



JI VERIFICATION REPORT

- 1ST PERIOD -

GPN S.A.

GPN GRAND QUEVILLY N8 N₂O ABATEMENT PROJECT

ITL PROJECT ID : FR1000147

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

Report No: 8000389261 – 10/498

Date: 2011-05-05

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Verification Report:	Report No.	Rev. No.	Date of 1st issue:	Date of this rev.
	8000389261 – 10/498	0	2011-05-05	
Project:	Title:	Registration date:		UNFCCC-No.:
	GPN Grand Quevilly N8 N ₂ O abatement project	2010-04-16		FR1000147
Project Participant(s):	Host party:	Other involved parties:		
	France	Germany, Belgium		
Applied methodology/ies:	Title:	No.:	Scope:	
	Project specific methodology: 'Catalytic reduction of N ₂ O 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 N8 N ₂ O abatement project	2010-11-11	2011-04-14	
Verification team / Technical Review and Final Approval	Verification Team:	Technical review:	Final approval:	
	Alexandra Nebel Sabine Meyer Ulrich Walter	Dirk Speyer Rainer Winter	Rainer Winter	
Emission reductions: [t CO_{2e}]	Verified amount	As per Draft MR:	As per PDD:	
	125,810	128,307	261,308	
Summary of Verification Opinion:	<p>GPN S.A. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the: "GPN Grand Quevilly N8 N₂O abatement project", with regard to the relevant requirements for JI project activities. The project reduces GHG emissions due to the reduction of N₂O emissions from the production of nitric acid with tertiary N₂O abatement technology (tertiary catalyst). This verification covers the period from 2009-12-08 to 2010-10-31 (including both days).</p> <p>In the course of the verification 5 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.</p> <p>As a result of this verification, the verifier confirms that:</p> <ul style="list-style-type: none"> • all operations of the project are implemented and installed as planned and described in the project design document. • the monitoring plan is in accordance with the applied country specific methodology: Méthode pour les Projets Domestiques: "Réduction catalytique du N₂O dans des usines d'acide nitrique". • the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately. • the monitoring system is in place and functional. The project has generated GHG emission reductions. <p>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:</p> <p>Emission reductions: 125,810 t CO_{2e}</p> <p>Including a deduction of 10 % according to the Arrêté du 2 mars 2007.</p>			
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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
CO₂	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)
HNO₃	Nitric Acid
JI	Joint Implementation
MMD	Measurement and Monitoring Devices
MP	Monitoring Plan
MR	Monitoring Report
N₂O	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 N8 N₂O 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 FR1000147¹.

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/},

¹⁾ <http://ji.unfccc.int/JIITLProject/DB/45O56GWFCPYVIRXJ8SVOQJ75WSOV58/details>



- 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,
- 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 N₂O at nitric acid plants"^{/METH/}

Méthode pour les Projets Domestiques: "Réduction catalytique du N₂O dans des usines d'acide nitrique"^{/METH/}



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 N8 N ₂ O abatement project
JI Track	<input checked="" type="checkbox"/> Track 1 <input type="checkbox"/> Track 2 <input type="checkbox"/> JPA
Project size	<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale
JI Approach	<input checked="" type="checkbox"/> JI Specific Approach <input type="checkbox"/> Approved CDM Methodology
Project Scope <i>(according to UNFCCC sectoral scope numbers for CDM)</i>	<input type="checkbox"/> 1 Energy Industries (renewable- /non-renewable sources)
	<input type="checkbox"/> 2 Energy distribution
	<input type="checkbox"/> 3 Energy demand
	<input type="checkbox"/> 4 Manufacturing industries
	<input checked="" type="checkbox"/> 5 Chemical industry
	<input type="checkbox"/> 6 Construction
	<input type="checkbox"/> 7 Transport
	<input type="checkbox"/> 8 Mining/Mineral production
	<input type="checkbox"/> 9 Metal production
	<input type="checkbox"/> 10 Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/> 11 Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/> 12 Solvents use
	<input type="checkbox"/> 13 Waste handling and disposal
	<input type="checkbox"/> 14 Land-use, land-use change and forestry
	<input type="checkbox"/> 15 Agriculture
Methodology:	<i>Projet Domestique Methodology: "Catalytic reduction of N₂O at nitric acid plants"</i>
Technical Area(s):	Q: N ₂ O
ITL Project ID No.:	FR1000147
Crediting period	<input type="checkbox"/> Renewable Crediting Period (7 y) <input checked="" type="checkbox"/> Fixed Crediting Period (10 y) assumed that N ₂ O is not 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	1 st Monitoring period	2009-12-08 to 2010-10-31	Object of this verification process

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.
Other Involved Party/ies	Germany Belgium	N.serve Environmental Services GmbH GPN S.A.

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'industrielle - BP 204 76121 Grand Quevilly Cadex
Plant Coordinates	Latitude: 49°25'2.31"N Longitude: 1°1'28.38"E

2.5. Technical Project Description

The project activity aims to reduce levels of N₂O emissions from the production of nitric acid with tertiary N₂O abatement technology (tertiary catalyst).

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

Table 2-5: Technical data of the plant N8

Parameter	Unit	Value
Ammonia Oxidation Reactor		
Manufacturer	-	ALSTOM
Diameter	mm	6198
Start of commercial production	-	July 2009
Operating conditions as per specifications (trip point values)		
- Temperature (min/max):	°C	820 – 920
- Pressure (min/max):	Bar abs	5,9 (security)
- Ammonia to Air ratio (max)	Vol.-%	10,5
Ammonia Oxidation Catalyst		



Parameter	Unit	Value
Manufacturer	-	Johnson Matthey
Composition:	-	Pt/Rd/Pd
Absorber		
Design capacity per day	t/d (100 %)	1,500
Annual production	t/year (100%)	525,000
Annual operation (design)	days	350
Tertiary Catalyst		
Manufacturer	-	GPN S.A.
Start of operation		July 2009
Type		Pelleted tertiary catalyst
Composition		Iron Zeolite
Design efficiency N ₂ O reduction	%	>95
Design efficiency NO _x reduction	%	>80
Capacities of substituted plants		
Oissel	t/a (metric)	297,500
N5	t/a (metric)	119,000
N6	t/a (metric)	119,000
N₂O Analyzer (stack)		
Manufacturer	-	FT Fine Tech
Type	-	ANAFIN 5000 ORBITAL AIT
Measurement Principle	-	FTIR spectrometry
Stack volume flow rate measurement		
Manufacturer	-	Sick Maihak GmbH
Type	-	FLAWSICK 100
Measurement Principle	-	Ultrasonic

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 3.0 below:

Table 3.0: Verification sequence

Topic	Time
Assignment of verification	2010-11-11
On-site-visit	From 2010-11-17 till 2010-11-19
Draft reporting finalised	2010-12-13
Final reporting finalised	2010-05-05
Technical review finalised	2010-05-06

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,



- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

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

3.3. Appointment of team members and technical reviewers

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

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

Table 3-1: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ⁴⁾	Host country Competence	Team Leading competence
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Nebel, Alexandra	TÜV Nord Cert GmbH	TL	LA	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Walter, Ulrich	TÜV Nord Cert GmbH	TM	A	<input checked="" type="checkbox"/>	Q	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Meyer, Sabine	TÜV NORD Cert GmbH	TM	A	<input type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Winter, Rainer	TÜV Nord Cert GmbH	TR ³⁾ FA ³⁾	SA	<input checked="" type="checkbox"/>	Q	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Dirk Speyer	TÜV Nord Cert GmbH	OR ³⁾	TE	<input type="checkbox"/>	5.1	<input type="checkbox"/>	<input type="checkbox"/>

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

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

³⁾ No team member

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



3.4. Publication of the Monitoring Report

In accordance with decision 9/CMP.1 (§ 36) the draft monitoring report, as received from the project participants, has been made publicly available on the TÜV NORD Website www.global-warming.de during a 30 days period from 2010-11-17 to 2010-12-17. Comments received are taken into account in the course of the verification, if applicable. (No comments were received.)

3.5. Verification Planning

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

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

Risk analysis and detailed audit testing planning

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

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

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
<i>The following potential risks were identified and divided and structured according to the possible areas of occurrence.</i>	<i>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</i>	<i>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</i>	<i>The additional verification testing performed is described. Testing may include:</i> <ul style="list-style-type: none"> - Sample cross checking of manual transfers of data - Recalculation - Spreadsheet 'walk throughs' to check links and equations - Inspection of 	<i>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.</i>



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)
	<i>measures are implemented:</i>	<i>verification.</i>	<i>calibration and maintenance records for key equipment - Check sampling analysis results Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</i>	

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.	DVM² paragraph / Checklist Item <i>(incl. guidance for the determination team)</i>	Initial Finding <i>(Means and results of assessment)</i>	Ref.	Action requested to project participant <i>(CAR, CL, FAR)</i>	Review of PP's action	Conclusion
<i>Number of the checklist item</i>	<i>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.</i>	<i>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.</i>	<i>Gives reference to the information source on which the assessment is based on.</i>	<i>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.</i>	<i>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.</i>	<i>Final assessment at the final verification stage is given.</i>

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

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

3.6. Desk review

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

² JISC 19 Annex 4



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

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

3.7. On-site assessment

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

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

The 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 N8 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 N8 Nitric Acid Plant	<ul style="list-style-type: none"> - General aspects of the project - Technical equipment and operation - Changes since validation



Interviewed Persons / Entities	Interview topics
2. Consultant, N.serve	<ul style="list-style-type: none"> - Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring and measurement equipment - Maintenance - Remaining issues from validation - Monitoring data management - Data uncertainty and residual risks - GHG emission reduction calculation - Procedural aspects of the verification - Environmental aspect

3.8. Draft verification reporting

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

3.9. Resolution of CARs, CLs and FARs

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

Corrective Action Requests (CARs) are issued, if:

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

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

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

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

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

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

3.10. Final reporting

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

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

3.11. Technical review

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

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

3.12. Final approval

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

After this step the request for issuance can be started.



4. VERIFICATION FINDINGS

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

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

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

Verification topic	No. of CAR	No. of CL	No. of FAR
A – Project Approvals	0	1	0
B – Project Implementation	1	1	1
C – Monitoring Plan Compliance	1	1	1
D – Monitoring Plan Revision	0	0	0
E – Data Management	3	2	2
SUM	5	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	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Belgium was added as investor country. Please provide the Belgian LoA.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Please find attached the investor LoA from the Belgian National Climate Commission, dated 03/12/2010.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and</i>	OK. The LoA was issued by the Belgian National Climate Commission which is the Belgian Designated Focal Point as mentioned on the JI-SC website ³ .		

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



Finding:	A1
<i>DOE assessments (#2, #3, etc.) shall be added.</i>	The project participant GPN S.A. and project title is clearly named on the LoA.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Monitoring Report: <ul style="list-style-type: none"> Dates on cover page should mention the year as: 2009 or 2010 and not 09 or 10 Trip point should be mentioned as per PCS values (N8) The description of the application of the benchmark value should include “for the past year” as per Arrete. The reference scenario should be included in table in section 4 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 10,5 % and not 11 %, 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. “EFp” should be the hourly emission factor. The section 7 should include a paragraph, which assesses that the yearly nitric acid production does not exceed the replaced production capacities reduced by 10 % (481,950 t HNO₃/a) 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. 		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Monitoring Report: <ul style="list-style-type: none"> The dates on the cover page have now been changed to 2009 and 2010 The oxidation temperature trip points in section 5.3.3 have now been adjusted to 790 and 900, in accordance with the values shown in the plant’s process control system. The fact that the regulatory limit is calculated as a 12-month average has now been mentioned in section 5.1. The Reference Scenario has now been included in the table in section 4. The installed Automated Monitoring System (AMS) provides 		



Finding:	B1
	<p><i>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.</i></p> <p><i>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 predefined limit (Compression Deviation).</i></p> <p><i>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 +- 2000 m³/h or 0.5 % of the analyzer range (CompDev = 2000). 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.</i></p> <p><i>On the 18th January 2011 and 14th February 2011 the system was reprogrammed 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.</i></p> <ul style="list-style-type: none"> <i>• Section 5.3.3: The trip point value for the maximum ammonia to air ratio has now been changed to 10.5%, in accordance with the value shown in the plant's process control system. NAP has also been mentioned in the list of datasets to be excluded during times when the plant is not in operation.</i> <i>• Section 6.4 now states that the external contracting firm 'SPIE' is also responsible for carrying out the QAL3 procedures.</i> <i>• 'EFp' in section 7.1.4 has now been replaced by 'hourly emissions factor'.</i> <i>• An explanation has been added to section 7.2 under 'Eligible NAP' to demonstrate that the NAP for which ERUs are being claimed does not exceed the eligible capacity, in accordance with the French methodology</i>



Finding:	B1
	<ul style="list-style-type: none"> 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 the heading 'Predicted vs achieved ERUs'. Principal reasons for the difference between these figures have been listed. However, the details behind these reasons 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.
<p>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.</p>	<p>OK.</p> <ul style="list-style-type: none"> The Format of figures is correct. The Trip point values are mentioned as per PCS The regulatory limit is correctly stated The reference scenario has been included in the relevant table 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 is confirmed that the data compression have no significant influence on the correctness of monitored data. The AIFR value was revised in the MR SPIE was mentioned as external maintenance company EF_p was replaced by hourly emission factor The MR includes now a list of plant events and calibration details of the measurement devices The estimated and achieved emission reductions were now included in the relevant chapter of the report. <p>The finding is closed.</p>
<p>Conclusion Tick the appropriate checkbox</p>	<p> <input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements </p>

Finding:	B2		
Classification	<input type="checkbox"/> CAR	<input type="checkbox"/> CL	<input checked="" type="checkbox"/> FAR
<p>Description of finding Describe the finding in unambiguous style; address the context (e.g. section)</p>	The PP has to implement a QA/QS procedure to cross-check the Nitric Acid Production registered in the DCS.		
<p>Corrective Action #1 This section shall be filled by the PP. It shall address the corrective action taken in details.</p>			



Finding:	B2
<p>DOE Assessment #1 <i>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.</i></p>	
<p>Conclusion <i>Tick the appropriate checkbox</i></p>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding:	B3		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
<p>Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i></p>	The PP should check, if the first data of the monitoring period include values of next hour or hour before. In addition to this, the last dataset of the period should only include data of the last day and hour of the monitoring period.		
<p>Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	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.		
<p>DOE Assessment #1 <i>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.</i></p>	The verifier needs evidences of <ul style="list-style-type: none"> • 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. 		
<p>Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	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.		
<p>DOE Assessment #2 <i>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.</i></p>	OK. The PP provided an extract of the data as Excel-file ^{/HOURL/} to prove the storage procedure of the AMS. The verifier confirms, that the hourly data includes the single values of the following hour.		
<p>Conclusion <i>Tick the appropriate checkbox</i></p>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken		



Finding:	B3
	<input checked="" type="checkbox"/> The project complies with the requirements

Finding:	C1		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The QAL 2 correction factors are not traceable.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The latest QAL2 report number M82 881/1, updated on 20/10/2010, was made available to the auditor on-site. Table 10.2.1 on page 46 of this report shows the QAL2 correction factors for N ₂ O, volume flow, temperature and pressure (parameter, new).		
DOE Assessment #1 <i>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.</i>	<p>The PP provided an updated version of the QAL 2 report with correction factors:</p> <p>NCSG: 0.97 VSG: 0.98 OT: 0.99 OP: 1.00 (no correction)</p> <p>Values of MR^{MR/}:</p> <p>NCSG: 0,9716 VSG: 0.98 OT: Not mentioned OP: Not mentioned</p> <p>Values of ERU calculation^{XLS/}:</p> <p>NCSG: 0,9716 VSG: 0.98 OT: 0.99 OP: 1.00</p> <p>The PP is requested to include all correction values in the MR and to use the value of 0.97 for parameter NCSG in MR and Excel-calc according to the QAL2-report.</p>		
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The QAL2 factors are correctly mentioned in the QAL2 report. MR and calculation are updated accordingly with a factor of 0.97 for NCSG 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 <i>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.</i>	<p>OK.</p> <p>Following correction factors are used for ER-calculation and correctly referenced:</p> <p>The PP provided an updated version of the QAL 2 report with correction factors:</p> <p>NCSG: 0.97 VSG: 0.98 TSG: 0.99 PSG: 1.00 (no correction)</p>		
Conclusion	<input type="checkbox"/> To be checked during the next periodic verification		



Finding:	C1
Tick the appropriate checkbox	<input type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	C2		
Classification	<input type="checkbox"/> CAR	<input type="checkbox"/> CL	<input checked="" type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It must be proven at each verification, that the plant's average emission levels for the past year did not exceed the regulatory limit.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>			
DOE Assessment #1 <i>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.</i>			
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements		

Finding:	C3		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	On 2010-06-17 09:00 no NAP was measured but plant was under operation (plant status signal "1"). This value should be deleted from ERU-calculation.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<i>The value referred to above has now been deleted from the ERU calculation. The reason for the plant status signal "1" was a test of the temperature probe.</i>		
DOE Assessment #1 <i>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.</i>	OK. The relevant value was removed from ERU calculation		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken		



Finding:	C3
	<input checked="" type="checkbox"/> The project complies with the requirements

Finding:	E1		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	QA/QS Document BILAN N ₂ O ENV/3/1121 ^{/PROC8/} : The PP should clarify the meaning of the uncertainty value of 3 % for the N ₂ O-Analyser.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Following the QAL2 test, it was established that the estimated uncertainty of 3%, shown in the document 'BILAN N2O ENV/3/1121', was not correct. The uncertainty figure stated in the above document has therefore now been changed to 8.5% for the N8 analyser with reference number AI 0808, in accordance with the QAL2 report from Müller-BBM. Please find attached the revised document ('Bilan N2O ENV_3_1121_R7').		
DOE Assessment #1 <i>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.</i>	OK. The PP provided the revised quality document ^{/PROC8/} .		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

Finding:	E2		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Since the ERU calculation includes some NCSG-peaks resulting from calibration works with high concentrated (1,500 ppm N ₂ O) calibration gas, the PP shall check the data set of the verification period regarding this issue.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The datasets of the verification period have been checked and two 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 <i>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.</i>	OK. The relevant NSCG-peaks were removed from the ERU calculation.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly		

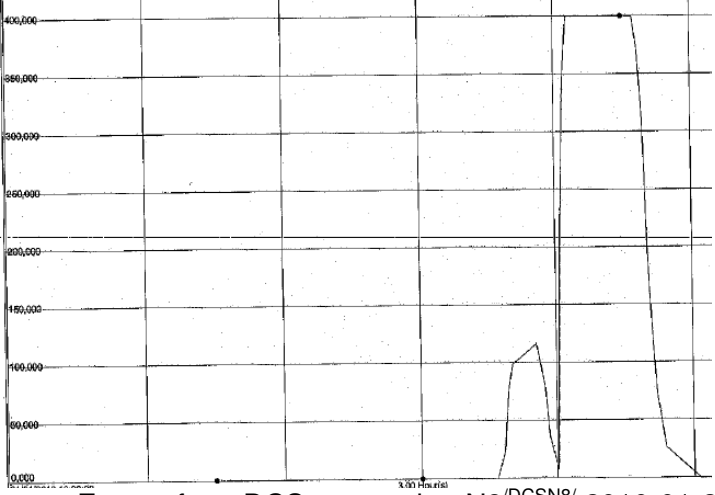


Finding:	E2
	<input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	E3		
Classification	<input type="checkbox"/> CAR	<input type="checkbox"/> CL	<input checked="" type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	An internal quality check of project-data registration and processing at the plant should be implemented and documented.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>			
DOE Assessment #1 <i>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.</i>			
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements		

Finding:	E4		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Also the trip point values should be used for determination of plant status in the ERU calculation.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<i>The trip points for ammonia oxidation temperature and pressure, as well as the maximum ammonia to air ratio, have now been taken into account for determination of the plant status in the ERU calculations.</i>		
DOE Assessment #1 <i>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.</i>	OK. The trip point values are now correctly included in the ERU calculation.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		



Finding:	E5		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The NCSG-values in the data storage and therefore in the ERU-calculation of N8 were capped to 400 ppm, because 400 ppm was set as 100 %-value in the DCS. The 100% value should be revised and the ERU calculation has to be corrected.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p><i>The range in both the analyser and the DCS was set at 0 – 400ppm on 27/08/2009 by the GPN plant staff, due to a misunderstanding regarding calibration and measurement ranges. On 25/11/2010, the range was re-set in both the analyser and the DCS system to 500 ppm. Please find attached the official confirmation of this situation from Müller BBM (independent testing laboratory for QAL2 and AST test). Please also find attached a data file comparing</i></p> <ul style="list-style-type: none"> <i>• results recorded directly from the analyser,</i> <i>• results as stored in the DCS system and</i> <i>• results measured by Müller BBM with the standard reference method.</i> <p><i>This data shows that all three different data sources are delivering the same results (within measurement and recording tolerances). Therefore it can be stated that the recorded results are correct and no further adjustment is necessary.</i></p>		
DOE Assessment #1 <i>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.</i>	<p>The corrective action is not addressed to the finding. The finding was related to a cap of the measured values through to a low maximum measurement level in the PCS. Values exceeding 400 ppm were reduced to 400 ppm and not correctly included in the calculation of NCSG.</p> <div style="text-align: center;">  </div> <p>Figure: Extract from DCS screenshot N8^{DCSN8/} 2010-01-21 14:32.</p> <p>The finding is still open.</p>		
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p><i>The NCSG raw data for the complete monitoring period was analysed based on the basis of 10 sec data all peaks reaching 400 ppm or coming very close to 400 ppm were identified. In most</i></p>		



Finding:	E5																																																																	
	<p>cases these peaks were found to be during shutdown times of the plant and are for example related to maintenance works at the analyzer. However 12 peaks reaching 400 ppm were identified during 8 different operating hours. 7 of the peaks were during start up of the nitric acid plant for these operating hours the hourly average value could be influenced by this cap of the registered results. In order to choose a conservative approach the operating hours in question were eliminated from the ERU calculation by manually setting the status signal for plant operation to 0. This excludes all data from that hour from the ERU calculation and therefore reduces the amount of ERUs respectively. The other 5 peaks were during maintenance works of the analyzer and the analyzer status signal was set to 0 for these hours. As a result the reading will be replaced by the default value as calculated according to the methodology.</p> <p>At the following times peaks were identified where the N₂O concentration exceeded 400 ppm:</p> <table border="1"> <thead> <tr> <th></th> <th>AI0808 ppm</th> <th>SD or plant operation</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>17-Jan-10 15:00:01</td> <td>400.00</td> <td>plant in operation</td> <td>start-up</td> <td></td> </tr> <tr> <td>20-Jan-10 22:05:13</td> <td>400.00</td> <td>plant in operation</td> <td>start-up</td> <td></td> </tr> <tr> <td>20-Jan-10 22:15:13</td> <td>400.00</td> <td>plant in operation</td> <td>start-up</td> <td></td> </tr> <tr> <td>21-Jan-10 15:02:55</td> <td>400.00</td> <td>plant in operation</td> <td>analyzer maintenance</td> <td></td> </tr> <tr> <td>21-Jan-10 15:17:26</td> <td>400.00</td> <td>plant in operation</td> <td>analyzer maintenance</td> <td></td> </tr> <tr> <td>30-Jan-10 19:01:13</td> <td>400.00</td> <td>plant in operation</td> <td>start-up</td> <td></td> </tr> <tr> <td>30-Jan-10 19:11:13</td> <td>400.00</td> <td>plant in operation</td> <td>start-up</td> <td></td> </tr> <tr> <td>27-Jun-10 14:06:23</td> <td>400.00</td> <td>plant in operation</td> <td>start-up</td> <td></td> </tr> <tr> <td>27-Jun-10 14:46:23</td> <td>400.00</td> <td>plant in operation</td> <td>start-up</td> <td></td> </tr> <tr> <td>24-Aug-10 10:48:33</td> <td>400.00</td> <td>plant in operation</td> <td>analyzer maintenance</td> <td></td> </tr> <tr> <td>27-Aug-10 11:27:21</td> <td>400.00</td> <td>plant in operation</td> <td>analyzer maintenance</td> <td></td> </tr> <tr> <td>02-Sep-10 11:08:57</td> <td>400.00</td> <td>plant in operation</td> <td>analyzer maintenance</td> <td></td> </tr> </tbody> </table>		AI0808 ppm	SD or plant operation			17-Jan-10 15:00:01	400.00	plant in operation	start-up		20-Jan-10 22:05:13	400.00	plant in operation	start-up		20-Jan-10 22:15:13	400.00	plant in operation	start-up		21-Jan-10 15:02:55	400.00	plant in operation	analyzer maintenance		21-Jan-10 15:17:26	400.00	plant in operation	analyzer maintenance		30-Jan-10 19:01:13	400.00	plant in operation	start-up		30-Jan-10 19:11:13	400.00	plant in operation	start-up		27-Jun-10 14:06:23	400.00	plant in operation	start-up		27-Jun-10 14:46:23	400.00	plant in operation	start-up		24-Aug-10 10:48:33	400.00	plant in operation	analyzer maintenance		27-Aug-10 11:27:21	400.00	plant in operation	analyzer maintenance		02-Sep-10 11:08:57	400.00	plant in operation	analyzer maintenance	
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<p>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.</p>	<p>OK. The PP identified relevant periods in which the N₂O-concentration exceeded 400 ppm and removed the relevant values from ER-calculation.</p>																																																																	
<p>Conclusion Tick the appropriate checkbox</p>	<p><input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements</p>																																																																	

Finding:	E6		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The 4-20 mA output signal of the AMS is equivalent to a maximum of 500 ppm N ₂ O, but the max. value in the DCS is set to 400 ppm. Because of that, the registered NCSG-values used for ERU-calculation are 20 % too low.		



Finding:	E6
	The ERU calculation has to be corrected.
<p>Corrective Action #1 This section shall be filled by the PP. It shall address the corrective action taken in details.</p>	<ul style="list-style-type: none"> - In actual fact, due to a misunderstanding regarding calibration and measurement ranges following the QAL2 test in August 2009, the GPN plant staff reset not only the maximum value in the DCS to 400 ppm, but also the range of the AMS itself (to 0 – 400ppm). - Values were measured and recorded throughout the whole of the first verification period at the range between 0 – 400 ppm. No correction of the registered NCSG-values is needed, because the analyser and DCS were both operating in the same range throughout the whole of the first verification period. - On 25/11/2010, the range was reset in both the analyser and the DCS system to 0-500 ppm. - The above statements are confirmed in the attached confirmation and data table from Müller BBM (independent testing laboratory for QAL2 and AST test)
<p>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.</p>	<p>The verifier cannot accept the corrective action since it was obvious, that different NCSG-values were shown on AMS and registered in PSC:</p> <ul style="list-style-type: none"> • AMS-screen: 46.772 • PCS: 37.5 • Date-Logger: 36.4 <p>The quality document^{/PROC108/} shows clearly the measurement range of 0-400 ppm N₂O and 0-20 mA analogue signal to DCS.</p> <p>The finding is still open.</p>
<p>Corrective Action #2 This section shall be filled by the PP. It shall address the corrective action taken in details.</p>	<p>Since it can't be proven to the satisfaction of the AIE that both ranges (analyzer and recording system) were programmed in the same way, the NCSG results are adjusted accordingly in the ERU calculation sheet. The updated calculation sheet as well as the updated MR are provided.</p>
<p>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.</p>	<p>OK. The PP adjusted the ER-calculation and relevant documentation. Example: Cell O7911^{/XLS/} (NCSG): =WENN(ISTFEHLER('RawData'!X7867);"";'Raw Data'!X7867*500/400)</p>
<p>Conclusion Tick the appropriate checkbox</p>	<ul style="list-style-type: none"> <input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	E7		
Classification	<input type="checkbox"/> CAR	<input type="checkbox"/> CL	<input checked="" type="checkbox"/> FAR



Finding:	E7
<p>Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i></p>	<p>The auditor of the next verification should check, that following mistakes in data processing were corrected.</p> <ul style="list-style-type: none"> • The NCSG-values in the data storage and therefore in the ERU-calculation of N8 were capped to 400 ppm, because 400 ppm was set as 100 %-value in the DCS. The 100% value should be revised. • The 4-20 mA output signal of the AMS is equivalent to a maximum of 500 ppm N₂O, but the maximum value in the DCS is set to 400 ppm. Because of that the registered NCSG-values used for ERU-calculation are 20 % to low.
<p>Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	
<p>DOE Assessment #1 <i>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.</i></p>	
<p>Conclusion <i>Tick the appropriate checkbox</i></p>	<p><input checked="" type="checkbox"/> To be checked during the next periodic verification</p> <p><input type="checkbox"/> Appropriate action was taken</p> <p><input type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input type="checkbox"/> The project complies with the requirements</p>



5. SUMMARY OF VERIFICATION ASSESSMENTS

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

5.1. Implementation of the project

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

5.2. Project history

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

Determination FAR D3:

The AMS needs further improvements / clarifications before the start of the crediting period (e.g. Location of the sampling point, Test gas specifications, QAL1, QAL 2, uncertainty assessment).

Further issues:

It must be proven at each verification, that the plant’s average emission levels for the past year did not exceed this regulatory limit of 2.47 kg N₂O/t HNO₃ (100%).

5.3. Special events

Some events have been taken place, which influenced the N₂O-emissions from the plant and as an effect of this, catalyst performance and N₂O release to the atmosphere. The PP provided an overview of the events, which was spotchecked by the verifier^{/HISTN8/}.

Date	Comments
2009-12	
-12 – 2010-01-17	The details of the events are of confidential nature and have been provided to the verification team as a classified document.
2010-01	
-17	
-20	
-20	



-30
2010-02
-06
-09
-11 - -22
-22
2010-03
-03
2010-04
-01
2010-05
2010-06
-19 - -25
-28
2010-07
2010-08
2010-09
-26
-30
2010-10
-08
-15
-19
-25

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^{/BOTTLE8/}.

Parameter	Measurement device	QA/QS-Measures	
		Last	Next
N ₂ O	FTIR Fine Tech	Calibration: 2010-11-10 (AST)	Calibration: Subsequent year (AST)
Calibration gas: 100 ppm N ₂ O	Bottle No: BX13972F	Opened: 2009-04-09	Valid: 2011-06-11
Calibration gas:	Bottle No: BX13570F	Opened:	Valid:



500 ppm N ₂ O		2009-01-09	2011-09-03
Calibration gas: 1500 ppm N ₂ O	Bottle No: BX13732F	Opened: 2010-09-15	Valid: 2013-09-17

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	[mg N ₂ O/Nm ³]	
	57.46	mean
	0.00 (the statistical value is -33,5 which is physically impossible)	lower limit of confidence interval
	156.97	upper limit of confidence interval
VSG _n	[Nm ³ /h]	
	186,726.38	mean
	157,508.00	lower limit of confidence interval
	221,507.00	upper limit of confidence interval

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]	3,618

NAP _n	[tHNO ₃]	198,436.47
OT	[°C]	Not applicable
AIFR	[%]	Not applicable
TSG	[°C]	Not applicable
PSG	[Pa]	Not applicable
EF _{reg}	[kgN ₂ O/tHNO ₃]	2.47kg N ₂ O/tHNO ₃ for the whole monitoring period.
EF _n	[kgN ₂ O/tHNO ₃]	According to formula: EF _n = (PE _n / NAP _n), the result is: 0.19756
PE _n	[kgN ₂ O]	39,203.51

Table 5.5.2: Monitored plant parameter/results of 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.

Relevant data for ER-calculation are:

Parameter	Value	Unit
Nitric Acid Production (100% concentrate)	198,436.47	tHNO ₃
Project Emissions	39,203.51	tCO ₂ e
Baseline Emissions		tCO ₂ e
Emission Factor	0.19756	kgN ₂ O/tHNO ₃



Governmental ERU deduction	10	%
Emission Reductions	125,810	tCO ₂ e

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 A1:

Belgium was added as investor country. Belgian LoA shall be provided at the next verification.

FAR B2:

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 proven at each verification that the plant's average emission levels for the past year did not exceed the regulatory limit of 2.47 kg N₂O/t HNO₃ (100%), defined by the Arrete Prefectoral of 2009-03-04. (2,47kgN₂O/tHNO₃ - within 12 months).

FAR E3:

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

FAR E7:



The auditor of the next verification should check, that following mistakes in data processing were corrected.

- CAR E5:

The NCSG-values in the data storage and therefore in the ERU-calculation of N8 were capped to 400 ppm, because 400 ppm was set as 100 %-value in the DCS. The 100% value should be revised.

- CAR E6:

The 4-20 mA output signal of the AMS is equivalent to a maximum of 500 ppm N₂O, but the maximum value in the DCS is set to 400 ppm. Because of that the registered NCSG-values used for ERU-calculation are 20 % to low.

6. VERIFICATION OPINION

GPN S.A. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the: “GPN Grand Quevilly N8 N₂O abatement project”, with regard to the relevant requirements for JI project activities. The project reduces GHG emissions due to the reduction of N₂O emissions from the production of nitric acid with tertiary N₂O abatement technology (tertiary catalyst). This verification covers the period from 2009-12-08 to 2010-10-31 (including both days).

In the course of the verification 5 Corrective Action Requests (CAR) and 5 Clarification Requests (CR) 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 N₂O dans des usines d'acide nitrique”.
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

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

Emission reductions: **125,810** t CO_{2e}

Essen, 2011-05-05



Alexandra Nebel

TÜV NORD JI/CDM CP

Verification Team Leader

Essen, 2011-05-05



Rainer Winter

TÜV NORD JI/CDM CP

Final Approval

7. REFERENCES

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

Reference	Document
/AP/	Decree of the DRIRE from 04/04/2009 setting the limits for N ₂ O-emissions for the N8-plant to 2.47 kg/tHNO ₃ .
/APS/	Prescriptions Complementaires (Plant permission (decree) of N5, N6, N7, N8 indicates the plant capacity of HNO ₃)
/BOTTLEN8/	Calibration gas certificates for N8 plant, all in period of validity
/CAPN8/	Units characteristics sheet of plant N8 showing the design capacity of Nitric Acid.
/CERT/	ISO 9001, 14001 Certificates, issued by AFNOR, valid until 2012-10-11
/DDA/	Demande d'Autorisation d'Exploiter (Plant permission (decree) of N8 from 15/12/2006 indicates the 100 % plant capacity of 1,500 tonnes HNO ₃ /year).
/DECLA/	Déclaration annuelle des émissions polluantes -rejets 2009- (Emission declaration for the year 2009 to the Environmental Ministry, including HNO ₃ -output and N ₂ O-emissions), dated 2010-02-15
/DENOXN8/	Rapport de chargement DENSICAT (Report of PETROVAL for new installation of DENOx-catalyst (2009-06-16 to 2009-06-18)
/DN8B/	Technical drawing of the Ammonia-Boiler of Plant N8
/DVOLN8/	Technical description of the HNO ₃ -volume flow meter of plant N 8, Micro Motion ELITE
/EIPSN8/	Liste de elements critiques QSE.xls (List of safety related parameter of the N8 plant – including N ₂ O-analyser)
/EMISN8/	Declaration of GPN to local government declaring emissions, i.a. N ₂ O emission of the recent 12 months, dated October 2010. The declaration shows, that the determined N ₂ O emission factor of 0.12 was below the value of the decree ^{/AP/} of 2.47 kg N ₂ O/t HNO ₃ .
/FICHE8/	Fiche de vie – analyseur Nitrique 8 (Control card for N ₂ O-analyser of plant

Reference	Document
	N8, last date of calibration is: 2010-10-11)
/GPNDM/	Excel-file “GPN daten messbereich” (GPN data measurement range). Dated 2010-11-24 with AMS, DCS and SRM data
/HISTN8/	Plant events at GPN N8 -1 st verification period (8/12/2009 to 31/10/2010)
/LOA/	<ul style="list-style-type: none"> 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/3
/MR/	<ul style="list-style-type: none"> First Monitoring report of GHGs emission reductions “GPN Grand Quevilly N8 N₂O abatement project”, version 1, dated 2010-11-11 issued by N.serve. Final Monitoring report of GHGs emission reductions “GPN Grand Quevilly N8 N₂O abatement project”, version 4, dated 2011-04-14 issued by N.serve.
/NAPFS/	Flow Sheet of Nitric Acid Production Plant N8, Rev. 1 from 08/2007 (Doc.-No.: 1A0010-PFD-0010-0001).
/ORGPD/	Organisation projets domestiques (Survey of personnel organisation of the JI-project), issued by the GPN plant on 2010-11-18.
/P&IN8/	Pipe and Installation sheet of N8 plant.
/DCSN8/	Plot from DCS with emission data NO _x , N ₂ O, NH ₃ , NO, NO ₂ , O ₂ .
/PROC1/	Quality procedure: Organisation de la Cellule Analysateur pour le Suivi de analyseur securite (IPS) environment qualite (Organisation of maintenance of the AMS), TEIN/12/300
/PROC108/	Mode operateire-Principe de mesure et echantillonnage de l'analyseur NH3 N2O NO NO2 NITRIQUE8 - Procedure-sampling and measuring principle of the analyzer MEI_3_1268
/PROC2/	Plan de controle suivi de analyseurs à l'emission des Nitriques N8, 8 (Plan (Procedure) of Maintenance of AMS), MEI_2_1200
/PROC3/	Verification des Analyseurs FTIR (Calibration procedure of the AMS (N ₂ O-Analysator), MEI_3_1221



Reference	Document
/PROC4/	Procedure – Gestion des documents maitrises des enregistrements, (document management system), AQ/2/0001
/PROC5/	Programme individuel 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 HNO ₃ flow meters), ELMR/3/017
/PROC8/	<ul style="list-style-type: none"> Mode operatoire – Bilan N₂O (Quality document regarding N₂O emissions from the GPN nitric acids plants), ENV/3/1121, Revised version dated 2010-12-20, version 7 with revised uncertainty values: “Concentration en N₂O: AT 7160A [ppmv]: 8.5%”
/PROC98/	Mode-operatoire – Verification des analyseurs FTIR (Quality document related to the calibration of the N ₂ O-analyser at N8 plant)
/QAL2CAL8/	Report on performance tests and calibration of the AMS, report No.: M82 881/1, issued by Müller BBM on 2009-12-18 Revised version from November 2010: Report on performance tests and calibration of the AMS, report No.: M82 881/1, issued by Müller BBM on 2009-12-18 (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 analyseurs 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’échantillonnage (Training course for maintenance works, with staff of ESPIE and GPN, signed by the attendances)

Reference	Document
/TRAIN2/	FineTech – Certificat d'aptitude (2 days service training for Mr. Pascal Fauquet), dated 2008-03-28
/TRAIN2/	Attestation de presence (Different certificates of participation in a training course: Maintenance of analysers, level 2 and 3)
/TRIPN8/	Tableau des securities: Nitrique 8 (List of trip point values of N8 plant)
/XLS/	<ol style="list-style-type: none"> 1. ERU Excel calculation spreadsheet (GPN_N8_Monitoring Data 1st Verification _ 20101110_Version 2), 1. Version issued to verifier 2. Final version: GPN_N8_Monitoring Data 1st Verification _ 20110414_Version 5

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 ₂ O 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 ₂ O 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/	Final JI Determination Report: GPN Grand Quevilly N8 N ₂ O Abatement Project, Report No.: 8000373119 – 09/265, dated 2010-04-28, issued by TÜV NORD
/DVM/	Ji Determination and Verification Manual



Reference	Document
/GUIDE/	Guidance: Developing a CDM or JI project to reduce greenhouse gas emissions, issued by the: <ul style="list-style-type: none"> • French Ministry for Economy, Industry and Employment • French Ministry for Ecology, Energy, Sustainable Development and Town and Country Planning • French Global Environment Facility
//	Excel-file “N7-N8 10 sec data compared to hourly data.xlsx” Hourly value: 21.01.2010 13:00 Data: VSG: 345,335 m ³ /h TSG: 163 °C PSG: 0.309 + 1,013.5 = 1,016.5 kPa
/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 ₂ O dans des usines d'acide nitrique (Projet Domestique Methodology: Catalytic reduction of N ₂ O at nitric acid plants)
/METHE/	Projet Domestique Methodology Catalytic reduction of N ₂ O at nitric acid plants (Translation of /METH/)
/PDD/	Project Design Document Version 03 dated 2009-08-06 “GPN Grand Quevilly N8 N ₂ O abatement project”
/OTN8/	Diagram of parameter OT - Extract of ERU-calculation Excel-sheet
/NCSGN8/	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



Reference	Link	Organisation
		Technological Studies (Provision of BAT-Reference documents)
/dehst/	http://www.dehst.de	German Emissions Trading Authority (DEHSt) at the Federal Environment Agency
/dfp/	http://www.developpement-durable.gouv.fr/	Ministère de l'Écologie, de l'Énergie, du Développement Durable et de la Mer, en charge des Technologies vertes et des Négociations sur le climat
/douane/	http://www.douane.gouv.fr/data/file/6146.pdf	Web-file regarding N ₂ O 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	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Bruno Dufour	GPN N8 Nitric Acid Plant (Production manager)
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Bertrand Valle	GPN N8 Nitric Acid Plant (Coordinator JI-Projects)



Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Isabelle Martineau	GPN N8 Nitric Acid Plant (Quality/Environmental manager)
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Pascal Fauquet	GPN N8 Nitric Acid Plant (Instrumentation Engineer)
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Pierre Henri Chretien	GPN N8 Nitric Acid Plant (Engineer exploitation)
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Patric Le Calve	GPN N8 Nitric Acid Plant (Site technical Engineer)
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Rebecca Cardani-Strange	N.serve (Project manager)
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Martin Stilkenbäumer	N.serve (Monitoring Expert)

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

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 <i>Forward Action Requests</i>)
Raw data generation				
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspections of installed equipment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 management system 	<ul style="list-style-type: none"> • 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 <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> technology Accuracy of values supplied by Third Parties 	<ul style="list-style-type: none"> Stand-by duty is organized Training Internal audit procedures Internal check of QA/QC measures of involved Third Parties 	<ul style="list-style-type: none"> Insufficient accuracy Inappropriate QA/QC measures of Third Parties 	<ul style="list-style-type: none"> 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				
<ul style="list-style-type: none"> Wrong data transfer from raw data to daily and monthly aggregated reporting forms IT Systems Spread sheet programming Manual data transmission 	<ul style="list-style-type: none"> Cross-check of data Plausibility checks of various parameters. Appropriate archiving system Clear allocation of responsibilities Application of JI Management system procedures 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Data protection Responsibilities 	<ul style="list-style-type: none"> Usage of standard software solutions (Spreadsheets) Limited access to IT systems Data protection procedures 	<ul style="list-style-type: none"> Manual data transfer mistakes Unintended change of spread sheet programming or data base entries Problems caused by updating/upgrading or change of applied software 	<ul style="list-style-type: none"> Check of data archiving system Check of application of Management system procedures 	
Other calculation parameters				
<ul style="list-style-type: none"> Emission factors, oxidation factors, coefficients 	<ul style="list-style-type: none"> The values and data sources applied are defined in the PDD and monitoring plan 	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> Update-check of regulatory framework Countercheck of the applied MP in the MR against the approved version 	<ul style="list-style-type: none"> 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 <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> • Applied formulae • Miscalculation • Mistakes in spreadsheet calculation 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • The danger of miscalculation can only be minimized. 	<ul style="list-style-type: none"> • Countercheck on the basis of own calculation. • Spread sheet walk-through. • Plausibility checks • Check of plots 	<ul style="list-style-type: none"> • See Table A-2
Monitoring reporting				
<ul style="list-style-type: none"> • Data transfer to the author of the monitoring report • Data transfer to the monitoring report • Unintended use of outdated versions 	<ul style="list-style-type: none"> • An experienced JI consultant is responsible for monitoring reporting. • JI QMS procedures are defined 	<ul style="list-style-type: none"> • The danger of data transfer mistakes can only be minimized • Inappropriate application of QMS procedures 	<ul style="list-style-type: none"> • Counter check with evidences provided. • Audit of procedure application 	<ul style="list-style-type: none"> • 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	Conclusion
A	Project Approvals by Parties involved					
A.1	<p><i>DVM § 90</i> 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?</p>	<p><i>Description:</i></p> <ul style="list-style-type: none"> 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. <p><i>Means of determination:</i> DFP-website, LoA, Unfccc-website, MR</p> <p><i>Conclusion:</i> Belgium was added as investor country. A Belgian LoA shall be provided at the next verification (FAR A1).</p>	/LOA/ /dfp/ /unfccc/	CL A1	Pls. refer to section 4.	OK
A.2	<p><i>DVM § 91</i> Are all the written project approvals by Parties involved unconditional?</p>	<p><i>Description:</i> The French LoA has two conditions, which need to be taking into account:</p> <ul style="list-style-type: none"> 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% 	/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	Conclusion
		deduction. <ul style="list-style-type: none"> The total amount of verified emission reductions until 2012-12-31 is limited to 883,977 tonnes (before 10 % reduction) <i>Means of determination:</i> LoA <i>Conclusion:</i> OK, <ul style="list-style-type: none"> 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. 				
B	Project implementation					
B.1	<i>DVM § 92</i> 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?	<i>Description:</i> The PP installed a tertiary abatement catalyst inside the DeNOx-reactor and an AMS conforming to the DIN EN 14181 before start of the project. QA/QS measures were implemented. <i>Means of determination:</i> PDD, certificates provided by the PP, on-site visit <i>Conclusion:</i> 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/ /QAL2IN ST/ /MR-1/	CAR B1		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	Conclusion
		<p>PDD. The installation of the abatement catalyst and monitoring system is in line with the PDD. The verification team found some inconsistencies in the monitoring report, which are summarised in CAR B1.</p> <ul style="list-style-type: none"> • 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 “for the past year” as per Arrete. • The reference scenario should be included in table in section 4 • 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 10,5 % and not 11 %, • 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. • The section 7 should include a paragraph, which assesses that the yearly nitric acid production does not exceed the replaced production capacities reduced by 10 % (481,950 t HNO₃/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	Conclusion
		<ul style="list-style-type: none"> 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. 				
B.2	<p><i>DVM § 93</i></p> <p>What is the status of operation of the project during the monitoring period?</p>	<p><i>Description:</i> The project is running according to the description provided in the PDD. Some unforeseeable events took place during verification period:</p> <p>The abatement efficiency is much higher than expected which is caused by malfunction in the heat exchanger unit of the ammonia burner: The temperature in the DeNO_x-reactor increases from 430 to 450 °C which exceeds the efficiency of the abatement catalyst over long period of the project^{/HIST8/}.</p> <p><i>Means of determination:</i> Calculation sheets annexed to the monitoring report, on-site visit and inspection of implementations, plant history, PDD</p> <p><i>Conclusion:</i> The project history was discussed in detail during on site visit and found to be reasonable.</p> <p>Open issues from determination:</p> <p>Following FAR was raised to ensure, that –according to the methodology- legal emission limits will be taken into account</p>	<p>/PDD/ /XLS/ /MR/ /HIST N8/ /EMISN 8/</p>	FAR C2		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	Conclusion
		in all verification periods: It must be proven at each verification that the plant's average emission levels for the past year did not exceed the regulatory limit of 2.47 kg N ₂ O/t HNO ₃ (100%), defined by the Arrete Prefectoral of 2009-03-04. (2.47kgN ₂ O/tHNO ₃ - within 12 months). The PP provides extracts from communication showing the lower deviation of the legal emission limits.				
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?	<i>Description:</i> Monitored parameter and parameter (according to the methodology and the registered PDD) used for calculation are: <ul style="list-style-type: none"> • NCSG_n [mg N₂O/Nm³] <i>Meaning:</i> Average N ₂ O concentration in the tail gas during project Verification Period n. <i>Source:</i> Continuous emissions N ₂ O analyser (part of AMS) <i>Measurement frequency:</i> Hourly value based on continuous monitoring (10 second frequency)	/PDD/ /MR/ /14181/ /XLS/	CL B3 CL E1		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	Conclusion
		<p><u>Storage frequency:</u> 10 sec</p> <ul style="list-style-type: none"> • VSG_n [Nm³/h] <p><u>Meaning:</u> Average Volume flow rate of the tail gas during project Verification Period n.</p> <p><u>Source:</u> Gas volume flow meter (part of AMS)</p> <p><u>Measurement frequency:</u> Hourly value based on continuous monitoring (10 second frequency)</p> <p><u>Storage frequency:</u> 10 sec</p> <ul style="list-style-type: none"> • PE_n [kgN₂O] <p><u>Meaning:</u> N₂O emissions during project Verification Period n.</p> <p><u>Source:</u> Calculated from measured data</p>				



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	Conclusion
		<p><u>Measurement frequency:</u> Calculated after each Verification Period</p> <p><u>Applied value:</u> Calculated according to the methodology: $PE^n = VSG_n * NCSG_n * OH_n * 10^{-6}$</p> <ul style="list-style-type: none"> • OH_n [h] <p><u>Meaning:</u> Total operating hours of Verification Period n.</p> <p><u>Source:</u> Production Log – taking into account the relevant trip point parameters</p> <p><u>Measurement frequency:</u> Continuous</p> <ul style="list-style-type: none"> • NAP_n [tHNO₃] <p><u>Meaning:</u> Metric tonnes of 100% concentrated nitric acid during any Verification Period n.</p> <p><u>Source:</u></p>				



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	Conclusion
		<p>Nitric acid flow meter</p> <p><u>Measurement frequency:</u> Continuously throughout the Verification Period n.</p> <ul style="list-style-type: none"> OT [°C] <p><u>Meaning:</u> Oxidation temperature in the ammonia oxidation reactor (AOR).</p> <p><u>Source:</u> Thermocouples inside the AOR</p> <p><u>Measurement frequency:</u> Hourly average value based on continuous monitoring</p> <ul style="list-style-type: none"> AFR [kgNH₃/h] <p><u>Meaning:</u> Ammonia Flow rate to the ammonia oxidation reactor (AOR)</p> <p><u>Source:</u> Continuous emissions ammonia flow meter</p> <p><u>Measurement frequency:</u></p>				



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	Conclusion
		<p>Hourly average value based on continuous monitoring</p> <ul style="list-style-type: none"> • AIFR [%] <i>Meaning:</i> Ammonia to air ratio into the AOR <i>Source:</i> Ammonia & Air flow meters <i>Measurement frequency:</i> Hourly average value based on continuous monitoring • TSG [°C] <i>Meaning:</i> Temperature of tail gas <i>Source:</i> Probe (part of the gas volume flow meter). <i>Measurement frequency:</i> Hourly average value based on continuous monitoring • PSG [Pa] <i>Meaning:</i> 				



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	Conclusion
		<p>Pressure of tail gas</p> <p><u>Source:</u> Probe (part of the gas volume flow meter).</p> <p><u>Measurement frequency:</u> Hourly average value based on continuous monitoring</p> <ul style="list-style-type: none"> • EF_n [kgN₂O/tHNO₃] <p><u>Meaning:</u> Emissions factor calculated for project Verification Period n.</p> <p><u>Source:</u> Calculated from measured data</p> <ul style="list-style-type: none"> • EF_{reg} [kgN₂O/tHNO₃] <p><u>Meaning:</u> Emissions cap for N₂O from nitric acid production set by government/local regulation.</p> <p><u>Source:</u> National or local N₂O emissions legislation ^{/AP/}</p>				



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	Conclusion
		<p>If this regulatory limit is lower than the applicable benchmark emissions factor, then EF_{reg} shall replace EF_{BM} in the calculation of ERUs</p> <p>QA/QS:</p> <p>The PP refers to the project European standard 14181 regarding implementation of monitoring equipment and maintenance procedures.</p> <p><i>Means of determination:</i> 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.</p> <p><i>Conclusion</i> The verification team can confirm that the monitoring of the relevant parameter implemented in the project and the referenced standards are in accordance with the monitoring plan of the final PDD. Checks details are i.e.:</p> <ul style="list-style-type: none"> • Measurement frequency • Data source • Measurement procedures • Quality procedures • Measuring points • Cross checks • Data handling, storage and processing 				



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	Conclusion
		<p>Some findings were raised in the context of data monitoring:</p> <p>CL B3: 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.</p> <p>CL C1: The QAL 2 correction factors are not traceable.</p> <p>CL E1: QA Document BILAN N₂O ENV/3/1121: The PP should clarify the meaning of the uncertainty value of 3 % for the N₂O-Analyser.</p>				



<p>C.2</p>	<p><i>DVM § 95a)</i> 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?</p>	<p><i>Description:</i> The project baseline is set by default values of two sources:</p> <ul style="list-style-type: none"> • The plant specific regulatory limit of 2.47 kg N₂O/t HNO₃ (100%), introduced by the DRIRE. • The benchmark value of 1.85 kg N₂O/t HNO₃ of the methodology from 2012 on. <p>Following default values were used for determining the baseline scenario:</p> <table border="1"> <tr> <td>Year:</td> <td>2009</td> <td>2010</td> <td>2011</td> <td>2012</td> <td></td> </tr> <tr> <td>Value:</td> <td>2.47</td> <td>2.47</td> <td>2.47</td> <td>1.85</td> <td>EF_{BM} [kg N₂O/t HNO₃]</td> </tr> </table> <p>The benchmark value is one of the key factors, which influence the baseline scenario and reduces the accountable emission reductions from realistic baseline emissions to the above mentioned values.</p> <p>The results of risk assessment are extensive measures to prevent a bypass of process gases in the catalyst bed since this will lead to a reduction of catalyst efficiency. Decreasing catalyst efficiency was identified as most important project risk</p> <p><i>Means of determination:</i> French methodology, LoA, interviews plant staff on GPN plant</p> <p><i>Conclusion:</i> 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).</p>	Year:	2009	2010	2011	2012		Value:	2.47	2.47	2.47	1.85	EF _{BM} [kg N ₂ O/t HNO ₃]	<p>/METH/ /LoA/ /DVM/ /AP/</p>			<p>OK</p>
Year:	2009	2010	2011	2012														
Value:	2.47	2.47	2.47	1.85	EF _{BM} [kg N ₂ O/t HNO ₃]													



		The verification team can confirm, that the result of risk assessment (risks associated with the project) was taken into account.				
C.3	<p><i>DVM § 95b)</i> Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?</p>	<p><i>Description:</i> Parameter and related data sources are:</p> <ul style="list-style-type: none"> • NCSG_n [mg N₂O/m³] Finetech FTIR Anafin-5000 Continuous Emissions N2O Analyser (part of AMS) • VSG_n [Nm³/h] Sick AG Flowsick 100 stack gas flow meter (part of AMS) • PE_n [kgN2O] Calculation from measured data • OH_n [h] Production Log – taking into account: plant status signal, NH3 valve status signal, trip point parameters • NAP_n [tHNO₃] Nitric acid flow meter Emerson • OT [°C] Thermocouple Pt 1000, Honeywell • AFR [kg NH₃/h] Endress and Hauser Deltabar S 	<p>/PDD/ /MR-1/ /P&IN8/ /PROC108/ /EIPSN8/ /</p>			OK



		<ul style="list-style-type: none"> • AIFR [%] Ammonia and Air flow meters • TSG [°C] Part of AMS • PSG [Pa] Part of the AMS • EF_n [kgN₂O/tHNO₃] For the verification period n the emission factor is: EF_n = (PE_n / NAP_n) • EF_{reg} [kgN₂O/tHNO₃] The max. N₂O-emissions are set by the local government as: 2.47kguntil end of 2011 <p>The ERU-calculation was carried out according to the formula described in the methodology: $ERU = ((EF_{BM} - EF_n)/1000 \times NAP \times GWP_{N_2O}) * 0.9 \text{ (tCO}_2\text{e)}$ <i>Means of determination:</i> PDD, methodology, plant permits, monitoring report, on-site visit of plant, PCS and data server <i>Conclusion:</i> The PP could clearly demonstrate that data sources are clearly identified, reliable and transparent and calculated according to the methodology.</p>				
C.4	DVM § 95c)	<i>Description:</i> As described under C.2., two emission factors	/PDD/			OK



	<p>Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?</p>	<p>where applied for determining maximum N₂O-emissions:</p> <ul style="list-style-type: none"> The plant specific regulatory limit of 2.47 kg N₂O/t HNO₃ (100%), introduced by the DRIRE. The benchmark value of 1,85 kg N₂O/t HNO₃ of the methodology from 2012 on. <p>ERUs cannot be claimed if plant emissions are exceeding the lowest of each value.</p> <p><i>Means of determination:</i> Methodology, Monitoring report, arrêté préfectoral</p> <p><i>Conclusion:</i></p> <p>The maximum allowed emission factor value of 2.47 kg N₂O/tHNO₃ was correctly applied in the ERU correctly calculation of the whole period. The benchmark value of the methodology (2.5 kg N₂O/t HNO₃) exceeds the legal limit and was not taken into account.</p>	<p>/METH/ /MR/ /XLS/ /AP/</p>			
<p>C.5</p>	<p><i>DVM § 95d)</i></p> <p>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?</p>	<p><i>Description:</i> The calculation includes:</p> <ul style="list-style-type: none"> A deduction in baseline emission scenario from 7 to 1.85 kg N₂O/t HNO₃ (benchmark values) in year 2012. A legal limit of 2.47 kg N₂O/t HNO₃ for 2009-2011. A 10% reduction of the verified emission reductions <p><i>Means of determination:</i> Methodology</p> <p><i>Conclusion:</i> The implementation of the benchmark values and 10% reduction is a conservative approach.</p>	<p>/PDD/ /METH/ /MR/ /XLS/</p>			<p>OK</p>
<p>Applicable to JI SSC projects only</p>						



C.6	<p><i>DVM § 96</i></p> <p>Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis?</p> <p>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?</p>	<p><i>Description:</i></p> <p>Estimation of total emissions reductions over the crediting period (after the 10% deduction) of 3 years and 1 month are: 795,579 (tonnes of CO₂e) according to the PDD.</p> <p><i>Means of determination:</i> PDD</p> <p><i>Conclusion:</i> The average ERUs per year obviously exceed the threshold value of 60,000 t CO₂e per year; the project is classified as large-scale project.</p>				
Applicable to bundled JI SSC projects only						
C.7	<p><i>DVM § 97a)</i></p> <p>Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?</p>	<p><i>Description:</i> N/A</p> <p><i>Means of determination:</i> N/A</p> <p><i>Conclusion:</i> N/A</p>				
C.8	<p><i>DVM § 97b)</i></p> <p>If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?</p>	<p><i>Description:</i> N/A</p> <p><i>Means of determination:</i> N/A</p> <p><i>Conclusion:</i> N/A</p>				
C.9	<p><i>DVM § 98</i></p> <p>If the monitoring is based on a monitoring plan that provides for</p>	<p><i>Description:</i> N/A</p> <p><i>Means of determination:</i> N/A</p>				



	<p>overlapping monitoring periods, Are the monitoring periods per component of the project clearly specified in the monitoring report?</p> <p>Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?</p>	<p><i>Conclusion: N/A</i></p>				
D	<i>Revision of monitoring plan</i>					
	<i>Applicable only if monitoring plan is revised by project participants</i>					
D.1	<p><i>DVM § 99a)</i></p> <p>Did the project participants provide an appropriate justification for the proposed revision?</p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>				
D.2	<p><i>DVM § 99b)</i></p> <p>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?</p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>				



E	Data management					
E.1	<p><i>DVM § 101a)</i></p> <p>Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?</p>	<p><i>Description:</i> Data collection procedures, quality control and quality assurance are implemented as follows:</p> <ul style="list-style-type: none"> • 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 determined before start of the project and included in the PDD. • During data processing, measured values were evaluated according to statistical methods: <ul style="list-style-type: none"> • Application of instrument correction factors: <p>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:</p> <ul style="list-style-type: none"> ○ 0.98 for stack gas flow meter ○ 0.97 for measurement of N₂O conc. ○ 1.0 for pressure of tail gas ○ 0.99 for temperature of tail gas • Plausibility check: <p>The meth requires a plausibility check of all recorded/monitored data before processing which was conducted by the PP. plausibility criteria is: Negative</p>	<p>/PDD/ /METH/ /MR-1/ /PROCD / /QAL2C AL8/ /QAL2IN ST/</p>	<p>CAR B2 GL C1 FAR C2 CAR C3 CAR E5 GLE1 CAR E1</p>		OK



		<p>values shall be eliminated.</p> <ul style="list-style-type: none"> • Downtimes of the AMS: <p>Acc. to the methodology, downtimes of the AMS shall be handled as following: The hourly average will be calculated based on the remaining values for the rest of the hour in question. If these remaining values account for less than 50% of the hourly data for one or more parameters, then this hour must be eliminated from the calculation and a substitute value will be used instead.</p> <ul style="list-style-type: none"> • Missing data/Substitute value <p>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:</p> $C_{\text{subst}} = C + \sigma_C$ <p>where:</p> <p>C: arithmetic average of the concentration of the relevant parameter</p> <p>σ_C: best estimate standard deviation of the concentration of the relevant parameter.</p> <ul style="list-style-type: none"> • Permitted overall uncertainty: <p>The methodology requires that the permitted overall uncertainty of the average hourly annual emissions must be less than 7.5% if technical possible. The determined (combined) uncertainty for N₂O mass flow</p>				
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		<p>measurement as per QAL2 report is 8.5% which exceeds the permitted overall uncertainty by one percent.</p> <p>If the total established uncertainty is higher than the permitted overall uncertainty, the project specific emissions are to be increased by the difference between the established uncertainty value and the permitted overall uncertainty value. The PP accordingly increases the project emissions for 1%.</p> <p><i>Means of determination:</i> Methodology, Monitoring report, on-site visit of plant, control room with PCS, server room with Exaquantum data server, QAL2 report</p> <p><i>Conclusion:</i> All procedures related to fulfil the requirements of</p> <ul style="list-style-type: none"> • quality management of the plant • quality assurance standard of the AMS • data processing as required per methodology <p>were implemented.</p> <p>CAR B2: The PP has to implement a QA/QS procedure to cross-check the Nitric Acid Production registered in the DCS.</p> <p>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</p>				
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		<p>give additional information regarding the calculation of the values.</p> <p>FAR C2: It must be proven at each verification, that the plant's average emission levels for the past year did not exceed the regulatory limit.</p> <p>CAR C3: On 2010-06-17 09:00 no NAP was measured but plant was under operation (plant status signal "1"). This value should be deleted from ERU-calculation.</p> <p>CAR E5: Also the trip point values should be used for determination of plant status in the ERU calculation.</p> <p>CL E1: QA/QS Document BILAN N2O ENV/3/1121/PROC8/: The PP should clarify the meaning of the uncertainty value of 3 % for the N2O-Analyser.</p> <p>CAR E1: Since the ERU calculation includes some NCSG-peaks resulting from calibration works with high concentrated (1,500 ppm N₂O) calibration gas, the PP shall check the data set of the verification period regarding this issue.</p>				
E.2	<p><i>DVM § 101b)</i> Is the function of the monitoring equipment, including its</p>	<p><i>Description:</i> 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 MMD of the plant. The PP therefore</p>	<p>/FG/ /QAL2 INST/</p>	<p>CL C1 CL E1</p>		OK



	<p>calibration status, is in order?</p>	<p>provides sufficient information regarding contractual/responsibility issues and scope of work.</p> <p>Additional measures are related to the European Norm EN14181 (2004) “Stationary source emissions - Quality assurance of automated measuring systems”. Müller BBM was conducted to carry out these measures.</p> <ul style="list-style-type: none"> • Three quality assurance levels of EN 14181: <ul style="list-style-type: none"> • QAL 1: performance approval <p>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 in 2010</p> <ul style="list-style-type: none"> • QAL 2: commissioning and validation of an AMS <p>An accredited laboratory (acc. ISO 17025) carries out specific testing procedures to verify that the AMS installation meets the accuracy requirements laid down by EN 14181. The performance of the complete installation was compared against a series of measurements made with approved Standard Reference Methods.</p> <ul style="list-style-type: none"> • QAL 3: ongoing operation and maintenance <p>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.</p> <ul style="list-style-type: none"> • AST: Annual Surveillance Test 	<p>/QAL2 CALIB/ /SPIE CON1/ /SPIE5/ /SPIEC ON/ /SPIEOR / /PROC1/ /PROC10 8/ /PROC2/ /PROC3/ /PROC4/ /PROC5/ /PROC6/ /PROC7/ /PROC8/ /PROC98 /</p>			
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		<p>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 2010, the AST is scheduled for 2011.</p> <p><i>Means of determination:</i> Methodology, EN14181, interview with monitoring manager of the plant, check of relevant documents and records</p> <p><i>Conclusion:</i> Some findings were raised in context of maintenance, functionality of monitoring equipment:</p> <p>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.</p> <p>CL E1: QA/QS Document BILAN N2O ENV/3/1121/PROC8/: The PP should clarify the meaning of the uncertainty value of 3 % for the N₂O-Analyser.</p>				
E.3	<p><i>DVM § 101c)</i> Are the evidence and records used for the monitoring maintained in a traceable manner?</p>	<p><i>Description:</i> 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. Recording frequency of NCSG and VSG in data logger is 10 sec. A data extract of hourly mean values is reported to the assessment team (at N.serve),</p> <p><i>Means of determination:</i> Excel-datasheet for ER-calculation, data collections on second-basis provided by the plant</p>	<p>/XLS/ /EMISN 8/ /EIPSN8 / /DCSN8 /</p>	<p>CAR E5 CAR E6 FAR E7</p>		OK



		<p>operator during on-site visit (spot-check of single days)</p> <p><i>Conclusion:</i> The verifier can confirm that all data are traceable and stored from MMD to ER-calculation. A mistake in data processing of NCSG value was detected and corresponding actions requested:</p> <p>CAR E5:</p> <p>The NCSG-values in the data storage and therefore in the ERU-calculation of N8 were capped to 400 ppm, because 400 ppm was set as 100 %-value in the DCS. The 100% value should be revised and the ERU calculation has to be corrected.</p> <p>CAR E6:</p> <p>The 4-20 mA output signal of the AMS is equivalent to a maximum of 500 ppm N₂O, but the maximum value in the DCS is set to 400 ppm. Because of that the registered NCSG-values used for ERU-calculation are 20 % to low.</p> <p>The ERU calculation has to be corrected.</p> <p>FAR E7:</p> <p>The auditor of the next verification should check, that following mistakes in data processing were corrected.</p> <ul style="list-style-type: none"> • The NCSG-values in the data storage and therefore in the ERU-calculation of N8 were capped to 400 ppm, because 400 ppm was set as 100 %-value in the DCS. The 100% value should be revised. • The 4-20 mA output signal of the AMS is equivalent to a maximum of 500 ppm N₂O, but the maximum value in the DCS is set to 400 ppm. Because of that the 				
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		registered NCSG-values used for ERU-calculation are 20 % to low.				
E.4	<p><i>DVM § 101d)</i></p> <p>Is the data collection and management system for the project in accordance with the monitoring plan?</p>	<p><i>Description:</i> All process data relevant to the project activity are proper generated in the MMD as analog signals, transferred to the PSC and stored in the DCS in digital format. Hourly mean values were automatically calculated. Operating hours of the plant and AMS where generated and stored (value 0 or 1) to give the status information for data assessment.</p> <p><i>Means of determination:</i> Records of the DCS, compared with methodology and monitoring plan of PDD.</p> <p><i>Conclusion:</i></p> <p>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:</p> <p>FAR B2: The PP has to implement a QA/QS procedure to cross-check the Nitric Acid Production registered in the DCS</p> <p>FAR E3: An internal quality check of project-data registration and processing at the plant should be implemented and documented.</p> <p>Open Issues from determination: FAR D3:</p>	<p>/PDD/ /MR/ /XLS/ /EMISN 8/</p>	<p>FAR B2 FAR E3 Det. FAR D3</p>		OK



		<p>The AMS needs further improvements / clarifications before the start of the crediting period (e.g. Location of the sampling point, Test gas specifications, QAL1, QAL 2, uncertainty assessment).</p> <p>This FAR can be closed, since the PP provided sufficient evidences which proves the proper installation and function of the AMS.</p>				
F	Verification regarding programmes of activities (additional elements for assessment)					
F.1	<p><i>DVM § 102</i></p> <p>Is any JPA that has not been added to the JI PoA not verified?</p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>				
F.2	<p><i>DVM § 103</i></p> <p>Is the verification based on the monitoring reports of all JPAs to be verified?</p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>				
F.3	<p><i>DVM § 103</i></p> <p>Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?</p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>				
F.4	<p><i>DVM § 104</i></p> <p>Does the monitoring period not</p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p>				



	overlap with previous monitoring periods?	<i>Conclusion: N/A</i>				
F.5	<p><i>DVM § 105</i></p> <p><i>If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?</i></p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>				
Applicable to sample-based approach only						
F.6	<p><i>DVM § 106</i></p> <p><i>Does the sampling plan prepared by the AIE:</i></p> <p><i>(a) Describe its sample selection, taking into account that:</i></p> <p><i>(i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as:</i></p> <ul style="list-style-type: none"> <i>– The types of JPAs;</i> <i>– The complexity of the</i> 	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>				



<p><i>applicable technologies and/or measures used;</i></p> <ul style="list-style-type: none"> <i>– The geographical location of each JPA;</i> <i>– The amounts of expected emission reductions of the JPAs being verified;</i> <i>– The number of JPAs for which emission reductions are being verified;</i> <i>– The length of monitoring periods of the JPAs being verified; and</i> <i>– The samples selected for prior verifications, if any?</i> <p><i>(ii) If, in its sample selection, the AIE does not identify and take into account such differences among JPAs, then (does the sampling plan) provide a reasonable explanation and justification for not doing so?</i></p> <p><i>(b) Provide a list of JPAs selected for site inspections, based on a statistically sound</i></p>					
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	<i>selection of sites for inspection in accordance with the criteria listed in (a) (i) above?</i>					
F.7	<i>DVM § 107 Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?</i>	<i>Description: N/A Means of determination: N/A Conclusion: N/A</i>				
F.8	<i>DVM § 108 Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site 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?</i>	<i>Description: N/A Means of determination: N/A Conclusion: N/A</i>				
F.9	<i>DVM § 109 Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)</i>	<i>Description: N/A Means of determination: N/A Conclusion: N/A</i>				



Applicable to both sample based and non-sample based approaches					
F.10	<p><i>DVM § 110</i></p> <p>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?</p>	<p><i>Description: N/A</i></p> <p><i>Means of determination: N/A</i></p> <p><i>Conclusion: N/A</i></p>			



ANNEX 2: STATEMENTS OF COMPETENCE OF TEAM MEMBERS

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

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

CERTIFICATE OF APPOINTMENT

Mr. Ulrich Walter
born on 1964-10-12
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 2013-05-24
Certification registration No. 10 05 06 – 149 rev1
Essen, 2010-05-25

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



TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Dipl.-Ing. Rainer Winter
born on 1963-02-21

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

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2013-07-03
Certification registration No. 04 02 154-03
Initial appointment Assessor: 2004-03-31
Senior Assessor: 2007-07-37

Essen, 2010-07-04


 Deputy 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. Dirk Speyer

SCHEME	STATUS	VALID UNTIL
CDM Validation, Verification	Applicant Trainee	
VCS	Applicant Trainee	
<small>Authorisation limits in technical areas within sector scopes</small>		
CODE	TECHNICAL AREA	
4.4	Refinery	
6.1	Chemical Process Industries	
11.1	Chemical Process Industries	
11.2	GHG Capture and Destruction	
12.1	Chemical Process Industries	

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