FINAL JI VERIFICATION REPORT

- 1ST PERIOD –

GPN S.A.

GPN GRAND QUEVILLY N7 N_2O ABATEMENT PROJECT

ITL PROJECT ID : FR1000146

Monitoring Period: 2009-12-08 TO 2010-10-31
(incl. both days)

Report No: 8000389286 – 10/497

Date: 2011-07-20

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Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8000389286 – 10/497	0	2011-07-20	2011-07-20
Project:	***Title:***		***Registration date:***	***UNFCCC-No.:***
	GPN Grand Quevilly N7 N_2O abatement project		2010-04-16	FR1000146
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.***
	2009-12-08 to 2010-10-31 - both days included		328	1
Monitoring report:	***Title:***		***Draft version:***	***Final version:***
	GPN Grand Quevilly N7 N_2O abatement project		2010-11-11	2011-07-19
Verification team / Technical Review and Final Approval	***Verification Team:***		***Technical review:***	***Final approval:***
	Alexandra Nebel Sabine Meyer Ulrich Walter		Rainer Winter	Rainer Winter
Emission reductions: [t CO_{2e}]	***Verified amount***		***As per Draft MR:***	***As per PDD/PDD/:***
	23,947		24,378	96,571

Summary of Verification Opinion:

GPN N7 Nitric Acid Plant has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "GPN Grand Quevilly N7 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 2009-12-08 to 2010-10-31 (including both days).

In the course of the verification 6 Corrective Action Requests (CAR) and 5 Clarification Requests (CL) were raised and successfully closed. Furthermore 4 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 N_2O 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: **23,947** t CO_{2e}

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

Document information:	*Filename:*	*No. of pages:*
	FVR GPN N7 2011-07-20	87

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**
DCS	**Data Collection System**
ER	**Emission Reduction**
ERU	**Emission Reduction Units**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
HnO_3	**Nitric Acid**
JI	**Joint Implementation**
MMD	**Measurement and Monitoring Devices**
MP	**Monitoring Plan**
MR	**Monitoring Report**
N_2O	**Nitrous Oxide**
PCS	**Process Control System**
PDD	**Project Design Document**
PP	**Project Participant**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
XLS	**Emission Reduction Calculation Spread Sheet**

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1. INTRODUCTION

GPN S.A. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 1st periodic verification of the project

"GPN Grand Quevilly N7 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 FR1000146[1].

GHG data for the monitoring period covering 2009-12-08 to 2010-10-31 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 report /MR/, emission reduction calculation spreadsheet /XLS/, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

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

- Article 6 of the Kyoto Protocol /KP/,
- guidelines for the implementation of Article 6 of the Kyoto Protocol as presented in the Marrakesh Accords under decision 9/CMP.1 /MA/, and subsequent decisions made by the JISC and COP/MOP,

[1] http://ji.unfccc.int/JIITLProject/DB/DR8LCU7BKHNJZUQ6PSARZ36E6L6L4H/details

- 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	GPN Grand Quevilly N7 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):	5.1: Chemical Process Industries		
ITL Project ID No.:	FR1000146		
Crediting period	☐ Renewable Crediting Period (7 y) ☒ Fixed Crediting Period (3 y, 1 m), assumed that N_2O is included in ETS after 2012		

2.2. Project Verification History

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

Table 2-2: Project verification history

#	Item	Time	Status
1	Date of registration	2010-04-16[1)]	-
2	Start of crediting period	2009-12-08	-
3	1st Monitoring period	2009-12-08 to 2010-10-31	Subject of this verification report

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

2.3. Involved Parties and Project Participants

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

Table 2-3: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	France	GPN S.A.
	France	N.serve Environmental Services GmbH
Other Involved Party/ies (investor)	Belgium	Total Petrochemicals

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	North West (Haute Normandie), Département: Seine-Maritime, Commune : Le Grand Quevilly (near Rouen)
Project location address	30, rue de l'Industrie - BP 204 76121 Grand Quevilly Cedex
Plant coordinates	Stack : Latitude: 49°24'58.67"N Longitude : 1° 1'28.92"E Ammoniac Boiler: Latitude: 49°24'59.60"N Longitude: 1° 1'29.84"E

2.5. Technical Project Description

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

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

Table 2-5: Technical data of the plant N7

Parameter	Unit	Value
Ammonia Oxidation Reactor		
Manufacturer	-	OSCHATZ.
Diameter	mm	4920
Start of commercial production	-	January 1989
Operating conditions as per specifications (trip point values)		

Parameter	Unit	Value
- Temperature (min/max):	°C	780/925
- Pressure (min/max):	MPa	4,95 (safety max.)
- Ammonia to Air ratio (max)	Vol.-%	13,4
Ammonia Oxidation Catalyst		
Manufacturer	-	Johnson Matthew
Composition:	-	Pt gauge
Absorber		
Design capacity per day (100%)	t/d	1050
Design capacity per day (legal)	t/d	1200
Annual operation (design)	days	350
Secondary Catalyst		
Start of operation	-	June 2008
Manufacturer	-	YARA
Type	-	58 Y 1
Design efficiency N_2O reduction	%	83
N_2O Analyzer (stack)		
Manufacturer	-	FT Fine Tech
Type	-	PCM 1000/TSO-20
Measurement Principle	-	FTIR spectrometry
Stack volume flow rate measurement		
Manufacturer	-	ROSEMOUNT
Type	-	3031CD
Measurement Principle	-	Back pressure (dp)

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

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

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

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2010-11-11
On-site-visit	From 2010-11-17 till 2010-11-19
Draft reporting finalised	2011-05-05
Final reporting finalised	2011-07-05
Technical review finalised	2011-07-20

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,

- Impartiality issues are clear and in line with the CDM accreditation requirements

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

3.3. Appointment of team members and technical reviewers

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

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

Table 3-1: Involved Personnel

	Name	Company	Function [1)]	Qualification Status [2)]	Scheme competence [3)]	Technical competence [4)]	Verification competence [5)]	Host country Competence	Team Leading competence
☐ Mr. ☒ Ms.	Alexandra Nebel	TÜV Nord Cert GmbH	TL[A)]	LA	☒	-	☒	☐	☒
☒ Mr. ☐ Ms.	Ulrich Walter	TÜV Nord Cert GmbH	TM[A)]	A	☒	5.1	☒	☐	☐
☐ Mr. ☒ Ms.	Sabine Meyer	TÜV NORD Cert GmbH	TM[A)]	A	☒	-	☒	☒	☐
☒ Mr. ☐ Ms.	Rainer Winter	TÜV Nord Cert GmbH	TR, FA[B)]	SA	☒	5.1	☒	☐	☒
☐ Mr. ☒ Ms.	Susanne Pasch	TÜV Nord Cert GmbH	OR[B)]		☐	-	☐	☐	☐

1) TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

3) GHG auditor status (at least Assessor)

4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, …)

5) In case of verification projects

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

3.4. Publication of the Monitoring Report

In accordance with decision 9/CMP.1 (§ 36) the draft monitoring report, as received from the project participants, has been made publicly available on the TÜV NORD Website www.global-warming.de during a 30 days period from 2010-11-17 to 2010-12-17. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

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

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

Risk analysis and detailed audit testing planning

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

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

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
The following potential risks were identified and divided and structured according to the possible areas of occurrence.	*The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding 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*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
			analysis results Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.	

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

Project specific periodic verification checklist

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

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

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

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

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

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

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

3.6. Desk review

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

- the last revision of the PDD including the monitoring plan/PDD/,

[2] JISC 19 Annex 4

- 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 auditor Ulrich Walter attended the site visit.

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

Representatives of GPN N7 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, GPN N7 Nitric Acid Plant	- General aspects of the project - Technical equipment and operation - Changes since validation - Calibration procedures - Quality management system - Involved personnel and responsibilities

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

3.8. Draft verification reporting

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

3.9. Resolution of CARs, CLs and FARs

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

Corrective Action Requests (CARs) are issued, if:

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

The verification team uses the term Clarification Request (CL), which is 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	1	0	0
B – Project Implementation	2	2	1
C – Monitoring Plan Compliance	1	1	1
D – Monitoring Plan Revision	0	0	0
E – Data Management	2	2	2
SUM	**6**	**5**	**4**

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)*	Belgium was added as investor country. Belgian LoA shall be provided.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Please find attached the investor LoA from the Belgian National Climate Commission, dated 03/12/2010.*		

Finding:	A1
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The Belgian company Total Petrochemicals Antwerpen was added as investor party. An LoA was issued by the Belgian National Climate Commission which is the Belgian Designated Focal Point as mentioned on the JI-SC website[3] on 2010-12-03. The project participant GPN S.A. and project title are clearly named in the LoA.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	B1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Monitoring Report: • Dates on cover page should mention the year as: 2009 or 2010 and not 09 or 10. • The description of the application of the benchmark value should include "over a period of 12 months" as per Arrete. • Section 5.3.2.: The measurement and storage frequency of VSG is 10 seconds. For NCSG the measurement frequency is about 30 sec. (based on a cycle time of 30 seconds), the storage frequency 10 seconds. • Section 5.3.3.: The AIFR is 11,8 % and not 12,5 %, it should be stated, that NAP of periods the plant is not in operation will be excluded • 6.4. QAL 3: The PP should state, that procedures will also be performed by the external company SPIE. • Section 7.1.4. "EFp" should be the hourly emission factor. • An overview of plant events and of calibration dates of relevant measurement devices should be included in the Annex 2 of the monitoring report. • Include and compare achieved emission reductions with estimated figures from PDD. Explain significant deviations. • 2.1: Please clarify the location of N.serve (PDD:Germany, MR: France) and the other investor GPN (1st row: Belgium, last row: France). • 5.1: The unit of EF_{BM} in the table should be revised. • 5.3.3: Please explain the difference in the maximum AIFR as compared to the PDD. (PDD: 13,4%, MR: 11,8%) • 6.1, last paragraph: Please revise reference, as section D.1. in the PDD does not refer to the AMS. • 7.1.1.: The unit m_3/h should be corrected. • Annex 1, OH_n: OH_n does also take into account the actual EF (<		

[3] http://ji.unfccc.int/JI_Parties/PartiesList.html#Belgium

Finding:	B1
	or > 2,5 kgN2O/tHNO3) during that hour, which should be mentioned. • Annex 1, EF_{reg}: Please explain what is meant by “Measurement frequency: continuously”.

Finding:	B1
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Monitoring Report:* • *The dates on the cover page have now been changed to 2009 and 2010* • *The fact that the regulatory limit is calculated as a 12-month average has now been mentioned in section 5.1.* • *The installed Automated Monitoring System (AMS) provides separate hourly average values for NCSGn and VSGn based on continuous measurements. However, due to the cycle time of the NCSG analyzer, the NCSG readings are refreshed every 30 seconds.* *Regarding the data storage frequency in the electronic data storage system, clarification was requested from the system provider OSI Soft. As a result it became clear that the data is not strictly recorded every 10 seconds. Instead the system is programmed to use a sort of data compression. In order to save storage capacity and enhance the performance of the system, a new value is only stored in the case that the variation of the values exceeds a certain pre-defined limit. Therefore, the 10-second data represents real measured values with interpolated values in between for the periods when the data compression definition results in not storing the data. The difference between the real value and the interpolated value that is used to calculate the hourly average can never be more than the pre-defined limit (Compression Deviation).* *For NCSG a new value is stored if it deviates from the interpolated value by more than +- 2 ppm or 0.1 % of the analyzer range (CompDev = 2). For VSG a new value is stored if it deviates from the interpolated value by more than +- 1500 Nm³/h or 0.5 % of the analyzer range (CompDev = 1500). The value CompDev represents the maximum possible error for each parameter that results from the data compression. Both allowed deviations are well within the general uncertainty of the instruments and therefore the correctness of the stored results is not influenced.* *On 18th January 2011 and 14th February 2011 the system was re-programmed to store the data strictly every 10 seconds for the future. Please see the attached presentation from the system provider (OSI Soft) regarding the function of this way of data compression (view in presentation mode to see the animations). See also the attached email from OSI Soft with definitions of the different CompDev values for the different TAG numbers.* • *The maximum ammonia to air ratio in section 5.3.3 has now been changed to 11.8%, in accordance with the value seen on the plant's process control system.* • *Section 6.4 now states that the external contracting firm 'SPIE' is also responsible for carrying out the QAL3 procedures.* • *'EFp' in section 7.1.4 has now been replaced by 'hourly emissions factor'.* • *The plant events are of a confidential nature. Please find details of these events in the confidential plant event sheet attached. A calibration table has now also been included in Annex 2.* • *The estimated and achieved emissions reductions have been compared following the table in section 7.2 under 'Predicted vs achieved ERUs'. Principal reasons for the difference between these figures have been listed. However, the details behind these reasons*

Finding:	B1
	are of a confidential nature and should not be included in the monitoring report. Please see the confidential plant event sheet mentioned in the bullet point above for more details. • *2.1: The Party involved for N.serve is France. The Entity involved in Belgium is Total Petrochemicals. The official application to the French DNA about the additional project participant has been provided to the auditor.* • *5.1: The unit of EFBM in the table has been revised.* • *5.3.3: In the PDD, an incorrect AIFR value was given. The correct values is 11,8% as stated in the MR.* • *6.1, the reference to the monitoring plan in the PDD is revised to B.7.* • *7.1.1.: The unit m3/h is corrected to Nm3/h.* • *Annex 1, A comment has been added to OHn: "Please note that operating hours in which EFn is above the benchmark are not taken into account".* • *Annex 1, EFreg: "Continuously" as a measurement frequency for EFreg has been changed to "on a constant basis".*

Finding:	B1
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. • The data-format on cover pages were changed. • The fact that the regulatory limit is calculated as a 12-month average is now mentioned in the relevant section. • The data compression and storage procedure according to the rules of the OSI Soft software was clearly explained by the PP with all relevant evidences/OSI/, /MAIL/. The verifier confirmed that the data compression has no significant influence on the correctness of monitored data. • The maximum ammonia to air ratio in section 5.3.3 was changed to 11.8%, according to the PCS value. • The company SPIE was mentioned as subcontractor for QAL3 procedures. • The parameter EF_p in section 7.1.4 was replaced by hourly emissions factor. • The PP provided a separate table showing the relevant plant events during verification period. • The MR now includes a table of calibration dates of the monitoring equipment. The confidential plant event sheet has been made available to the verifier. • The MR now includes a section, which compares the estimated and realised emission reductions during the verification period. • The parties and locations have been revised. • The unit of EF_{BM} is now stated correctly. • The difference of AIFR between PDD and MR has been explained as a mistake in the PDD. The value of 11,8% which is stated in the MR has been cross-checked with the plant specifications for trip points/TRIPN7/ and is deemed correct. • Reference has been revised and now points to the correct section in the PDD. • The unit has been corrected. • Explanation has been added. • Wording has been revised. The finding is closed
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	**B2**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Between the periods: 31.01.2010 - 07.02.2010 and 01.06.2010 - 07.06.2010, the raw data show low (about 25 t/h) related to the usual (35-40 t/h) HNO_3-output. Since it was found, that data of mass flow meter are not consistent, mass balance values shall be used to crosscheck NAP values. Parameters of mass balance (i.e. conversion efficiency) need to be evidenced.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*For the periods mentioned above, NAP data based on a mass balance calculation has been added to the datasets in separate columns. The mass balance calculation results in a figure for the tonnes of HNO3 produced per day, which in turn has been divided by the number of operating hours of the respective day to give an hourly average value. The results of this calculation have been applied for the ERU calculations for the above-mentioned periods.* *Please also find attached the mass balance calculation /BILAN/ used by the plant for calculating the NAP.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The PP included substitution values for NAP for periods in which NAP measurement device provides wrong values. Following issues were raised after checking the revised Excel-calculation: • Raw data from raw-data-sheet of NAP where shifted by minus one hour to the calculations-sheet. Correction is requested • NAP values calculated by mass balance were included in following periods: 01.01.2010 – 28.02.2010 6:00 and 01.06.2010 – 02.07.2010 Clarification is requested, why the periods do not match the periods mentioned during on-site visit. • Calculated NAP-values are not traceable since following info were not evidenced and included in the calculation: ○ Underlying formula of NAP mass-balance calculation ○ Daily Ammonia consumption ○ Efficiency of the NH_3-HNO_3 conversion-process		

Finding:	B2
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*1. The data in the calculation sheet was now linked per EXCEL formula to the raw data sheet in order to ensure correct transfer of the data.* *2. Only the NAP data for the periods when the raw data show low (about 25 t/h) related to the usual (35-40 t/h) HNO_3-output was updated now with data from the mass-balance. However it was noted that the actual periods in question were: 30.01.2010 – 09.02.2010 and 01.06.2010 – 09.06.2010.* *3. A procedure for calculating the NAP mass-balance values as well as a calculation spreadsheet with underlying formula of the NAP mass-balance calculation was provided. In case the calculated efficiency for the conversion of ammonia to nitric acid is below 85% the results from the NAP mass-balance should be used. The daily results of this mass-balance were used for the above mentioned periods to calculate hourly NAP values. The minimum conversion rate (85%) is based on plant experience : at the end of a gauzes run, the NH_3 ratio could decrease below 90 % (88 - 87%), so GPN has chosen a minimum ratio (85%) below the lowest ammonia ratio that was observed.*
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK 1. Data transfer from raw data sheet calculation sheet found to be correct. 2. The PP included data from mass balance in the relevant periods 3. The mass balance calculation was checked in the provided calculation spreadsheet and revised procedure/BILAN/ and found to be correct.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	B3		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The PP has to implement a QA/QC procedure to cross-check the Nitric Acid Production registered in the DCS.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*			
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*			

Finding:	B3
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements

Finding:	B4		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The PP should clarify if NCSG values of the period: 08.12.2009 00:00 – 08.12.2009 20:00 are measured values or default values from the system, since the figures are mostly the same until the second digit. Since the methodology states, that "The arithmetic average and the standard deviation are calculated at the end of the operating period, on the basis of all emissions data measurements for that period.", default values should not be used as substitute values.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*For the period 08.12.2009 00:00 – 08.12.2009 19:00 the nitric acid plant was out of operation and the status signal of the AMS indicates downtime of the AMS. Therefore the indicated results for this period are not relevant. For the period 08.12.2009 20:00 – 09.12.2009 08:00 the AMS indicates a default value. For this period the status signal of the AMS was manually set to 0 in the calculation sheet. As a consequence the substitute value, as calculated per the requirements of the methodology, is used for this period.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	In addition, the PP should check the period between 2009-12-08 19:00 and 2009-12-09 08:00 why default values and not substitution values were used in the calculation.		
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*For the period between 2009-12-08 19:00 and 2009-12-09 08:00 the N_2O analyzer was not working correctly and therefore substitute values according to the methodology needed to be used. The calculation spreadsheet was updated accordingly.*		
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP revised the relevant sections of the xls-spreadsheet.		

Finding:	B4
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding:	B5		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The PP should check, if data of 2009-08-12 00:00 (start of monitoring period) include values of next hour or hour before. In addition to this, the last dataset 2010-31-10 23:00 to 24:00 should only include data of the last day of the monitoring period.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The hourly average data is calculated using the values from the following hour. For example, the hourly average value shown at 02:00 is the result of the values recorded between 02:00 and 02:59:50.* *This is correctly reflected in the monitoring datasets.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The verifier needs evidences of • 10 second stored data of one hour of the verification period, • the mean value of this hour and • the respective hourly value of the data sheet send to N.serve to check the statement of the PP in corrective action #1.		
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Evidence was provided as 10 sec raw data for a certain period of 21.January 2010. The hourly average values are calculated from the raw data and compared with the hourly average values as provided in the Excel sheet for ER calculations. As a result it can be concluded that the hourly average data is calculated using the values from the following hour.*		
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP provided an excel-spreadsheet with NSCG and VSG values with 10 second recording frequency/10sec/. The verification team checked the mean values against the hourly values from the ERU-calculation/XLS/ and found the results being correct.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**C1**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The QAL 2 correction factors are not traceable.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The latest QAL2 report number M83 984/1, updated on 20/10/2010, was made available to the auditor on-site. Table 10.2.1 on page 45 of this report shows the QAL2 correction factors for N2O ('measuring range, new') and for volume flow, temperature and pressure ('parameter, new').*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The PP provided an updated version of the QAL 2 report /QAL2CALIB/ with correction factors: NCSG: 0.99 VSG: 0.98 OT: 1.00 OP: 1.00 Values of MR/MR/: NCSG: 0.9898 VSG: 0.98 OT: Not mentioned OP: Not mentioned Values of ERU calculation /XLS/: NCSG: 0.9898 VSG: 0.97544 OT: 0. OP: 1. The PP is requested to include all correction values in the MR and to use the value of 0.99 as per regression analysis for parameter NCSG and 0,98 for parameter VSG in MR and Excel-calc. according to the QAL2-report.		
Corrective Action #2 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The QAL2 factors are correctly mentioned in the QAL2 report. MR and calculation are updated accordingly with a factor of 0.99 for NCSG and 0.98 for VSG to reflect the correct situation. However the correction factors for TSG (not OT) and PSG (not OP) are mentioned correctly in the monitoring report and calculation.*		
DOE Assessment #2 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP revised the relevant correction values in the MR.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	C2		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	It must be checked at each verification, that, for the time after 16th July 2011, no ERUs will be issued for emission levels which do go beyond the business as usual scenario, defined by the Arrete prefectoral 2009-07-16 (2,47 kg N2O/t HNO3) over a period of 12 months.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*			
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*			
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	C3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Following parts of the xls-calculation sheet should be revised: • Tab Calculation, cell D47: Formula should be explained or revised. • Tab Calculation, cell E35: Parameter ID should be revised.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	• *The Formula in D47 has been revised. However, values have not changed due to revision.* • *The Parameter in E35 has been corrected from AHFR to AIFR.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	The above mentioned formulas and parameters have been revised and are now correctly stated in the xls-calculation sheet.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	E1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	QA Document BILAN N_2O ENV/3/1121: The PP should clarify the meaning of the uncertainty value of 3 % for the N_2O-Analyser.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Following the QAL2 test, it was established that the estimated uncertainty of 3%, shown in the document 'BILAN N2O ENV/3/1121', was not completely accurate. The uncertainty figure stated in the above document has therefore now been changed to 2.58% for the N7 analyser with reference number AT 7160A, in accordance with the QAL2 report from Müller-BBM.* *Please find attached the revised document ('Bilan N2O ENV_3_1121_R7').*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The PP provided the revised quality document/PROC8/.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	E2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Since the ERU calculation includes some NCSG-peaks resulting from calibration works with highly concentrated (1,500 ppm N_2O) calibration gas, the PP shall check the data set of the verification period regarding this issue.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The datasets of the verification period have been checked and any NCSG-peaks resulting from calibration works with high concentration calibration gas have now been removed and replaced with substitute values in accordance with the methodology.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The relevant periods were checked by the verifier and no peaks were found.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	E3		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	An internal quality check of project-data registration and processing at the plant should be implemented and documented.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*			
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*			
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

Finding:	E4		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The time displayed in the monitor of the AMS-device on plant should be corrected.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*The time displayed on the monitor of the AMS-device at the plant has now been corrected and can be checked at the next Verification.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. Since it is impossible to check the new setting after on site visit, the verifier raised FAR E6 to close this issue.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**E5**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The NCSG values of the crediting period show continuously packages of 6 values with nearly the same figures. Clarification of this phenomenon is requested.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	*Regarding the data storage frequency in the electronic data storage system, clarification was requested from the system provider OSI Soft. As a result it became clear that the data is not strictly recorded every 10 seconds. Instead the system is programmed to use a sort of data compression. In order to save storage capacity and enhance the performance of the system, a new value is only stored in the case that the variation of the values exceeds a certain pre-defined limit. Therefore the 10-second data represents real measured values with interpolated values in between for the periods when the data compression definition results in not storing the data. The difference between the real value and the interpolated value that is used to calculate the hourly average can never be more than the pre-defined limit (Compression Deviation).* *For NCSG a new value is stored if it deviates from the interpolated value by more than +- 2 ppm or 0.1 % of the analyzer range (CompDev = 2). For VSG a new value is stored if it deviates from the interpolated value by more than +- 1500 Nm³/h or 0.5 % of the analyzer range (CompDev = 1500). The value CompDev represents the maximum possible error for each parameter that results from the data compression. Both allowed deviations are well within the general uncertainty of the instruments and therefore the correctness of the stored results is not influenced.* *On 18th January 2011 and 14th February 2011 the system was re-programmed to store the data strictly every 10 seconds for the future.* *Please see the attached presentation from the system provider (OSI Soft) regarding the function of this way of data compression (view in presentation mode to see the animations). See also the attached email from OSI Soft with definitions of the different CompDev values for the different TAG numbers.*		
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*	OK. The data compression and storage procedure according to the rules of the OSI Soft software was clearly explained by the PP with all relevant evidences/OSI/, /MAIL/. The verifier confirmed that the data compression has no significant influence on the correctness of monitored data		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding:	**E6**		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	The verifier should check if the time displayed on the monitor of the AMS-device and at the plant are the same.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*			
DOE Assessment #1 *The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.*			
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☐ The project complies with the requirements		

5. SUMMARY OF VERIFICATION ASSESSMENTS

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

5.1. Implementation of the project

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

5.2. Project history

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

The clarification of both FAR D3 (AMS) and CL D1 (monitoring standard) need to be checked during the first verification. The PP has to present evidences regarding the eligibility of the monitoring standard and the appropriateness of the AMS.

FAR D 3:

The verifier has to check the appropriateness of the AMS (with regard to e.g. location of the sampling point, QAL1, QAL 2, uncertainty assessment).

CL D1:

It must be checked at each verification that the selection and operating conditions of the AMS is in line with the chosen monitoring standard.

Further issues:

It must be checked at each verification, that, for the time after 16th July 2011, no ERUs will be issued for emission levels which do not go beyond the business as usual scenario, defined by the Arrete prefectoral 2009-07-16 (2,47 kg N2O/t HNO3) over a period of 12 months.

5.3. Special events

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

atmosphere. The PP provided an overview of the events, which was spot-checked by the verifier.

Date	Comments
2009-12	
	Plant start up
	Plant trip (1d)
	Plant re-start
	Problems with primary catalyst gauzes
2010-01	
	Short stop
	Plant shutdown (5d)
	Plant re-start
2010-02	
	72-hour stop
	Planned plant stop (13d)
2010-3	
	Re-start after planned stop
	Plant trip (2d)
	Plant re-start
2010-4	
-	Plant stop (10d)
2010-6	
	Plant start-up
	Shutdown (3d)
	Start-up
2010-7	
	Planned shutdown (12d)
	Re-start
2010-8	
	Plant stopped (5d)
	Plant re-start
2010-9	
	Plant stopped (
	Annual maintenance works started
2010-10	
	Plant shut down

Table 5.3.: Special events

5.4. Compliance with the monitoring plan

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

Parameter	Measurement device	QA/QS-Measures	
		Last	**Next**
N_2O	FT Fine Tech	Calibration: 2010-11-24	Calibration: Subsequent

		(AST)	year (AST)
Calibration gas: 100 ppm N_2O	Bottle No: BX12146F	Opened: 2009-07-28	Valid: 2011-07-28
Calibration gas: 1500 ppm N_2O	Bottle No: BX12125F	Opened: 2008-10-23	Valid: 2011-10-23

5.5. Monitoring parameters

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

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

Parameter:	Unit:	Applied value:
$NCSG_n$	mgN_2O/Nm^3	
	498.17	mean
	155.24	lower limit of confidence intervall
	796.91	upper limit of confidence intervall
VSG_n	[Nm^3/h]	
	135,038.07	mean
	122,806.99	lower limit of confidence intervall
	140,897.05	upper limit of confidence intervall

Table 5.5.1: Upper/Lower limit and mean value of NCSG and VSG according to statistical analysis applied for ER-calculation.

Parameter:	Unit:	Applied value:
OH_n	[h]	3,383
NAP_n	[$tHNO_3$]	125,366
OT	[°C]	Not applicable
AIFR	[%]	Not applicable
TSG	[°C]	Not applicable
PSG	[Pa]	Not applicable
EF_n	[$kgN_2O/tHNO_3$]	According to formula: EF_n = (PE_n/ NAP_n), the result is: 1.81533
EF_{BM}	[$kgN_2O/tHNO_3$]	2.50 kg $N_2O/tHNO_3$ (until June 2011)
EF_{reg}	[$kgN_2O/tHNO_3$]	2.47 kg $N_2O/tHNO_3$ from July 2011 onwards (not in this verification period).
PE_n	[kgN_2O]	227,580.80

Table 5.5.2: Monitored plant parameter/input for ER calculation

5.6. Monitoring report

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

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

5.7. ER Calculation

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

Parameter	Value	Unit
Nitric Acid Production (100% concentrate)	125,366	$tHNO_3$
Project Emissions	227,580.80	tCO_2e
Emission Factor	1.81533	$kgN_2O/tHNO_3$
Governmental ERU deduction	10	%
Emission Reductions	23,947	tCO_2e

Table 5.7: Relevant data and outcome of ER-calculation

5.8. Quality Management

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

5.9. Overall Aspects of the Verification

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

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

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

5.10. Hints for next periodic Verification

FAR B3:

The PP has to implement a QA/QS procedure to cross-check the Nitric Acid Production registered in the DCS

Far C2:

It must be checked at each verification, that, for the time after 16th July 2011, no ERUs will be issued for emission levels which do not go beyond the business as

usual scenario, defined by the Arrete prefectoral 2009-07-16 (2,47 kg N2O/t HNO3) over a period of 12 months.

FAR E3:

An internal quality check of project-data registration and processing at the plant should be implemented and documented.

FAR E6:

The verifier should check if the time displayed on the monitor of the AMS-device and at the plant are the same.

6. VERIFICATION OPINION

GPN N7 Nitric Acid Plant has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "*GPN Grand Quevilly N7 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 2009-12-08 to 2010-10-31 (including both days).

In the course of the verification 6 Corrective Action Requests (CAR) and 5 Clarification Requests (CL) were raised and successfully closed. Furthermore 4 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 N_2O 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: **23,947** t CO_{2e}

Essen, 2011-07-20	Essen, 2011-07-20
A. Nebel	
Alexandra Nebel	Rainer Winter
TÜV NORD JI/CDM CP	TÜV NORD JI/CDM CP
Verification Team Leader	Final Approval

7. REFERENCES

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

Reference	Document
/AP/	Arrete Prefectoral issued by the Prefecture de Gironde on 2009-07-16 regarding max. Emission from Nitric Acid plant
/BILAN/	• BILAN HNO_3: Mass balance of the site to carry out a daily assessment of HNO3 production, ref.-No.: DTU/2/0001 Dated 2011-02-16 Rev. 1 • BILAN HNO_3: Mass balance of the site to carry out a daily assessment of HNO_3 production, ref.-No.: DTU/2/0001 Dated 2011-03-17 Rev. 2
/BILANXLS/	BILAN HNO3 BALANCE-1_20110706.xls sheet for calculation of mass balance
/BOOK/	Quality document: Procedure d'Exploitation Environnement, Chapitre 07 N°02 Rejets N_2O, Consignes d'exploitation et projet domestique Rev.: 0, dated: 2010-11-25. This procedure outlines the main constraints and rules imposed on the project by legislation in relation to emissions of N_2O from the production plant of nitric acid.
/BOTTLEN7/	Calibration gas certificates for N7 plant, all in period of validity
/CERT/	ISO 9001, 14001 Certificates, issued by AFNOR, valid until 2012-10-11
/DECLA/	Déclaration annuelle des émissions polluantes –rejets 2009- (Emission declaration for the year 2009 to the Environmental Ministry, including HNO_3-output and N_2O-emissions), dated 2010-02-15
/DENOXN7/	E-mail from BASF (Christine Dradetti) mentioning the maximum N_2O-emission of the DeNOx-reactor as 15 vppm
/EIPSN7/	Liste de elements critiques QSE.xls (List of safety related parameter of the N7 plant – including N_2O-analyser)
/FICHE/	Fiche renseignement carte de controle –Analyseurs Nitrique, control cards, different dates from 2010-01-21 to 2010-03-18
/FICHE1/	Fiche de vie – analysateur Nitrique 7 (Control card for N2O-analyser od plant N7, last date of calibration is: 2010-10-21),

Reference	Document
/HIST/	Plant history in the verification period
/10SEC/	N7- 10 sec data compared to hourly data.xls spreadsheet with 10 second values of NCSG and VSG. • Period 2010-07-21 12:00:00 until 15:00:00.
/HISTN7/	Plant events at GPN N7 -1st verification period (8/12/2009 to 31/10/2010)
/LOA/	• LOA issued by the French "Ministère de l'Écologie, de l'Énergie, du Développement Durable et de la Mer, en charge des Technologies vertes et des Négociations sur le climat" on 2010-04-16, Ref-No.: 10007266 • LoA issued by the National Climate Commission of Belgium on 2010-12-03, Ref-No.: NKC/DFP/2
/LET/	Lettre de demande d'autorisation à participer à un projet réalisé au titre de l'article 6 du protocole de Kyoto (Letter asking for authorization of participication in a project as established by article 6 of the Kyoto protocol) by Total Petrochemicals Antwerpen dated 2011-06-20
/MANUAL/	Procedure: Manuel Maintenance Travaux Neufs: Procedures Techniques Projet Domestique, Version No.2, 15.402.00 (Description of the organization, instructions and department procedures implemented in the framework of domestic projects), dated 2011-11
/MR/	1. First Monitoring report of GHGs emission reductions (08.12.2009 – 31.10.2010) "GPN Grand Quevilly N7 N_2O abatement project" dated 2010-11-11, version 1, issued by N.serve. 2. Final Monitoring report of GHGs emission reductions (08.12.2009 – 31.10.2010) "GPN Grand Quevilly N7 N_2O abatement project" dated 29.06.2011, version: 04, issued by N-serve
/ORGPD/	Organisation projets domestiques (Survey of personnel organisation of the JI-project), issued by the GPN plant on 2010-11-18.
/P&IN7/	Pipe and Installation sheet of N7 plant.
/PROC1/	Quality procedure: Organisation de la Cellule Analysateur pour le Suivi de analysateur securite (IPS) environment Qualité (Organisation of maintenance of the AMS), TEIN/12/300
/PROC2/	Plan de controle suivi de analysateurs à lèmission des Nitriques N7, 8 (Plan (Procedure) of Mainenance of AMS), MEI_2_1200
/PROC3/	Verification des Analyseurs FTIR (Calibration procedure of the AMS (N_2O-Analysator), MEI_3_1221

Reference	Document
/PROC4/	Procedure – Gestion des documents maitrises des enregistrements, (document management system), AQ/2/0001
/PROC5/	Programme individual de formation au poste de travail (Individual program for training on workplace)
/PROC6/	Elaboration, execution et suivi du plan de formation (Development, Implementation and monitoring plan for training of plan staff), RH_2_0303
/PROC7/	Mode operatoire – Debitmetres Etalonnage verification (Procedures for calibration of HNO3 flow meters), ELMR/3/017
/PROC8/	• Mode operatoire – Bilan N_2O (Quality document regarding N_2O emissions from the GPN nitric acids plants), ENV/3/1121, • Revised version dated 2010-12-20, version 7 with revised uncertainty values: "Concentration en N_2O: AT 7160A [ppmv]: 8.5%"
/PROC9/	Mode-operatoire – Verification des analysateurs FTIR (Quality document related to the calibration of the N_2O-analyser at N7 plant
/QAL2CAL7/	Report on performance tests and calibration of the AMS, report No.: M83 984/1, issued by Müller BBM on 2010-08-09 Revised version from November 2010: Report on performance tests and calibration of the AMS, report No.: M83 984/1, issued by Müller BBM on 2010-08-09 (same report which now includes correction factors for the AMS)
/QAL2INST/	QAL2 check of correct installation of the AMS, report No.: M83 984/3, issued by Müller-BBM on 2010-08-09
/SPIE CON1/	Mémoire technique et organisationnel, dated 2009-10-01 (Definition of scope of contract /CONSPIE/.
/SPIE5/	Contrat analysateurs 2010 – Annexe 5: definition des travaux de maintenance courante (Technical specification of global contract /CONSPIE/)
/SPIECON/	Contrat de maintenance (Refreshed contract between GPN and SPIE regarding maintenance of MMD equipment), dated October 2010)
/SPIEOR/	Organigramme contrat maintenance (Organisation sheet of responsibilities at SPIE and GPN regarding the maintenance contract).
/TRAIN/	Module 4: le System d'echantillonage (Training course for maintenance works, with staff of ESPIE and GPN, signed by the attendances)
/TRAIN2/	FineTech – Certficat d'aptitude (2 days service training for Mr. Pascal

Reference	Document
	Fauquet), dated 2008-03-28
/TRAIN2/	Attestation de presence (Different certificates of participation in a training course: Maintenance of analysers, level 2 and 3)
/TRIPN7/	Tableau des securities: Nitrique 7 (List of trip point values of N7 plant)
/XLS/	• GPN_N7_Monitoring Data 1st Verification _ 20101110_Version3.xls, ERU Excel calculation spreadsheet • GPN_N7_Monitoring Data 1st Verification _ 20110629_Version5.xls, ERU Excel calculation spreadsheet

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: GPN Grand Quevilly N7 N2O abatement project, Report No.: 8000373115 – 09/264; dated 2010-04-28, issued by TÜV NORD
/DVM/	JI Determination and Verification Manual
/GUIDE/	Guidance: Developing a CDM or JI project to reduce greenhouse gas emissions, issued by the:

Reference	Document
	• 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 2009-08-06 "GPN Grand Quevilly N7 N_2O abatement project"
/OTN7/	Diagram of parameter OT - Extract of ERU-calculation Excel-sheet
/NCSGN7/	Diagram of parameter NCSG - Extract of ERU-calculation Excel-sheet

Table 7-3: Websites used

Reference	Link	Organisation
/bref/	http://eippcb.jrc.ec.europa.eu/reference/	Website of the European Commission, Joint Research Centre, Institute for Prospective Technological Studies (Provision of BAT-Reference documents)
/dehst/	http://www.dehst.de	German Emissions Trading Authority (DEHSt) at the Federal Environment Agency
/dfp/	http://www.developpement-durable.gouv.fr/	Ministère de l'Écologie, de l'Énergie, du Développement Durable et de la Mer, en

Reference	Link	Organisation
		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)
/unfccc/	http://ji.unfccc.int	JI-FC

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms	Bruno Dufour	GPN N7 Nitric Acid Plant (Production manager)
/IM01/	V	☒ Mr. ☐ Ms	Bernard Valle	GPN N7 Nitric Acid Plant (Coordinator JI-Projects)
/IM01/	V	☐ Mr. ☒ Ms.	Isabelle Martinieau	GPN N7 Nitric Acid Plant (Quality/Environmental manager)
/IM01/	V	☐ Mr. ☒ Ms.	Pascal Fauquet	GPN N7 Nitric Acid Plant (Instrumentation Engineeer)
/IM01/	V	☐ Mr. ☒ Ms.	Pierre Henri Chretien	GPN N7 Nitric Acid Plant (Engineer exploitation)

Reference	MoI[1]		Name	Organisation / Function
/IM01/	V	☐ Mr. ☒ Ms.	Patric Le Calve	GPN N7 Nitric Acid Plant (Site technical Engineer)
/IM01/	V	☐ Mr. ☒ Ms.	Rebecca Cardani-Strange	N.serve (Project manager)
/IM01/	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[4] 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:* Belgium was added as investor country. A Belgian LoA shall be provided (CAR A1).	/LOA/ /dfp/ /unfccc/ /MR/	CAR A1	~~CAR A1~~ Pls. refer to section 4.	OK
A.2	*DVM § 91* Are all the written project approvals by Parties involved unconditional?	*Description:* The French LoA has two conditions, which need to be taken into account: • Only 90 % of the verified emission reductions of one period shall be claimed by the PP. The ERU quantity stated in this report already takes into account the 10% deduction.	/LOA/ /dfp/ /unfccc/			OK

[4] JISC 19 Annex 4

No.	DVM[4] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
		• The total amount of verified emission reductions until 2012-12-31 is limited to 294,955 tonnes (before 10 % reduction) as per the LoA from the French DFP issued 2010-04-16 *Means of determination:* LoA *Conclusion:* OK, • 10 % of the emission reductions are subtracted from the initial result. The ERU quantity stated in this report already takes into account the 10% deduction. • The sum of emission reduction does not exceed the maximum amount as stated in the LoA.				
B	***Project implementation***					
B.1	*DVM § 92* Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	*Description:* The PP installed a secondary abatement catalyst and an AMS conforming to the DIN EN 14181 before start of the project. QA/QS measures were implemented. *Means of determination:* PDD, certificates provided by the PP, on-site visit *Conclusion:* The project installations (Abatement catalyst, AMS) and procedures were checked by the verification team and compared with the description given in the registered	/PDD/ /DET/ /QAL2 CALIB/ /QAL2INST/ /MR-1/	CAR B1	~~CAR B1~~ Pls. refer to section 4.	OK

No.	DVM[4] 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. The installation of the abatement catalyst and monitoring system is –except for the shortage of process gas occur in the catalyst basket- in line with the PDD. The verification team found some inconsistencies in the monitoring report, which are summarised in CAR B1. • Dates on cover page should mention the year as: 2009 or 2010 and not 09 or 10 • The description of the application of the benchmark value should include "over a period of 12 months" as per Arrete. • Section 5.3.2.: The measurement and storage frequency of VSG is 10 seconds. For NCSG the measurement frequency is about 30 sec. (based on a cycle time of 30 seconds), the storage frequency 10 seconds. • Section 5.3.3.: The AIFR is 12,8 % and not 12,5 %. • It should be stated, that NAP of periods the plant is not in operation will be excluded • 6.4. QAL 3: The PP should state, that procedures will also performed by the external company SPIE. • Section 7.1.4. "EF_p" should be the hourly emission factor. • An overview of plant events and of calibration dates of relevant measurement devices should be included in the Annex 2 of the monitoring report. • Include and compare achieved emission reductions with				

No.	DVM[4] 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
		estimated figures from PDD. Explain significant deviations.				
B.2	*DVM § 93* What is the status of operation of the project during the monitoring period?	*Description:* The project is running according to the description provided in the PDD. The abatement efficiency is lower than expected and estimated in the PDD-calculation. The reason for this is a leak between the ammonia burner and the catalyst basket which leads to • An increase of N_2O-emission • A decrease of efficiency of the nitric acid process. *Means of determination:* Calculation sheets annexed to the monitoring report, on-site visit and inspection of implementations, plant history, PDD *Conclusion:* The project history was discussed in detail during on site visit and found to be plausible. CAR B2: Some periods included in the ERU-calculation show low (about 25 t/h) related to the usual (35-40 t/h) HNO_3-output. Since it was found, that data of the mass flow meter are not consistent, mass balance values shall be used to crosscheck NAP values. Parameters of mass balance (i.e. conversion efficiency) need to be evidenced.	/PDD/ /XLS/ /MR/ /HIST N7/	CAR B2 CAR B4 FAR C2	~~CAR B2~~ ~~CAR B4~~ FAR C2 Pls. refer to section 4.	OK

No.	DVM[4] 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 B4: One period show NSCG-values which are nearly unchanged (until the second digit) and the PP was requested to check these figures if they are default or measured values. Since the methodology states, that "The arithmetic average and the standard deviation are calculated at the end of the operating period, on the basis of all emissions data measurements for that period.", default values should not used for substitute values. Open issue from determination: Following FAR was raised to ensure, that –according to the methodology- legal emission limits will be taken into account in all verification periods: FAR C2: It must be checked at each verification, that, for the time after 16th July 2011, no ERUs will be issued for emission levels which do not go beyond the business as usual scenario, defined by the Arrete prefectoral 2009-07-16 (2,47 kg N_2O/t HNO_3) over a period of 12 months. Since the verified period does not include the 16th July 2011, no action is required.				

No.	DVM[4] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
C	***Compliance with monitoring plan***					
C.1	*DVM § 94* Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	*Description:* Monitored parameter and parameter (according to the methodology and the registered PDD) used for calculation are: • $NCSG_n$ [mg N_2O/Nm^3] *Meaning:* Average N_2O concentration in the tail gas during project Verification Period n. *Source:* Continuous emissions N_2O analyser (part of AMS) *Measurement frequency:* Hourly value based on continuous monitoring (10 second frequency) • VSG_n [Nm^3/h] *Meaning:* Average Volume flow rate of the tail gas during project Verification Period n. *Source:* Gas volume flow meter (part of AMS)	/PDD/ /MR/ /14181/ /XLS/	CL B5 CL C1 CL E1 CAR E2 CL E5	~~CL B5~~ ~~CL C1~~ ~~CL E1~~ ~~CAR E2~~ ~~CL E5~~ Pls. refer to section 4.	OK

No.	DVM[4] 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
		Measurement frequency: Hourly value based on continuous monitoring (10 second frequency) • PE_n [kgN_2O] *Meaning:* N_2O emissions during project Verification Period n. *Source:* Calculated from measured data *Measurement frequency:* Calculated after each Verification Period *Applied value:* Calculated according to the methodology: $PEn = VSG_n * NCSG_n * OH_n * 10^{-6}$ • OH_n [h] *Meaning:* Total operating hours of Verification Period n. *Source:* Production Log – taking into account the relevant trip				

No.	DVM[4] 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
		point parameters and the plant status signal *Measurement frequency:* Continuous • NAP_n [$tHNO_3$] *Meaning:* Metric tonnes of 100% concentrated nitric acid during any Verification Period n. *Source:* Nitric acid flow meter *Measurement frequency:* Continuously throughout the Verification Period n. • OT [°C] *Meaning:* Oxidation temperature in the ammonia oxidation reactor (AOR). *Source:* Thermocouples inside the AOR *Measurement frequency:*				

No.	DVM[4] 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
		Hourly average value based on continuous monitoring • AFR [$kgNH_3/h$] *Meaning:* Ammonia Flow rate to the ammonia oxidation reactor (AOR) *Source:* Ammonia Flow meter *Measurement frequency:* Hourly average value based on continuous monitoring • AIFR [%] *Meaning:* Ammonia to air ratio going into the AOR *Source:* Ammonia & Air flow meters *Measurement frequency:* Hourly average value based on continuous monitoring • TSG [°C]				

No.	DVM[4] 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
		Meaning: Temperature of tail gas *Source:* Probe (part of the gas volume flow meter). *Measurement frequency:* Hourly average value based on continuous monitoring • PSG [Pa] *Meaning:* Pressure of tail gas *Source:* Probe (part of the gas volume flow meter). *Measurement frequency:* Hourly average value based on continuous monitoring • EF_n [$kgN_2O/tHNO_3$] *Meaning:* Emissions factor calculated for project Verification Period n. *Source:*				

No.	DVM[4] 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
		Calculated from measured data • EF_{reg} [$kgN_2O/tHNO_3$] *Meaning:* Emissions cap for N_2O from nitric acid production set by government/local regulation. *Source:* National or local N_2O emissions legislation *(GPN N7 'arrêté préféctoral' issued by the DRIRE)* If this regulatory limit is lower than the applicable benchmark emissions factor, then EFreg shall replace EF_{BM} in the calculation of ERUs QA/QC: The PP refers to the project European standard 14181 regarding implementation of monitoring equipment and maintenance procedures. *Means of determination:* PDD, Monitoring report, ERU-calculation, DIN EN 14181, methodology, quality related procedures provided by the plant staff, on-site inspections and interviews with involved staff. *Conclusion* The verification team can confirm that the monitoring of the relevant parameter implemented in the				

No.	DVM[4] 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
		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 Some findings were raised in the context of data monitoring: CL B5: The PP should check, if data of 2009-08-12 00:00 (start of monitoring period) include values of next hour or hour before. In addition to this, the last dataset 2010-31-10 23:00 to 24:00 should only include data of the last day of the monitoring period. CL C1: The QAL 2 correction factors are not traceable. CL E1: QA Document BILAN N_2O ENV/3/1121[/PROC8/]: The PP should clarify the meaning of the uncertainty value of 3 % for				

No.	DVM[4] 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 N_2O-Analyser. CAR E2: Since the ERU calculation includes some NCSG-peaks resulting from calibration works with high concentrated (1,500 ppm N_2O) calibration gas, the PP shall check the data set of the verification period regarding this issue. CL E5: The NCSG values of the crediting period show continuously packages of 6 values (over a period of 1 minutes) with nearly the same figures. Clarification of this phenomenon is requested, including the fact, that the sampling period of the AMS is about 30 seconds.				
C.2	*DVM § 95a)* For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	*Description:* The project baseline is set by default values in the methodology EF_{BM} which was issued by the French DFP. Default values are expressed in benchmark values: Year: 2009 2010 2011 2012 Value: 2.5 2.5 2.5 1.85 EF_{BM} [kg N_2O/t HNO_3] These benchmark values are the key factors, which influence the baseline scenario and reduce the accountable emission reductions from realistic baseline emissions to the above mentioned values. The results of risk assessment are extensive measures to	/METH/ /LoA/ /DVM/ /AP/			OK

No.	DVM[4] 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
		prevent a bypass of process gases in the catalyst bed since this will lead to a reduction of catalyst efficiency. Decreasing catalyst efficiency was identified as most important project risk *Means of determination:* French methodology, LoA, interviews plant staff on GPN plant *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 the 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] Finetech FTIR 'PCM 1000' Continuous Emissions N_2O Analyser (part of AMS) • VSG_n [Nm^3/h] Rosemount gas volume flow meter (part of AMS) • PE_n [kgN2O]	/PDD/ /MR-1/ /METH/			OK

No.	DVM[4] 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
		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 [$tHNO_3$] Electromagnetic nitric acid flow meter • OT [°C) Thermocouple • AFR [kg NH_3/h] Ammonia flow meter • AIFR [%] Ammonia and Air flow meters • TSG [°C] Rosemount Probe (Part of AMS) • PSG [Pa] Yokogawa Pressure Probe (Part of the AMS)				

No.	DVM[4] 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
		• EF_n [$kgN_2O/tHNO_3$] For the verification period n the emission factor is: $EF_n = (PE_n / NAP_n)$ • EF_{reg} [$kgN_2O/tHNO_3$] The max. N_2O-emissions are set by the local government as: 2.5kg until July 2011 The ERU-calculation was carried out according to the formula described in the methodology: $ERU = ((EF_{BM} - EF_n)/1000 \times NAP \times GWP_{N2O}) * 0.9$ (tCO_2e) *Means of determination:* PDD, methodology, plant permits, monitoring report, on-site visit of plant, PCS and data server *Conclusion:* The PP could clearly demonstrate that data sources are clearly identified, reliable and transparent and calculated according to the methodology.				
C.4	*DVM § 95c)* Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of	*Description:* As described under C.2., the French DFP sets emission factors [kg N_2O/t HNO_3] as benchmark values. ERUs cannot be claimed if the plant emissions are exceeding this value. ERUs shall be calculated against this value.	/PDD/ /METH/ /MR/ /XLS/			OK

No.	DVM[4] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	*Means of determination:* Methodology, Monitoring report *Conclusion:* The benchmark value of 2.5 kg N_2O/t HNO_3 which is aplicable for 2009 and 2010 as set by the French DFP was applied in the ERU correctly calculation. Remark: On 16th July 2009, the local DRIRE (Directions Régionales de l'Industrie de la Recherche et de l'Environnement) introduced a plant-specific 'arrêté préféctoral', which will limit N_2O emissions at the GPN N7 plant to 2.47kg N_2O/tHNO_3 from July 2011 onwards.				
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 calculation includes: • A deduction in baseline emission scenario from around 7 to 2.5/1.85 kg N_2O/t HNO_3 (benchmark values). • A 10% reduction of the verified emission reductions *Means of determination:* Methodology *Conclusion:* The implementation of the benchmark values and 10% reduction is a conservative approach.	/PDD/ /METH/ /MR/ /XLS/			OK
	Applicable to JI SSC projects only					
C.6	*DVM § 96*	*Description:*				

No.	DVM[4] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	*N/A*. *Means of determination: N/A* *Conclusion: N/A*				
	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*				

No.	DVM[4] paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP´s action	Con-clu-sion
C.9	*DVM § 98* If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, Are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
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)*	*Description:* N/A				

No.	DVM[4] 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 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?	*Means of determination:* N/A *Conclusion: N/A*				
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 procedures, quality control and quality assurance are implemented as follows: • Measured values were generated by local measurement and monitoring devices, stored in plant DCS and provided for calculation via OSI PI data acquisition system. • Default i.e. plant trip point-values were determinated before start of the project and included in the PDD. • During data processing, measured values were evaluated according to statistical methods: • Application of instrument correction factors:	/PDD/ /METH/ /MR-1/ /PROCD/ /QAL2/	CL C1 FAR C2	~~CL C1~~ FAR C2 Pls. refer to section 4.	OK

No.	DVM[4] 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 chooses a monitoring standard that requires the establishment of a calibration curve (EN14181). The correction factors derived from this calibration curve during the QAL2 audit must be applied onto both VSG and NCSG calculations. Correction factors are: ○ 0.98 for stack gas flow meter ○ 0.99 for measurement of N_2O conc. ○ 1.0 for pressure of tail gas ○ 1.0 for temperature of tail gas • Plausibility check: The meth requires a plausibility check of all recorded/monitored data before processing which was conducted by the PP. plausibility criteria is: Negative values shall be eliminated. • Downtimes of the AMS: Acc. to the methodology, downtimes of the AMS shall be handled as following: The hourly average will be calculated based on the remaining values for the rest of the hour in question. If these remaining values account for less than 50% of the hourly data for one or more parameters, then this hour must be eliminated from the				

No.	DVM[4] 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
		calculation and a substitute value will be used instead. • Missing data/Substitute value In the case where it is impossible to obtain one hour of valid data for one or more elements of the emissions calculation due to downtime or malfunction of the AMS a substitute value for each hour of missing data shall be calculated as follows: $C^*subst = C + \sigma_C$ where: C: arithmetic average of the concentration of the relevant parameter σ_C: best estimate standard deviation of the concentration of the relevant parameter. • Permitted overall uncertainty: The methodology requires that the permitted overall uncertainty of the average hourly annual emissions must be less than 7.5% if technical possible. The determinated (combined) uncertainty for N_2O mass flow measurement as per QAL2 report is 2.58% which is below the permitted overall uncertainty.				

No.	DVM[4] 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
		Means of determination: Methodology, Monitoring report, on-.site visit of plant, control room with PCS, server room with Exaquantum data server, QAL2 report *Conclusion:* All procedures related to fulfil the requirements of • quality management of the plant • quality assurance standard of the AMS • data processing as required per methodology were implemented. CL C1: The QAL 2 correction factors are not traceable in the QAL 2 report and the PP is requested to provide a revised report or give additional information regarding the calculation of the values. FAR C2: It must be checked at each verification, that, for the time after 16th July 2011, no ERUs will be issued for emission levels which do not go beyond the business as usual scenario, defined by the Arrete prefectoral 2009-07-16 (2,47 kg N2O/t HNO3) over a period of 12 months.				

No.	DVM[4] 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: The AMS is included in the quality procedures which are established for proper operation of the plant. The plant operator conducted a certified company (SPIE) for maintenance of all Measuring and Monitoring Devices (MMD) of the plant. The PP therefore provides sufficient information regarding contractual/responsibility issues and scope of work.
		Additional measures are related to the European Norm EN14181 (2004) "Stationary source emissions - Quality assurance of automated measuring systems". Müller BBM was contracted to carry out these measures.
		• **Three quality assurance levels of EN 14181**:
		  • QAL 1: performance approval
		  The suitability of the analyser for the project was proved through the QAL2 audit, which was performed by an independent laboratory with EN ISO/IEC 17025 accreditation
		  • QAL 2: commissioning and validation of an AMS
		  An accredited laboratory (acc. ISO 17025) carries out specific testing procedures to verify that the AMS installation meets the accuracy requirements laid down by EN 14181. The performance of the complete
			/FG/
			/QAL2 INST/
			/QAL2 CALIB/
			/SPIE CON1/
			/SPIE5/
			/SPIECON/
			/SPIEOR/
				CL E1
				CAR E4
				CL C1
				FAR E6
					~~CL E1~~
					~~CAR E4~~
					~~CL C1~~
					FAR E6
						OK

No.	DVM[4] 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
		installation was compared against a series of measurements made with approved Standard Reference Methods. • QAL 3: ongoing operation and maintenance The PP implemented a quality assurance system to prove the ongoing compliance of the AMS with the norm. The maintenance activities are monitored and controlled as part of an overall quality assurance programme. • AST: Annual Surveillance Test The PP verifies the continuing validity of the calibration function on yearly basis. The requirements and responsibilities for carrying out the AST tests are the same as for QAL 2. QAL2 was carried out in 2009, the AST for 2010 is scheduled at end of the year. *Means of determination:* Methodology, EN14181, interview with monitoring manager of the plant, check of relevant documents and records *Conclusion:* Some findings were raised in context of maintenance and functionality of the monitoring equipment: CL E1: QA Document BILAN N_2O ENV/3/1121: The PP should				

No.	DVM[4] 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
		clarify the meaning of the uncertainty value of 3 % for the N_2O-Analyser. CAR E4: The time displayed in the monitor of the AMS-device on plant should be corrected. FAR E6: The verifier should check the corrected time stamps at the AMS CL C1: The QAL 2 correction factors are not traceable in the QAL 2 report and the PP is requested to provide a revised report or give additional information regarding the calculation of the values.				
E.3	*DVM § 101c)* Are the evidence and records used for the monitoring maintained in a traceable manner?	*Description:* All monitoring data are collected from the MMD as 4-20 mA signal and forwarded to the plant via DCS on a digital Modbus on two second basis. A data extract of hourly mean values is reported to the assessment team (at N.serve), *Means of determination:* Excel-datasheet for ER-calculation, data collections on second-basis provided by the plant operator during on-site visit (spot-check of single days)	/XLS/			OK

No.	DVM[4] 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
		Conclusion: The verifier can confirm, that all data are traceable and correctly converted and stored from MMD to ER-calculation.				
E.4	*DVM § 101d)* Is the data collection and management system for the project in accordance with the monitoring plan?	*Description:* All process data relevant to the project activity are properly generated in the MMD, transferred to the PSC and stored in the DCS. Hourly mean values were automatically calculated. Operating hours of the plant and AMS where generated and stored (value 0/1) to give the status information for data assessment. *Means of determination:* Records of the DCS, compared with methodology and monitoring plan of PDD. *Conclusion:* The PP implemented a state-of-the-art plant operation and data collection system. In the context of the project activity the verifier found some chances to improve the data check and processing procedures and raises some FARs, to improve the quality in the future: FAR B3: The PP has to implement a QA/QS procedure to cross-check the Nitric Acid Production registered in the DCS FAR E3:	/TAG/ /PDD/ /MR/ /XLS/ /METH/	FAR B3 FAR E3	FAR B3 FAR E3 .	OK

No.	DVM[4] 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
		An internal quality check of project-data registration and processing at the plant should be implemented and documented.				
F	***Verification regarding programmes of activities (additional elements for assessment)***					
F.1	*DVM § 102* Is any JPA that has not been added to the JI PoA not verified?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
F.2	*DVM § 103* Is the verification based on the monitoring reports of all JPAs to be verified?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
F.3	*DVM § 103* Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				
F.4	*DVM § 104* Does the monitoring period not overlap with previous monitoring	*Description:* N/A *Means of determination:* N/A				

No.	DVM[4] 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
	periods?	*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 reasonable, taking into account differences among the*	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				

No.	DVM[4] 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
	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 AIE does not identify and take into account such differences*					

No.	DVM[4] 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
	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 total JPAs, rounded to the upper whole number? If the AIE makes*	*Description:* N/A *Means of determination:* N/A *Conclusion: N/A*				

No.	DVM[4] 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
	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

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

CERTIFICATE OF APPOINTMENT

Ms. Alexandra Nebel

born on 1980-07-25

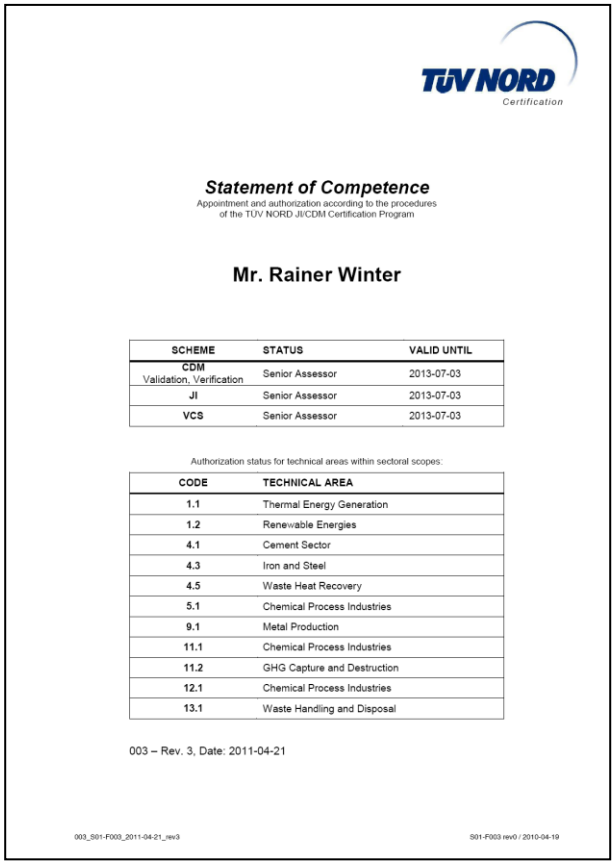
satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Lead Assessor

The present appointment will terminate on 2012-11-19
Certification registration No. 09 11 08 – 95 rev2

Essen, 2009-11-20

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. 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

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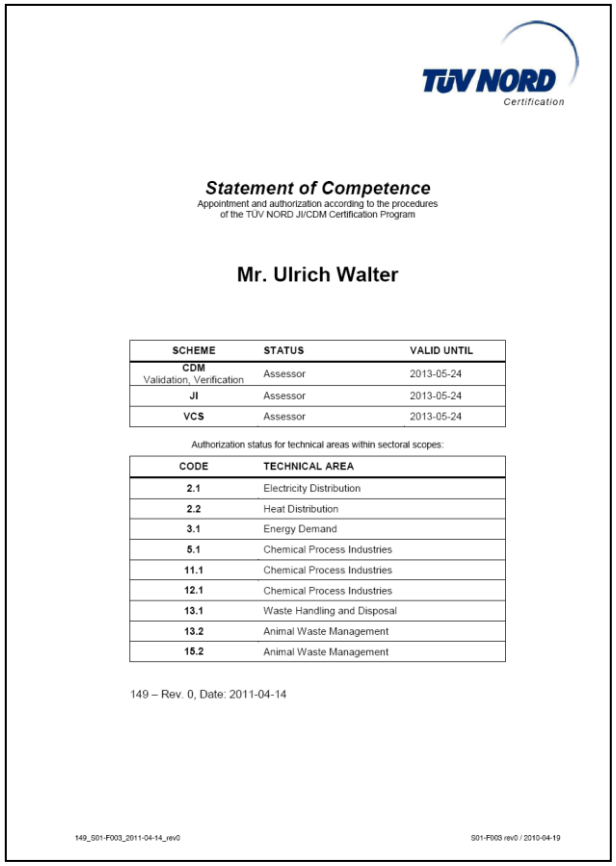
S01-F003 rev0 / 2010-04-19



TÜV NORD Certification

Statement of Competence

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

Mr. 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