hour due to the time adjustment from summer to winter time has now been taken into account in the emission calculations.*		

Finding:	C10
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	1. OK. The verification team confirms that, it is more conservative to include these datasets and accepts the inclusion of these values in the ER calculation. 2. Not OK. The extra hour has not been correct considered in the Excel calculation sheet (Pardies Monitoring Data 1st Ver Aug - Dec 2010_V5_ 20110214_MS). Data sets for the 31st Oct at 02:00 are considered three times, while it should be only twice, and data sets at 23:00 are missing. Processed data of this monitoring period considers only till 31st Dec at 22:00. Units for N_2O concentration in the excel sheet should be consistently indicated. (Does the AMS convert directly into Nm^3? If so, please correct the units in the tab where the original data sets from the plant are reported.) CAR C10 is still open.
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The calculation sheets were checked and updated accordingly. Now the data for the 31st October as well as 31st December are considered correctly. As a result, some small changes have been made to the figures in sections 7.1 and 7.2, as well as in Annex 1.* *The units for N_2O were updated in the raw data sheets to mg/Nm³. The stack gas flow is monitored and reported in operational conditions. The conversion with TSG and PSG to standard conditions (Nm³/h) is done in column G of the calculation sheet.*
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	The project documentation was corrected correspondingly; the extra hour has now been taken into account in the emission calculations. Thus, the total amount of ERUs slightly increased in respect to the value reported in the version 1 of the Monitoring Report. All units for N_2O concentration were correctly reported in the excel sheet and the conversion of the stack gas flow from operational to standard conditions is now traceable. CAR C10 has been closed out.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	C11		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During onsite visit inconsistencies have been identified in the daily total NAP value between the ER excel spreadsheet and data provided by the project owner.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The NAP values were provided to N.serve by the plant operator as individual values for line 1 and line 2 (based on the calculation of NH_3 flow), and rounded to the nearest tonne. However, the values seen on-site were the total NAP values for the whole plant, derived from the mass balance calculation, and rounded to 2 decimal places.* *The total NAP values of the plant are more accurate and the plant has now provided values as total daily figures.* *The monitoring data for the first verification period has been re-calculated using the total daily NAP values for both lines.*		
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	OK. The daily NAP values (rounded down to the nearest tonne) were replaced the ER excel spreadsheet by the more accurate production figures of the total NAP values with two decimal places. The figures take all four separate products into account (53% concentrated nitric acid, 63% concentrated nitric acid, High Concentrated Nitric Acid, and Nitrogen Peroxide N_2O_4) As a consequence the amount of nitric acid increased from 45,394 to 45,462 tonnes. The replacement of NAP figures as well the used determination and mass balance calculation (as described in section 5.3.4 of the revised MR) found to be correct. CAR C11 has been closed out.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	E12		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Clarification is requested why the two flue gases from line 1 and line 2 which come from the same source have a different N_2O concentration about 30%.		

Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*A greater quantity of gas is produced by line 1 in comparison to line 2. Since the De-NOx reactor has to treat a larger quantity of gas, it therefore follows that more N_2O would come out of the reactor of line 1.* *In any case, the project proponent does not consider this to be a particular problem, since these measurement results are given by QAL2-tested instruments subject to strict QAL3 quality procedures.*
IAE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and IAE assessments (#2, #3, etc.) shall be added.*	The verification team confirms that a part of N_2O is generated in the De-NOx reactor from NOx during the dustruction. Depending on the process parameter of the nitric acid plant (concentration of NOx in the stack gas flow as a function of the produced concentration and amount of HNO_3) and De-NOx reactor conditions different N_2O concentration can be expected. Nevertheless the verification team confirms that the analyser used for this measurement is properly calibrated and measurement results are reliable. CAR E12 has been closed out.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	**E13**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During the on-site visit for the second verification it has been identified that the processing of the monitoring data during first monitoring period is incorrect. The N_2O concentrations in the stack gas are measured by the both Födisch analysers in ppm. But the values are not (correct) converted in mg/Nm^3 as indicated in the raw data sheet neither in the DCS or Excel program. Therefore the project emissions are about 1.96 times higher than reported and the calculated amount of emission reductions (ERUs) is about 10 % less. A correction of the emission reduction calculation and a revision of the monitoring report are requested. Furthermore the PP is requested to clarify the application of a moisture content correction for NCSG.		

Finding:	**E13**
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The NCSG values for both lines have been corrected from ppm to mg/m3 using a conversion factor of 1.964 mg/Nm³ / ppm. All the calculations in the monitoring report (version 05) and ERU calculation sheet (ver 07) have been revised accordingly.* *Additionally, the NCSG values for line 2 have been corrected from wet to dry conditions.*
DOE Assessment #1 *The assessment shall encompass all open issues. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The verifier checked revised calculations (in the excel sheet ver 07) in detail and concludes that the conversion from ppm in mg/Nm^3 of N_2O concentrations is now carried out correct. The verification team concludes also that no other conversion procedure is implemented in DSC or AMS. Furthermore NCSG values for line 2 have been corrected by PP from wet to dry conditions. Moisture content is now taken into account for both lines. As a consequence the emission factor changed to EF_n = 0.4632kgN_2O/ tHNO_3 (before 0.2350kgN_2O/ tHNO_3). Based on the corrections the achieved CO_2e emission reductions (ERUs) including a deduction of 10%are 25,834 tCO_2e (before 28,729 tCO_2e). Furthermore the PP revised the MR version 05, dated 2012-08-01 accordingly.
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 the requirements

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CLs 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 these purposes following FARs have been raised:

(Determination) Forward Action Request (FAR) No.1:

There is a need to confirm the N2O limit of the DRIRE given in an e-mail by an officially updated operation permit.

The outstanding "final Arrêté Préfectorale" /AR/ from local DREAL (Prefet des Pyrenees Atlatiques, Directions Régionales de l'Environnement, de l'Aménagement et du Logement) dated 24th August 2010 was sent to the verification team. The decree limits the plant-specific N_2O emissions at the Pardies plant to 2.5kg $N_2O/tHNO_3$ until 30/06/2012 and 1.85kg thereafter. As an average over the 1st Verification Period from 12/08/2010 to 31/12/2010, this regulatory value is equal to 872 mg N_2O/Nm^3.

(Determination) Forward Action Request (FAR) No. 2:

Roles & responsibilities for the project operation, management and maintenance still have to be officially defined and communicated.

The plant defined a more detailed management and responsibilities chart/MSR/ for the JI project operation. The management and responsibility charts (general and local responsibilities) have been checked by the verifier and the situation observed during the on-site visit is consistent with the charts and descriptions.

(Determination) Forward Action Request (FAR) No. 3:

QAL 1 certificates are expected before the end of the year by Dr. Födisch. The QAL 2 certification is expected for October by an accredited institute. Evidence for the N_2O analyzer and the flow meter have to be provided to the AIE for the initial verification.

The Dr. Födisch MCA 04 Gas Analyzer and FMD 99 stack gas flow meter, both have QAL1 approval as specified by EN ISO 14956.

QAL2 tests according to EN 14181, is to be performed at least every 3 years. The most recent QAL2 test was conducted by Müller-BBM on 15/02/2010 (Report Nos. M82 450/19 and M82 450/22), with successful approval of the AMS. In addition to the QAL2 test, Annual Surveillance Tests (AST) are to be conducted in accordance with EN 14181. The most recent AST was performed in February 2010.

Therefore the verification team concludes that issues raised by the Determination FARs are successfully implemented in the project; **FARs NO. 1, 2, and 3 are closed**.

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

5.3. Special events

No major events, apart of the reported plant shut downs for regular maintenance and due to trips with effect on the monitoring of the project have been observed during the monitoring period:

- Plant shut down for maintenance (before monitoring campaign)
- Re-start of plant. New production campaign.
- Line 2 shut down
- Line 2 shut down for maintenance
- Line 1 shut down for maintenance
- Line 2 shut down
- Shutdown for annual maintenance and primary catalyst gauze change.
- Line 1: For 354 out of the 3,409 hourly average data sets, the analyzer status signals indicated that the analyzer was considered out of operation (downtime) for more than 50% of the hour. The substitute value for this verification period was 106.5 mg/m³.
- Line 2: For 152 out of the 3,408 hourly average data sets, the analyzer status signals indicated that the analyzer was considered out of operation (downtime) for more than 50% of the hour.

5.4. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance with 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.

N_2O concentration (NCSG) and volume flow of the stack gas (VSG) were monitored continuously as per PDD.

The nitric acid plant at Pardies produces four separate products: 53% and 63% concentrated nitric acid, Nitrogen Peroxide (N_2O_4) and high concentrated nitric acid CNA (near 100%). As per PDD the NAP (total metric tones of 100% concentrated nitric acid) should be measured and determined from three sources:
(a) Flexim Mass flow meters for each concentration stream; (b) stoichiometric mass balance calculation; and (c) nitric acid storage levels.
During onsite visit it has been identified that the Flexim mass flow meters as indicated in PDD have not been installed and during the first verification period the nitric acid produced was only calculated on a sufficient and exact way on a daily basis of production figures, according to the following procedure:
-Production of 53% HNO_3: variation in nitric acid storage levels in tank (automatic system), plus the quantity of Ammonium Nitrate produced from HNO_3.
-Production of 63% HNO3: variation in nitric acid storage levels in tank, plus weight of product exported by truck, according to weighbridge measurements.
-Production of concentrated nitric acid CNA: variation in nitric acid storage levels in tank, plus weight of product exported by truck or train, according to weighbridge measurements.
-Production of HNO_3 equivalent from N_2O_4: variation in N_2O_4 storage levels in tank.

The verification team has carefully checked the monitoring methods and production records and confirms that the monitored amount of NAP was calculated and determined in line with relevant requirements and on a sufficient and exact way.

During the on-site visit for the second verification the verifier has identified that the processing of the monitoring data during first monitoring period was erroneous. A revision of the Verification Report was necessary as the original emission reductions are calculated incorrect. The N_2O concentrations in the stack gas measured in ppm. were not converted in mg/Nm^3 as indicated in the raw data sheet neither in the DCS or Excel program. Therefore the project emissions were about 1.96 times higher than

reported and the calculated amount of emission reductions (ERUs) is about 10 % less.
After appropriate corrections to raised CARs and CLs were carried out by the project participant it can be confirmed that all relevant monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

Parameter:	Applied value:	Unit:
$NCSG_n$ (line 1)	183.25	mg N_2O/Nm^3
VSG_n (line 1)	22,904.54	Nm^3/h
PE_n (line 1)	13,174.83	kgN_2O
OH_n (line 1)	3,139	h
$NCSG_n$ (line 2)	134.93	mg N_2O/Nm^3
VSG_n (line 2)	20,229.88	Nm^3/h
PE_n (line 2)	7,883.21	kgN_2O
OHn (line 2)	2,888	h
PE_n total	21,058.04	kgN_2O
NAP_n for both lines	45,462.54	$tHNO_3$
EF_n	0.4632	$kgN_2O/tHNO_3$
EF_{BM}	2.5	$kgN_2O/tHNO_3$

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 Excel ER calculation sheet were identified. Revised ER calculations were prepared by the PP and presented to the verification

team. All raised issues were finally addressed appropriately so that the corresponding CARs could be closed out.

Thus it is confirmed that the ER calculation is overall correct.

The calculation of the emission reduction is based on raw data (daily averages in the case of NAP else hourly averages) received from the data processing unit.

A statistical evaluation of raw data (hourly averages) was applied for calculating campaign specific emissions for line 1 and 2:

- For all N_2O data sets a plausibility check was conducted. All data sets containing values that are implausible was eliminated.
- Calculation of the sample mean;
- Calculation of the sample standard deviation;
- Calculation of the 95% confidence interval (equal to 1.96 times the standard deviation);
- Elimination of data that lie outside the 95% confidence interval;
- Calculation of the new sample mean from the remaining values.

Line 1: For AMS down-time intervals (354 out of the 3,409h) a value of 183.25 mg N_2O /m³ was taken.

Line 2: For AMS down-time intervals (152 out of the 3,409h) a value of 134.93 mg N_2O /m³ was taken.

The verification team confirm the correctness of this substitution values.

During this monitoring period the N_2O emission factor did not exceed the benchmark emissions factor of 2.5 kg $N_2O/tHNO_3$.

The total amount of N_2O as project emission is calculated as:

PE_n *(line 1)* $= VSG_n * NCSG_n * OH_n * 10^{-6}$ (kgN_2O)

+

PE_n *(line 2)* $= VSG_n * NCSG_n * OH_n * 10^{-6}$ (kgN_2O)

PE_n total = 21,058.04 kgN_2O

Relating to metric tonnes of 100% concentrated nitric acid:

$EF_n = (PE_{n\ total} / NAP_n)$ ***$=0.4632\ kgN_2O/tHNO_3$.***

PE_n	Total N_2O emissions during the specific Verification Period
EF_n	Emissions factor used to calculate the emissions from the defined Verification Period n
$NCSG_n$	Mean concentration of N_2O in the tail gas stream during the verification period

VSG_n	Mean tail gas volume flow rate during the verification period
NAP_n	Nitric acid production during the Verification Period
OH_n	Operating hours of the plant during the Verification Period
GWP_{N2O}	310 tCO_2e/tN_2O .

ERU = $((EF_{reg} - EF_n)/1000 \times NAP \times GWP_{N2O}) * 0.9$ = 25,834 *tCO_2e*.

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 and applied. The procedures defined can be assessed as appropriate for the purpose.

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

No Forward Action Requests have been raised for the next verification.

6. VERIFICATION OPINION

Yara Pardies Nitric Acid Plant has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "*YARA PARDIES 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 2010-08-12 to 2010-12-31(including both days).

In the course of the verification 13 Corrective Action Requests (CAR) and 0 Clarification Requests (CL) were raised and successfully closed. Furthermore 0 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: **25,834** t CO_2e

Including a deduction of 10% according to the Arrêté du 2 mars 2007.

Essen, 2012-09-12	Essen, 2012-09-12
Rainer Winter	Eric Krupp
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
/**ARRETE**/	'Arrêté préféctoral' from local DREAL (Directions Régionales de l'Environnement, de l'Aménagement et du Logement, Prefet des Pyrenees Atlatiques) dated 25.01.1999, regarding max. Emission from Yara Pardies Nitric Acid plant (<2.5 $kgN_2O/tHNO_3$).
/**AR**/	"final Arrêté Préfectorale" from local DREAL (Directions Régionales de l'Environnement, de l'Aménagement et du Logement, Prefet des Pyrenees Atlatiques) dated 24th August 2010, regarding max. Emission from Yara Pardies Nitric Acid plant (<2.5 $kgN_2O/tHNO_3$).
/**AS**/	Aspentech Production Management & Execution and Data Collection & Storage system
/**APP**/	Application for approval of a first track JI project activity.
/**AZR**/	Automatic zero check. Print out of the Aspentech Production Management & Execution (also Data Collection and Storage system)
/**CAL1**/	Calibration of NH_3-Flow Meters: • Calibration Certicate N° MO012432 ,dated 02/12/2008: Calibration of the Debitmetre Vortex, Endress Hauser; Prowirl 70F, SNr: 7209E802000. TAG: FT 2210 A performed by Ceglec. • Calibration Certicate N° MO012421 ,dated 02/12/2008: Calibration of the Debitmetre Vortex Endress Hauser; Prowirl 70F, SNr: 5D623628. TAG: FT 2210 B performed by Ceglec. • Calibration Certicate N° MO012432 ,dated 02/12/2008: Calibration of the Debitmetre Vortex, Endress Hauser; Prowirl 70F , SNr: 603021. TAG: FT 2210 A performed by Ceglec. • Calibration Certicate N° MO012421 ,dated 02/12/2008: Calibration of the Debitmetre Vortex Endress Hauser; Prowirl 70F , SNr:683870. TAG: FT 2210 B performed by Ceglec.
/**CAL2**/	Procedure for in-house recalibration of the NH3-flow meters (TAG: FT 2210 A and TAG: FT 2210 B).
/**CAL 3**/	• Weight bridge control check performed by Societe Levaufre,

Reference	Document
	dated 22/07/2010. • Weight bridge control check performed by Societe Levaufre, dated 23/12/2010.
/**CHECK**/	• DOJO Control jour – overview daily HNO3 production and consumption. • Daily aggregation of all charging levels and changes. • Daily overview production and consumption/sold N2O4. • Daily overview distribution nitric acid 53%. • Daily overview distribution nitric acid 63%. • Daily overview distribution nitric acid ANC. • Daily overview distribution nitric acid Ammonium Nitrate solution.
/**FG**/	Announcement in the German Federal Gazette regarding the suitability of the AMS Dr. Foedisch MCA 04 .
/**FOED-MAIN**/	-Working, maintenance and service report (16.11.2009-19.11.2009) about commissioning of the gas analyser MCA 04 and FMD 99 by Dr. Foedisch Umweltmesstechnik AG. -Assembly, maintenance and calibration protocol, (29.10.2010) about the check of MCA 04 by Dr. Foedisch Umweltmesstechnik AG.
/**FLOWS**/	• Flow-sheet of nitric acid process at Pardies Nitric Acid Plant (I). • Flow-sheet of nitric acid process at Pardies Nitric Acid Plant (II). • Pardies HNO3 plant - simplified process flow chart showing key process equipment relevant for the JI N2O reduction project.
/**LOA**/	LoA France (old version): 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 2010-08-12. LoA France (actual version) : 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 on 2011-01-14.
/**LOA**/	LoA issued by the Belgian Designated Focal Point (DFP), National Climate Commission of Belgium on 2011-04-04, DFP Ref-No.: NKC/FP/4.
/**MR**/	1. Monitoring report of GHGs emission reductions (12.08.2010 –

Reference	Document
/MR/	31.12.2010) "Yara Pardies N_2O Abatement" dated 2011-01-20 Vers. 01, issued by N.serve. 2. Monitoring report of GHGs emission reductions (12.08.2010 – 1.12.2010) "Yara Pardies N_2O Abatement" dated 2011-02-15, Vers. 02, issued by N.serve. 3. Monitoring report of GHGs emission reductions (12.08.2010 – 1.12.2010) "Yara Pardies N_2O Abatement" dated 2011-11-03, Vers. 03, issued by N.serve. 4. Monitoring report of GHGs emission reductions (12.08.2010 – 1.12.2010) "Yara Pardies N_2O Abatement" 2012-03-02, Vers. 04, issued by N.serve. 5. Final Monitoring report of GHGs emission reductions (12.08.2010 – 1.12.2010) "Yara Pardies N_2O Abatement" 2012-08-01, Vers. 05, issued by N.serve.
/MCF/	Basic maintenance description MCA04 and FMD 99.
/MPRA/	Maintenance Protocol Remote Maintenance by Dr. Foedisch Umweltmesstechnik AG.Date: 26.01.2011.
/MSR/	Management and Responsibility Charts (general and local responsibilities).
/PLOT/	• Plot of NAP in verification period. • Plot of N_2O-concentrations in verification period (Source: XLS).
/PP/	Plant Permit from 1999, with the production capacity of the nitric acid unit stated in Annex 2, Article 1, section 1.2.: The production of the whole unit is stated as 460t/day product, of which 30t/day is Nitrogen Peroxide, leaving 430t/day for the three HNO_3 concentrations.
/QA/	Parts of the electronic overall quality assurance programme/electronic control card. Implemented QA system: - SAP plot of the maintenance control card of the - control cards "N2O Analyser Dr. Födisch" MCA 04.
/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. 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.

Reference	Document
	(i.a. with extended calibration periods: 3 months).
/QAL1V/	QAL1 Certificate No: 936/808005/C 2000-04-10 regarding FMD 99 Volumeter, English issued by TÜV Rheinland. QAL1 Certificate No: 936/808005/C 2000-04-10 regarding FMD 99 Volumeter, German.
/QAL2CALIB/	Report on performance tests and calibration of the AMS according to EN 14181performed by Müller-BBM on 15/02/2010 (Report Nos. M82 450/19 and M82 450/22).
/QPROCE/	Quality procedures and instrument verification: "Procedure for calibration and management of maintenance of AMS : - Plan de maintenance AMS. - PRD-12003 - Gestion de AMS - management system. - PRD-12005 - Contrôle visuel analyseurs. - PRD-12006 - Etalonnage sur site - calibration procedures. - PRD-12004 - Stockage et traitemement des données - data storage processing.
/SPECPROC/	Specifications of monitoring equipments for NAP determination: - transmitter 53% HNO3 storage level - transmitter 63% HNO3 storage level - transmitter CNA storage level Calibration information for monitoring instrument (N2O4 storage) Calibration and maintenance procedure for tank level transmitters Lab procedure for sample analyses for HNO3 (trucks)
/TRIP/	Print out of the Aspentech Production Management & Execution (also Data Collection and Storage system): safety parameter and Trip points of the AOR1 and AOR2.
/XLS/	Pardies Monitoring Data 1st Ver Aug - Dec 2010: - ERU Excel calculation spreadsheet "Pardies Monitoring Data 1st Ver Aug - Dec 2010_V3_ 20110121" (Monitoring data 1st) . - ERU Excel calculation spreadsheet "Pardies Monitoring Data 1st Ver Aug - Dec 2010_V5_ 20110214_MS" (Monitoring data 2nd) . - ERU Excel calculation spreadsheet "Pardies Monitoring Data 1st Ver Aug - Dec 2010_V5_ 20110214_MS" (Monitoring data 3rd) . - final ERU Excel calculation spreadsheet "Pardies Monitoring

Reference	Document
	Data 1st Ver Aug - Dec 2010_V6_ 20111031_MS" Pardies Monitoring Data 1st Ver Aug - Dec 2010_V7_ 20120731_MS.xlsx (Monitoring data 5th)

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 of the JI track 1 project: Yara Pardies N2O Abatement Project, Report No.: 600500365, dated 2010-07-05, issued by TÜV Sued.
/**DVM**/	JI Determination and Verification Manual.

Reference	Document
/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. 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 03 dated 24.05.2010 "YARA Pardies N_2O 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

Reference	Link	Organisation
		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
/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	MoI[1]		Name	Organisation / Function
/**IM01**/	V	☒ Mr. ☐ Ms	Philippe Michiels	Yara Pardies Nitric Acid Plant (Production/Plant Manager)
/**IM01**/	V	☒ Mr. ☐ Ms	Sebastian Prat	Yara Pardies Nitric Acid Plant (Responsible Electrique/ EI Manager)
/**IM01**/	V	☒ Mr. ☐ Ms.	Bernard Guillou	Yara Pardies Nitric Acid Plant (Process Engineer)
/**IM02**/	V	☐ Mr. ☒ Ms.	Rebecca Cardani-Strange	N.serve (Project Manager)
/**IM02**/	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:* **CAR A1:** Clarification is requested why Norway and Germany are considered as involved parties. **CAR A2:** The investor party (Belgium) LoA is still pending.	/LOA/ /dfp/ /unfccc/	~~CAR A1~~ ~~CAR A2~~	Pls. see Chapter 4	OK
A.2	*DVM § 91* Are all the written project	*Description:* The applicable benchmark value can be limited lower than the nationwide benchmark emissions factors	/AR/ /ARRET	~~CAR A3~~	Pls. see Chapter	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
	approvals by Parties involved unconditional?	according a specific regulatory Emissions Factor (plant specific "Arrêté Préfectoral"). 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. • The total amount of verified emission reductions until 2012-12-31 is limited to 213,146 tonnes (before 10 % reduction) *Means of determination: French Method,* plant specific "Arrêté Préfectoral", LoA, PDD, MR, and XLS-spreadsheet. *Conclusion:* • 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. • The Arrêté Préfectorale" /AR/ from local DREAL limits the plant-specific N_2O emissions at the Pardies plant to 2.5kg N_2O/tHNO_3 until 30/06/2012 and 1.85kg thereafter.	E/ /METH/ /LOA/ /PDD/ /XLS/ /MR-1/ /dfp/ /unfccc/		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
		(Determination) Forward Action Request (FAR) No.1: *There is a need to confirm the N_2O limit of the DRIRE given in an e-mail by an officially updated operation permit.* The outstanding "final Arrêté Préfectorale" /AR/ from local DREAL (Directions Régionales de l'Environnement, de l'Aménagement et du Logement) dated 24th August 2010 was sent to the verification team. The decree limits the plant-specific N_2O emissions at the Pardies plant to 2.5kg $N_2O/tHNO_3$ until 30/06/2012 and 1.85kg thereafter. As an average over the 1st Verification Period from 12/08/2010 to 31/12/2010, this regulatory value is equal to 872 mg N_2O/Nm^3. *Therefore the verification team concludes that issues raised by the Determination FAR are successfully implemented; FAR NO. 1 is closed.* **CAR A3:** As per the French Letter of Approval (host county LoA) the crediting period of the project is limited to the 1st Kyoto commitment period. The exact crediting period shall be indicated in the MR.				

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
B	***Project implementation***					
B.1	*DVM § 92* Has the project been imple-mented 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:* Interviews, PDD, certificates provided by the PP, on-site visit *Conclusion:* The determination EIA raised one FARs (No.2, No.3) related to the proper implementation project: **(Determination) Forward Action Request (FAR) No. 2:** *Roles & responsibilities for the project operation, management and maintenance still have to be officially defined and communicated.* The plant defined a more detailed management and responsibilities chart/MSR/ for the JI project operation. The management and responsibility charts/MSR/ (general and local responsibilities) have been checked by the verifier and the situation observed during the on-site visit is consistent with the charts and descriptions. C*onclusion:* Therefore the verification team concludes that	/IM01/ /IM02/ /PDD/ /DET/ /QAL1A/ /QAL1V/ /QAL2 CALIB/ /MR-1/ /14181/	OK		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
		issues raised by the Determination FAR NO. 2 are successfully implemented and the FAR is closed. **(Determination) Forward Action Request (FAR) No. 3:** *QAL 1 certificates are expected before the end of the year by Dr. Födisch. The QAL 2 certification is expected for October by an accredited institute. Evidence for the N_2O analyzer and the flow meter have to be provided to the AIE for the initial verification.* The verification team has checked during the onsite visit a) documentation concerning certification and calibration for the relevant instruments of the installed AMS - N_2O Analyser and flow meter-: The Dr. Födisch MCA 04 Gas Analyzer and FMD 99 stack gas flow meter, both have QAL1 approval as specified by EN ISO 14956. QAL2 tests according to EN 14181, is to be performed at least every 3 years. The most recent QAL2 test was conducted by Müller-BBM on 15/02/2010 (Report Nos. M82 450/19 (line 1) and M82 450/22 (line 2)), with successful approval of the AMS. In addition to the QAL2 test, Annual Surveillance Tests AST (performed in February 2010) was				

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
		conducted in accordance with EN 14181. *Conclusion:* Therefore the verification team concludes that issues raised by the Determination FAR NO. 3 are successfully implemented and the FAR is closed.				
B.2	*DVM § 93* What is the status of operation of the project during the monitoring period?	*Description:* The project is predominant running according to the description provided in the PDD. Nevertheless the four separate product lines which are produced by Pardies nitric acid plant were not described in detail in the determined PDD *Means of determination:* Calculation sheets annexed to the monitoring report, PDD, interviews, on-site visit and inspection of implementations. *Conclusion:* The project is predominant in accordance to the description provided in the PDD and every other stipulation or requirement mentioned in all sections of the methodology. Some findings were raised: **CAR C9:** During onsite visit it has been identified that the production of N_2O_4 and its output, calculated as HNO_3 100% equivalent, is not described in the MR (also not in the PDD). Four separate product lines are produced by Pardies nitric	/IM01/ /IM02/ /PDD/ /XLS/ /MR-1/	~~CARC9~~ ~~CAR B4~~ ~~CAR B5~~	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
		acid plant. **CAR B4:** A further detailed description of the project history (e.g. campaign data), production issues and key events regarding plant operation, downtimes and AMS status should be included in the Monitoring Report or as supporting document. **CAR B5:** The simplified process flow chart of the plant in the MR (p. 7) is incomplete: the output of N_2O_4 is not considered. **CAR C9:** During onsite visit it has been identified that the production of N2O4 and its output, calculated as HNO3 100% equivalent, is not described in the MR (also not in the PDD). Four separate product lines are produced by Pardies nitric acid plant. Clarification is requested why the daily design production capacity of Pardies nitric acid plant is given in the MR and PDD as 430 metric tonnes HNO3 (100%**).**				
C	***Compliance with monitoring plan***					
C.1	*DVM § 94* Did the monitoring occur in accordance with the monitoring	*Description:* Monitored parameter and parameter used for calculation are: • NCSG [mg N_2O/m^3] monitored	/PDD/ /DET/ /MR-1/	~~CAR C6~~ ~~CAR C7~~ ~~CAR C8~~	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
	plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	• VSG [Nm³/h] monitored • TSG [°C] monitored • PSG [Pa] monitored • PE_n [kgN2O] calculated • OH [h] monitored • NAP [$tHNO_3$] monitored/calculated • OT [°C] monitored • AFR [$kgNH_3/h$] monitored • AIFR [%] monitored • EF_{reg} [$kgN_2O/tHNO_3$] used for calculation • 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	/14181/	~~CAR C9~~		

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 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 Nevertheless some findings were raised: **CAR C6:** The simple plant diagram should include the position of all Monitoring Equipments included in the Monitoring Report. **CAR C7:** During onsite visit it has been identified that the Flexim mass flow meters as indicated in PDD have not been installed. Therefore clarification is requested.				

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
		CAR C8: Clarification is requested why the Trip-Point value based on lowest temp and low NH_3-air ratio is not indicated in MR and used for plausibility check (chapter 5.3.3. of MR) (Excel-file of the monitoring data). Besides during onsite visit it has been identified that the trip value for NH_3-air ratio is inconsistent to the value indicated in the MR. **CAR C9:** During onsite visit it has been identified that the production of N_2O_4 and its output, calculated as HNO_3 100% equivalent, is not descript in the MR (also not in the PDD). Four separate product lines are produced by Pardies nitric acid plant.				
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	*Description:* Project baselines are set by default values in the French 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 This benchmark factor is the key factor, which influences the baseline scenario and reduces the accountable emission reductions from realistic baseline emissions to the above mentioned values.	/METH/ /LoA/ /ARETE/ /AR/ /PDD/ / DVM/	OK	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
	the project taken into account, as appropriate?	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:* plant specific "Arrêté Préfectoral", French methodology, LoA, PDD *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 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] (line 1 and 2); 2 X Dr. Födisch MCA 04 Continuous Emissions N_2O Analyser (part of the AMS) • VSG_n [Nm^3/h]; (line 1 and 2); 2 X Dr. Födisch FMD 99 gas volume flow meter (part of the AMS)	/PDD/ /METH/ /PDD/ /MR-1/ /XLS/	~~CAR C6~~ ~~CAR C7~~ ~~CAR C8~~	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
		• PE_n [kgN_2O]; Calculation from measured data • OH_n [h]; Production Log – taking into account: plant status signal, NH_3 valve status signal, trip point parameters • NAP_n [$tHNO_3$]; daily average of total Nitric acid amount, 100% (production of 53% HNO_3 PLUS production of 63% HNO_3 PLUS production of CNA PLUS production of HNO_3 equivalent from N_2O_4).The above production figures are then cross-checked against a calculation of the NH_3 consumption of the burners and the conversion efficiency of the primary catalyst. • EF_{BM} [$kgN_2O/tHNO_3$]. • 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, ASPEN data server. *Conclusion:*	/IM01/ /IM02/ /AS/			

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 PP could clearly demonstrate that data sources are clearly identified, reliable and transparent. However, the following findings were raised in this context: **CAR C6:** During onsite visit it has been identified that the Flexim mass flow meters as indicated in PDD have not been installed. Therefore clarification is requested. **CAR C7:** Clarification is requested why the Trip-Point value based on lowest temp and low NH3-air ratio is not indicated in MR and used for plausibility check (chapter 5.3.3. of MR) (Excel-file of the monitoring data). Besides during onsite visit it has been identified that the trip value for NH3-air ratio is inconsistent to the value indicated in the MR. **CAR C8:** During onsite visit it has been identified that the production of N_2O_4 and its output, calculated as HNO_3 100% equivalent, is not described in the MR (also not in the PDD). Four separate product lines are produced by Pardies nitric acid plant.				
C.4	*DVM § 95c)*	*Description:* As described under C.2., the French DFP sets	/PDD/	OK		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
	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?	emission factors as benchmark values [kg N_2O/t HNO_3]: Year: 2010 2011 2012 Value: 2.5 2.5 1.85 *Means of determination:* "Arrêté Préfectoral", Methodology, Monitoring report, XLS calculation spreadsheet. *Conclusion:* The benchmark value, as set by the French method was 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.	/METH/ /MR-1/ /AR/ /ARETE/ /XLS/			
C.5	*DVM § 95d)* Is the calculation of emission reductions or enhancements of net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent manner?	*Description:* The transparent calculation of emission reduction follows the methodology described in the PDD. All data used is based on measurements, therefore no assumptions are used. *Means of determination:* "Arrêté Préfectoral", Methodology, PDD, XLS, on-site visit of plant, ASPEN data server. *Conclusion:* The used methodology, data processing, implementation of the benchmark values and 10% reduction is a conservative approach. The following findings were raised in this context: **CAR C10:**	/PDD/ /METH/ /ARETE/ /AR/ /MR-1/ /AS/ /CHECK/ /TRIP/	~~CAR C10~~ ~~CAR C11~~	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
		Following issues w.r.t. emission reduction calculation have been identified and subsequent clarification is requested: 1. For several hours in the emission reduction calculation spreadsheet hours a trip occurred but these specific hour has been included for ER calculation. 2. The extra hour at 2010-10-31 (summer - winter time change) should be taken into account for emission calculation (Excel-file of the monitoring data). **CAR C11:** During onsite visit inconsistencies have been identified in the daily total NAP value between the ER excel spreadsheet and data provided by the project owner.	/QUALCALIB/ /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	*Description:* The project is classified as large-scale project. *Means of determination:* PDD *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
	PDD for the JI SSC project or the bundle for the monitoring period determined?					
	Applicable to bundled JI SSC projects only					
C.7	*DVM § 97a)* Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	*Description:* N/A *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	*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
	report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?					
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*				

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
E	***Data management***					
E.1	*DVM § 101a)* Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	*Description:* Data collection is in accordance with the monitoring plan. The installed automated monitoring systems (AMS) provide separate hourly average values for $NCSG_n$ and VSG_n for each stack, based on 10-second interval measurements that are recorded and stored electronically. The nitric acid plant is equipped with an Aspentech 'Info Plus 21' data collection and storage system, which records and stores all monitoring values for NCSG, VSG, TSG, PSG, as well as different status signals of the AMS and the NH_3 valve status signal from the nitric acid plant that defines whether or not the plant is in operation. The system reports hourly averages for all the monitored parameters to N.serve, who is responsible for the correct analysis of the delivered data. Data collection procedures, quality control and quality assurance are implemented as follows: For all N_2O data sets a plausibility check is conducted. All data sets containing implausible values are eliminated from the calculation of the average values. Implausible values are those which are negative or clearly out of the range of "normal operating conditions". During data processing, measured values were evaluated	/PDD/ /METH/ /MR-1/ /XLS/ /DVM/ /IM01/ /IM02/ /EN14181/ /QA/ /AS/ /CHECK /TRIP/ /QAL2 CALIB/	~~CAR C10~~	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
		according to statistical methods. 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 are applied onto both VSG and NCSG-measuring. VSG: QAL2 correction factors: 0.95 and 0.97 NCSG: QAL2 correction factors = 0.99 and 1.03 TSG: QAL2 correction factors: 0.98 and 0.96 PSG: QAL2 correction factors: 1.0 and 1.0 The Uncertainty for N_2O mass flow measurement as calculated during the QAL2 test is: **AMS Line 1** Lower range (0 to 200ppm): 3.48 % Upper range (to 1000ppm): 3.16% **AMS Line 2** Lower range (0 to 200ppm): 3.06% Higher range (to 1000ppm): 3.15% All values are below the permitted overall uncertainty of 7.5 %. (The methodology requires that the permitted overall uncertainty of the average hourly annual emissions is less than 7.5% if technical possible.)				

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
		Acc. to the methodology, downtimes of the AMS was handled as following: The hourly average was 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 was eliminated from the calculation and substitute values were used instead. Nevertheless clarification is requested for the four NAP determination procedures: **CAR C7:** During onsite visit it has been identified that the Flexim mass flow meters as indicated in PDD have not been installed. Therefore clarification is requested. *Means of determination:* Methodology, Monitoring report, on-.site visit of plant incl. control room with data server. The original data as excel file produced by the data acquisition system sent to N.serve by the plant operator has been (random) checked together with the final ER calculations accounted as per the applied methodology and determined PDD (spot-check of single hours and days). Conclusion: It has been confirmed that the data collection procedures for all monitoring parameters except NAP are as per the description in the determined monitoring plan. No further issues have been identified in this regard.				

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
E.2	*DVM § 101b)* Is the function of the monitoring equipment, including its calibration status, in order?	*Description:* All relevant monitoring instruments incl. the AMS are included in the quality procedures which are established for proper operation of the plant. (Yara Pardies is certified to international standards ISO 9001 Quality Management Systems, carried out by Det Norske Veritas.) *a) AMS:* Additional measures are related to the European Norm EN14181 (2004) "Stationary source emissions - Quality assurance of automated measuring systems": QAL 1: performance approval: 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. QAL1 Certificate No: 936/808005/C 2000-04-10 regarding FMD 99 Volumeter, QAL2 tests according to EN 14181, is to be performed at least every 3 years. The most recent QAL2 test was conducted by Müller-BBM on 15/02/2010 (Report Nos. M82 450/19 and M82 450/22), with successful approval of the AMS. QAL 3 (ongoing operation and maintenance) N_2O-Analyzer	/QAL1A/ QAL1V/ /FG/ /QAL2 CALIB/ /FOEDM AIN/ /MCF/ /AS/ /AZR/ /MPRA/ /FOEDM AIN/ /IM01/ /IM02/ /QA/ /QPRO CE/	~~CL C7~~	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
		Zero Calibration The zero calibration is conducted automatically every 24 hours. Manual calibrations are done at least once per month. Manual span calibrations are done with certified calibration gas at least once per month and the calibration results are all documented as part of the QAL3 documentation. The flow meter FMD 99 itself does not need to be calibrated since it is a physical device without drift. Physical inspection of the condition (assembly/maintenance and service) is checked/done by Dr. Födisch Umweltmesstechnik AG. In addition, the flow meter is checked during the QAL2 and AST tests by Müller-BBM. *b) Other monitoring installations, equipment and devices:* Operation maintenance and calibration intervals are carried out by qualified and trained staff from the EI/ instrument department according to the vendor´s specification. Activities are controlled and documented as part of an electronic overall quality assurance programme. *Conclusion:* The PP implemented a quality assurance system to prove the ongoing compliance of the AMS with the norm. The most maintenance activities are monitored and controlled as part of an electronic overall quality				

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
		assurance programme.				
E.3	*DVM § 101c)* Are the evidence and records used for the monitoring maintained in a traceable manner?	*Description:* The nitric acid plant is equipped with Aspentech Production Management & Execution and Data Collection & Storage system (DCS), which records and stores all monitoring values for NCSG, VSG, TSG, PSG, OH as well as different status signals of the AMS and the NH_3 valve status signal from the nitric acid plant that defines whether or not the plant is in operation. All monitoring data are collected from plant via on 10 second basis. A data extract of hourly mean values (excel) is reported to N.serve. *Means of determination:* The original spreadsheets created by the DCS have been checked and the functioning of DCS was checked during the on-site visit (spot-check of single hours and days). *Conclusion:* The evidences and records used for the monitoring are maintained in a traceable manner. Nevertheless the following findings were raised in this context: **CAR C8:** Clarification is requested why the Trip-Point value based on lowest temp and low NH_3-air ratio is not indicated in MR and used for plausibility check (chapter 5.3.3. of MR) (Excel-file	/XLS/ /AS/ /IM01/ /IM02/	~~CAR C10~~ ~~CAR C11~~	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
		of the monitoring data). Besides during onsite visit it has been identified that the trip value for NH_3-air ratio is inconsistent to the value indicated in the MR. **CAR C10:** Following issues w.r.t. emission reduction calculation have been identified and subsequent clarification is requested: 1. For several hours in the emission reduction calculation spreadsheet hours a trip occurred but these specific hour has been included for ER calculation. 2. The extra hour at 2010-10-31 (summer - winter time change) should be taken into account for emission calculation (Excel-file of the monitoring data). **CAR C11:** During onsite visit inconsistencies have been identified in the daily total NAP value between the ER excel spreadsheet and data provided by the project owner.				
E.4	*DVM § 101d)* Is the data collection and management system for the project in accordance with the	*Description:* The data collection and the management system are conducted as per the description in the determined monitoring plan. The data acquisition system records the hourly average data which is sent to N.serve for the quality and plausibility check, statistical analysis and	/AS/ /PDD/ /MR/	OK		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
	monitoring plan?	final emission reduction calculation. *Means of determination:* by means of interview with the plant operator and N.serve representatives. *Conclusion:* No further issues were found with this regard.	/XLS/ /IM01/ /IM02/			
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*	*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
	Does the monitoring period not overlap with previous monitoring periods?	*Means of determination:* N/A *Conclusion: N/A*				
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*	*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
	reasonable, taking into account differences among the characteristics of JPAs, such as: *- 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*					

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
	AIE does not identify and take into account such differences among JPAs, then (does the 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*	*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
	total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site 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

TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Rainer Winter

SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Senior Assessor	2013-07-03
JI	Senior Assessor	2013-07-03
VCS	Senior Assessor	2013-07-03

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal Energy Generation
1.2	Renewable Energies
4.1	Cement Sector
4.3	Iron and Steel
4.5	Waste Heat Recovery
5.1	Chemical Process Industries
9.1	Metal Production
11.1	Chemical Process Industries
11.2	GHG Capture and Destruction
12.1	Chemical Process Industries
13.1	Waste Handling and Disposal

003 – Rev. 3, Date: 2011-04-21

003_S01-F003_2011-04-21_rev3 S01-F003 rev3 / 2010-04-19

TÜV NORD

CERTIFICATE OF APPOINTMENT

Ms. Sabine Meyer

born on 1976-07-05

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

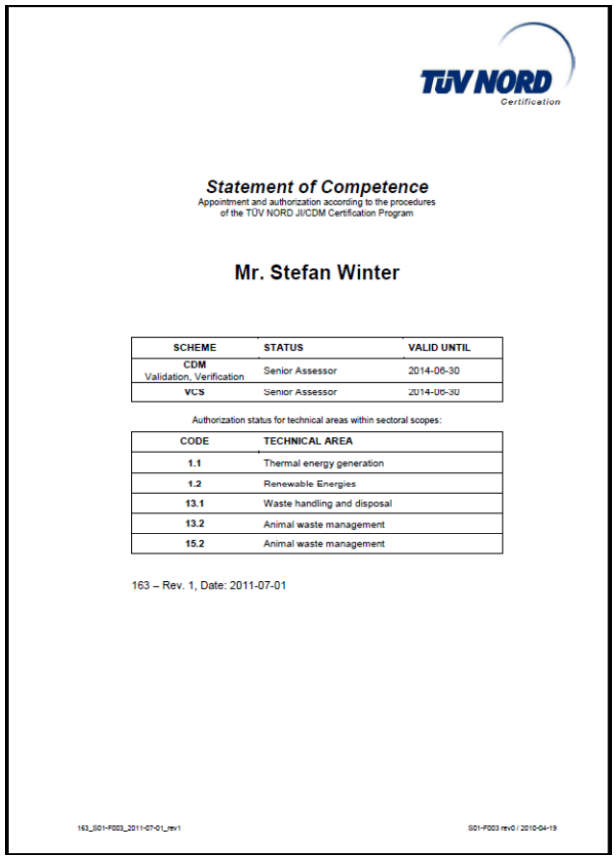
TÜV NORD JI/CDM Assessor

The present appointment will terminate on 2013-10-27

Certification registration No. 10 10 06 – 197 rev1

Essen, 2010-10-28

Head of TÜV NORD JI/CDM Certification Program of TÜV NORD CERT GmbH



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Stefan Winter

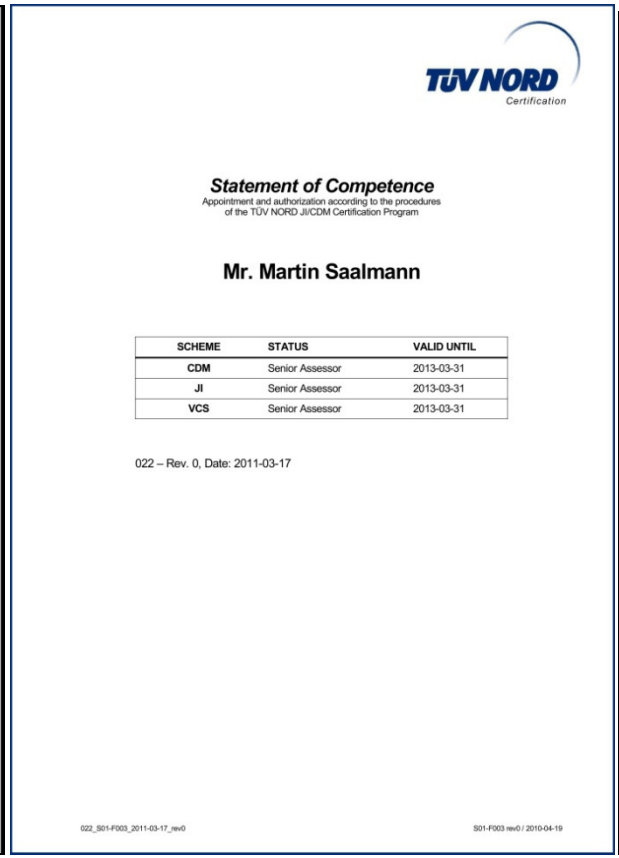
SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Senior Assessor	2014-06-30
VCS	Senior Assessor	2014-06-30

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewable Energies
13.1	Waste handling and disposal
13.2	Animal waste management
15.2	Animal waste management

163 – Rev. 1, Date: 2011-07-01

163_S01-F003_2011-07-01_rev1 S01-F003 rev0 / 2010-04-19



TÜV NORD Certification

Statement of Competence

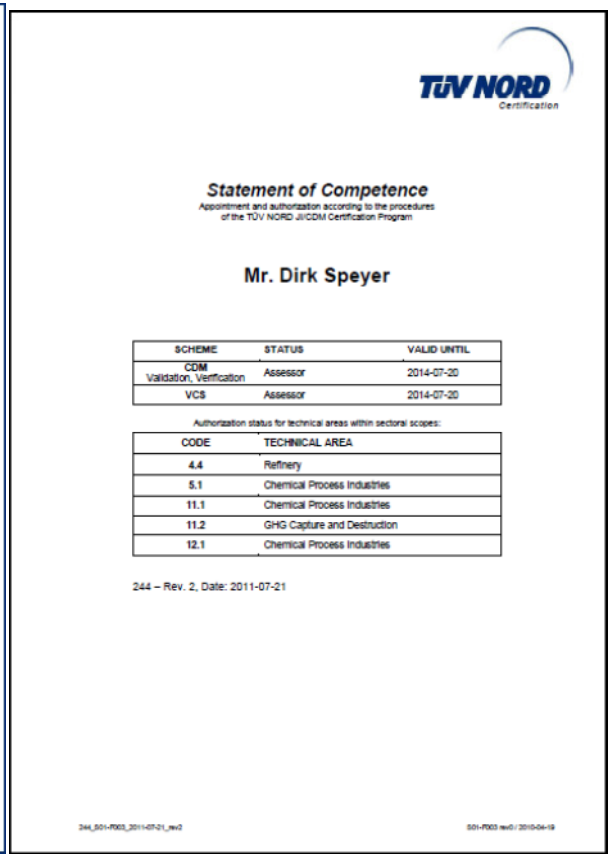
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Martin Saalmann

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor	2013-03-31
JI	Senior Assessor	2013-03-31
VCS	Senior Assessor	2013-03-31

022 – Rev. 0, Date: 2011-03-17

022_S01-F003_2011-03-17_rev0 S01-F003 rev0 / 2010-04-19



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Dirk Speyer

SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Assessor	2014-07-20
VCS	Assessor	2014-07-20

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
4.4	Refinery
5.1	Chemical Process Industries
11.1	Chemical Process Industries
11.2	GHG Capture and Destruction
12.1	Chemical Process Industries

244 – Rev. 2, Date: 2011-07-21

TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Emilio Martin

born on 1978-10-24

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

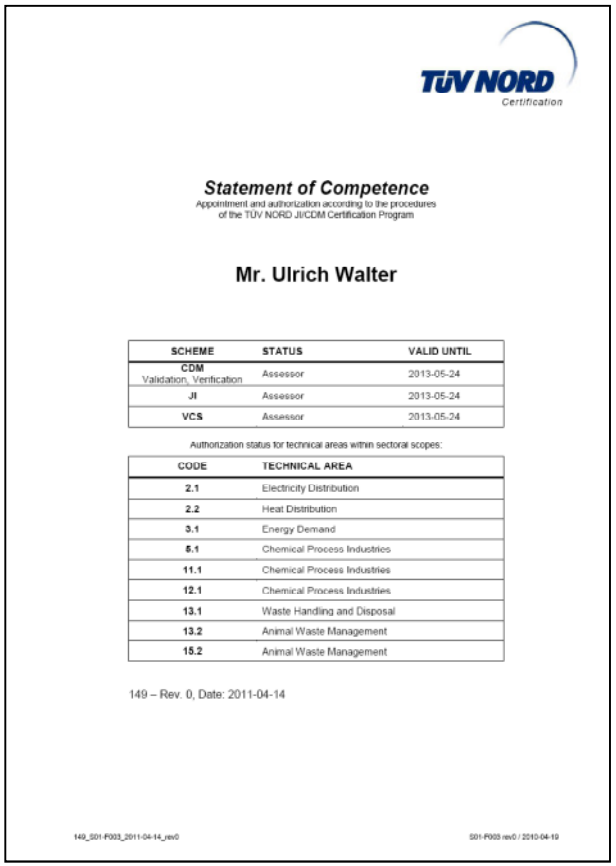
TÜV NORD CDM Lead Assessor

The present appointment will terminate on 2013-11-30

Certification registration No. 10 12 01 – 157 rev1

Essen, 2010-12-01

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



TÜV NORD Certification

Statement of Competence

Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Ulrich Walter

SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Assessor	2013-05-24
JI	Assessor	2013-05-24
VCS	Assessor	2013-05-24

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
2.1	Electricity Distribution
2.2	Heat Distribution
3.1	Energy Demand
5.1	Chemical Process Industries
11.1	Chemical Process Industries
12.1	Chemical Process Industries
13.1	Waste Handling and Disposal
13.2	Animal Waste Management
15.2	Animal Waste Management

149 – Rev. 0, Date: 2011-04-14

149_S01-F003_2011-04-14_rev0

S01-F003 rev0 / 2010-04-19