



JI VERIFICATION REPORT

- 2ND PERIODIC –

GPN S.A.

GPN GRANDPUITS N₂O ABATEMENT PROJECT

ITL PROJECT ID : FR1000169

Monitoring Period: 2011-09-01 to 2012-06-30
(incl. both days)

Report No: 8000409546 – 12/368

Date: 2012-11-07

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Draft Verification Report:	Report No. 8000409546 – 12/368	Rev. No. 0	Date of 1st issue: 2012-11-07	Date of this rev. 2012-11-07
Project:	Title: <i>GPN Grandpuits N₂O abatement project</i>	J1 Track: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	Registration date: 2010-04-18	ITL Project ID.: FR1000169
Project Participant(s):	Host party: France	Other involved parties: Belgium		
Applied methodology/ies:	Title: Project specific methodology: ‘Catalytic reduction of N ₂ O at nitric acid plants’	No.:	Scope: 5	
Monitoring:	Monitoring period (MP): 2011-09-01 to 2012-06-30 - both days included Subperiod 1: 2011-09-01 – 2011-12-31 Subperiod 2: 2012-01-01 – 2012-06-30	No. of days: 304	MP No. 2	
Monitoring report:	Title: <i>GPN Grandpuits N₂O abatement project</i>	Draft version: V. 01 (dated 2012-07-17)	Final version: V. 03 (dated 2012-11-07)	
Verification team / Technical Review and Final Approval	Verification Team: Ulrich Walter (TL) Susanne Pasch Sabine Meyer	Technical review: Dirk Speyer	Final approval: Martin Saalmann	
Emission reductions: [t CO₂e]	Verified amount for complete MP 28,724	As per draft MR: 30,746	As per PDD: 62,508 (304 d)	
Summary of Verification Opinion:	<p>GPN S.A. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 2nd periodic verification of the project: “<i>GPN Grandpuits N₂O abatement project</i>”, with regard to the relevant requirements for JI (Track 1) project activities. The project reduces GHG emissions by means of the implementation of a secondary catalyst in the ammonia reactor that allows the catalytic decomposition of nitrous oxide. This verification covers the period from 2011-09-01 to 2012-06-30 (including both days).</p> <p>In the course of the verification 5 Corrective Action Requests (CAR) and no Clarification Requests (CL) were raised and successfully closed. Furthermore, 1 FAR was raised. The verification is based on the draft monitoring report, revised monitoring report, and the monitoring plan as set out in the registered PDD, the determination report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.</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 project monitoring is in accordance with the applied approved monitoring plan. • 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 2nd 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: 28,724 t CO₂e</p>			
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Abbreviations:

AIE	Accredited Independent Entity
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
CL	Clarification Request
DVM	Determination and Verification Manual
ER	Emission Reduction
ERU	Emission Reduction Units
FAR	Forward Action Request
GHG	Greenhouse gas(es)
JI	Joint Implementation
MP	Monitoring Plan
MR	Monitoring Report
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 2nd periodic verification of the project

“GPN Grandpuits 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 FR1000169¹.

GHG data for the monitoring period covering 2011-09-01 to 2012-06-30 (304 days) which has been divided in 2 subperiods:

- Subperiod 2.1: 2011-09-01 – 2011-12-31
- Subperiod 2.2: 2012-01-01 – 2012-06-30

were 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 2nd 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 spread sheet ^{/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.

¹ <http://ji.unfccc.int/JIITLProject/DB/CYDURPJS4YBLNLPGCO6DPY0MHF1GAO/details>



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

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

2. GHG PROJECT DESCRIPTION

2.1. Project Characteristics

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

Table 2-1: Project Characteristics

Item	Data
Project title	“GPN Grandpuits N ₂ O abatement project”
Jl 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
Jl Approach	<input checked="" type="checkbox"/> JI Specific Approach <input type="checkbox"/> Approved CDM Methodology
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<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
Approved CDM Meth:	<i>Projet Domestique Methodology: “Catalytic reduction of N₂O at nitric acid plants”</i>
Technical Area(s):	N ₂ O (5.1)
ITL Project ID No.:	FR1000169
Crediting period	<input type="checkbox"/> Renewable Crediting Period (7 y) <input checked="" type="checkbox"/> Fixed Crediting Period (according to LoA till 31 st of December 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	2010-04-18 ²	-
2	Start of crediting period	2010-04-18 ²	-

² According to French law, the crediting period starts two month after application for approval if the LoA is delivered later than that. The LoA is dated 2010-06-21.



#	Item	Time	Status
3	1 st Monitoring period	2010-04-18 to 2011-08-31	In issuance process
4	2 nd Monitoring period	2011-09-01 to 2012-06-30	Matter of this verification

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. (Courbevoie)
	France	Total Petrochemicals (Antwerpen)
	France	N.serve Environmental Services GmbH
Other involved party/ies	Belgium	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 Central (Ile de France) Département: Seine-et-Marne
Project location address	Commune: Grandpuits-Bailly-Carrois GPN Usine de Grandpuits, BP12, 77720 Mormant, France
Plant Coordinates	Plant tail gas stack: Lat: 48°35'52.82"N Long: 2°57'06.05"E Ammonia burners: Lat: 48°35'52.82"N Long: 2°57'06.05"E

2.5. Technical Project Description

The project activity aims to reduce levels of N₂O emissions from the production of nitric acid with a secondary N₂O abatement technology: the project involves the installation of a secondary N₂O reduction catalyst at the nitric acid production plant. The emission reductions are a result of the catalytic decomposition of nitrous oxide. Nitrous oxide which is formed as by-product of the nitric acid production will be removed by the catalyst installed below the standard precious metal gauze pack in the 4 ammonia burners. The nitrous oxide would otherwise be emitted as part of the tail gas of the nitric acid plant to the atmosphere.

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

Table 2-5: Technical data of the project

Parameter	Unit	Value
Ammonia Oxidation Reactor		
Manufacturer	-	GPN S.A.
Diameter	mm	3,660
Start of commercial production	-	1970
Operating conditions as per specifications (trip point values)		
- Temperature (min/max):	°C	800-920
- Pressure (min/max):	MPa	0,35 gauge (at the precious metal gauzes) 0,3 (max in Air flow)
- Ammonia to Air ratio (max)	Vol.-%	8 – max 12,50
Number of reactor units	-	4
Ammonia Oxidation Catalyst		
Manufacturer	-	Heraeus
Type	-	HR-SC N ₂ O abatement system
Composition:	-	Pt-Rh-Pd
Absorber		
Design capacity per day (100%)	t/d	1,250
Design capacity per day (legal)	t/d	1,250
Annual operation (design)	days	360
Annual operation (practice)	days	340
Secondary Catalyst		
Start of operation	-	2010-05-06
Manufacturer	-	Heraeus
Type	-	HR-SC N ₂ O
Design efficiency N ₂ O reduction	%	up to 90% max,
N₂O Analyzer (stack) used since July 2010 used since July 2010		
Manufacturer	-	Finetech
Type	-	Orbital AIT Anafin 5000
Measurement Principle	-	FDIR (hot extractive analyzer)
Stack volume flow rate measurement		
Manufacturer	-	Yokogawa
Type	-	Yokogawa Itabar (Yokogawa IBF-35- ID1100/9mm-S-SM-C01-0-0-0-0-X180-HL- T0-A15-A71)
Measurement Principle	-	Back pressure probe with pressure difference transmitter

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

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

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

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2012-06-19
On-site visit	2012-07-25/26
Draft reporting finalised	2012-07-31
Final reporting finalised	2012-11-07
Technical review finalised	2012-11-05

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.

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ^{4,5)}	Host country Competence	Onsite visit
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	U. Walter	TÜV NORD CERT, Germany	TL	LA	<input checked="" type="checkbox"/>	5.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	S. Pasch	TÜV NORD CERT, Germany	TM	A	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	S. Meyer	TÜV NORD CERT, Germany	TM	LA	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	D. Speyer	TÜV NORD CERT, Germany	TR ³⁾	LA	<input checked="" type="checkbox"/>	5.1	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	M. Saalman	TÜV NORD CERT, Germany	FA ³⁾	SA	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>

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

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

³⁾ No team member



⁴⁾ As per S01-MU03 or S01-VA070 A2 (such as 1.1, 1.2,.....), according to the Accreditation Standard (Version 2) for the team members

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 dedicated website <http://www.global-warming.de> during a 30 days period. No comments were received. (Comments received are taken into account in the course of the verification, if applicable.)

3.5. Verification Planning

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

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

Risk analysis and detailed audit testing planning

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

Table 3-2: Identification of verification risk areas

<i>GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing</i>				
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.</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</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 	<i>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.</i>



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 measures are implemented:</i>	<i>every verification.</i>	<ul style="list-style-type: none"> - <i>Inspection of calibration and maintenance records for key equipment</i> - <i>Check sampling analysis results</i> <i>Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</i> 	

The completed table 3-2 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

Periodic verification checklist						
No.	DVM³ 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:

³ 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 / JI and host country website and background information were also reviewed.

3.7. On-site assessment

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

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

The following verification team member attended the site visit: U. Walter, S. Pasch.

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 Grandpuits S.A. and N.serve (project consultant) 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,	<ul style="list-style-type: none"> - General aspects of the project - Technical equipment and operation



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

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

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

Corrective Action Requests (CARs) are issued, if:

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

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

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

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

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

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

3.10. Final reporting

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

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

3.11. Technical review

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

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

3.12. Final approval

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

After this step the request for issuance can be started.



4. VERIFICATION FINDINGS

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

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

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

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	CAR A1		
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>	All investor parties as per the most recent LoAs should be stated in the MR.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The situation re host and investor parties in the LoAs has been explained in more detail under the table in section 1.1.		



Finding	CAR A1
<p>DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>OK. The project participants listed in the relevant section of the MR correspond to the project LoAs.</p>
<p>Conclusion <i>Tick the appropriate checkbox</i></p>	<p> <input type="checkbox"/> To be checked during the first periodic verification <input type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed </p>

Finding:	FAR A2		
Classification	<input type="checkbox"/> CAR	<input type="checkbox"/> CL	<input checked="" type="checkbox"/> FAR
<p>Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i></p>	<p>The verifier should check that the total amount of verified emission reductions until 2012-12-31 is limited as per host country LoA to 296 047 tonnes CO_{2e} (before 10 % reduction).</p>		
<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>AIE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and AIE 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 <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 </p>		

Finding	CAR C1		
Classification	<input checked="" type="checkbox"/> CAR	<input 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>	<p>QAL 2 test of the measurement equipment was only done on 8-10/11/2011. The same rationale (maximum measurement uncertainty) as applied in the first monitoring period should be applied for the time period of the 2nd monitoring period up to that date.</p>		



Finding	CAR C1
<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><i>For the beginning of the Verification Period, from the 01/09/2011 to 10/11/2011, the Finetech analyser did not have a valid QAL2 test. To ensure conservativeness, the maximum measurement uncertainty of the analyser (2.31%) has been added to the NSCG data for this period.</i></p>
<p>DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>OK. The ERU-calculation includes a conservative correction of NCSG-values of 2.31 % until 2011-11-10.</p>
<p>Conclusion <i>Tick the appropriate checkbox</i></p>	<p> <input type="checkbox"/> To be checked during the first 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 remains open) <input checked="" type="checkbox"/> The finding is closed </p>

Finding	CAR E1		
Classification	<input type="checkbox"/> CAR	<input 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>	<p>Emission Reduction Calculation sheet:</p> <ol style="list-style-type: none"> 1. The correct verification period shall be stated in the tabs "2011", "2012" and "Summary for Monitoring Report" 2. The linear decrease of NCSG values from 8th of May onwards shall be clarified and corrected. 3. The conversion of the measured value of VSG (t/h) to Nm³/h shall be clarified. In this context, the applied factor of 0.02805 shall be clarified. 4. The non-valid NAP values of 2011-11-28 16:00 to 18:00 shall be corrected. 5. The trip point rule as observed during the onsite visit shall be taken into account for the Emission reduction calculation. 		



Finding	CAR E1
<p>Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	<ol style="list-style-type: none"> 1. <i>Verification period has been corrected in all tabs of the calculation sheet</i> 2. <i>The linear decrease has been due to an error in the conversion of the digital signal to the PI system. Alternatively the analogue Modbus signal could be derived from the system, providing correct emissions data from the analyser. These data have now been applied to the calculation.</i> 3. <i>The conversion could be clarified and is explained in Annex 1, Parameter P.2.</i> 4. <i>The values have been corrected by applying the average of the last valid - and the consecutive valid measurement value.</i> 5. <i>The following rules apply to the application of the trip point values:</i> <ul style="list-style-type: none"> - <i>The trip point range for AOR temperature is 800 °C to 920 °C.</i> - <i>The temperature in all four burners has to go below 800 °C for the plant to trip.</i> - <i>If one burner exceeds the upper temperature of 920 °C, the plant will only trip if the maximum value of 12.5% AIFR is also exceeded.</i> - <i>The plant will trip if one burner exceeds a top temperature of 930 °C.</i>
<p>DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<ol style="list-style-type: none"> 1. OK. The correct verification period has been included in all xls-tabs. 2. OK. The PP substituted the relevant data by the analogue signals. During on-site visit, the verification team was able to verify of compliance of the data sets^{/A-D/}. 3. OK. The PP explained in Annex 1, Parameter P.2 that the figure gives the average tail gas molecular weight in the VSG-calculation according to the ideal gas law ($p \cdot V = n \cdot R \cdot T$) Note: The sum of gases adds up to 100.5 % vol due to decimal rounding. 4. OK. The PP replaced the non valid data. 5. OK. The trip point application is described in section 4.3.3. The description is consistent to PCS settings as observed during on site visit.
<p>Conclusion <i>Tick the appropriate checkbox</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> To be checked during the first 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 remains open) <input checked="" type="checkbox"/> The finding is closed



Finding	CAR 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>	According to FAR E1 of the first verification period, the procedure for the backup of the raw monitoring data shall be provided and explained in the Monitoring report.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The procedure has been explained in section 5.3. of the monitoring report.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	OK. The description given in section 5.3 corresponds to situation on site.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first 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 remains open) <input checked="" type="checkbox"/> The finding is closed		

Finding	CAR F1		
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: <ol style="list-style-type: none"> 1. Is the pressure (3.5 bar) stated in the MR absolute or relative? 2. The unit in the table on p.6 should be corrected. 3. A comparison of achieved emission reductions with the cap for the total amount of ERUs awardable to the project activity should be introduced. 4. p.16: The sentence about rounding the decimal places of the values in the tables should be corrected. 5. p.20: The verification period is not correct. 6. p.6.: The comment about the trip points due to temperature inside the burner shall be adjusted to the explanation received onsite. 7. The incident in January 2012 should be described more specifically. 8. The details of the QAL2 test should be mentioned. 9. The calibration of the KROHNE meter for NAP flow should be clarified. 10. Date of last calibration of NAP (Temp) shall be provided. 		



Finding	CAR F1
<p>Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	<ol style="list-style-type: none"> 1. <i>The pressure stated in the monitoring report is 3.5 bar gauge (relative). This has now been clarified in section 1.</i> 2. <i>The units in the table in section 4.1 have now been added.</i> 3. <i>A comparison of emissions reductions achieved by the project so far against the cap imposed by the host country LoA has been included in the final paragraph of section 6.2, sub-heading 'Predicted vs. achieved ERUs'.</i> 4. <i>The sentence regarding rounding of figures has been amended above the first table in section 6.2.</i> 5. <i>The verification period has now been corrected in parameter 3 of Annex 1.</i> 6. <i>A more detailed description of the application of the trip point values has been included in section 4.3.3.</i> 7. <i>A more detailed explanation of the incident in Jan 2012 has now been added to the Events table in Annex 2.</i> 8. <i>Details regarding the QAL2 test and correction factors have been added to the Monitoring Devices table in Annex 3.</i> 9. <i>The date of the last calibration of the Krohne NAP flow meter has been entered to Annex 4 of the Monitoring Report.</i> 10. <i>This date was entered to Annex 4 of the Monitoring Report.</i>
<p>DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<ol style="list-style-type: none"> 1. OK. This statement complies with plant specification 2. OK. The unit of EF_{BM} is now correct (N₂O/tHNO₃) 3. OK. The section "Predicted vs. achieved ERUs" gives sufficient info. 4. OK. The statement has been revised and explains that the figures are rounded up or down. 5. OK. The correct period has been mentioned. 6. OK. Correct explanation of trip point scenario has been given. 7. OK. The info is consistent with details presented during audit. 8. OK. The annex 3 now includes info to the latest QAL 2 test (QAL 2 & AST, tested by Müller BBM on 08-10/11/2011, Rep No: M84 932/1, QAL2 correction factor: 1.04) 9. OK. The Krohne flow meter had the last calibration of meter in September 2007 by supplier. Because Krohne does not provide any recommendation on how often this device should be calibrated, it is left up to the specific requirements of the plant operators. Since the plant operator implemented an automatically daily check of the device against mass balance calculations, a good monitoring practice a sufficient monitoring practice can be assumed. 10. OK. Has been done on 2012-06-14 (annual period).



Finding	CAR F1
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first 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 remains open) <input checked="" type="checkbox"/> The finding is closed

5. SUMMARY OF VERIFICATION ASSESSMENTS

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

5.1. Implementation of the project

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

5.2. Project history

During the 1st verification the AIE raised issues that could not be closed or resolved during the validation stage. For this purpose following FAR have been raised.

Remark: At the date of verification no verification report of the 1st period was available on the JI-web-page. Findings (FARs) are originated from the report provided by TÜV NORD CERT (also verifier of 2nd period).

FAR A2 of first verification (FAR A3):

The verifier should check that the total amount of verified emission reductions until 2012-12-31 is limited as per host country LoA to 296 047 tonnes CO₂e (before 10 % reduction; after 10% reduction: 266,443 tCO₂e).

TÜV Nord concludes that verified emission reductions related first Monitoring Period (2010-04-18 to 2011-08-31) are 89,511 tCO₂e and 28,724 tCO₂e related the second Monitoring Period (after 10 % reduction). The sum of emission reduction does not exceed the maximum amount as per host country LoA.

FAR E1 of first verification (assessed under CAR E2):

According to FAR E1 of the first verification period, the procedure for the backup of the raw monitoring data shall be provided and explained in the Monitoring report.

FAR C5 of first verification (assessed under Annex 1, E1):

The verifier of the next period shall check the correctness of AMS-parameterisation (e.g. QAL2 parameter, stack diameter, moisture, uncertainty).

5.3. Special events

Some events have taken place, which influenced the N₂O-emissions from the plant and as an effect of this, catalyst performance and N₂O release to the atmosphere:

Date	Event
September	
2011-09-05	Plant shutdown due to NH ₃ shortage.
2011-09-26	Plant re-start.
November	
2011-11-17	Work on PI server.
2011-11-21	Work on PI server.
2011-11-28	Work on PI server.
January	
2012-0120 to 24	Unexplained bug on PI system.
February	
2012-02-12	Emergency plant shutdown. High pressure trip on NH ₃ valve due to freezing of instrumentation.
2012-02-14	Re-start of plant.
March	
2012-21-13	Low gauze temperature, leading to reduced production and higher N ₂ O emissions, caused by problems with steam supply of turbine and with cooling tower fan.
June	Plant shut down for whole month.

5.4. Compliance with the monitoring plan

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

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

Parameter	Measurement device	QA/QC-Measures	
		Last	Next
N ₂ O	-FINETECH FTIR Orbital	Calibration: 2011-11-08 and	Calibration: Subsequent



Parameter	Measurement device	QA/QC-Measures	
	AIT Anafin 5000 -Yokogawa IBF ^{/QAL2/}	2011-11-10 (QAL2)	year (AST scheduled in 2012)
Calibration gas: 100 ppm N ₂ O	Bottle No: BN20691F ^{/GGC/}	Bottled: 2012-03-09	Valid: 2014-03-11
NAP	Flow: KROHNE Electro-magnetic IFM 4080	Calibration: September 2007 by supplier Automatic daily crosscheck against mass balance calculation (HNO ₃ -consumption and tank/stock variation)	
NAP	Concentration (via density meter): Bopp & Reuther DIMF 2.0TVS	Concentration checked by operators twice per shift and by laboratory once per week.	
NAP	Temperature: Thermocouple K Type	2012-06-14	Subsequent year

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



Parameter:	Unit/Value:	Comment:
NCSG _n	mgN ₂ O/Nm ³	
	447.45	mean
	352.23	lower limit of confidence interval
	530.02	upper limit of confidence interval
VSG _n	[Nm ³ /h]	
	130,803.31	mean
	106,660.00	lower limit of confidence interval
	153,244.00	upper limit of confidence interval

Table 5.5.1.1: Upper/Lower limit and mean value of and substitute Value for NCSG and VSG according to statistical analysis applied for ER-calculation for the subperiod 2.1

Parameter:	Unit/Value:	Comment:
NCSG _n	mgN ₂ O/Nm ³	
	575.94	mean
	432.07	lower limit of confidence interval
	730.73	upper limit of confidence interval
VSG _n	[Nm ³ /h]	
	124,045.67	mean
	100,864.00	lower limit of confidence interval
	147,327.00	upper limit of confidence interval

Table 5.5.1.2: Upper/Lower limit and mean value of and substitute Value for NCSG and VSG according to statistical analysis applied for ER-calculation for the subperiod 2.2

Parameter	Unit	Applied value
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OH _n	h	2,420
NAP _n	tHNO ₃	97,246
OT	°C	Not applicable
AIFR	%	Not applicable
TSG	°C	Not applicable
PSG	Pa	Not applicable
EF _n	kgN ₂ O/tHNO ₃	1.45650
EF _{BM}	kgN ₂ O/tHNO ₃	2.50
GWP _{N₂O}	tCO _{2e} / tHNO ₃	310
PE _n	kgN ₂ O	141,639.04

Table 5.5.2.1: Monitored plant parameter/input for ER calculation for Subperiod 2.1

Parameter	Unit	Applied value
OH _n	h	3,474
NAP _n	tHNO ₃	134,959
OT	°C	Not applicable
AIFR	%	Not applicable
TSG	°C	Not applicable
PSG	Pa	Not applicable
EF _n	kgN ₂ O/tHNO ₃	1.83904
EF _{BM}	kgN ₂ O/tHNO ₃	1.85
GWP _{N₂O}	tCO _{2e} / tHNO ₃	310
PE _n	kgN ₂ O	248,194.57

Table 5.5.2.1: Monitored plant parameter/input for ER calculation for Subperiod 2.2

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, the request for deviation of the Monitoring Plan and other relevant requirements.

5.7. ER Calculation

According to the request for deviation of the Monitoring Plan accepted by the French Designated Focal Point the PP should revise the ER calculation. Corresponding CAR was raised. The accordingly adjusted ER calculation was prepared by the PP and presented to the verification team. All raised issues were addressed appropriately so the corresponding CAR could be closed out. Thus it is confirmed that the ER calculation is overall correct.

Table 5.7: Relevant data and outcome of ER-calculation

Parameter	Value	Unit
Nitric Acid Production (100% concentrate)	232,205.34	tHNO ₃
Project Emissions	389,833.61	kg N ₂ O
Emission Factor	See tables 5.5.2.1/2	kgN ₂ O/tHNO ₃
Governmental ERU deduction	10	%
Emission Reductions Subperiod 2.1	28,312	tCO ₂ e
Emission Reductions Subperiod 2.2	412	tCO ₂ e
Emissions Reduction this 2 nd period (after 10% deduction)	28,724	tCO ₂ e
Emission Reduction (1 st period) (after 10% deduction)	89,511	tCO ₂ e
Sum of emission reductions (after 10% deduction)	118,235	tCO ₂ e
LoA-cap ^{LOA/} (with deduction)	266,443	tCO ₂ e
Max. emission reduction below cap	Yes	

Table 5.7.1: Relevant data and outcome of ER-calculation

5.8. Quality Management

Quality Management procedures for measurements, 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.

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

One Forward Action Request has been raised for the next verification.

FAR A2:

The verifier should check that the total amount of verified emission reductions until 2012-12-31 is limited as per host country LoA to 296 047 tonnes CO₂e (before 10 % reduction).

6. VERIFICATION OPINION

GPN S.A. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 2nd periodic verification of the project: "*GPN Grandpuits N₂O abatement project*", with regard to the relevant requirements for JI (Track 1) project activities. The project reduces GHG emissions by means of the implementation of a secondary catalyst in the ammonia reactor that allows the catalytic decomposition of nitrous oxide. This verification covers the period from 2011-09-01 to 2012-06-30 (including both days).

In the course of the verification 5 Corrective Action Requests (CAR) and no Clarification Requests (CL) were raised and successfully closed. Furthermore 1 FAR was raised. 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 project monitoring is in accordance with the applied approved monitoring plan.
- 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 2nd 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: 28,724 t CO₂e

Essen, 2012-11-07



Ulrich Walter

TÜV NORD JI/CDM CP

Verification Team Leader

Essen, 2011-11-07



Martin Saalman

TÜV NORD JI/CDM CP

Final Approval

7. REFERENCES

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

Reference	Document
/14001/	ISO 14001 certificate of the plant valid until 2014-12-25.
/9001/	ISO 9001 certificate of the plant valid until 2014-12-25.
/ABSORB/	P&I-Flowsheet with instrumentation of the absorption tower.
/A-D/	Graphic shows that NCSG signal transported via BUS vs. analogue signal is exactly the same.
/AMS_CAL/	(QAL3): AMS manual calibration documentation for -FINETECH FTIR Orbital AIT Anafin 5000.
/AP/	Arrete prefecoral n° 09 DAIDD IC 142 limiting the maximum plant capacity on 1,250 t HNO ₃ /a, and limiting N ₂ O emissions to a maximum of 4kg N ₂ O/tHNO ₃ from the start of the next production campaign in December 2009.
/BURNERS/	P&I-Flowsheet with instrumentation of the Ammonia burners.
/CGC/	Calibration gas certificate for the AMS PRAXair, bottle No.: BN20691F, 100 (103.4) ppm N ₂ O, valid until 2014-03-11.
/CONC/	Fuelle d’analyses journalière nitrate / acide nitrate (template to be completed with lab results i.e. HNO ₃ -concentration).
/DENS/	Technical description of the Bopp & Reuther density meter.
/EMISS/	ISO 9001 documents/procedures of the emission determination
/FICHE/	Control chart and calibration check Specification for instrumentation “Fiche de contrôle”, control card
/FLOW/	Technical description of the KROHNE Nitric Acid flow meter
/FSTRIP/	Principle P&I-Flowsheet with trip-points measurement-instrumentation



Reference	Document
	and tag-numbers
/INSTALL/	Technical drawings regarding the installation of the catalyst basket/catalyst
/LOA/	<p>Host country :</p> <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 2010-06-21, Ref-No.: 1D10011529. • Authorization letter 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 2011-11-10, Ref-No.: 11-1064 5E DNbis to authorise Total Petrochemicals Antwerpen to participate in the project activity. <p>Investor country:</p> <ul style="list-style-type: none"> • LoA issued by the Belgian « National Climate Commission » on 2011-04-04, Ref-No.: NKC/FP/5 issued to GPN S.A.
/MR/	<ul style="list-style-type: none"> • First and published Monitoring report of GHGs emission reductions (Track1) (2011-09-01 to 2012-06-30) ““GPN Grandpuits N₂O abatement project” Track 1” dated 2012-07-17 issued by N.serve (version 1). • Monitoring report of GHGs emission reductions (Track1) (2011-09-01 to 2012-06-30) ““GPN Grandpuits N₂O abatement project” Track 1” dated 2012-08-02 issued by N.serve (version 2). • Final Monitoring report of GHGs emission reductions (Track1) (2011-09-01 to 2012-06-30) ““GPN Grandpuits N₂O abatement project” Track 1” dated 2012-11-07 issued by N.serve (version 3).
/PRES/	<p>Company/Project presentation:</p> <ul style="list-style-type: none"> • Site Characteristics • Production diagram • Production capacity • Nitric Acid Scheme • JI Project : organisation & responsibilities • Project : History

Reference	Document
	<ul style="list-style-type: none"> • Trip point • Monitoring Devices • Maintenance and calibration AMS JI GPN GQ • Special Events (2011-09-01 to 2012-06-30)
/PROC1/	Quality procedure: Mesure de la concentration de l'acide nitrique (Methodology for measurement of Nitric Acid concentration, No.: ENG/3/111-Q, ver.: 9, dated 2010-06-15.
/SDS/	Safety Data Sheet HRSC Heraeus Secondary Catalyst.
/STACK/	Technical drawing stack diameter 1,100 mm drawing No.: 944142021030004003.
/SYNF/	Fiche de synchro transmetteur (comparison of stack gas flow meter signal with DCS-display.
/SYNP/	Fiche de synchro transmetteur (comparison of stack gas pressure meter signal with DCS-display.
/SYNT/	Fiche de synchro transmetteur (comparison of stack gas temperature meter signal with DCS-display.
/TRIP/	Trip point parameters, listed in a plant-safety document.
/XLS/	Emission reduction calculation: <ul style="list-style-type: none"> • Draft: ERU_calculation_grandpuits_VP2_v01 • Final: ER_grandpuits_VP2_v2
QAL2	QAL2 report issued by Müller BBM, Report No.M84 932/1 (2011-12-09).

Table 7-2: Background investigation and assessment documents

Reference	Document
/BREF/	Reference Document on Best Available Techniques for the Manufacture of Large Volume Inorganic Chemicals – Ammonia, Acids and Fertilizers (August 2007).
/AM0034/	Approved CDM Methodology AM0034, version 03.4: “Catalytic

Reference	Document
	reduction of N ₂ O inside the ammonia burner of nitric acid plants.
/AFNOR/	Monitoring standard BP X30-331 of the AFNOR-normalisation association of France.
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms).
/DET/	<i>Determination Report for JI project, GPN GRANDPUITS N₂O ABATEMENT PROJECT, Report No: : 8000376788 – 09/444 Date: 2010-06-24, issued by TÜV NORD.</i>
/DVM/	Ji Determination and Verification Manual.
/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 for JI project: <i>GPN GRANDPUITS N₂O ABATEMENT PROJECT</i> , Date: 19th January 2010, Version: 04.

Table 7-3: Websites used

Reference	Link	Organisation
/bref/	http://eippcb.jrc.ec.europa.eu/reference/	Website of the European Commission, Joint Research Centre, Institute for Prospective Technological Studies (Provision of BAT-Reference documents).



Reference	Link	Organisation
/cdm/	http://cdm.unfccc.int/Reference/tools/index.html	Web page of the UNFCCC.
/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 (French DFP).
/douane/	http://www.douane.gouv.fr/data/file/6146.pdf	Web-file regarding N ₂ O emission taxation.
/dehst/	http://www.dehst.de	German Emissions Trading Authority (DEHSt) at the Federal Environment Agency.
/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).
/efma/	www.efma.org	Web page of the European Fertilizer Manufacturers Association .
/eu/	http://ec.europa.eu/environment/climat/emission/implementation_en.htm	EC legal database.
/ipcc/	http://www.ipcc.ch/publications_and_data/publications_and_data.shtml	IPCC publications.
/ji/	http://ji.unfccc.int	UNFCCC JI-website with relevant JI related documents/guidances.
/jir/	http://www.jirulebook.org/track1	JI-Rulebook, Practice and Procedures.

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
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Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Bertrand Walle	GPN, Operational manager
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Yannick Quenon	GPN, Maintenance Manager
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Thierry Malet	GPN, Fertilizer Production Manager
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Marie Hiernard	GPN, Environmental Technician
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Benjamin Lefevbre	Secauto, Technician for analyser
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Mohammed Boutkhil	Secauto, Technician for analyser
/IM02/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Rebecca Cardani-Strange	N.serve, Project manager
/IM02/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Wolfgang Brückner	N.serve, Project manager

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



ANNEX

A1: Verification Protocol



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., lab) • 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"> The letters of approval from the host (France) and investor country (Belgium) are available. 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></p> <p><u>CAR A1:</u> All investor parties as per the most recent LoAs should be stated in the MR.</p>	/LOA/ /dfp/ /unfccc/	CAR A1	Pls. See 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 taken into account:</p> <ul style="list-style-type: none"> Only 90 % of the verified emission reductions of one 	/LOA/ /PDD/ /MR/	FAR A2		FAR A2

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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>period shall be claimed by the PP. The ERU quantity stated in this report already takes into account the 10% deduction.</p> <ul style="list-style-type: none"> The total amount of verified emission reductions until 2012-12-31 is limited to 296,047 tonnes CO₂e (before 10 % reduction) and 266,443 tonnes after deduction. <p><i>Means of determination:</i> By checking the host country LoA</p> <p><i>Conclusion:</i> OK, the calculation of the ERUs by PP has been done in compliance with the LoA conditions.</p> <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. <p>FAR A2 was raised in this context:</p> <p>The verifier should check that the total amount of verified emission reductions until 2012-12-31 is limited as per host country LoA to 296,047 tonnes CO₂e (before 10 % reduction).</p>				
B	Project implementation					
B.1	DVM § 92	<i>Description:</i>	/PDD/			



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>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?</p>	<p>The project activity involves the installation of 2,744 kg of secondary N₂O abatement catalyst. The catalyst is installed inside the 4 ammonia oxidation reactors, underneath the precious metal gauzes).</p> <p>For the purpose of monitoring the actual N₂O emissions during the course of the project, GPN Grandpuits is operating an Automated Monitoring System in accordance with EU standards (EN 14181).</p> <p>The project's installations (abatement catalyst and AMS instrumentation) were checked by the verification team and compared with the description given in the registered PDD.</p> <p>The installation of the abatement catalyst is full in line with the description given in the PDD. It is evidenced that the abatement system was in place and running for the entire period. The Heraeus secondary catalyst system was positioned below the standard precious metal gauze packs in the four ammonia burners.</p> <p><i>Means of determination:</i> PDD, MR, on-site visit, documents and certificates provided by the PP,</p> <p><i>Conclusion:</i> The project's installations (abatement catalyst and AMS instrumentation) were checked by the verification team and compared with the description given in the registered PDD.</p>	<p>/MR/ /PLAN/ /SDS/ /PRES/ /IM01/</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
		The installation of the abatement catalyst and AMS is full in line with the description given in the PDD. It is evidenced that the abatement system was in place and running for the entire period. The Heraeus secondary catalyst system was positioned below the standard precious metal gauze packs in the four ammonia burners.				
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></p> <ul style="list-style-type: none"> • The suitability and accuracy of the Finetech analyser was proven in the QAL2 test, which was delayed and performed only between 8-10/11/2011 and not during start/before of the crediting period. • The project emissions factor was slightly higher than estimated in the PDD, and less ERUs were generated due to the main reason of a 22-day shutdown of the plant during September 2011. During March 2012, there were problems with the steam supply of the turbine and also with the cooling tower fan. This meant that the plant had to reduce the temperature on the gauzes, which lead to higher N₂O emissions and reduced production. The abatement efficiency of the catalyst was particularly poor during this period. It is expected that these problems will be solved during the shutdown in June/July 2012. • The status of operation of the project during the 	<p>/MR/ /PLAN/ /SDS/ /PRES/ /IM01/ /XLS/</p>	CAR F1	Pls see chapter 4	OK



No.	DVM ⁴ paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP's action	Conclusion
		<p>monitoring period has been included in the current monitoring report.</p> <p><i>Means of determination:</i> Calculation sheets annexed to the monitoring report, on-site visit and inspection of implementations, plant history, PDD, DCS-data</p> <p><i>Conclusion:</i> The project (destruction of N₂O) is running according to the description provided in the PDD. Some unexpected situations appeared which are normal business events, checked by the verification team and found to be noted in the report. The verification team raised CAR F1 to give clear and correct info of the 2nd verification period in the monitoring report:</p> <p>CAR F1:</p> <ol style="list-style-type: none"> 1. Is the pressure (3.5 bar) stated in the MR absolute or relative? 2. The unit in the table on p.6 should be corrected. 3. A comparison of achieved emission reductions with the cap for the total amount of ERUs awardable to the project activity should be introduced. 4. p.16: The sentence about rounding the decimal places of the values in the tables should be corrected. 5. p.20: The verification period is not correct. 				



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
		6. p.6.: The comment about the trip points due to temperature inside the burner shall be adjusted to the explanation received onsite. 7. The incident in January 2012 should be described more specifically. 8. The details of the QAL2 test should be mentioned. 9. The calibration of the KROHNE meter for NAP flow should be clarified. 10. Date of last calibration of NAP (Temp) shall be provided				
C	Compliance with monitoring plan					
C.1	DVM § 94 Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	Description: Monitored parameters and parameters used for calculation are: <ul style="list-style-type: none"> • NCSG_n [mg N₂O/Nm³] monitored • VSG_n [Nm³/h] monitored • PE_n [kgN₂O] calculated • OH_n [h] monitored • NAP_n [tHNO₃] monitored • EF_{BM} [kgN₂O/tHNO₃] used for calculation • GWP_{N₂O} [tCO₂e/tN₂O] used for calculation 	/PDD/ /MR/ /XLS/ /IM01/ /14181/ /PRES/ /IM01/ /XLS/ /FLOW/	CAR-C1	Pls see Chapter 4	OK



No.	DVM ⁴ paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP's action	Conclusion
		<ul style="list-style-type: none"> • ERU [ERUs (tCO₂e)] calculated • TSG [°C] monitored • PSG [Pa] monitored • EF_n [kgN₂O/tHNO₃] calculated <p>The PP refers to the project methodology and European standard 14181 regarding implementation of monitoring equipment and procedures and quality assurance procedures.</p> <p><i>Means of determination:</i> Project documentation, MR, on-site inspections and interviews and the approved monitoring plan. Further DIN EN 14181, applied methodology, quality related procedures provided by the plant 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 	/FICHE/			



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"> • Quality procedures • Measuring points • Cross checks • Data handling, storage and processing <p>One issue has been found which needs correction: <u>CAR C1:</u> QAL 2 test of the measurement equipment was only done on 8-10/11/2011. The same rationale (maximum measurement uncertainty) as applied in the first monitoring period should be applied for the time period of the 2nd monitoring period up to that date.</p>																
C.2	<p><i>DVM § 95a)</i></p> <p>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 in the methodology EF_{BM} which was issued by the French DFP. Default values are expressed in benchmark values:</p> <table border="0" style="width: 100%;"> <tr> <td>Year:</td> <td>2009</td> <td>2010</td> <td>2011</td> <td>2012</td> <td></td> </tr> <tr> <td>Value EF_{BM}:</td> <td>2.5</td> <td>2.5</td> <td>2.5</td> <td>1.85</td> <td>[kg N₂O/t HNO₃]</td> </tr> </table> <p>These benchmark values are the key factors, which influence the baseline scenario and reduce the accountable emission reductions from realistic baseline emissions to the above mentioned values.</p> <p>The results of risk assessment are extensive measures to</p>	Year:	2009	2010	2011	2012		Value EF _{BM} :	2.5	2.5	2.5	1.85	[kg N ₂ O/t HNO ₃]	/PDD/ /LOA/ /DET/ /IM01/ /IM02/			OK
Year:	2009	2010	2011	2012														
Value EF _{BM} :	2.5	2.5	2.5	1.85	[kg N ₂ O/t HNO ₃]													



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>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 GPN plant staff</p> <p><i>Conclusion:</i> Due to different reference scenarios in 2011 and 2012, the current verification period were divided into 2 subperiods:</p> <p>Subperiod 2.1: 2011-09-01 – 2011-12-31</p> <p>Subperiod 2.2: 2012-01-01 – 2012-06-30</p> <p>The verification team can confirm, that the result of risk assessment (risks associated with the project) was taken into account.</p>				
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> Parameters and related data sources are:</p> <ul style="list-style-type: none"> • NCSG_n [mg N₂O/Nm³] FINETECH FTIR Orbital AIT Anafin 5000 Emissions N₂O Analyser (part of AMS) • VSG_n [Nm³/h] 	<p>/PDD/ /MR/ /DET/ /XLS/ /TRIP/ /IM01/</p>	<p>CAR E1</p>	<p>Pls see Chapter 4</p>	<p>OK</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>Yokogawa IBF-35-ID1100/9mm-S-SM-C01-0-0-0-0-X180-HL-T0-A15-A71 (calculated from stack gas mass flow measured in kg/h and transformed in DCS into m³/h values)</p> <ul style="list-style-type: none"> • OH_n [h] <p>Production Log – taking into account: plant status signal generated from NH₃ valve status signal, trip point parameters OT and AIFR as plausibility check values in XLS</p> <ul style="list-style-type: none"> • NAP_n [tHNO₃] <p>KROHNE Electromagnetic Flowmeter IFM 4080 with concentration measurement BOPP & REUTHER IMF 2.0 TVS and thermocouple</p> <ul style="list-style-type: none"> • PE_n [kgN₂O] <p>Calculation from measured data</p> <ul style="list-style-type: none"> • EF_{BM} [kgN₂O/tHNO₃] <p>Determined according to French Government Decision and LoA</p> <ul style="list-style-type: none"> • GWP_{N₂O} [tCO₂e/tN₂O] 	<p>/LOG/ /LOA/ /SYNT/ /SYNP/ /SYNF/ /A-D/</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>Climate Change 1995, The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I Report, page 22.</p> <ul style="list-style-type: none"> • ERU [ERUs (tCO₂e)] Calculated from measured data • EF_n [kgN₂O/kgHN₃] Calculated from measured data for each sub-period <p><i>Means of determination:</i> PDD, methodology, monitoring report, on-site plant visit, PCS and data server</p> <p><i>Conclusion:</i></p> <p>The PP could clearly demonstrate that data sources are clearly identified, reliable and transparent according to implemented ISO 14001 and 9001 procedures.</p> <ul style="list-style-type: none"> • NCSG_n [mg N₂O/Nm³] Values were checked against OSI server data and found consistent with ERU-calc <p><u>Remark:</u> The PP explained and proved by server extractions and graphic evaluations that due to signal loss from 2012-05-08 on the analyser signal transported in digital bus were used for evaluation. ^{/A-D/}</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
		<ul style="list-style-type: none"> • VSG_n [Nm³/h] The transformation from mass flow to volume flow could not be explained during audit. Nevertheless, the mass flow data are plausible and consistent. • OH_n [h] Trip point values used in xls for plausibility check of plant status were checked on DCS and found not to be correct • NAP_n [tHNO₃] NAP-values summary of the verification period has been compared with management data of the plant and found to be consistent. <p>Following CAR has been raised: <u>CAR E1:</u></p> <ol style="list-style-type: none"> 1. The correct verification period shall be stated in the tabs “2011”, “2012” and “Summary for Monitoring Report” 2. The linear decrease of values from 8th of May onwards shall be clarified and corrected. 3. The conversion of the measured value of VSG (t/h) to Nm³/h shall be clarified. In this context, the applied factor 				



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
		of 0.02805 shall be clarified. 4. The non-valid NAP values of 2011-11-28 16:00 to 18:00 shall be corrected. 5. The trip point rule as observed during the onsite visit shall be taken into account for the Emission reduction calculation.				
C.4	DVM § 95c) Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Description: As described under C.2., the French DFP sets emission factors as benchmark values. Means of determination: Determined PDD. Conclusion: The benchmark values for 2011 and 2012, as set by the French DFP, were correctly included in emission reduction calculation.	/PDD/ /DET/ /MR/ /XLS/ /METH/			OK
C.5	DVM § 95d) Is the calculation of emission reductions or enhancements of net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent	Description: • The project baseline is set by default values in the methodology EF _{BM} which was issued by the French DFP. Default values are expressed in benchmark values: Year: 2009 2010 2011 2012	/METH/ /LOA/ /AP/			OK



No.	DVM ⁴ paragraph / Checklist Item (incl. guidance for the determination team)	Initial Finding (Means and results of assessment)	Ref.	Action requested to PPs (CAR, CL, FAR)	Review of PP's action	Conclusion
	manner?	<p>Value EF_{BM}: 2.5 2.5 2.5 1.85 [kg N₂O/t HNO₃]</p> <ul style="list-style-type: none"> A 10% reduction of the verified emission reductions <p><i>Means of determination:</i> French methodology, LoA, interviews GPN plant staff</p> <p><i>Conclusion:</i> The benchmark values and the 10% deduction were 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> <p>The implementation of benchmark values and the 10 age deduction the key factors, which influence the baseline scenario and reduce the accountable emission reductions from realistic baseline emissions to the above mentioned values.</p>				
Applicable to JI SSC projects only						
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</p>	<p>Estimation of total emissions reductions over the crediting period until 31.12.2012 (after the 10% deduction) are above the small scale threshold: Sum of 266,442 (tonnes of CO₂e) between 2010 and 2012 according to the PDD.</p> <p><i>Means of determination:</i> PDD and LoA</p>	/PDD/			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
	basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	<i>Conclusion:</i> The average ERUs per year obviously exceed the threshold value of 60,000 t CO _{2e} per year; the project is classified as large-scale project.				
Applicable to bundled JI SSC projects only						
C.7	<i>DVM § 97a)</i> Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	<i>Description:</i> N/A <i>Means of determination:</i> <i>Conclusion:</i>				
C.8	<i>DVM § 97b)</i> If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	<i>Description:</i> N/A <i>Means of determination:</i> <i>Conclusion:</i>				
C.9	<i>DVM § 98</i> If the monitoring is based on a monitoring plan that provides for	<i>Description:</i> N/A <i>Means of determination:</i> <i>Conclusion:</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
	overlapping monitoring periods, Are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?					
D	Revision of monitoring plan					
	Applicable only if monitoring plan is revised by project participants					
D.1	<i>DVM § 99a)</i> Did the project participants provide an appropriate justification for the proposed revision?	<i>Description: N/A</i> <i>Means of determination:</i> <i>Conclusion:</i>				
D.2	<i>DVM § 99b)</i> Does the proposed revision improve the accuracy and/or applicability of information collected compared to the	<i>Description: N/A</i> <i>Means of determination:</i> <i>Conclusion:</i>				



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	original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?					
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. An OSI Plant Information data collection and storage system records and stores all monitoring values for NCSG, VSG, TSG, PSG, as well as the relevant trip point parameters from the nitric acid plant that define whether or not the plant is in operation. • Default values were determined and set before start of the projects and included in the PDD. • Calculations are described in the PDD. • During data processing, measured values were evaluated according to statistical methods: <ul style="list-style-type: none"> • Application of instrument correction factors: <p>The PP chooses a monitoring standard that requires the</p>	<p>/PDD/ /MR/ /XLS/ /IM01/ /DRAW/ /SYNF/ /SYNT/ /SYNF/</p>	<p>CAR-E1</p>	<p>Pls see chapter 4</p>	<p>OK</p>



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		<p>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.</p> <p>Correction factors are:</p> <ul style="list-style-type: none"> • 1.04 for stack gas flow meter • 0.99 for measurement of N₂O conc. • 1.0 for pressure of tail gas • 1.0 for temperature of tail gas • Downtimes: <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 substitute values will be used instead</p> <ul style="list-style-type: none"> • Missing data: <p>All VSG and NCSG values recorded during periods where the N₂O concentration exceeds a value (expressed in mg/Nm³) equivalent to the EF_{BM} (2.5</p>				



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		<p>kgN₂O/tHNO₃ for sub-period 2.1 and 1.85 kg N₂O/tHNO₃ for sub-period 2.2.) will be excluded from the calculation of the project emissions factor and no ERUs shall be claimed for the corresponding quantities of nitric acid produced during those operating hours.</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.</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</p> <p><i>Conclusion:</i> All procedures related to fulfil the requirements of</p> <ul style="list-style-type: none"> Requirements of the methodology regarding data collection quality management of the plant quality assurance standard of the AMS were implemented as in the methodology and related to the implemented ISO 9001 quality management system 				



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		<p>The verification team of the 1st period issued following FAR C5:</p> <p>The verifier of the next period shall check the correctness of AMS-parameterisation (e.g. QAL2 parameter, stack diameter, moisture, uncertainty).</p> <p>The verification team checked the technical specification and default value setting of the flow meter and analyser and application of correct stack diameter and found that parameterisation is mainly transparent and correct. One issue remains open regarding VSG-measurement:</p> <p><u>CAR E1:</u></p> <p>3. The conversion of the measured value of VSG (t/h) to Nm³/h shall be clarified. In this context, the applied factor of 0.02805 shall be clarified.</p>				
E.2	<p><i>DVM § 101b)</i></p> <p>Is the functioning of the monitoring equipment, including its calibration status, in order?</p>	<p><i>Description:</i> The AMS is included in the quality procedures which are established for proper operation of the plant.</p> <p>Additional measures are related to the European Norm EN14181 (2004) “Stationary source emissions - Quality assurance of automated measuring systems”.</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>/MR/ /PDD/ /9001/ /14001/ /QAL2/ /IM01/</p>	<p>CAR C1</p>	<p>Pls see Chapter 4</p>	<p>OK</p>



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		<p>To prove, that the AMS is suitable for purpose and in line with the European norm. The AMS used for the project activity is not QAL1 approved for N₂O. The verifier confirms that a QAL1 approval of the AMS according EN 14181 is not required by the French Projet Domestique methodology. In the case where the instruments are not tested under QAL1, it is considered sufficient that the suitability of the instruments for the project should be proven during the QAL2 audit</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>To maintain and demonstrate the required quality of the measurement results during the normal operation of an AMS.</p> <ul style="list-style-type: none"> • AST: Annual Surveillance Test 				



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		<p>To evaluate whether the measured values obtained from the AMS still meet the required uncertainty criteria – as demonstrated in the previous QAL2 test.</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> The AMS is included in the quality procedures which are established for proper operation of the plant. Procedures, which have been revised in the verification period were identified and checked.</p> <p>Additional measures are related to the European Norm EN14181 (2004) “Stationary source emissions - Quality assurance of automated measuring systems”.</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 project instrumentation was not approved under QAL1. Therefore 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.</p> <ul style="list-style-type: none"> • QAL 2: commissioning and validation of an AMS 				



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		<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. The QAL2 test was carried out on 2011-11-08 to 10 which is delayed. The verification team requested corresponding actions (CAR C1).</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 including the use of a CUSUM chart. 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>The PP verifies the continuing validity of the calibration function on yearly basis. The requirements and responsibilities for carrying out the AST tests are the same as for QAL 2. Since QAL2 was carried out in 2011, the AST is scheduled in 2012. AST in 2012 has not been carried out which does not violate the norm.</p>				
E.3	DVM § 101c)	<i>Description:</i> The nitric acid plant is equipped with a	/XLS/	CAR-E2	Pls see	OK



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	<p>Are the evidence and records used for the monitoring maintained in a traceable manner?</p>	<p>automatic data collection and storage system 'OSI Plant Information', which records and stores all monitoring values for NCSG, VSG, TSG, PSG, as well as different status signals of the AMS and the ammonia (NH₃) valve status signal from the nitric acid plant that defines whether or not the plant is in operation. All monitoring data are collected by the DCS on a 5-second basis. The system automatically calculates hourly mean values which are exported to excel files to be finally reported to N.serve.</p> <p><i>Means of determination:</i> Some original spreadsheets created by the DCS and the functioning of DCS were checked during the on-site visit. The PP provided sufficient evidences to prove the regular comparing of signals from measurement devices and DCS-recording.</p> <p><i>Conclusion:</i> Recording of DCS data is traceable and in order.</p> <p><u>CAR E2:</u> According to FAR E1 of the first verification period, the procedure for the backup of the raw monitoring data shall be provided and explained in the Monitoring report.</p>	<p>/IM01/ /SYNT/ /SYNP/ /SYNF/ /FSTRIP / /A-D/</p>		<p>chapter 4</p>	



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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> The data collection and the management system 'OSI Plant Information' are conducted as per the description in the determined monitoring plan. The data acquisition system records also the hourly average data which is sent to N.serve for the quality and plausibility check, statistical analysis and final emission reduction calculation.</p> <p><i>Means of determination:</i> by means of interview with the plant operator and N.serve representatives.</p> <p><i>Conclusion:</i></p> <p>Recording of DCS data are mainly in order. According to FAR E1 of the first verification period, the procedure for the backup of the raw monitoring data should be provided and explained. Since the plant operator explained that the final sophisticated technical solution (external data server) could not implemented due to firewall problems, an interim backup system consisting of 5 hard discs has been installed. This shall be explained in the MR (CAR E2):</p> <p><u>CAR E2:</u></p> <p>According to FAR E1 of the first verification period, the procedure for the backup of the raw monitoring data shall be provided and explained in the Monitoring report.</p>	/PDD/ /MR/ /XLS/ /IM01/	CAR E2	Pls see chapter 4	OK