VERIFICATION AND CERTIFICATION REPORT

- 7TH PERIODIC –

AEL MINING SERVICES LIMITED

N2O ABATEMENT PROJECT AT NITRIC ACID PLANT NO. 11 AT AFRICAN EXPLOSIVES LTD. (AEL), SOUTH AFRICA

UNFCCC REF. NO. : 1364

Monitoring Period: 2013-06-06 to 2014-10-22
(incl. both days)

Report No: 8000446438 – 15/007

Date: 2015-08-03

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Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8000446438 – 15/007	0	2015-08-03	2015-08-03
Project:	***Title:***		***Registration date:***	***UNFCCC-No.:***
	N2O abatement project at nitric acid plant No. 11 at African Explosives Ltd. (AEL), South Africa		2008-02-08	1364
			Verification No.:	
			7th periodic verification	
	Crediting period:		***From:***	***To:***
	☐ *Renewable (7y)* ☒ *Fixed (10y)*		2008-02-08	2018-02-07
	Project Scale:			
	☒ *Large Scale* ☐ *Small Scale*			
Project Participant(s):	***Client:***			
	AEL Mining Services Limited			
	Non Annex 1 country:		***Annex 1 country:***	
	South Africa		United Kingdom of Great Britain and Northern Ireland Switzerland	
	PP from non Annex 1 country:		***PP from Annex 1 country:***	
	AEL Mining Services Limited		N.serve Environmental Services GmbH AEL Mining Services Limited	
Applied methodology/ies:	***Title:***		***No.:***	***Scope(s) / TA(s)***
	Catalytic reduction of N2O inside the ammonia burner of nitric acid plants		AM0034 ver.2	5 / 5.2
Monitoring period and monitoring report	***Monitoring period (MP):***		***Monitoring Report:***	
	From: / ***To:*** / ***No. of days:***		***Draft version:***	***Final version:***
	2013-06-06 / 2014-10-22 / ***504***		2015-01-12	2015-04-27
Verification team / Technical Review and Final Approval:	***Verification Team:***		***Technical review:***	***Final approval:***
	Stefan Winter (TL, TE) Gregor Kochaniewicz (TM)		R. Winter C. Stöhr (OR)	R. Winter
Key dates of verification:	***Publication of MR :***	***DVerR issued:***	***On-site (from):***	***On-site (to):***
	2015-01-13	2015-04-25	2015-01-29	2015-01-30
Summary of Verification opinion	AEL Mining Services Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 7th periodic verification of the project: “”, with regard to the relevant requirements for CDM project activities. 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 validated project design document, ☒ the monitoring plan is in accordance with the applied approved CDM methodology, ☒ 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, and ☒ 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 listed below (verified amount).			

Emission reductions: [t CO_{2e}]	***Total verified amount***	***As per draft MR:***	***As per PDD:***	
	317,808	317,850	265,460 /a	
		ER achieved up to 2012-12-31	***ER achieved from 2013-01-01***	
		0	317,808	
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Abbreviations:

AEL	**AEL Mining Services Limited**
CA	**Corrective Action / Clarification Action**
CAR	**Corrective Action Request**
CDM	**Clean Development Mechanism**
CER	**Certified Emission Reduction**
CO_2	**Carbon dioxide**
CO_{2eq}	**Carbon dioxide equivalent**
CL	**Clarification Request**
DVerR	**Draft Verification Report**
ER	**Emission Reduction**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
MP	**Monitoring Plan**
MR	**Monitoring Report**
PA	**Project Activity**
PDD	**Project Design Document**
PP	**Project Participant**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
VVS	**Validation and Verification Standard**
XLS	**Emission Reduction Calculation Spread Sheet**

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1. INTRODUCTION

AEL Mining Services Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 7th periodic verification of the project

“”

with regard to the relevant requirements for CDM project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered CDM project.

GHG data for the monitoring period was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Standard /VVS/ of the UNFCCC.

This report summarizes the findings and conclusions of this 7th 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 methodology and the provisions of the 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 validated 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.

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

- Article 12 of the Kyoto Protocol /KP/,
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 /MA/, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Standard /VVS/,

- monitoring plan as given in the registered PDD /PDD/,
- Approved CDM Methodology.

2. GHG PROJECT DESCRIPTION

2.1. Technical Project Description

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

The key parameters of the project are given in Table 2-1:

Table 2-1: Technical data of the project activity

Parameter	Unit	Value
Design capacity	100% $tHNO_3/a$	282,875 (775 metric tonnes per day with 365 operating days per year).
OT_{normal}	°C	820 – 905
OP_{normal}	kPa (gauge)	365 - 450
AFR_{max}	tNH_3/h	9.094
$AIFR_{max}$	%	11,5
CL_{normal}	$tHNO_3$	127,302.4
CL_{BL}	$tHNO_3$	134,700
GS_{normal} (Gauze supplier for the campaigns under this monitoring period)	-	W.C Heraeus
GC_{normal} (Gauze composition for the campaigns under this monitoring period)	%	Platinum (Pt) 56.5 Rhodium (Rh) 3.8 Palladium (Pd) 39.7

2.2. Project Location

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

Table 2-2: Project Location

No.	Project Location
Host Country	South Africa
Region:	Gauteng / Modderfontain
Project location address:	PO Modderfontein 1645, Johannesburg
Latitude:	26°05’50’’ South
Longitude:	28°10’26’’ East

2.3. Project Verification History

Essential events since the registration of the project are presented in the following Table 2-3.

Table 2-3: Status of previous Monitoring Periods

#	Item	Time	Status
1	1st Monitoring period	2008-02-08 to 2009-05-23	Issued
2	2nd Monitoring period	2009-05-24 to 2010-11-16	Issued
3	3rd Monitoring period	2010-11-17 to 2011-02-28	Issued
4	4th Monitoring period	2011-03-01 to 2011-08-06	Issued
5	5th Monitoring period	2011-08-07 to 2012-04-17	Issued
6	6th Monitoring period	2012-04-18 to 2013-06-05	Issued
7	7th Monitoring period	2013-06-06 to 2014-10-22	Issuance Requested

An overview of all Post Registration Changes is given in the following table.

Table 2-4: Overview Post Registration Changes

#	Applicable from – to / as of	MP	Type of post registration change [1)]	Description	Status[2)] / Date
1	-		TDfrMP	n.a.	-
2	-		TDfMM	n.a.	-
3	-		CrPDD	n.a.	-
4	-		PCfrMP	n.a.	-
5	-		PCfMM	n.a.	-
6	-		CoPD	n.a.	-

1) TDfrMP : Temporary deviation from registered monitoring plan
TDfMM : Temporary deviation from the monitoring methodology
CrPDD : Corrections to the registered PDD
PCfrMP : Permanent changes from registered Monitoring Plan
PCfMM : Permanent changes from Monitoring Methodology
CoPD : Changes to the project design of a registered project activity

2) Approval (by EB) or Acceptance (by DOE)

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 Validation and Verification Standard /VVS/,
- 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.

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, consisting of one team leader and one additional team member, was appointed.

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

Table 3-1: Involved Personnel

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence [3]	Technical competence [4]	Verification competence [5]	Host country Competence	On-site visit
☒ Mr. ☐ Ms.	Stefan Winter	TN Cert GmbH	TL	SA	☒	5.2	☒	☐	☒
☒ Mr. ☐ Ms.	Gregor Kochaniewicz	TN Rwanda	TM[A]	LA	☒		☒	☒	☒
☐ Mr. ☒ Ms.	Christina Stöhr	TN CERT GmbH	OR[B]	LA	☒		☐	☐	-
☒ Mr. ☐ Ms.	Rainer Winter	TN CERT GmbH	TR/FA[B]	SA	☒	5.2	☒	☐	-

1) TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval
2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert
3) GHG auditor status (at least Assessor)
4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, …)
5) In case of verification projects

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE
B) No team member

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Technical experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

Statements of competence for the above mentioned team members are enclosed in annex 2 of this report.

3.4. Publication of the Monitoring Report

In accordance with the CDM M&P (§ 62) the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the verification activity commenced. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

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

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

Risk analysis and detailed audit testing planning

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

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

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

The completed table A-1 is enclosed in 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 CDM project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE 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: Table A-2; Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	***Reference***	***Verification Team Comments***	***Draft Conclusion***	***Final Conclusion***
The checklist items in Table A-2 are linked to the various require-ments the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.	*Gives reference to the information source on which the assessment is based on.*	*The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVS shall be covered in this section.*	*Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verifi-cation stage.*	*In case of a corrective action or a clarification the final assessment at the final verification stage is given.*

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

The completed verification protocol is enclosed in Annex 1 (table A-2) to this report.

3.6. Desk review

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

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

- the last revision of the validation report[/VAL/],
- documentation of previous verifications[/VER/]
- 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 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 monitoring data were checked completely.
- An assessment of the implementation and operation of the registered project activity as per the registered PDD or any approved revised PDD;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PDD;
- A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology and corresponding tool(s), where applicable;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

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 N.serve Environmental Services GmbH and the Host Country PP 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 2. Consultant	- General aspects of the project - Technical equipment and operation - Changes since validation / previous verification - Monitoring and measurement equipment - Remaining issues from validation/ previous verification - 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

The list of interviewees is included in chapter 7.4.

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 form 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 be issued if:

- information is insufficient or not clear enough to determine whether the applicable CDM 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 Validation Report[/VAL/] and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

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

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

Verification topic	No. of CAR	No. of CL	No. of FAR
A – Description of project activity	1	0	0
B – Implementation of project activity	1	0	0
C – Description of monitoring system	0	1	1
D – Data and parameters	1	1	0
E - Calculation of Emission Reductions	1	0	0
SUM	**4**	**2**	**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	**A1**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Several editorial mistakes have been identified e.g. B.1. Correction is requested.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	The monitoring report has been revised and editorial mistakes have been corrected.		
	☒ Changes in MR	Section(s): B.1, D.2	New version No.:
	☐ Changes in XLS	Worksheet(s):	New version No.:

Finding	A1
DOE Assessment #1 *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.*	Ok. Editorial mistakes have been corrected in MR ver 2. CAR is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding	B1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Clarification is requested why no reference is given in the MR on downtimes of the AMS. Further it has been identified that the DCS software has been upgraded prior to start of campaign 14 but related values have not been recorded until 16.05.2014 13:00:00. The exact time when the plant started operation but DCS did not record is unclear. Besides this incident is not described in the MR.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	The MR has been updated to show the AMS downtime in section B.1. The AMS downtime is only listed if the plant was in operation during the AMS downtime period. The following downtime dates are now listed in the MR: 28/08/2013 04:00, 07/05/2014 18:00, 13/09/2014 07:00, 26/09/2014 13:00 – 23:00. The DCS was upgraded during the plant shutdown in March and April 2015. During and after the upgrade, the communication between the DCS and the SCADA computer was disturbed and the operational parameters (OTh, OPh, AFR, AIFR) were not recorded in the SCADA system. The plant was restarted on 12/04/2014 00:00 and the communication was re-established on 16/05/2014 13:00. From 02/04/2014 00:00 (the date of the gauze change) until 16/05/2014 12:00, the data for operating temperature have been extracted directly from the DCS and used in the calculation excel file. Further, the event list in section B.1. of the MR has been updated and now includes the incident.		
	☒ Changes in MR	Section(s):	New version No.:
	☐ Changes in XLS	Worksheet(s):	New version No.:

Finding	B1
DOE Assessment #1 *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.*	Not Ok. MR has been updated accordingly and is now showing also AMS downtimes. DCS Raw data file has been checked against the ER spreadsheet to confirm that values have been transferred correctly and consistent. Further this has been also checked during onsite visit with records. However as per data the plant was also down during following times: 20.10.13 6:00 21.10.13 3:00 Further as the pressure during CP14 was low the reason for the same is also missing to be reported.
Corrective Action #2	The plant was offline from the 20/10/2013 06:00 until 21/10/2013 03:00 and the hours are not noted as AMS downtime. However, the plant shutdown in that period was not listed in the event list in section B.1. The list has now been updated. The readings as recorded by the SCADA data computer are the incorrect values, it appears during the DCS upgrade one of the tags were swopped and the converter pressure reading was incorrectly recorded. As the values are not used for emission reduction calculation or for determining if the plant was offline, they have no effect on the calculation of emission reductions.
DOE Assessment #2	Ok. The MR has been updated accordingly. The table on downtimes in section B.1 of MR ver 3 has been updated to include the downtime from 20.10.13 6:00 until 21.10.13 3:00 as well as the related reason in line with the plant data. Ok. As per recorded data the plant pressure was around 300 kPA below the minimum pressure of 365 kPa indicated in the monitoring plan. However as per check with DCS system and raw data the data for all other relevant parameters for ER calculation have been correctly recorded. Further as per monitoring plan the requirement for hours to be included is that the ammonia oxidation temperature (OTh) is recorded to be 820°C or above. Pressure is therefore not relevant. CAR is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding	C1		
Classification	☐ CAR	☐ CL	☒ FAR

Finding	C1		
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During onsite check it has been identified that the time in the AMS computer recording is wrongly set. At 12 o'clock it showed 8:09 am the same day. Clarification is requested w.r.t. the impact on the emission reduction calculation.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	The AMS computer (SCADA system) is supposed to synchronise with the DCS of plant No9 but didn't. The computer has been sent to the vendor to identify and resolve the issue. They identified a software problem and resolved it. The problem affects only the time stamp and not the data used for the emission reduction calculation. Hence, it doesn't affect the calculation. It can be checked during the next verification that the time stamp has been corrected.		
	☐ Changes in MR	Section(s):	New version No.:
	☐ Changes in XLS	Worksheet(s):	New version No.:
DOE Assessment #1 *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.*	Will be checked during next verification whether the time has been corrected in the AMS computer. Further this has been checked from the data provided in the ER spreadsheet and crosscheck with other data assessed during records, raw data file site visit. Based on that the emission reduction calculation has not been affected by this issue. FAR C1 remains open.		
Conclusion *Tick the appropriate checkbox*	☒ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☐ The finding is closed		

Finding	C2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There was a change in responsibilities. The overall responsibility for data collection w.r.t. CDM project is within the technical manager who used to be the product manager also before. However the same is not correctly reflected in section C of the MR.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	Mr. Hendrik Burger used to be the Production Manager (PM) at AEL. He is now the Technical Manager (TM). Mr. Burger continues to be responsible for the CDM data in his new position. The MR has been updated to reflect the change in responsibilities. Further, the responsibility for the correct analysis of the delivered data at N.serve has changed. This change is now also reflected in the MR.		
	☒ Changes in MR	Section(s): C	New version No.:
	☐ Changes in XLS	Worksheet(s):	New version No.:

Finding	C2
DOE Assessment #1 *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.*	Ok. The MR has been updated to mention now that the technical manager has the overall responsibility of the CDM data as confirmed during site visit by interview. CAR is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding	D1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Following issues w.r.t. calibration of measurement equipment have been identified: 1. For parameter OPh and OTh details of the related monitoring parameter is provided however the related calibration dates are missing and their validity. Further under QA/QC it is mentioned that the instrument is subject to yearly internal calibrations, which are part of the ISO 9001 procedures. For OTh this is incorrect as the thermocouples are exchanged after each campaign. For OPh, AFR and AIFR the calibration is done after each campaign and therefore inconsistent. Pls clarify and revise accordingly. 2. OPh: MR states under values(s) of monitored parameter that the parameter is also applied ”if the plant is out of operation”, however the same is not as per monitoring plan and actual operation practice. Clarification requested. 3. AFR, AIFR: The calibration dates and validity for the related measurement equipment are missing. 4. It has been identified that the coriolis flow meter has been exchanged in 2014 but no related information e.g. exchange date, serial number accuracy, calibration dates are provided in the MR. Further as per onsite check the new meter has been calibrated on 19/05/2014. Based on that a delay in calibration has been identified. Related revision requested. Further the type of the flow meter is given with CMF 200 however CMF 300 is installed. Revision requested.		

Finding	D1
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	1. The calibration dates and the validity of the calibration have been added to the MR for parameters OPh and OTh. The description of the QA/QC procedure has been updated to reflect that the thermocouples (OTh) are exchanged before every gauze change and the instruments for OPh, AFR and AIFR are calibrated after each campaign. 2. The MR has been corrected to reflect the actual operation practice and the monitoring plan. OPh is not used to determine if the plant is out of operation. 3. The calibration dates and the validity of the calibration have been added to the MR for parameters AFR and AIFR 4. The exchange of the NAP flowmeter is now reflected in the MR, including exchange date, serial number, accuracy and the calibration date. The type of flow meter has been corrected. The calibration delay has been accounted for in the emission reduction calculation. ☒ Changes in MR | Section(s): D.2 | New version No.: ☒ Changes in XLS | Worksheet(s): | New version No.:
DOE Assessment #1 *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.*	1. Ok. The calibration dates have been provided now in updated MR for OPh 07/06/2013 and 02/04/2014, for OTh same dates. Further the statement under QA/QC has been corrected to either internal calibration after each campaign (OPh, AFR and AIFR) and that the temperature probes are exchanged before every gauze change and that they are calibrated prior to installation of the meter (OTh). This has been checked during onsite visit by interview with technical manager and checked with calibration records. 2. Ok. MR has been updated and description is now consistent with latest reg PDD which states under parameter OHn and description of measurement method: “ Each hour for which the ammonia flow oxidation temperature (OTh) is recorded to be 820 °C or above will be included.” No ref to pressure is made. 3. Ok. The dates of the calibration for both parameters have now been provided in MR. The dates have been checked with calibration records and DOE can therefore confirm that it is correct and consistent. 4. Ok. MR has been updated and provides now details of previous and actual installed coriolis flow meter. The meter type has been also corrected. This is checked against the calibration records of both meters and found correct. Based on the above this CAR is closed.

Finding	D1
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed

Finding	D2		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Following further issues w.r.t. section D.2 have been identified: 1. Clarification is requested w.r.t. the source of data for the (overall) measurement accuracy for NCSG, VSG, PSG and TSG. 2. For several parameters it is referenced to §238 of VVS when applying maximum permissible error, however as per VVS ver 7 this is §273. Revision requested. 3. By check of the invoices from the gauze supplier it has been identified that the composition of the gauze is inconsistent between the MR and the invoice. Correction requested.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	1. The overall measurement accuracy for NCSG and VSG has been established during the last QAL2 test. It is stated in the QAL2 report dated 08/12/2014. The overall measurement accuracy for NCSG and VSG has only been established during the initial QAL2 test. It is stated in the QAL2 report dated 06/09/2007. 2. The reference has been updated to reflect the current version of the VVS. 3. The MR has been updated to reflect the correct composition of the gauzes.		
	☒ Changes in MR	Section(s): D.2	New version No.:
	☐ Changes in XLS	Worksheet(s):	New version No.:
DOE Assessment #1 *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.*	1. Ok. The MR has been updated to provide values from latest QAL2 report. As the QAL2 shows that the volume test and accuracy is done on Nm³, TSG and PSG are included in the test as those are part of the measurement equipment to calculate and provide volume in normalized conditions. 2. Ok. It is now correctly referred to §273 of VVS. 3. Ok. The correct gauze composition is now stated which has been checked with data sheet provided by manufacturer HEREAUS. Cased on above this CL is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ The finding is closed		

Finding	**E1**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	During check of emission reduction calculation the following issues have been identified: 1. In case CL_{BL} > CL_n the method of recalculation of baseline values is applying all values < than the hour during which the NAP of CL_n is reached. Based on that the values before 08/01/2007 17:00 have been cut-off. However the value of that hour is still within CL_{BL} and cut off time 08/01/2007 18:00 is correct. Therefore related revision of ER calculation is requested. 2. During check of ER file against AMS hourly raw data it has been identified that maximum default values have been applied for hours when the plant was not operating, e.g. the first hour when the plant was shut down.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details. In case the MR is changed as part of the CA, the PP is requested to indicate the revised sections as well as the new version No.*	1. The ER calculation has been revised to include the values measured on 08/01/2007 17:00 for the baseline recalculation for PC14. 2. The following hours had mistakenly been reported as AMS downtime while the plant was not in operation: 20/10/2013 06:00, 21/10/2013 03:00. The calculation has been corrected and now reflects that the plant was offline during these hours. In addition, while checking the AMS downtimes, it was identified that the plant was operating during the AMS downtime on 13/09/2014 07:00 and on 26/09/2014 13:00 – 23:00, but it was shown as offline in the calculation. This has been corrected in the calculation.		
	☐ Changes in MR	Section(s):	New version No.:
	☒ Changes in XLS	Worksheet(s): ER spreadsheet	New version No.:
DOE Assessment #1 *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.*	1. Ok. Updated ER spreadsheet has been checked and the check criterion is changed from <08/01/2007 17:00 to <08/01/2007 18:00. 2. Ok. ER spreadsheet has been checked and found that plant was off on 20/10/2013 6:00 and 21/10/2013 3:00 and values have not been considered for ER calculation. Further DOE checked data for 13/09/2014 and 26/09/2014 and can confirm that the plant was operating during AMS downtime. This is checked from ER spreadsheet against AMS hourly raw data. CAR closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Additional action should be taken (finding remains open) ☒ 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. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity.

Table 5-1: Project Parties and project participants

Characteristic	Party	Project Participant
Non-Annex 1	South Africa	AEL Mining Services Limited
Annex 1	United Kingdom of Great Britain and Northern Ireland	N.serve Environmental Services GmbH
Annex 1	Switzerland	N.serve Environmental Services GmbH AEL Mining Services Limited

5.2. Implementation of the project

During the verification a site visit was carried out. During the on-site visit, the verification team inspected all the field installation and instrumentation necessary for the monitoring of the emission reductions and confirms that the project is completely operational. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PDD.

The baseline campaign was operated from 20 July 2006 to 18 February 2007. The determination of the permitted operating conditions for operating temperature, operating pressure, maximum ammonia flow rate, maximum ammonia to air ratio, normal campaign length, normal gauze supplier and normal gauze composition was carried out by the validating DOE[/VAL/] while the verification of the baseline campaign as well as the determination of the baseline emission factor was done by DNV during the first verification[/VER/unfccc/]. Due to the additional costs associated with the installation and operation of secondary catalyst, the project proponents installed the abatement catalyst only after the successful registration of the project activity with UNFCCC. Due to this an intermediate campaign (without N2O abatement catalyst installed) from 25 February 2007 to 18 August 2007 between the baseline campaign

and the first project campaign was necessary. W.r.t. the clarification to the methodology AM_CLA_0234 issued on 2 August 2012 the justification for the intermediate campaign is considered to be reasonable and in accordance. Also, since the operating parameters OTh, OPh, AFR and AIFR measured during the baseline campaign were within the permitted operating range for more than 50% of the time, the selected baseline campaign is found to be valid and in compliance with the methodology AM0034.

The first project campaign with secondary catalyst installed started on 12 September 2007. The project got registered with UNFCCC on 8 February 2008, which is the starting date of the crediting period.

During this monitoring period three production campaigns were completed:

Campaign number	Start date of campaign	End date of campaign
PC13	17 June 2013	08 March 2014
PC14	02 April 2014	22 October 2014

The details of previous production campaigns are as follows:

Campaign number	Start date of campaign	End date of campaign
PC1	12 September 2007	19 March 2008
PC2	20 March 2008	28 September 2008
PC3	04 October 2008	23 May 2009
PC4	08 June 2009	27 December 2009
PC5	30 December 2009	03 August 2010
PC6	4 August 2010	16 November 2010
PC7	19 November 2010	28 February 2011
PC8	24 March 2011	06 August 2011
PC9	22 August 2011	17 April 2012
PC10	25 April 2012	04 October 2012
PC11	13 October 2012	26 November 2012
PC12	07 December 2012	05 June 2013

By reviewing the production records, the DOE can confirm that the list of shutdowns and special events included in the monitoring report is complete. It was verified by the DOE by reviewing the raw data and the ER calculations as well as the daily production records that the shutdown periods (relevant hours) are not considered in

the overall emission reduction calculations. Furthermore, the DOE verified the trend curves for the operation and no other special event was observed.

5.3. Project history

During the validation the validating DOE might have raised issues that could not be closed or resolved during the validation stage. For this purpose FARs might have been raised. No FAR was raised during the validation.

Furthermore this is the 7th periodic verification no issues from former verifications are to be considered.

5.4. Post registration changes

No post registration changes applicable for this monitoring period have been observed during the monitoring period.

5.5. Compliance with the monitoring plan

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

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD of version 1.c. of 25 September 2007. The monitoring plan and the applied methodology have been properly implemented and followed by the project participant. The determination of the baseline emission factor and the project emissions are verified and found to be in compliance to AM0034 version 02.

All parameters stated in the validated monitoring plan and the applied methodology AM0034 version 02 have been sufficiently monitored and updated as applicable, including: project emission parameters; baseline emission parameters; leakage emissions; management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan.

The monitoring report lists each parameter required by the monitoring plan and the information flow (i.e. from data generation, aggregation, recording, calculation and reporting) for these parameters is provided in sections C and D of the monitoring report. The information flow for each parameter is further discussed in the following sections of this report. The monitoring methodologies and sustaining records are sufficient to enable verification of emission reductions.

The verifier confirms that:

- all parameters stated in the MP of the registered PDD have been monitored and updated as applicable,
- the monitoring equipment has been controlled and calibrated as per the MP
- the monitoring results are consistently recorded as per the approved frequency

- QA/QC procedures have been applied in accordance with the MP.

Further the results from the QAL2 test have been provided. The QAL2 test covers the calibration issues as per EN14181 and confirms the determination of the overall uncertainty used in the calculation of the baseline emission factor. Related results from the QAL2 esp. w.r.t. correction factors have been correctly applied and settings of the AMS have been updated in line with the QAL2. For NCSG the correction factor has been updated from 0.99 to 1.0058 and for VSG/TSG and PSG from 0.96 to 0.992. Further to this the AMS has been subject to performance tests (AST) on annual basis during the period of subsequent QAL2 tests. The related AST reports have been made available to the DOE during verification. The QAL2 and AST are therefore in line with the requirements of EN 14181 as well as with the registered monitoring plan. The related calibration tests cover this entire monitoring period. Refer to Appendix C for detailed assessment of the monitored parameters in accordance with the Monitoring plan.

5.6. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology (AM0034 version 2).

5.7. Monitoring parameters

During the verification all relevant monitoring parameters (as listed in chapter B.7.1 of 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.

Further the calibrations of all monitoring equipments installed have been verified as listed in table given in Annex 3 to this report. The monitoring equipment has been duly calibrated for the entire monitoring period besides a delay for the performance test AST in 2013 and QAL2 (AST) in 2014. The test would have been due on 03/07/2013 and 07/08/2014 but have been conducted on 06/08/2013 and 23/09/2014. Based on that a delay for the periods from 03/07/2013 – 06/08/2013 and 06/08/2014 – 22/09/2014 are given. The PP has applied related regulations according to VVS §273 for these periods in a conservative way. As the related parameters are relevant for determination of project emissions the maximum permissible error has been considered additionally leading to higher values for this period and therefore higher project emissions decreasing the final emission reductions result.

Further a delay of the calibration of the coriolis mass flow meter has been identified for the period 12/04/2014 – 18/05/2014. The maximum permissible error has been conservatively applied to the nitric acid value in line with VVS §273 but considering that the plant was shut down for the period 09/03/2014 – 11/04/2014.

The application of the correctness of §273 has been checked with the ER calculation spreadsheet as well as shut down list and related calibration certificates.

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

The DOE confirms that:

(a) The monitoring plan and the applied methodology have been properly implemented and followed by the project participants;

(b) The data collection system meets the requirements of the monitoring plan[/PDD/] as per the applied methodology;

(c) All parameters stated in the monitoring plan[/PDD/], the applied methodology and related tools have been sufficiently monitored and updated as applicable.

(d) The ex-ante fixed values have been applied correctly

5.8. Monitoring report

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

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

5.9. Sampling

5.10. Implementation of the sampling plan

No sampling was required to determine the monitored parameters.

5.11. Sampling approaches during verification

A sampling approach has been applied by the verification team to check the data transferred from the AMS to the emission reduction excel calculation spreadsheet. The hourly raw data from AMS has been checked against the hourly data used in ER calculation spreadsheet to determine the related emission reductions. Further the monthly summary sheets used by AEL to control the plant operation have been crosschecked with hourly data as well and used as crosscheck for the ER calculation spreadsheet. Randomly selected time periods (hours and days) have been checked

to confirm the correctness of the data transfer. The amount of data to be checked has been derived applying random sampling 95% confidence interval, 5% margin of error and 50% response distribution. For the calculation of the sample size the software http://www.raosoft.com/samplesize.html has been used.

Based on that the following sampling has been conducted:

Parameter	Population size	Required sample size	Number of samples checked
Hourly data for OTh, OPh, AFR, AFIR, NCSG, VSG, PSG and TSG	12096 (504 days x 24 h/d)	373	2 months = 1440 hours

No direct data mismatch was identified. However CAR E1 has been raised and successfully closed.

5.12. ER Calculation

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

The emission reductions are calculated as following:

$ER_y = BE_y – PE_y – LE_y$

$ER_y = (EF_{BL} – EF_p) \times NAP \times 10^{-3} \times GWP_{N2O}$

With

EF_{BL} depending on CL_n in comparision to CL_{normal}. For this monitoring period EF_{BL} is

Campaign	CL_n comparison with CL_{normal} and CL_{BL} if required	EFBL value [$tN_2O/tHNO_3$]
PC13	$CL_n > CL_{normal}$	0.0004647
PC14	$CL_n < CL_{normal}$ and $CL_n < CL_{BL}$	0.0004614

$EF_p = EF_{ma,n}$ if $EF_{ma,n} > EF_n$ or $EF_p = EF_n$ if $EF_{ma,n} < EF_n$

$EF_{ma,n} = (EF_1+EF_2+ … +EF_n) / n$

$EF_n = PE_n/NAP_n$

$PE_n = VSG \times NCSG \times 10^{-9} \times OH$

As per methodology leakage emissions do not have to be considered.

Therefore LEy = 0

ER_{PC13} = (4.647-0.958) x 181,280 x 10^{-3} x 298 tCO2e = 199,295 tCO2e

ER_{PC14} = (4.614-0.952) x 108,622 x 10^{-3} x 298 tCO2e = 118,513 tCO2e

Differences with MR, ER spreadsheet or recalculation by applying stated values are due to rounding or not applying all digits.

The emission reductions for this monitoring period covering two campaigns are as following:

Campaign	Baseline Emissions	Project Emissions	Emission Reductions
	[tCO2e]	[tCO2e]	[tCO2e]
PC13	251,045	51,750	199,295
PC14	149,340	30,826	118,513
Total	400,385	82,576	317,808

5.13. Quality Management

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this CDM project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations thereof have been observed during the verification.

5.14. Actual emission reductions during the first commitment period and the period from 1 January 2013 onwards

The MR includes actual ER values achieved up to 31 December 2012 and actual values achieved from 1 January 2013 onwards as follows:

Table 5-2: Emission reductions before and after the end of 2012

	until 2012-12-31 [1)]	from 2013-01-01 [1)]	Sum
Emission reductions [tCO_{2e}]	0	317,808	317,808

[1)] Both days included

5.15. Comparison with ex-ante estimated emission reductions

The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD.

The calculated value of 317,808 tCO2e was found to be proportionally lower than the ex-post determined value of 366,553 tCO2e for the corresponding monitoring period of 504 days, thus no further justification was required.

5.16. 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 criteria and relevant guidance provided by the COP/CMP and the CDM EB (clarifications and/or guidance).

5.17. Hints for next periodic Verification

FAR C1 has been raised due to the reason that during this onsite visit it has been identified that the time setting in the AMS computer was not correct. During next verification it will be checked whether the time setting has been corrected accordingly.

6. VERIFICATION AND CERTIFICATION STATEMENT

AEL Mining Services Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 7th periodic verification of the project: “”, with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to abatement of N2O emissions by a secondary catalyst. This verification covers the period from 2013-06-06 to 2014-10-22 (including both days).

In the course of the verification 4 Corrective Action Requests (CAR) and 2 Clarification Requests (CL) were raised and successfully closed. Furthermore 1 FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation 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 validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology, i.e., AM0034 ver.2
- 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 7th 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: **317,808** t CO_{2e}

Essen, 2015-08-03	Essen, 2015-08-03
Stefan Winter	Rainer Winter
TÜV NORD JI/CDM Certification Program	TÜV NORD JI/CDM Certification Program
Verification Team Leader	Final Approval

7. REFERENCES

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

Reference	Document
/AST/	Report for AST (03/07/2012 – 04/07/2012) issued by Müller-BBM GmbH, Report Nr: M100097/02 dated 08/08/2012 Report for AST (07/08/2013 and 22/10/2013 – 24/10/2013) issued by Müller-BBM GmbH, Report Nr: M106390/02 dated 13/02/2014
/BR/	Breakdown reports
/CAL/	• Calibration procedures • Calibration certificates and documentation done by supplier • Calibration certificates from day-to-day checks/calibrations and documentation done by AEL
/CoC/	Certificate of Conformance for Test Gases: N_2O, Nitrogen (zero and span gas)
/FSNA/	Flow Sheet Nitric Acid Plant
/ISO/	ISO 9001:2008 certificate for “The design, manufacture and supply of ANFO explosives (ammonium nitrate fuel oil), powergel emulsion explosives and energan bulk explosives”, ISO 14001:2004 certificate for “The manufacture, sale and distribution of fertilizer and related products”.
/LOG/	Record log sheet of operator including main operation data and HNO3 temperature and density taken by manual measurement and concentration.
/MR/	Monitoring report published version 01, 2015-01-12 Version 2, 2015-02-13 Version 3, 2015-03-23 Monitoring report final version 4, 2015-04-27
/NATGAS/	Gas Composition Specification for calibration gas for NO, NOx and N2O
/OCS/	Actual operating condition values of the N2O destruction facility during the on-site visit.

Reference	Document
/P&I/	P&I Diagram
/PPT/	Presentation of the company AEL Mining Services Ltd. and production facilities
/PROD/	Official production figures for nitric acid plant 2 related year 2012, 2013, 2014
/QAL1/	Suitability testing report by TÜV SÜD, Germany, report no. 2410 6657 and 170 608 dated June 2006
/QAL2/	Report for QAL2 test (22/06/2011 – 25/06/2011) issued by Müller-BBM GmbH, Report Nr: M92 321/2 , dated 30/09/2011 Report for QAL2 test (23/09/2014 –25/09/2014) issued by Müller-BBM GmbH, Report Nr: M114144/02 , dated 08/12/2014
/QAL3/	Daily and Monthly Check log sheets for the Emerson N_2O analysers
/RAW/	Raw data: Hourly and monthly summarized data from AMS Technical Managers log spreadsheet
/Train/	Training protocols for the operation of the Monitoring System esp. the Analyser.
/XLS/	Initial and final emission reduction calculation spreadsheet

Table 7-2: Background investigation and assessment documents

Reference	Document
/AM34/	AM0034 ver.2, “Catalytic reduction of N2O inside the ammonia burner of nitric acid plants”
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/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)

Reference	Document
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/MRT/	Monitoring Report Form (CDM-MR-FORM), Version 4.0
/PDD/	Project Design Document for CDM project: “” version 1.c, dated 2007-09-25
/PS/	CDM Project Standard (Version 7.0)
/VAL/	Validation Report for CDM project “” version 1, dated 2007-09-27
/VER/	Documents of previous verifications (Monitoring report, verification report, ER calculation sheet)
/VVS/	CDM Validation and Verification Standard (Version 07.0)

Table 7-3: Websites used

Reference	Link	Organisation
/dna-HP/	http://www.energy.gov.za/	DNA of South Africa
/dna-SP/	http://www.bafu.admin.ch/klima/13877/14510/14744/14745/index.html?lang=en	DNA of Switzerland
	http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/business/topics/pollution/129666.aspx	DNA of United Kingdom of Great Britain and Northern Ireland
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function

Reference	MoI[1]		Name	Organisation / Function
/IM01/	V	☒ Mr. ☐ Ms	Hendrik Burger	AEL Mining Services Limited / Technical Manager
/IM01/	V	☒ Mr. ☐ Ms.	Nikolaus Gutknecht-Stöhr	n.serve GmbH / Consultant

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

ANNEX

A1: Verification Protocol

A2: Calibration dates and validity of installed monitoring equipment

A3: Statements of Competence of involved Personnel

ANNEX 1: VERIFICATION PROTOCOL

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

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
Raw data generation				
• Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of technology	• Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspect-ions of installed equip-ment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is	• 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 • Insufficient accuracy • Inappropriate QA/QC	• Site – visit • 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 CDM management system • Check of CDM related procedures	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
• Accuracy of values supplied by Third Parties	organized • Training • Internal audit procedures • Internal check of QA/QC measures of involved Third Parties	measures of Third Parties	• Application of CDM management system procedures • Check of trainings • Check of responsibilities • Check of QA/QC documentation / eviden-ces of involved Third Parties	
Raw data collection and data aggregation				
• Wrong data transfer from raw data to daily and monthly aggregated reporting forms • IT Systems • Spread sheet programming • Manual data transmission • Data protection • Responsibilities	• Cross-check of data • Plausibility checks of various parameters. • Appropriate archiving system • Clear allocation of responsibilities • Application of CDM Management system procedures • Usage of standard software solutions	• 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 • Manual data transfer mistakes	• 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 • Check of data archiving system	• **See Table A-2**

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

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

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

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
A. Description of the project activity				
A.1. Purpose and general description of the project activity ***(F-CDM-FORM, Attachment, A.1)*** *Check if section A.1 of the MR includes the following:* - *Purpose of the PA and the measures taken to reduce GHG emissions* - *Brief description of the installed technology and equipment* - *Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc.)* - *Total emission reductions achieved in this monitoring period*	/MR/	The verification team has checked section A.1 of the MR and confirms that the information provided is complete and correct with regards to the following: ☒ Purpose of the PA and the measures taken to reduce GHG emissions ☒ Brief description of the installed technology and equipments ☒ Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc ☒ Total emission reductions achieved in this monitoring period	Ok	Ok
A.2. Location of project activity ***(F-CDM-FORM, Attachment , A.2)*** *Check if section A.2 of the MR reflects correctly the following:* - *Host Party(ies)* - *Region / State / Province etc.* - *City / Town / Community etc.*	/MR/ /PDD/ /IM/	The verification team has checked section A.2 of the MR and confirms by means of comparison with the information given in the PDD and information gathered during the site visit that the information provided is complete and correct with regards to the following: ☒ Host Party(ies) ☒ Region / State / Province ☒ City / Town / Community	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
- *Physical / geographical location (e.g. Latitude and Longitude)*		☒ Physical / Geographical location		
A.3. Parties and Project Participants ***(F-CDM-FORM, Attachment, A.3)*** *Check if section A.3 of the MR includes the following:* - *All PPs as displayed on the UNFCCC website* - *A correctly filled table as per the MR template*	/MR/ /unfccc/	The verification team has checked section A.3 of the MR as well as the UNFCCC website and confirms that: ☒ all PPs as displayed on the project related UNFCCC website are correctly listed ☒ the table as per the template MR has been correctly filled	Ok	Ok
A.4. Reference of applied methodology ***(F-CDM-FORM, Attachment, A.4)*** *Check if section A.4 of the MR correctly describes / includes the following:* - *Reference to the applicable version of the methodology* - *Reference to the applicable version(s) of relevant methodological tools* - *Relevant EB decisions, if applicable*	/MR/ /PDD/ /unfccc/	The verification team has checked section A.4 of the MR and confirms by means of comparison with the information given in the PDD and displayed on the UNFCCC website that the information provided is complete and correct with regards to the following: ☒ Number, title and version of the applicable CDM Methodology ☒ Name and version of applicable CDM methodological tools ☒ Relevant EB decisions	OK	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
A.5. Crediting period of project activity ***(F-CDM-FORM, Attachment, A.5)*** *Check if section A.5 of the MR correctly includes the following:* - *Start date of the crediting period. In this context please check, if applicable, whether post registration changes to the start date have been accepted by the EB.* - *Length and type of the crediting period*	/MR/ /unfccc/	The verification team has checked section A.5 of the MR and confirms by means of comparison with the information displayed on the UNFCCC website that the information provided is complete and correct with regards to the following: ☒ Start date of the crediting period. ☒ Type and length of the crediting period	Ok	Ok
A.6. Publication of the Monitoring Report ***(VVS, § 243)*** *Check if the monitoring report has been made publicly available on the UNFCCC website before the verification commenced.* *Check if comments have been received and if yes, how they have been addressed.*	/unfccc/	The verification team has ensured and confirms by means of checking the respective project information on the UNFCCC website that: ☒ The draft monitoring report, as received from the project participants, has been made publicly available prior to the start of the verification activities. ☒ No comments have been received.	Ok	Ok
A.7. Compliance with standardized format of the Monitoring Report ***(VVS, § 247 e)*** *Check (only) if the latest applicable MR template has been used. For compliance assessment with the MR guideline pl. refer to the respective MR sections.*	/F-CDM-FORM/	The verification team has checked all sections of the MR and confirms by means of comparison with the MR template that: ☒ the standardized MR template has been used In this context the following findings have been identified: However editorial mistakes have been identified. Therefore CAR A1 has been raised.	~~CAR A1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
B. Implementation of project activity				
B.1. Description of implemented registered project activity ***(F-CDM-FORM, Attachment, B.1)*** *Check if section B.1 of the MR correctly describes / includes the following:* - *Implementation status of the PA* - *Detailed description of installed technology(ies) / technical processes and equipment applied* - *Diagrams (where appropriate)*	/MR/ /PDD/ /PS/ /IM01/	The verification team has checked section B.1 of the MR and confirms by means of comparison with the information given in the PDD, the project standard and information gathered during the site visit that: ☐ the description of the implementation status of the PA is in line with the applicable provisions of the project standard ☒ an appropriate description of the installed technology(ies), technical process and equipment incl. diagrams, where applicable, has been included In this context the following findings have been identified: CAR B1 has been raised as downtimes of the AMS are missing and the incident list is not complete.	~~CAR B1~~	Ok
B.1.1. Initial project implementation ***(VVS; §§ 260 a, 261)*** *Assess whether the project has been implemented and operated as per the registered PDD and are all physical features of the project in place?* *Further focus on the potential phase wise implementation and check the reporting on the corresponding status and starting dates accordingly.* *Check if the project is still in compliance with the applicability conditions of the methodology.* *Also, discuss – if applicable – the necessity of PRC*	/IM01/ /PDD/ /MR/ /QAL2/ /INV/	*Description:* The project activity entails the installation and implementation of the following technical equipment and quality measures: 1.) secondary N_2O abatement technology 2.) Automated Monitoring System (AMS) for continuous N_2O measurement which is fully in compliance with European norm EN 14181 AEL has contracted with Johnson Matthey plc who exclusively markets a secondary catalyst technology that has been developed by YARA International ASA (Norway). AEL has contracted with Johnson Matthey plc to install the YARA 58 Y 1® catalyst system consisting of an additional base metal	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
notifications / approvals.		catalyst that is installed below the standard precious metal gauze pack. This technology has been implemented inside the AEL-11 ammonia oxidation reactor. The precious metal gauze pack – i.e. the primary catalyst required for the actual production of nitric acid – has been supplied to AEL by W.C. Heraeus for a number of years. *Verifier´s action:* By means of checking PDD; MR besides onsite visit, check of QAL2 Test reports and invoice by gauze supplier. *Conclusion:* Based on documents checked the project has been installed as described in the PDD.		
B.1.2. Technical equipment changes ***(VVS; §§ 260 a, 261)*** *Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period. Further ensure that consistent notations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied* *Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.* *In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.* *In case of post registration changes pl. refer to chapter B.2.*	/IM01/ /PDD/ /MR/ /INV/ /AST/ /QAL2/ /CAL/	*Description & Conclusion:* Based on onsite visit and check of supporting documents such as QAL2/AST reports and invoice with supplier as well as technical data sheets all relevant monitoring equipment is installed. One meter, coriolis flow meter has been exchanged in May 2014. Further no technical equipment of the production facility has been renewed or exchanged besides the secondary catalyst on regular basis after finish of a production campaign. The two production campaigns during this monitoring period are: 13. Campaign PC13 - 17/06/2013 – 08/03/2014 14. Campaign PC14 - 02/04/2014 – 22/10/2014 *Verifier´s action:* By means of onsite visit, invoice check, QAL2/AST reports and interview with technical manager *Conclusion:* CAR D1 has been raised as the exchange of the coriolis flow meter is not described in the MR.	~~CAR D1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
B.1.3. Operation of the project activity ***(VVS; §§ 260 a, 261)*** *Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.* *Consider e.g. interviews with operational personnel, operation log sheets, data management system records.* *In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.* *In case of post registration changes pl. refer to chapter B.2.*	/IM01/ /PDD/ /MR/ /BR/	*Description & Conclusion:* Based on onsite visit and document check the mode of operation has not been changed. However it has been identified that the DCS software has been updated during this monitoring period and AMS downtimes have not been reported in MR, *Verifier´s action:* By means of onsite visit and interview with personnel as well as document check. *Conclusion:* CAR B1 has been raised.	~~CAR B1~~	Ok
B.1.4. Incidents ***(VVS; §§ 260 a, 261)*** *Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?* *Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.*	/IM01/ /MR/ /BR/	*Description:* No major incidents have been occurred during this monitoring period besides the stated shutdowns in the MR including regular shutdowns for maintenance and gauze exchange. *Verifier´s action:* By means of onsite visit, interview with technical manager and check of supporting documents. *Conclusion:* No major incidents have occurred and the project was operating normally. However it has been identified that also the AMS was not always operational but related downtimes have not been indicated in the MR. Further the DCS has been updated during which time the related values have not been recorded. The exact start date of the plant operation is not clear	~~CAR B1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		and the same is not described in the report. Therefore CAR B1 has been raised.		
B.1.5. Legislation Find out – esp. in the context of methodological requirements - whether relevant legislation with effect on the project activity in the host country has been changed. Assess, in case of changes, whether consequences for the PA with regard to relevant CDM requirements have been accounted for. In case of changes data sources shall be referenced.	/IM01/ /ISO/	*Description:* No (new) relevant legislation affecting the project activity in South Africa has been promulgated during the current monitoring period. Furthermore the environmental management system is certified acc. to ISO 14001. *Verifier´s action:* The national legislation on N_2O emissions and situation of the environmental laws related NO_X emissions have been cross-checked by local expert. Following web articles have been checked http://www.sataxguide.co.za/category/carbon-tax/ *Conclusion:* No host country legislation that would affect the project activity has changed.	Ok	Ok
B.1.6. Open issues from validation ***(VVS; § 248)*** *Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?*	/VAL/	☒ There were no open issues addressed in the validation report ☐ All open issues from the validation have been appropriately addressed. ☐ The following issues related to the validation have not yet been appropriately addressed:	Ok	Ok
B.1.7. Open issues from previous verification ***(VVS; §§ 248, 319 h)*** *Check in case of further periodic verifications whether there are any open issues indicated in previous verification reports (FAR) and take into consideration the guidance as specified in VVS.*	/VER/	☒ There were no open issues addressed in the previous verification report ☐ All open issues from the previous verification have been appropriately addressed. ☐ The following issues related to the previous verification have not yet been appropriately addressed:	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
B.2. Post registration changes				
B.2.1. Are post registration changes applicable to the proposed project activity?		☒ No, by means of site visit, document check and interview it could be verified that the project is implemented and operated in line with the registered PDD and the applied methodology. (Please proceed with section C) ☐ Yes, post registration changes have been identified and are assessed in detail in the subsequent steps. (Please proceed with B.2.2.)	Ok	Ok
B.2.2. Temporary deviations from the registered monitoring plan or applied methodology (TDfrMP; TDfMM) ***(F-CDM-FORM, Attachment, B.2.1; VVS §§ 286 - 291)*** *Indicate whether any temporary deviations have been applied during this monitoring period.* *In cases where approval has been sought from the EB please provide reference.* *If applied, provide a description of the deviation(s).* *This should include the reasons for the deviation(s), how it deviates from the monitoring plan and/or applied methodology(ies), the duration for which the deviation(s) is(are) applicable and justification on the conservativeness of the approach. Indicate if the*	/PS/ /unfccc/ /MR/ /PDD/	☒ No TDfrMP or TDfMM have been submitted to the UNFCCC prior to the current monitoring period ☐ The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC 1 Title Status ☐ under approval; ☐ approved Appr.date Ref. No. 2 Title Status ☐ under approval; ☐ approved Appr.date Ref.No.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
deviation will lead to a reduction in the accuracy and if so, which conservative assumptions and discount factors have been applied. *For deviation(s) that require prior approval by the Board, include the date of approval and reference number.*		☒ During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA ☐ An approval of the following TDfrMP or TDfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. 1 Issue: 2 Issue: ☐ The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied: 1 Issue: 2 Issue:		
B.2.3. Corrections ***(F-CDM-FORM, Attachment, B.2.2; VVS; §§ 292 - 294)*** *Indicate whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report.* *In cases where the correction(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, provide the*	/MR/ /PDD/	☒ During the verification of the current MP no need for corrections has been identified. ☐ The following corrections have been applied: 1 Issue: 2 Issue:	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
approval date and reference number. Otherwise, provide the version number and the completion date of the revised PDD. *Please check and report that the corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.*				
B.2.4. Permanent changes from the registered monitoring plan or applied methodology (PCfrMP; PCfMM) ***(F-CDM-FORM, Attachment, B.2.3; VVS; §§ 295 - 303)*** *Indicate whether any permanent changes from the registered monitoring plan or applied methodologies have been approved during this monitoring period or submitted with this monitoring report.* *In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise, provide the version number and the completion date of the revised PDD.*	/MR/ /PDD/	☒ No PCfrMP or PCfMM.have been submitted to the UNFCCC prior to the current monitoring period ☐ The following PCfrMP or PCfMM have been approved or are under approval by the UNFCCC 1 Title Status ☐ under approval; ☐ approved Appr.date Ref. No. 2 Title Status ☐ under approval; ☐ approved Appr.date Ref.No. ☒ During the verification of the current MP no need for a PCfrMP or PCfMM has been identified. The monitoring plan is in accordance with the approved methodology	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		applied by the PA ☐ An approval of the following PCfrMP or PCfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. 1 Issue: 2 Issue: ☐ The following PCfrMP or PCfMM for which appendix 1 of the PS is applicable have been applied: 1 Issue: 2 Issue:		
B.2.5. Changes to the project design of the registered project activity (CoPD) ***(F-CDM-FORM, Attachment, B.2.4; VVS; §§ 304 - 317)*** *Indicate whether any changes to the project design of the project activity have been approved during this monitoring period or submitted with this monitoring report.* *In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, provide the approval date and reference number. Otherwise,*	/MR/ /PDD/	☒ No CoPD has been submitted to the UNFCCC prior to the current monitoring period ☐ The following CoPD has been approved or are under approval by the UNFCCC 1 Title Status ☐ under approval; ☐ approved Appr.date Ref. No. 2 Title	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
provide the version number and the completion date of the revised PDD.		☐ Status: ☐ under approval; ☐ approved Appr.date: Ref.No.: ☒ During the verification of the current MP no need for a CoPD has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA ☐ An approval of the following CoPD.is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. 1 Issue: 2 Issue: ☐ The following CoPD for which appendix 1 of the PS is applicable have been applied: 1 Issue: 2 Issue:		
C. Description of monitoring system				
C.1. Monitoring Plan – PDD Compliance ***(VVS, §§ 268-271)*** *Check if the monitoring plan is in accordance with the monitoring plan contained in the registered PDD (or*	/MR/ /PDD/	By means of comparison of the MR with the registered PDD (or any revisions thereof) the verification team has checked whether the MP is in compliance with the registered PDD. The outcome is as follows:	~~CAR C2~~ ~~CAR D1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
any accepted revised MP). *Please check esp. if* - *all parameters stated in the MP of the registered PDD have been monitored and updated as applicable* - *the monitoring equipment has been controlled and calibrated as per the MP* - *the monitoring results are consistently recorded as per the approved frequency* - *QA/QC procedures have been applied in accordance with the MP*		☒ The MP is completely in accordance with the last registered/approved version of the PDD / MP. In this context the following findings have been identified: However CAR C2, CAR D1 and D2 have been raised.	~~CAR D2~~	
C.2. Monitoring Plan – Meth Compliance ***(VVS, §§ 264-267)*** *Check if the monitoring plan is in accordance with the applied methodology.* *In case the methodology references applicable tools it has to be ensured that the MP is also compliant with those tools.* *Also please specify if monitoring aspects have been identified that are not specified in the methodology but may enhance the level of accuracy and completeness of the monitoring plan – this esp. applies for SSC PAs.*	/MR/ /PDD/ /AM34/	By means of comparison of the MR with the applied CDM methodology and related tools the verification team has checked whether the MP is in compliance with the MP related requirements of the applied methodology. The outcome is as follows: ☒ The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD) ☒ The MP is completely in accordance with the applied tools which the methodology references. A breakdown of the referenced tools is as follows: 1 Title (of the tool): Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion	Ok	Ok

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		Version: 2 MP compliance: ☐ full compliance ☐ findings have been raised ☒ N/A (for MP) 2 Title (of the tool): Tool to calculate baseline, project and/or leakage emissions from electricity consumption Version: 1 MP compliance: ☐ full compliance ☐ findings have been raised ☒ N/A (for MP) 3 Title (of the tool): Combined tool to identify the baseline scenario and demonstrate additionality Version: 2.1 MP compliance: ☐ full compliance ☐ findings have been raised ☒ N/A (for MP)		
C.3. Management System ***(VVS, § 252 (a) (iii))*** *Check if the GHG data monitoring system can be*	/MR/ /PDD/ /TRAIN/	*Description:* All applicable procedures within the GHG monitoring system have been summarized in relevant QA/QC procedures, which address the processes for measurements, collection and	FAR C1 ~~CAR~~	FAR C1

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
assessed as appropriate. *In case reference is made to a (certified) company quality management system, check if all CDM related monitoring procedures have been fully integrated in the project participant's quality management system.* *In case of a stand-alone system, check how the GHG management system has been implemented and effectiveness is ensured.*	/IM01/	compilation of data, data storage and archiving, calibration and maintenance. The training materials have been checked during on-site. *Verifier´s action:* The QA/QC procedures, operation and maintenance records as well training records and materials were checked by the verification team. *Conclusion:* However FAR C1, CAR C2, CAR D1 and D2 have been raised.	~~C2~~ ~~CAR D1~~ ~~CAR D2~~	
C.4. Metering diagram ***(F-CDM-FORM, Attachment, C; PS §242)*** *Check first if the MR includes a metering diagram showing all relevant monitoring points.* *Check further if this diagram reflects the actual situation and is in line with the registered PDD and with the requirements of the applied methodology.*	/PS/ /MR/ /PDD/	*Description:* MR in section C contains a diagram showing all related monitoring points of the project activity. *Verifier´s action:* By means of checking MR, PDD as well as onsite visit and physical check of the equipment. *Conclusion:* Ok	Ok	Ok
C.5. Roles and Responsibilities ***(F-CDM-FORM, Attachment, C; PS §242)*** *Check if all roles and positions of each person in the GHG data management process are clearly defined and implemented as stated in the monitoring plan. Please consider the complete data trail from raw data generation to submission of the final data.* *Identify, if relevant personnel w.r.t. monitoring has*	/PS/ /MR/ /IM01/	*Description:* Section C of the MR contains a description of the roles and responsibilities of persons involved in plant operation and GHG monitoring as following: The Production Manager (PM) has the overall responsibility for the ongoing operation of the project. The Engineering Team Manager Electrical/Instrument (ETM E/I) is responsible for the day-to-day calibration procedure and any adjustments required to the instruments as a result of the calibrations.	~~CAR C2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
been exchanged? *If so, have appropriate training measures been carried out.* *In case of changes, assure that the implemented monitoring procedures have not been affected.*		The Process Controller (PC) checks the analyser regularly to see if there are any abnormal occurrences. These checks are done using a plausibility checklist, which is filled in and filed, in the control room. If there are any problems the ETM E/I is notified so that the problem can be rectified. Operation, maintenance, calibration and service intervals are being carried out by staff from the instrumentation department according to the vendor's specifications. *Verifier´s action:* By means of checking PDD, MR and interviews conducted during onsite visit. *Conclusion:* CAR C1 has been raised as the previous product manager is now technical manager but the technical manager and his responsibilities are not mentioned in MR.		
C.6. Emergency procedures for the monitor-ing system ***(F-CDM-FORM, Attachment, C; PS §242)*** *Check, as appropriate, whether relevant emergency procedures for the monitoring system have been included in the MR and assess whether these procedures have been implemented, when required*	/PS/ /MR/ /PDD/ /IM01/	*Description:* The monitoring system for the project activity is integrated within the operational control system of the plant. All alarms are indicated on the operator console in the control room, where there are dedicated screens for the control of the system. Any action taken by the operating personnel are automatic logged in the operation log of the plant. The internal instrument department will be contacted and decides whether external support from the meters manufacturers is needed. Troubleshooting procedures have been implemented. *Verifier´s action:* The VT crosschecked the Operating Manual during onsite visit and interviewed the plant personnel.	OK	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		Conclusion: Relevant troubleshooting measures are in place.		
C.7. Data archive and data protection ***(PS §56 b)*** Check whether all records of monitoring parameters are archived according to the monitoring plan. Assess further whether appropriate measures have been taken in order to avoid unintended or intended manipulation or loss of the measured data.	/MR/ /PDD/ /IM01/	*Description:* The data from the analyzer and flow meter are fed into a SCADA data acquisition and database system. Each of the two nitric acid plants operated by AEL has is own dedicated SCADA system. However the two SCADA PCs are connected to each other and each computer receives both data from both plants. Besides the instrumentation engineer transfers the data at least once a week into AEL's main IT system as well as a complete copy of the week-data is stored on an external hard drive. Finally the hourly and daily data are forwarded to n.serve once per week as well. *Verifier´s action:* The real situation has been observed and cross checked with the information in PDD and MR. *Conclusion:* The data is assessed to be appropriate. All data has been archived according to the monitoring plan. However FAR C1 has been raised.	FAR C1	FAR C1
D. Data and parameters				
D.1. Data and Parameters fixed ex ante				

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
a) Compliance with registered PDD ***(F-CDM-FORM, Attachment; D1, VVS § 246 (d))*** *Check whether the value applied is in compliance with the registered PDD.*	/MR/ /PDD/ /VER/ /XLS/	*Description:* The following values are fixed ex-ante: **B.1 $NCSG_{BC}$: 1,630.03 mg/Nm³** **B.2 VSG_{BC}: 72,648 Nm³/h** **B.3 BE_{BC}: 651.983 tN2O; PC 13: 651.983; PC14: 647.276** **B.4 OH_{BC}: 4,950 h** **B.5 NAP_{BC}: 134,700 tHNO3** **B.6 TSG: n.a. °C** **B.7 PSG: n.a. PA (absolute)** **B.8 EF_{BL}: 0.004647 tN_2O / $tHNO_3$; PC13: 0.004647; PC14: 0.004614** **B.9 UNC: 3.99 %** **B.10 AFR:** Not applicable, monitored data of AFR will be used to determine if plant was operating outside of AFR_{max}. **B.11 AFR_{max}: 9.094 tNH_3/h (converted from originally measured Nm³/h)** **B.12 AIFR:** Not applicable, monitored data of AIFR will be used to determine if plant was operating outside of $AIFR_{max}$. **B.13 CL_{BL}: 134,700 tHNO3** **B.14 CL_{normal}: 127,302.4 tHNO3** **B. 15 $AIFR_{max}$: 11.5 %v/v** **B.16 OT_h: n.a.** **B.17 OT_{normal}: 820 to 905 °C (min and max)**	Ok	OK

<table>
<tr><th>Checklist Item
(incl. guidance for the verification team)</th><th>Refe-rence</th><th>Verification Team Comments
(Means and results of assessment)</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td></td><td></td><td>

B.18 OP_h: n.a. kPa

B.19 OP_{normal}: 365 – 450 kPa (gauge) min and max

B.20 GS_{normal}: W.C. Heraeus Name of Supplier

B.21 GS_{BL}: W.C. Heraeus Name of Supplier

B.23 GC_{normal}:
Platinum (Pt) 56.5%; Rhodium (Rh) 3.8%; Palladium (Pd) 39.7%

Record of Gauze compositions installed during the historic campaigns:

<table>
<tr><th>Campaign</th><th>Gauze Supplier</th><th colspan="3">Gauze Composition</th></tr>
<tr><th></th><th></th><th>Pt (%)</th><th>Rh (%)</th><th>Pd (%)</th></tr>
<tr><td>C10</td><td>Heraeus</td><td>58.3</td><td>3.9</td><td>37.9</td></tr>
<tr><td>C12</td><td>Heraeus</td><td>56.1</td><td>3.8</td><td>40.1</td></tr>
<tr><td>C13</td><td>Heraeus</td><td>56.4</td><td>3.8</td><td>39.8</td></tr>
<tr><td>C14</td><td>Heraeus</td><td>56.1</td><td>3.8</td><td>40.1</td></tr>
<tr><td>C15</td><td>Heraeus</td><td>55.4</td><td>3.8</td><td>40.8</td></tr>
<tr><td colspan="2">Average</td><td>56.5</td><td>3.8</td><td>39.7</td></tr>
</table>

B.24 GC_{BL}: Platinum (Pt) 56%; Rhodium (Rh) 3.8%; Palladium (Pd) 40.2%

B.26 EF_{reg}: None $tN_2O/tHNO_3$

Verifier´s action: By means of comparing MR with reg PDD and MR and verification report of previous verification as well as ER spreadsheet.

Conclusion: Ok. No inconsistency has been identified.

</td><td>Ok</td><td>OK</td></tr>
</table>

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
b) Compliance with the applied methodology ***(F-CDM-FORM, Attachment; D1)*** *Check whether the value applied is in compliance with the applied methodology or any other tool.*		*Description:* See point a) above. *Verifier´s action:* By means fo checking MR with methodology. *Conclusion:* Ok. As per comparison the values applied are in line with the applied methodology.	Ok	
D.2. Data and Parameters monitored				
D.2.1. $NCSG_{NG,y}$		**N_2O concentration in the stack gas during each project campaign**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/	*Description:* The N2O concentration is measured by continuous gas analyzer ABB AO2040 URAS 14. The analyzer is part of an automated monitoring system which is in line with standard EN 14181. The gas analyzer is connected to the AMS which automatically records the values every 2 seconds. The AMS also generates hourly data from the 2-sec data. The files are saved month-wise. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to n.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The monitoring equipment has been checked physically during onsite visit. Besides interview with personnel has been conducted. *Conclusion:* The monitoring procedure is as per reg PDD. However CAR D2 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/ /CAL/ /CoC/ /NATGAS/	*Description:* AM0034 requires all key meters for the N_2O determination to be subject to a quality control regime that will include regular maintenance and calibration according to the European Norm EN 14181. The analyzer has a QAL1 approval. The QAL 2 has been performed on 22/06/2012 to 25/06/2012 and 23/09/2014 to 25/09/2014 by Müller-BBM GmbH. The AST according to EN 14181 was performed on 03/07/2012 to 04/07/2012 and 06/08/2013 and 22/10/2013 to 24/10/2013 also by Müller-BBM GmbH. As per latest QAL2 report the overall measurement accuracy is 1.60% *Verifier´s action:* The measured N2O concentration values were checked during on-site visit, by means of data comparison tests, interviews and observations. Raw data, data from AMS, the ER calculation spreadsheet as well as QA/QC documentation has been checked. Furthermore the calibration procedures under QAL 3 and certificates of used span and zero gases have been analyzed.	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		Conclusion: Numerous QA/QC checks are implemented and foreseen, such as: - EN 14181 compliance (QAL 1 to QAL 3, AST) including check of analytical function (zero and span check) - Regular checks by the plant maintenance team, - Service checks by the manufacturer and - Data checks by the CDM team Based on the above the monitoring system is duly calibrated. Besides delay in calibration, delay of conducting AST, has been identified for the periods 03/07/2013 – 06/08/2013 and 06/08/2014 – 22/09/2014. Related provisions as per VVS §273 have been applied by considering the maximum permissible error for the stated periods, meaning leading to higher project emissions. Nevertheless CAR D2 has been raised.		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* For PC13: 343.89 mg/Nm. For PC14: 275.89 mg/Nm³. *Verifier´s action:* By means of checking ER spreadsheet against monthly data as well as hourly raw data. *Conclusion:* No mistake has been identified.	Ok	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
D.2.2. VSG		**Normal gas volume flow rate of the stack gas during each project campaign**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/	*Description:* The normal gas volume flow of the stack gas during the campaign on a dry basis is monitored by gas flow meter, Emerson Rosemount Annubar® Model 485. The flow meter is part of an automated monitoring system which is in line with standard EN 14181. The flow meter is connected to the AMS which automatically records the values every 2 seconds. The AMS also generates hourly data from the 2-sec data. The files are saved month-wise. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to n.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The monitoring equipment has been checked physically during onsite visit. Besides interview with personnel has been conducted. *Conclusion:* The monitoring procedure is as per reg PDD.	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		However CAR D2 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/ /CAL/ /CoC/ /NATGAS/	*Description:* AM0034 requires all key meters for the N_2O determination to be subject to a quality control regime that will include regular maintenance and calibration according to the European Norm EN 14181. The flow meter is part of the QAL1 approval. The QAL 2 has been performed on 22/06/2012 to 25/06/2012 and 23/09/2014 to 25/09/2014 by Müller-BBM GmbH. The AST according to EN 14181 was performed on 03/07/2012 to 04/07/2012 and 07/08/2013 and 22/10/2013 to 24/10/2013 also by Müller-BBM GmbH. As per latest QAL2 report the overall measurement accuracy is 2.082% *Verifier´s action:* The measured flow gas values were checked during on-site visit, by means of data comparison tests, interviews and observations. Raw data, data from AMS, the ER calculation spreadsheet as well as QA/QC documentation has been checked. Furthermore the calibration procedures under QAL 3 and certificates of used span and zero gases have been analyzed. *Conclusion:* Numerous QA/QC checks are implemented and foreseen, such as: - EN 14181 compliance (QAL 1 to QAL 3, AST) including check of analytical function (zero and span check) - Regular checks by the plant maintenance team, - Service checks by the manufacturer and - Data checks by the CDM team Based on the above the monitoring system is duly calibrated.	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		Besides delay in calibration, delay of conducting AST, has been identified for the periods 03/07/2013 – 06/08/2013 and 06/08/2014 – 22/09/2014. Related provisions as per VVS §273 have been applied by considering the maximum permissible error for the stated periods, meaning leading to higher project emissions. Nevertheless CAR D2 has been raised.		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* For PC13: 78,639 Nm³/h. For PC14: 84,667 Nm³/h. *Verifier´s action:* By means of checking ER spreadsheet against monthly data as well as hourly raw data. *Conclusion:* No mistake has been identified.	Ok	OK
D.2.3. PE_n		**Total mass N2O emissions in each project campaign**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/	*Description:* The total mass N2O emissions in each project campaign is not monitored directly but calculated via following equation: PE_n = VSG x NCSG x 10^{-9} x OH For further details of the VSG, NCSG and OH please see related parameter assessments.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
level zero (DAL0)). *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/RAW/ /LOG/	The gas analyzer (NCSG) and flow meter (VSG) are connected to the AMS which automatically records the values every 2 seconds. The AMS also generates hourly data from the 2-sec data. The files are saved month-wise. The operation time is recorded by the process control system and noted in production log. The value is also recorded in the technical manager log spreadsheet shift-wise for each of the two plants. Every Friday the data from AMS and process control system is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to n.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The monitoring equipment has been checked physically during onsite visit. Besides interview with personnel has been conducted. *Conclusion:* The monitoring procedure is as per reg PDD.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)***	/MR/ /PDD/	*Description:* No specific QA/QC procedure is applicable as this parameter is calculated.	Ok	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*		*Verifier´s action:* by means of checking MR and PDD. *Conclusion:* Ok		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* For PC13: 153.697 tN_2O. For PC14: 95.461 tN_2O. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log. *Conclusion:* No mistake has been identified.	Ok	Ok
D.2.4. OH_n		**Total operating hours during each project campaign**		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /AM34/ /MR/ /PDD/ /LOG/ /RAW/ /XLS/	*Description:* The total operation hours for each campaign are monitored by the process control system. The operation time is recorded by the process control system and noted in production log. The value is also recorded in the technical manager log spreadsheet shift-wise for each of the two plants. Every Friday the data from AMS and process control system is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to n.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The monitoring equipment has been checked physically during onsite visit. Besides interview with personnel has been conducted. *Conclusion:* The monitoring parameter is measured and determined as per requirements.	Ok	Ok
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for*	/MR/ /PDD/	*Description:* No specific measurement equipment is installed to monitor this parameter. The parameter is recorded by the process control system of the related nitric acid plant. As the signal is logged continuously in the plant's DCS, there is a high accuracy.	**Ok**	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*		*Verifier´s action:* Based on onsite observation and document check, it can be confirmed that the measurement / determination method is in line with the registered monitoring plan of the PDD and the methodology *Conclusion:* The value given in the monitoring report and used in ER calculation is correct.		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* For PC13: 5,980 h. For PC14: 4,096 h. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log. *Conclusion:* No mistake has been identified.	Ok	Ok
D.2.5. NAP		**Metric tonnes of 100% concentrated nitric acid during each project campaign**		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /MR/ /RAW/	*Description:* The Nitric Acid plant output is measured by a Coriolis flow meter (Micro Motion Emerson mass flow meter) CMF 300 serial number 414940 and 11007573 according to the registered monitoring plan. The instrument measures nitric acid temperature, density and mass flow. The concentration is then calculated internally from this data and the DSC converts the signal to tons 100% HNO_3/h. Operation personal creates a print out which is forwarded to the technical manager on daily basis. The technical manager inserts the data into the monthly technical manager log which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data shift-wise. This monthly file is then forwarded to n.serve on weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* By means of checking the daily print-out of DCS, raw data check and interview with the plant personnel the verifier can confirm that the measurement of this parameter is in line with the monitoring plan described in the PDD as well as the applied methodology. *Conclusion:* The verification team concludes that the measurement of this parameter is in line with the monitoring plan described in the PDD as well as according to the requirements of the applied methodology. However CAR D1 has been raised.	~~CAR D1~~	Ok
b) Accuracy and QA/QC Procedure	/CAL/ /MR/	*Description:* Maintenance and calibration of the flow meter and density meter has been applied under the internal QA/QC	~~CAR~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(VVS, §§ 272-278) *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/PDD/ /XLS/	procedures implemented for this instrument. No inaccuracies in the measurements have been identified. Neither were inaccuracies beyond the permitted range identified during the calibration process. External calibrations have been carried out on 09/03/2011 and 19/05/2014. The validity of the calibrations is three years. The accuracy of the coriolis mass flow meter is <=0.1%. *Verifier´s action:* Calibration reports have been verified for checking possible inaccuracies detected in the instrumentation. Furthermore the PP investigates the correct function of the instrument by daily density & concentration analysis based on 3 samples per day. The differences of these figures are in the focus regarding an adjustment of the instrumentation and plant operation. *Conclusion:* All applicable QA/QC procedures are met by the project owner and it can be concluded that the installed monitoring equipment is proper calibrated. However delay in calibration for the period 08/03/2014 – 18/05/2014 has been identified. The maximum permissible error of 0.1% has been applied in accordance to VVS §273 in conservative way leading to less emission reductions as checked from ER spreadsheet. Besides CAR D1 has been raised.	~~D1~~	
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* For PC13: 181,280 $tHNO_3$. For PC14: 108,622 $tHNO_3$. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
of the conservativeness of the approach used should be given. *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*		*Conclusion:* No mistake has been identified.		
D.2.6. TSG		**Temperature in the stack gas**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/	*Description:* The temperature measurement device is part of the volume flow measurement instrument. The measurement is at the same place as the volume flow/pressure measurement. A Rosemount thermocouple PT100_385 3-wire RTD is installed to monitor the temperature of the stack gas. The thermocouple is part of an automated monitoring system which is in line with standard EN 14181. The value from the thermocouple is used together with the actual pressure for the normalisation of the volume flow directly in the AMS. The thermocouple is connected to the AMS which automatically records the values every 2 seconds. The AMS also generates hourly data from the 2-sec data. The files are saved month-wise. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to n.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The monitoring equipment has been checked physically during onsite visit. Besides interview with personnel has been conducted. *Conclusion:* The monitoring procedure is as per reg PDD. However CAR D2 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/ /CAL/ /CoC/ /NATGAS/	*Description:* AM0034 requires all key meters for the N_2O determination to be subject to a quality control regime that will include regular maintenance and calibration according to the European Norm EN 14181. The thermocouple is part of the QAL1 approval. The QAL 2 has been performed on 22/06/2012 to 25/06/2012 and 23/09/2014 to 25/09/2014 by Müller-BBM GmbH. The AST according to EN 14181 was performed on 03/07/2012 to 04/07/2012 and 06/08/2013 and 22/10/2013 to 24/10/2013 also by Müller-BBM GmbH. As per latest QAL2 report the overall measurement accuracy is 2.55% *Verifier´s action:* The measured temperature values were checked during on-site visit, by means of data comparison tests, interviews and observations. Raw data, data from AMS, the ER calculation spreadsheet as well as QA/QC documentation has been checked. Furthermore the calibration procedures under QAL 3 and certificates of used span and zero gases have been analyzed.	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		Conclusion: Numerous QA/QC checks are implemented and foreseen, such as: - EN 14181 compliance (QAL 1 to QAL 3, AST) including check of analytical function (zero and span check) - Regular checks by the plant maintenance team, - Service checks by the manufacturer and - Data checks by the CDM team Based on the above the monitoring system is duly calibrated. Besides delay in calibration, delay of conducting AST, has been identified for the periods 03/07/2013 – 06/08/2013 and 06/08/2014 – 22/09/2014. Related provisions as per VVS §273 have been applied by considering the maximum permissible error for the stated periods, meaning leading to higher project emissions. Nevertheless CAR D2 has been raised.		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) Conclusion: The applied measurement method is appropriate and the values used are deemed correct. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
D.2.7. PSG		**Pressure in the stack**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/	*Description:* The pressure measurement device is part of the volume flow measurement instrument. The measurement is at the same place as the volume flow/pressure measurement. A Rosemount pressure equipment is installed to monitor the pressure of the stack gas. The pressure measurement device is part of an automated monitoring system which is in line with standard EN 14181. The value from the pressure measurement device is used together with the actual temperature for the normalisation of the volume flow directly in the AMS. The thermocouple is connected to the AMS which automatically records the values every 2 seconds. The AMS also generates hourly data from the 2-sec data. The files are saved month-wise. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to N.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS.	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		The monitoring equipment has been checked physically during onsite visit. Besides interview with personnel has been conducted. *Conclusion:* The monitoring procedure is as per reg PDD. However CAR D2 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/IM01/ /PDD/ /AM34/ /MR/ /AST/ /QAL1/ /QAL2/ /RAW/ /CAL/ /CoC/ /NATGAS/	*Description:* AM0034 requires all key meters for the N_2O determination to be subject to a quality control regime that will include regular maintenance and calibration according to the European Norm EN 14181. The pressure measurement device is part of the QAL1 approval. The QAL 2 has been performed on 22/06/2012 to 25/06/2012 and 23/09/2014 to 25/09/2014 by Müller-BBM GmbH. The AST according to EN 14181 was performed on 03/07/2012 to 04/07/2012 and 06/08/2013 and 22/10/2013 to 24/10/2013 also by Müller-BBM GmbH. As per latest QAL2 report the overall measurement accuracy is 0.70% *Verifier´s action:* The measured pressure values were checked during on-site visit, by means of data comparison tests, interviews and observations. Raw data, data from AMS, the ER calculation spreadsheet as well as QA/QC documentation has been checked. Furthermore the calibration procedures under QAL 3 and certificates of used span and zero gases have been analyzed. *Conclusion:* Numerous QA/QC checks are implemented and foreseen, such as: - EN 14181 compliance (QAL 1 to QAL 3, AST) including check	~~CAR D2~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		of analytical function (zero and span check) - Regular checks by the plant maintenance team, - Service checks by the manufacturer and - Data checks by the CDM team Based on the above the monitoring system is duly calibrated. Besides delay in calibration, delay of conducting AST, has been identified for the periods 03/07/2013 – 06/08/2013 and 06/08/2014 – 22/09/2014. Related provisions as per VVS §273 have been applied by considering the maximum permissible error for the stated periods, meaning leading to higher project emissions. Nevertheless CAR D2 has been raised.		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) Conclusion: The applied measurement method is appropriate and the values used are deemed correct. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log.	Ok	Ok
D.2.8. EF_n		**Emission factor for campaign n**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)***	/IM01/ /PDD/ /AM34/	*Description:* The emission factor for campaign n is calculated from parameter PEn an NAP as following:	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /XLS/ /LOG/	$EF_n = PE_n / NAP_n$ For the measurement method of the parameters PEn and NAP please refer to related checklist items. The value is calculated on monthly basis from the raw data in the technical manage log. The technical manager processes the raw data into the monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to N.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The procedure has been checked against reg PDD and MR as well as methodology and interview with personnel. *Conclusion:* The monitoring procedure is as per reg PDD.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures*	/MR/ /PDD/ /IM01/	*Description:* Not applicable as the value is calculated. *Verifier´s action:* Based on onsite observation and document check. *Conclusion:* The value given in the monitoring report and used in ER calculation is correct.	Ok	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*				
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* For PC13: 0.000848 $tN_2O/tHNO_3$ For PC14: 0.000879 $tN_2O/tHNO_3$. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log. *Conclusion:* No mistake has been identified.	Ok	Ok
D.2.9. $EF_{ma,n}$		**Moving average emissions factor derived over time from campaign specific emissions factors**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation*	/IM01/ /PDD/ /AM34/ /MR/ /XLS/ /LOG/	*Description:* The moving average emission factor for campaign n is calculated from campaign specific emission factors EFn as following: $EF_{ma,n} = (EF_1+EF_2+\ldots+EF_n) / n$ The value is only calculated after a campaign is finished from the data for the specific campaign. This value is calculated by	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
level zero (DAL0)). *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*		N.serve. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The procedure has been checked against reg PDD and MR as well as methodology and interview with personnel. *Conclusion:* The monitoring procedure is as per reg PDD.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/MR/ /PDD/ /IM01/	*Description:* Not applicable as the value is calculated. *Verifier´s action:* Based on onsite observation and document check. *Conclusion:* The value given in the monitoring report and used in ER calculation is correct.	Ok	OK
c) Correctness	/MR/	☒ Correct ☐ Not correct (initial assessment)	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(VVS, §§ 268, 271) *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/PDD/ /LOG/ /XLS/ /RAW/	*Description:* For PC13: 0.000958 $tN_2O/tHNO_3$. For PC14: 0.000952 $tN_2O/tHNO_3$. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log. *Conclusion:* No mistake has been identified.		
D.2.10. EF_p		**Emissions factor used for the specific campaign n to determine the emission reductions of that campaign**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan*	/IM01/ /PDD/ /AM34/ /MR/ /XLS/ /LOG/	*Description:* The emission factor for the specific campaign n to determine the emission reduction of that campaign is derived as following: If $EF_{ma,n} > EF_n$ then $EF_p = EF_{ma,n}$ If $EF_{ma,n} < EF_n$ then $EF_p = EF_n$ The value is only calculated after a campaign is finished from the data for the specific campaign. This value is calculated by N.serve. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The procedure has been checked against reg PDD and MR as well as methodology and interview with personnel.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
of the PDD and the applied methodology.		*Conclusion:* The monitoring procedure is as per reg PDD.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/MR/ /PDD/ /IM01/	*Description:* Not applicable as the value is calculated. *Verifier´s action:* Based on onsite observation and document check. *Conclusion:* The value given in the monitoring report and used in ER calculation is correct.	Ok	OK
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* For PC13: 0.000958 $tN_2O/tHNO_3$. For PC14: 0.000952 $tN_2O/tHNO_3$. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
be given. *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*		*Conclusion:* No mistake has been identified.		
D.2.11. EF_{min}		**EF_{min} is equal to the lowest EFn observed during the first 10 campaigns of the project crediting period.**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /AM34/ /MR/ /XLS/ /LOG/ /VER/	*Description:* The minimum emission factor for the first campaigns is determined as following: If EF_{min} = Min(EF1 to EF10) The value is only calculated once after the 10th campaign is finished from the data for the specific campaigns. As this monitoring period covers the 13th and 14th campaign the value is already determined. No update was conducted. This value was calculated by N.serve as N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* The data was checked against previous verification documents. The data in the final emission reduction calculation has been checked with the monthly files of the technical manager as well as raw data files from the AMS. The procedure has been checked against reg PDD and MR as well as methodology and interview with personnel. *Conclusion:* The monitoring procedure is as per reg PDD.	Ok	Ok
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)***	/MR/ /PDD/	*Description:* Not applicable as the value is calculated. *Verifier´s action:* Based on onsite observation and document	Ok	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/IM01/	check. *Conclusion:* The value given in the monitoring report and used in ER calculation is correct.		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* The value is 0.00042 tN2O/tHNO_3. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log. *Conclusion:* No mistake has been identified.	Ok	Ok
D.2.12. EF_{reg}		**Emissions cap for N2O from nitric acid production set by**		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		government regulation		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR/ /PDD/	*Description:* The emission factor derived from national regulations is observed by the PP. Currently there is no N2O regulation in place which affects the project activity. *Verifier´s action:* The national legislation on N_2O emissions and situation of the environmental laws related NO_X emissions have been cross-checked by local expert. Following web articles have been checked http://www.sataxguide.co.za/category/carbon-tax *Conclusion:* No (new) relevant legislation affecting the project activity in South Africa has been promulgated during the current monitoring period. Furthermore the environmental management system is certified acc. to ISO 14001. No host country legislation that would affect the project activity has changed.	Ok	Ok
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures*		Not applicable		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*				
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*		☐ Correct ☐ Not correct (initial assessment) *conclusion:* not applicable		
D.2.13. **CL_n**		**Length of each project campaign measured in metric tonnes of 100% concentrated nitric acid produced during that campaign.**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied*	/IM01/ /PDD/ /AM34/ /MR/ /XLS/	*Description:* The length of each project campaign is determined in comparison with the established historic campaign length CL_{normal} as following: If CL_n >= CL_{normal} then all N2O values measured during baseline campaign are to be used for calculation of EF	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
data aggregation trails (from ODL to data aggregation level zero (DAL0)). *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/LOG/	If $CL_n < CL_{normal}$ then EF_{BL} has to be recalculated by eliminating all N2O values obtained during production beyond CL_n from the calculation of EF_n. This determination is conducted after the end of a project campaign by N.serve. N.serve receives the operation data from the technical manager on weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* By means of checking MR, PDD, methodology and emission reduction calculation spreadsheet as well as interview with PPs. *Conclusion:* Based on onsite observation and document check, it can be confirmed that the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology and the value considered is deemed correct.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the*	/MR/ /PDD/ /IM01/	*Description:* Not applicable as no measurement equipment is involved.		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
monitoring equipment has been carried out in line with the latest EB guidance. *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*				
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /PDD/ /LOG/ /XLS/ /RAW/	☒ Correct ☐ Not correct (initial assessment) *Description:* The value is for PC13: 181,280 $tHNO_3$ and PC14: 108,622 $tHNO_3$. *Verifier´s action:* By means of checking ER spreadsheet against production log and technical manager log. *Conclusion:* No mistake has been identified.	Ok	Ok
D.2.14. OP_h		**Oxidation pressure for each hour**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged*	/IM01/ /PDD/ /AM34/ /MR/ /XLS/ /LOG/	*Description:* The oxidation pressure is monitored by Yokogawa Press Tx – pressure transmitter serial number F576FB671708. The data is observed and recorded digitally by the process control system continuously. The PCS provides directly hourly average values. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his	~~CAR D1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*		computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to N.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* By means of checking MR, reg PDD as well as ER spreadsheet and technical manager log and interview with PP. *Conclusion:* The measurement procedure and data aggregation is as per reg PDD. Besides CAR D1 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in*	/MR/ /ISO/	*Description:* The pressure transmitters have been calibrated on 07/06/2013 and 02/04/2014 and have an accuracy of 1.7%. The calibration is valid until the restart of the next campaign. This is due to practical means as the transmitters can only be dismounted when the plant is not in operation. *Verifier´s action:* By means of checking calibration certificates, interview with PP as well as MR and reg PDD. *Conclusion:* QA/QC procedures were established and requirements are fulfilled. The monitoring equipment was duly calibrated for this entire monitoring period.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
Annex 2.				
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /XLS/ /LOG/ /PDD/	☒ Correct ☐ Not correct (initial assessment) *Description:* The value is used to determine whether the plant is operating within the normal operation range. OP_h is therefore compared with OP_{normal}. VSG and NCSG data has to be eliminated during times when OP_h is outside the OP_{normal} range for calculation of EF_p. *Verifier´s action:* By means of checking MR, reg PDD as well as ER calculation spreadsheet, technical manager log and hourly raw data by AMS and PCS. *Conclusion:* No mistake or inconsistency has been identified. EFp has been determined correctly based on OPh data.	Ok	Ok
D.2.15. OT_h		**Oxidation temperature in the ammonia oxidation reactor (AOR) for each hour**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard*	/IM01/ /PDD/ /AM34/ /MR/ /XLS/ /LOG/	*Description:* The oxidation temp. is monitored by thermocouple K310 S/steel serial number TP3285-3290. The data is observed and recorded digitally by the process control system continuously. The PCS provides directly hourly average values. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a	~~CAR D1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*		monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to N.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* By means of checking MR, reg PDD as well as Er spreadsheet and technical manager log and interview with PP. *Conclusion:* The measurement procedure and data aggregation is as per reg PDD. Besides CAR D1 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in*	/MR/ /ISO/	*Description:* The thermocouples have been calibrated on 07/06/2013 and 02/04/2014 and have an accuracy of +/-1.0%. The calibration is valid until the restart of the next campaign. This is due to practical means as the thermocouples can only be dismounted when the plant is not in operation. *Verifier´s action:* By means of checking calibration certificates, interview with PP as well as MR and reg PDD. *Conclusion:* QA/QC procedures were established and requirements are fulfilled. The monitoring equipment was duly calibrated for this entire monitoring period.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
Annex 2.				
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /XLS/ /LOG/ /PDD/	☒ Correct ☐ Not correct (initial assessment) *Description:* The value is used to determine whether the plant is operating outside permitted range. Further OT_h is a control parameter for AIFR. *Verifier´s action:* By means of checking MR, reg PDD as well as ER calculation spreadsheet, technical manager log and hourly raw data by AMS and PCS. *Conclusion:* No mistake or inconsistency has been identified.	Ok	Ok
D.2.16. **AFR**		**Ammonia gas flow rate to the ammonia oxidation reactor**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.*	/IM01/ /PDD/ /AM34/ /QAL2/	*Description:* The ammonia gas flow rate is continuously monitored by orifice plate differential pressure transmitter Yokogawa serial number F570FD073708. The data is observed and recorded digitally by the process control system continuously. The PCS provides directly hourly average values. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then	~~CAR D1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.		forwarded to N.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are stated in the monitoring report. *Verifier´s action:* By means of checking MR, reg PDD as well as ER spreadsheet and technical manager log and interview with PP. *Conclusion:* The measurement procedure and data aggregation is as per reg PDD. Besides CAR D1 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/MR/ /PDD/ /CAL/	*Description:* The accuracy of the equipment is 1.25%. The equipment has been calibrated on 07/06/2013 and 02/04/2014. The calibration is valid until the restart of the next campaign. *Verifier´s action:* By means of checking calibration certificates, interview with PP as well as MR and reg PDD. *Conclusion:* QA/QC procedures were established and requirements are fulfilled. However CAR D1 has been raised.	~~**CAR D1**~~	Ok
c) Correctness	/MR/	☒ Correct ☐ Not correct (initial assessment)	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(VVS, §§ 268, 271) *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/XLS/ /LOG/ /PDD/	*Description:* The value is used to determine whether the plant is operating outside permitted range. AFR is compared to AFR_{max}. *Verifier´s action:* By means of checking MR, reg PDD as well as ER calculation spreadsheet, technical manager log and hourly raw data by AMS and PCS. *Conclusion:* No mistake or inconsistency has been identified.		
D.2.17. **AIFR**		**Ammonia to air ratio into the ammonia oxidation reactor**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring*	/IM01/ /PDD/ /AM34/ /QAL2/	*Description:* The ammonia to air ratio is calculated based on results from parameter AFR and monitoring of air flow rate. Air flow rate is monitored continuously by orifice plate differential pressure transmitter Yokogawa serial number F570FD069708. The data is observed and recorded digitally by the process control system continuously. The PCS provides directly hourly average values. Every Friday the data is transferred on a portable hard disk by the instrument engineer and also handed over to the technical manager. The technical manager archives the data on his computer. The technical manager processes the data into a monthly file which includes, shut down details, raw data from SCADA, pre-calculation of the related CDM data and ER, chart of the NCSG and daily NAP data. This monthly file is then forwarded to N.serve on a weekly basis. N.serve is processing the data and calculating the final emission reductions which are	~~CAR D1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
plan of the PDD and the applied methodology.		stated in the monitoring report. *Verifier´s action:* By means of checking MR, reg PDD as well as Er spreadsheet and technical manager log and interview with PP. *Conclusion:* The measurement procedure and data aggregation is as per reg PDD. Besides CAR D1 has been raised.		
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/MR/ /PDD/ /CAL/ /QAL2/	*Description:* The accuracy of the equipment is 1.66%. The calibration is valid until the restart of the next campaign. The equipment has been calibrated on 07/06/2013 and 02/04/2014. The calibration is valid for one campaign. *Verifier´s action:* By means of checking calibration certificates, interview with PP as well as MR and reg PDD. *Conclusion:* QA/QC procedures were established and requirements are fulfilled. However CAR D1 has been raised.	~~CAR D1~~	Ok
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring*	/MR/ /XLS/ /LOG/	☒ Correct ☐ Not correct (initial assessment) *Description:* The value is used to determine whether the plant is operating	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
report is correct or determined in a conservative manner. *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/PDD/	outside permitted range. AFR is compared to AFR_{max}. *Verifier´s action:* By means of checking MR, reg PDD as well as ER calculation spreadsheet, technical manager log and hourly raw data by AMS and PCS. *Conclusion:* No mistake or inconsistency has been identified.		
D.2.18. **$GS_{project}$**		**Gauze supplier for the project campaign**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /INV/	*Description:* Is monitored via invoices received from the supplier of the gauze, for this monitoring period W.C. Heraeus. *Verifier´s action:* By means of checking PDD as well as related invoice from gauze supplier as well as site observation and interview with personnel. *Conclusion:* Ok	Ok	Ok
b) Accuracy and QA/QC Procedure		*Description:* No measurement and crosscheck required.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
(VVS, §§ 272-278) *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.* *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*	/PDD/ /MR/	*Verifier´s action:* By means of checking PDD, MR and by onsite observation. *Conclusion:* Ok.		
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/	☒ Correct ☐ Not correct (initial assessment) *Description:* Taken from invoice of supplier. *Verifier´s action:* By means of checking MR against supplier invoice. *Conclusion:* The gauze manufacturer is correct.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
D.2.19. **$GC_{project}$**		**Gauze composition during the project campaign expressed as % by weight of the precious metals Platinum, Rhodium and, if applicable, Palladium comprising the Ammonia Oxidation Catalyst gauzes.**		
a) Measurement / Determination method ***(VVS, §§ 268, 271)*** *Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/IM01/ /PDD/ /AM34/ /QAL2/	*Description:* The gauze composition is given with 60% Pt, 5% Rh and 35% Pd. *Verifier´s action:* By means of checking the invoice of the supplier. *Conclusion:* CAR D2 has been raised.	~~CAR D2~~	Ok
b) Accuracy and QA/QC Procedure ***(VVS, §§ 272-278)*** *In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have*	/INV/	*Description:* Not applicable as this parameter is not monitored by measurement equipment. *Verifier´s action:* *Conclusion:*	N/A	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
been made for calculating ERs. *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.* *Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.*				
c) Correctness ***(VVS, §§ 268, 271)*** *Determine whether the value given in the monitoring report is correct or determined in a conservative manner.* *In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.* *In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.*	/MR/ /INV/	☐ Correct ☒ Not correct (initial assessment) *Description:* Taken from invoice of supplier. *Verifier´s action:* By means of checking MR against supplier invoice. *Conclusion:* CAR E1 has been raised.	~~CAR E1~~	Ok
D.3. Sampling				
a) Implementation of sampling plan ***(F-CDM-FORM, Attachment; D3)*** *Check whether the PP has applied a sampling approach to determine the monitored values (as per*		☒ No sampling approach has been used by the PP to determine the monitored parameters **OR**. ☐ A sampling approach has been taken for the following	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
section D.2 above). *If this is the case, please provide an assessment whether the PPs have correctly and sufficiently described the implemented sampling plan including* *a) Description of the implemented sampling design* *b) Collected data* *c) Analysis of collected data* *d) Demonstration on whether the required confidence/precision has been met.*		monitored parameter: ***Parameter: Name_of Parameter*** *Description:* *Verifier´s action:* *Conclusion:*		

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
b) Sampling during verification *In case the VT has applied a sampling approach in the course of the verification the approach shall be described for each parameter.*		☐ No sampling approach has been used by the VT to verify the monitored parameters **OR**. ☒ A sampling approach has been applied by the VT for the following monitored parameter: ***Parameter: OT_h, OP_h, AFR, AFIR, NCSG, VSG, PSG and TSG*** *Description:* A sampling approach has been applied by the verification team to check the data transferred from the AMS to the emission reduction excel calculation spreadsheet. The hourly raw data from AMS has been checked against the hourly data used in ER calculation spreadsheet to determine the related emission reductions. Further the monthly summary sheets used by AEL to control the plant operation have been crosschecked with hourly data as well and used as crosscheck for the ER calculation spreadsheet. Randomly selected time periods (hours and days) have been checked to confirm the correctness of the data transfer. The amount of data to be checked has been derived applying random sampling 95% confidence interval, 5% margin of error and 50% response distribution. For the calculation of the sample size the software http://www.raosoft.com/samplesize.html has been used. Based on that the following sampling has been conducted:	~~CAR E1~~	Ok

<table>
<tr><th>Checklist Item
(incl. guidance for the verification team)</th><th>Refe-rence</th><th>Verification Team Comments
(Means and results of assessment)</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Parameter</th><th>Population size</th><th>Required sample size</th><th>Number of samples checked</th></tr>
<tr><td>Hourly data for OT_h, OP_h, AFR, AFIR, NCSG, VSG, PSG and TSG</td><td>12096
(504 days x 24 h/d)</td><td>373</td><td>2 months
= 1440 hours</td></tr>
</table>

Conclusion: No direct data mismatch was identified. However CAR E1 has been raised.
</td><td></td><td></td></tr>
<tr><td>E. Calculation of Emission reductions</td><td></td><td></td><td></td><td></td></tr>
<tr><td>E.1. Traceability
(VVS, §§ 247, 249)
Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spread-sheet shall be used. All applied formulae must be visible.</td><td>/XLS/</td><td>Description:
An unprotected ER calculation spreadsheet has been provided. All applied formulas are visible.
Verifier´s action: The ER calculation spreadsheet has been checked.

Conclusion: The calculation is completely traceable.</td><td>Ok</td><td>Ok</td></tr>
<tr><td>E.2. Parameter consistency
(VVS, § 249)
Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation</td><td>/XLS/
/MR/</td><td>Description:
Internal and external parameters and data used in calculation sheet have been checked by the verification team related consistence with the MR.

Verifier´s action:
The values in the ER calculation spreadsheet were checked</td><td>Ok</td><td>Ok</td></tr>
</table>

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
spreadsheet? *Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). Further ensure the consistency of notations for all parameters in the PDD, MR and calculation spreadsheet.*		against meter readings, data records and calibration records, the registered PDD and the MR. *Conclusion:* All parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet.		
E.3. Correctness of calculation ***(VVS, §§ 279-280)*** *Check if the applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan and / or the approved methodology.* *Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.* *Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.*	/XLS/ /MR/ /PDD/	*Description:* According to applied methodology, the Emission Reductions are calculated as followings: ERy (tCO2e/y) = BEy – PEy – LEy Where: ERy are the emission reductions BEy are the baseline emissions PEy are the project emissions LEy are the leakage emissions (which are deemed negligible) The emission reduction is based on the monitored data measured during this monitoring period. The provided calculations are complete and reflect all requirements of the monitoring plan. *Verifier´s action:* The ER calculation spreadsheet and MR were checked against the MP and applied methodology.	~~CAR E1~~	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		Conclusion: The calculation is correct and in line with the registered PDD and methodology AM0034. However CAR E1 has been raised.		
E.4. Emission reductions table ***(F-CDM-FORM, Attachment, E.4)*** *Check if the MR includes a summary table of the emission reductions calculation specifiying separately* - *Total baseline emissions* - *Total project emissions:* - *Total leakage* - *Total emission reductions.* *Assess whether the values are correct or need to be revised as a consequence of issues identified above.*	/XLS/ /MR/ /PDD/	☒ The MR includes in section E.4 a summary table of the emission reductions calculation. ☒ The summary table specified the total baseline, project and leakage emissions as well as the total emission reductions separately. ☐ The values as specified in the ER summary table are correct; no issues have been identified during the verification which require changes in the ER calculation. ☒ During the verification issues with impact on the ER calculation have been identified. Thus subject to the closure of above listed findings the summary table in E.4 needs to be revised. In this context the following additional findings have been identified: CAR E1 has been raised.	~~CAR E1~~	Ok
E.5. Comparison with ex-ante determined emission reductions ***(F-CDM-FORM, Attachment, E.5; E.6)*** *Check if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.*	/XLS/ /MR/ /PDD/	*Description:* MR includes in E.5 a comparison of achieved ER (317,850) with ex-ante estimated (366,553). *Verifier´s action:* By means of checking MR and PDD as well as ER calc.	Ok	Ok

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verification Team Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
Check further whether in case of an increase an appropriate explanation is included in the MR. *Assess in case of a significant increase whether this is due to technical or organisational changes within or outside the control of the PP and – if this is case – whether the PRC have been considered appropriately.*		*Conclusion:* The value achieved is relatively lower than the ex-ante estimated value.		
E.6. ER during the 1st commitment period and the period from 1 January 2013 onwards ***(F-CDM-FORM, Attachment, E.7)*** *Check if the MR includes in chapter E.7 a breakdown of the actual ER into* *a) ER up to 2012-12-31 and* *b) ER from 2013-01-01 onwards* *The ERs for each period should be determined as per the actual generation. In cases where this is not possible or a cap has been applied a proportional (time related) approach should be chosen.*		☒ The MR in section E.7 includes a summary table of the ER breakdown *a) ER up to 2012-12-31 and* *b) ER from 2013-01-01 onwards* ☒ The breakdown of the ERs during the first commitment period and from 2013-01-01 onwards is as follows: ☐ The ER have completely been generated during the first commitment period ☒ The ERs have completely been generated from 2013-01-01 onwards, ☐ The ERs have partly been generated during the first commitment period and partly from 2013-01-01 onwards. ☒ The breakdown of the ERs is correct, considering the applicable guidance. In this context the following additional findings have been identified: CAR E1 has been raised.	~~CAR E1~~	Ok

ANNEX 2: CALIBRATION DATES AND VALIDITY OF INSTALLED MONITORING EQUIPMENT

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Calibration date(s) during this monitoring period	Validity of calibration(s)	Delay in calibration: yes/no	Period of delayed calibration
Emission analyzer	NCSG	3.346857.7	ABB AO2040 URAS 14	1.66% as per latest QAL2	22/06/2011[1] 03/07/2012 06/08/2013 23/09/2014	1 year	☐ No ☒ Yes	From: 03/07/2013 To: 06/08/2013 and from 06/08/2014 to 22/09/2014
gas flow meter	VSG	FT-76550	Emerson Rosemount Anubar	1367.71m³/h	28/11/2012[2] 07/06/2013 02/04/2014	1 year	☒ No ☐ Yes	From: To:
				2.082% as per latest QAL2	22/06/2011[1] 03/07/2012 06/08/2013 23/09/2014	1 year	☐ No ☒ Yes	From: 03/07/2013 To: 06/08/2013 and from 06/08/2014 to 22/09/2014
stack pressure	PSG	PT-76506	Emerson Rosemount	10mbar	28/11/2012[2] 07/06/2013	1 year	☒ No	From:

[1] Related QAL2 and AST as the monitoring equipment is included in the tests as per EN 14181
[2] Based on calibration certificates

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Calibration date(s) during this monitoring period	Validity of calibration(s)	Delay in calibration: yes/no	Period of delayed calibration
probe			Anubar		02/04/2014		☐ Yes	To:
				0.7% as per latest QAL2	22/06/2011[1] 03/07/2012 06/08/2013 23/09/2014	1 year	☐ No ☒ Yes	From: 03/07/2013 To: 06/08/2013 and from 06/08/2014 to 22/09/2014
stack temperature probe	TSG	TE-76170	Emerson Rosemount Anubar	5°C	28/11/2012[2] 07/06/2013 02/04/2014	1 year	☒ No ☐ Yes	From: To:
				2.55% as per latest QAL2	22/06/2011[1] 03/07/2012 06/08/2013 23/09/2014	1 year	☐ No ☒ Yes	From: 03/07/2013 To: 06/08/2013 and from 06/08/2014 to 22/09/2014
Nitric acid flow meter	NAP	414940	Emerson coriolis flow meter CMF300	<=0.1%	09/03/2011	3 years	☐ No ☒ Yes	From: 09/03/2014 To: 18/05/2014
		11007573			19/05/2014	3 years		
pressure	OP_h	PT-76002-	Yokogawa	1.7%	07/06/2013	For one	☐ No	From:

Monitoring equipment	Related monitoring parameter as per applicable registered monitoring plan	Serial number	Type	Accuracy or accuracy class	Calibration date(s) during this monitoring period	Validity of calibration(s)	Delay in calibration: yes/no	Period of delayed calibration
probe		1 F576FB671708	Oress Tx		02/04/2014	campaign	☐ Yes	To:
thermocouples	OT_h	TSAHL-76010 TP3285-3290	K310 S/steel Thermocouple	±1%	07/06/2013 02/04/2014	For one campaign	☒ No ☐ Yes	From: To:
pressure measurement	AFR	PT-76003-1 F570FD073708	Yokogawa Orifice plate with D.P. transmitter	1.25%	07/06/2013 02/04/2014	For one campaign	☒ No ☐ Yes	From: To:
flow meter	AIFR	FT-76003-1 F570FD069708	Yokogawa Orifice plate with D.P. transmitter	1.66%	07/06/2013 02/04/2014	For one campaign	☒ No ☐ Yes	From: To:

ANNEX 3: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL

TÜV NORD Certification

Statement of Competence

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

Mr. Stefan Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2017-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2017-07-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
4.1	Cement and lime production
4.2	Paper
5.2	Caprolactam, nitric and adipic acid
9.1	Aluminium and magnesium production
9.2	Iron, steel and Ferro-alloy production
13.1	Solid waste and wastewater
13.2	Manure

163 – Rev. 4, Date: 2015-01-05

163_S01-VA060-F20_2015-01-05_rev4.doc S01-VA060-F20 rev3 / 2012-10-25

TÜV NORD Certification

Statement of Competence

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

Mr. Grzegorz Kochaniewicz

SCHEME	STATUS	VALID UNTIL
CDM Validation/ Verification	Lead Assessor Technical Reviewer	2016-01-24
VCS / ISO 14064-2	Lead Assessor	2016-01-24

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar
3.1	Energy Demand	
14.1	Forestry	

173 – Rev. 5, Date: 2014-12-12

173_S01-VA060-F20_2014-12-12_rev5.doc S01-VA060-F20 rev3 / 2012-10-25

TÜV NORD Certification

Statement of Competence

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

Mr. Rainer Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2016-07-01
JI	Senior Assessor Technical Reviewer	2016-07-01
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2016-07-01

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal Energy Generation
1.2	Renewable Energies
4.1	Cement and lime production
4.2	Paper
5.1	Chemical Industry
5.2	Caprolactam, nitric and adipic acid
9.1	Aluminium and magnesium production
9.2	Iron, steel and Ferro-alloy production
9.3	Non-ferrous Metal (other than Aluminum)
11.2	Refrigerant gas production
12.1	Chemical industry
13.1	Solid waste and wastewater

003 - Rev. 8, Date: 2015-01-07

003_S01-VA060-F20_2015-01-07_rev8.doc S01-VA060-F20 rev3 / 2012-10-25