



VERIFICATION AND CERTIFICATION REPORT

- 28TH PERIODIC –

CARBON EGYPT LTD.

**CATALYTIC N₂O DESTRUCTION PROJECT IN
THE TAIL GAS OF THE NITRIC ACID PLANT OF
ABU QIR FERTILIZER CO.**

UNFCCC REF. No. : 0490

Monitoring Period: 2013-09-15 to 2014-06-30
(incl. both days)

Report No: 8000438424-14/35

Date: 2014-10-24

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Project:	Title:	Registration date:	UNFCCC-No.:	
	Catalytic N ₂ O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.	2006-10-07	0490	
		Verification No.:		
		28 th periodic verification (1 st of 2 nd crediting period)		
	Crediting period:	From:	To:	
	<input checked="" type="checkbox"/> Renewable (7y) <input type="checkbox"/> Fixed (10y)	2013-09-15	2020-09-14	
	Project Scale:			
	<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale			
Project Participant(s):	Client:			
	CARBON Egypt Ltd.			
	Non Annex 1 country:	Annex 1 country:		
	Arab Republic of Egypt	Republic of Austria ^{/dna-sp/} Federal Republic Germany ^{/dna-sp/}		
	PP from non Annex 1 country:	PP from Annex 1 country:		
	CARBON Egypt Ltd.	KOMMUNALKREDIT PUBLIC CONSULTING GmbH; Energie AG Oberösterreich; CARBON Climate Protection GmbH RWE Power AG		
Applied methodology/ies:	Title:	No.:	Scope(s) / TA(s)	
	N ₂ O abatement from nitric acid production	ACM0019 ver.02.0	5 / 5.1	
Monitoring period and monitoring report	Monitoring period (MP):		Monitoring Report:	
	From:	To:	No. of days:	Draft version:
	2013-09-15	2014-06-30	289	2014-08-06
				2014-09-03
Verification team / Technical Review and Final Approval:	Verification Team:		Technical review:	Final approval:
	R. Winter (TL)		Dirk Speyer Kunal Rami	Stefan Winter
Key dates of verification:	Publication of MR :	DVerR issued:	On-site (from):	On-site (to):
	2014-08-06	2014-09-17	2014-08-26	2014-08-27
Summary of Verification opinion	<p>CARBON Egypt Ltd. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 28th periodic verification of the project: "Catalytic N₂O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.", with regard to the relevant requirements for CDM project activities.</p> <p>As a result of this verification, the verifier confirms that:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> all operations of the project are implemented and installed as planned and described in the validated project design document, <input checked="" type="checkbox"/> the monitoring plan is in accordance with the applied approved CDM methodology, <input checked="" type="checkbox"/> the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately, <input checked="" type="checkbox"/> the monitoring system is in place and functional. The project has generated GHG emission reductions, and <input checked="" type="checkbox"/> 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:
	1,132,802	1,132,822	1,012,587*
		ER achieved up to 2012-12-31	ER achieved from 2013-01-01
		-	1,132,802
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* in the PDD 378,406 tCO_{2e} (108 days) in 2013 and 1,278,874 tCO_{2e} (365 days) in 2014 equal to 1,012,587 tCO_{2e} for 289 days from 2013-09-15 to 2014-06-30.

Abbreviations:

AOR	Ammonia Oxidation Reactor
AFC	Abu Qir Fertilizer Co.
AST	Annual Surveillance Test
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
DVerR	Draft Verification Report
EB	Executive Board
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
PRC	Post Registration Changes
QA/QC	Quality Assurance / Quality Control
QAL	Quality Assurance Level
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
XLS	Emission Reduction Calculation Spread Sheet

Table of Contents	Page
1. INTRODUCTION	6
1.1. Objective	6
1.2. Scope	6
2. GHG PROJECT DESCRIPTION.....	8
2.1. Technical Project Description	8
2.2. Project Location	8
2.3. Project Verification History	9
3. METHODOLOGY AND VERIFICATION SEQUENCE	10
3.1. Verification Steps	10
3.2. Contract review	10
3.3. Appointment of team members and technical reviewers	10
3.4. Publication of the Monitoring Report	11
3.5. Verification Planning	12
3.6. Desk review	13
3.7. On-site assessment	14
3.8. Draft verification reporting	15
3.9. Resolution of CARs, CLs and FARs	15
3.10. Final reporting	16
3.11. Technical review	16
3.12. Final approval	17
4. VERIFICATION FINDINGS.....	18
5. SUMMARY OF VERIFICATION ASSESSMENTS.....	22
6. VERIFICATION AND CERTIFICATION STATEMENT	27
7. REFERENCES	28
ANNEX 1: VERIFICATION PROTOCOL	33
ANNEX 2: CALIBRATION DATES AND VALIDITY OF INSTALLED MONITORING EQUIPMENT	85
ANNEX 3: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL	88

1. INTRODUCTION

CARBON Egypt Ltd. has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 28th periodic verification (which is the 1st verification of the 2nd crediting period) of the project *"Catalytic N₂O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co."* 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 28th periodic verification (1st of the 2nd crediting period) 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 spreadsheet ^{/XLS/}, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

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

- Article 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 encompasses a tertiary technology for the N₂O reduction in the tail gas stream of the nitric acid production plant of Abu Qir Fertilizer Co. in Abu Qir, Egypt (Abu Qir II Nitric acid plant). Nitrous oxide that is formed as a by-product of the nitric acid production is removed by an EnviNOx®-System. The system comprises one reactor with two catalyst beds where nitrogen oxides (NO_x) are catalytically reduced in the first bed by using ammonia as the reducing agent and nitrous oxide (N₂O) in the second bed by using natural gas as reducing agent. The reaction products from the catalytic reactions of N₂O and NO_x are nitrogen, water and carbon dioxide. The tail gas from the nitric acid facility is fed into the EnviNOx®-System. The stack gas volume flow rate and the nitrous oxide concentration at the outlet of the EnviNOx®-System are monitored and recorded. The natural gas used in the catalytic reduction is monitored in order to calculate the non-N₂O emissions of the project activity.

The emission reductions for the period from 2013-09-15 to 2014-06-30 of the project equate to 1,132,802 tonnes of CO₂ equivalents.

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

Table 2-1: Technical data of the project activity

Parameter	Unit	Value
Maximum annual production	t/a	700,800
Operating pressure	barg	3.83
AOR design temperature range	°C	850 – 910
Historical emission factor	kgN ₂ O/ t HNO ₃	7.23

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	Arab Republic of Egypt
Region:	Al-Iskandariyah Province (Alexandria Province)
Project location address:	Abu Qir
Latitude:	N31.272513°
Longitude:	E30.09755°

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	Monitoring period of 1 st Crediting Period	2006-09-15 to 2013-09-14	Issued
2	Renewal of Crediting Period	2014-01-31	Approved
3	1 st Monitoring period of 2 nd Crediting Period (= this MP)	2013-09-15 to 2014-06-30	Ongoing

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	2013-09-15 to 2014-04-01	1	TDfrMP	The volume flow of the tail gas was measured by a Venturi tube during the 1 st crediting period, this is not complying with the requirements of methodology ACM0019 v02.0 as this instrument does not have a QAL1 certificate. The new device was not installed until 2014-04-01 due to the official travel warnings.	Approval (by EB) -PRC-0490-001 /2014-08-19
2	-	-	TDfMM	-	-
3	-	-	CrPDD	-	-
4	-	-	PCfrMP	-	-
5	-	-	PCfMM	-	-
6	-	-	CoPD	-	-

- 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 1 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
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	R. Winter	TÜV NORD Cert	TL	SA	<input checked="" type="checkbox"/>	5.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	R. Marei	TÜV NORD Egypt	TE	T	<input type="checkbox"/>	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	D. Speyer	TÜV NORD Cert	TR ^{B)}	LA	<input checked="" type="checkbox"/>	5.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	K. Rami	TÜV NORD Cert	TR ^{B)}	SA	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	S. Winter	TÜV NORD Cert	FA ^{B)}	SA	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-

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

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

³⁾ 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.

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)
<i>The following potential risks were identified and divided and structured according to the possible areas of occurrence.</i>	<i>The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks.</i> <i>The following measures are implemented:</i>	<i>Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.</i>	<i>The additional verification testing performed is described. Testing may include:</i> <ul style="list-style-type: none"> - Sample cross checking of manual transfers of data - Recalculation - Spreadsheet 'walk throughs' to check links and equations - Inspection of calibration and maintenance records for key equipment - Check sampling analysis results <i>Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</i>	<i>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.</i>

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
<i>The checklist items in Table A-2 are linked to the various requirements 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.</i>	<i>Gives reference to the information source on which the assessment is based on.</i>	<i>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.</i>	<i>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 verification stage.</i>	<i>In case of a corrective action or a clarification the final assessment at the final verification stage is given.</i>

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

The completed verification protocol is enclosed in 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 CARBON Egypt Ltd. and CARBON CLIMATE PROTECTION GmbH as well as 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
Projects & Operations Personnel Consultant	<ul style="list-style-type: none"> - General aspects of the project - Technical equipment and operation - Changes since RCP validation / previous verification - Monitoring and measurement equipment - Remaining issues from RCP 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 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	0	0	0
B – Implementation of project activity	0	1	0
C – Description of monitoring system	0	0	0
D – Data and parameters	2	0	1
E - Calculation of Emission Reductions	0	1	0
SUM	2	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).

The findings of the verification process are summarized in the tables below.

Finding	B1		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The status of the PRC (Temporary deviation) needs to be updated		
Corrective Action #1 <i>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.</i>	The status of the PRC was updated by adding the date of approval by the EB.		
	<input checked="" type="checkbox"/> Changes in MR	Section(s):B.2.1	New version No.: 1.2
	<input type="checkbox"/> Changes in XLS	Worksheet(s):	New version No.: -

Finding	B1
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The status update has been included in chapter B.2.1.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	D1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The calculation of the weighted average mass fraction of carbon has been carried out with the volumetric concentration values.
Corrective Action #1 <i>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.</i>	The calculation of the weighted average mass fraction of carbon was changed accordingly and was carried out with the mass concentration values.
	<input checked="" type="checkbox"/> Changes in MR Section(s): D.2 New version No.: 1.2 <input checked="" type="checkbox"/> Changes in XLS Worksheet(s): Nat. Gas C. New version No.: -
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The weighted average mass fraction of carbon has been recalculated correctly.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	D2
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The value of the parameter $\rho_{i,y}$ has not been derived in line with the given description in the MR.
Corrective Action #1 <i>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.</i>	The value of the parameter $\rho_{i,y}$ was checked and is now derived in line with the given description in the MR.
	<input checked="" type="checkbox"/> Changes in MR Section(s): D.2 New version No.: 1.2 <input checked="" type="checkbox"/> Changes in XLS Worksheet(s): Nat. Gas C. New version No.: -

Finding	D2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The calculation has been updated accordingly.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	D3
Classification	<input type="checkbox"/> CAR <input type="checkbox"/> CL <input checked="" type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The method to determine the Nitric Acid concentration to determine the parameter P _{production,y} could be elaborated in more detail.
Corrective Action #1 <i>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.</i>	<input type="checkbox"/> Changes in MR Section(s): <input type="checkbox"/> Changes in XLS Worksheet(s):
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input type="checkbox"/> The finding is closed

Finding	E1
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The unit of the density on page 35 does not match.
Corrective Action #1 <i>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</i>	The unit of the density was corrected.
	<input checked="" type="checkbox"/> Changes in MR Section(s): E.2 New version No.: 1.2



Finding	E1		
<i>to indicate the revised sections as well as the new version No.</i>	<input type="checkbox"/> Changes in XLS	Worksheet(s):	New version No.:
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The unit of density is now corrected and consistent within the related sections of MR. CL is closed		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed		

5. SUMMARY OF VERIFICATION ASSESSMENTS

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

5.1. 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	Arab Republic of Egypt ^{/dna-HP/}	CARBON Egypt Ltd.
Annex 1	Republic of Austria ^{/dna-sp/}	KOMMUNALKREDIT PUBLIC CONSULTING GmbH; Energie AG Oberösterreich; CARBON Climate Protection GmbH
	Federal Republic Germany ^{/dna-sp/}	RWE Power AG

5.2. Implementation of the project

During the verification a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and measuring and analytical equipment, the project has been implemented and operated as described in the registered PDD (version 4.1)^{/PDD/} and the approved PRC^{/PRC/}.

During the on-site visit the verifier has inspected the installation of the EnviNOx®-System and all instrumentation necessary for the monitoring of the emission reductions and confirms that the project is completely operational.

The project is fully implemented and has been in operation since October 2006. As there was no phased implementation, no implementation delay applied. The guarantee test run was performed 3-6 October 2006. The project was registered as CDM project activity on 2006-10-07.

The project applied AM0028 version 1 during the first crediting period. For the 2nd crediting period the applied methodology has been changed to ACM0019 (ver.2.0). The previous monitoring setup was not fully compliant with the requirements of the newly applied methodology as the implemented venturi tube has not undergone a QAL1 test. Therefore this equipment has been exchanged. However, this exchange could only be carried out on 2014-04-02 i.e. during the current monitoring period.

During the current monitoring period, the nitric acid plant was shut down twice: firstly from 2014-04-01 (22:00) to 2014-04-03 (17:00) for a gauze change and secondly from 2014-05-28 (21:00) to 2014-05-29 (16:00) due to an ammonia leakage. For the shutdown periods, no emission reductions are claimed^{/XLS/}.

The special events observed during the current monitoring period at nitric acid plant as well as the EnviNOx systems are documented in the monitoring report.

The following observations occurred at the EnviNOx system during the current monitoring period, which are:

- N₂O analyser quarterly inspection from 2013-12-12 (12:00) to 2013-12-16 (14:00), and on 2014-04-07 from 10:00 to 14:00;
- Natural gas flow meter was disconnected from 2014-04-05 (21:00) to 2014-04-07 (11:00);
- Nitric acid flow meter was in incorrect range on 2014-04-21 from 09:00 to 12:00 and on 2014-06-22 from 17:00 to 19:00;
- Nitric acid flow meter is in low flow from 2014-04-21 (12:00) to 2014-04-23 (08:00);
- Nitric acid flow meter maintenance on 2014-04-23 from 08:00 to 10:00, and on 2014-06-02 from 08:00 to 09:00, and on 2014-06-27 from 11:00 to 14:00
- Monthly check (FT-21492) & ammonia leakage from 2014-05-20 (11:00) to 2014-05-21 (14:00).

The following health and inspection checks/visits were carried out during this monitoring period:

- Monthly health check of EnviNOx system carried out by CARBON Egypt Ltd. every month;
- Quarterly Inspection carried out by CARBON Egypt Ltd. every quarter;
- Calibration/maintenance activities to FT-21492 that include: monthly inspection check by AFC from April to June 2014.

5.3. Project history

The crediting period of the project was renewed on 2014-01-31. The 2nd renewable crediting period (7 years) has started on 2013-09-15.

During the RCP - validation the validating DOE did not raise any FARs regarding the any open issues ^{/VAL/}.

Furthermore as this is the 1st periodic verification of the 2nd crediting period, no issues from former verifications are to be considered.

5.4. Post registration changes

A post registration change (temporary deviation) applicable for this monitoring period has occurred.

In May 2014 the PP has applied for prior PRC approval to EB. The reference number of the PRC is PRC-0490-001. The same has been approved by EB on 2014-08-19^{/PRC/}. Please refer to the PRC assessment report for details.

5.5. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan ^{/PDD/} and approved PRC ^{/PRC/}.

5.6. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology (ACM0019 version 02.0) and approved PRC ^{/PRC/}.

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 2 to this report.

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.

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

5.9.1. Implementation of the sampling plan

No sampling was required to determine the monitored parameters.

5.9.2. Sampling approaches during verification

The data provided by the PP have been checked on an hourly basis. All calculations were cross-checked. However, the data transfer from the Delta-V system to the provided XLS-data sheet has been cross verified on a sample basis. The complete data set of 3 randomly selected days has been checked in order to confirm the correctness of the data transfer. No data mismatch was identified.

5.10. ER Calculation

During the verification minor 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.

5.11. 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.

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

The MR does not include emission reductions achieved up to 31 December 2012. All ER values have been achieved during the 2nd commitment period from 1 January 2013 onwards.

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}]	-	1,132,802	1,132,802

¹⁾ Both days included

5.13. 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 ex-ante calculated value was found to be proportionally lower than the ex-post determined value. The PP has given an appropriate justification which is deemed acceptable. Actually the number of shut-down days was significantly lower than expected ex-ante.

5.14. 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).

5.15. Hints for next periodic Verification

One FAR has been raised in the course of this verification. It should be addressed by the PP in the course of next monitoring period.

6. VERIFICATION AND CERTIFICATION STATEMENT

CARBON Egypt Ltd. has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 28th periodic (which is the 1st verification of the 2nd crediting period) of the project: "Catalytic N₂O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.", with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to catalytic N₂O destruction. This verification covers the period from 2013-09-15 to 2014-06-30 (including both days).

In the course of the verification 2 Corrective Action Requests (CAR) and 2 Clarification Requests (CL) were raised and successfully closed. One FAR has been raised to further improve the monitoring system. 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., ACM0019 ver.02.0
- the installed equipment essential for measuring parameters required for calculating emission reductions have been calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of this 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:

1,132,802 t CO_{2e}

Essen, 2014-10-24

Essen, 2014-10-24



R. Winter

S. Winter

TÜV NORD JI/CDM CP

TÜV NORD JI/CDM CP

Verification Team Leader

Final Approval

7. REFERENCES

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

Reference	Document
/14001/	ISO 14001 Certificate of AFC
/9001/	ISO 9001 Certificate of AFC
/AER/	Alarm and Events Reports
/AWMR/	AFC Weekly Meeting Reports
/CL/	Confirmation letter from Egyptian Environmental Affairs Agency regarding N ₂ O emission legislation in Egypt
/DR/	Daily reports (in CSV and MDI format)
/DRL/	Daily report logs
/DV-CF/	Technical Information by Emerson regarding calibration frequency of the Delta-V system
/DV-VC/	Technical Information by Emerson regarding version control of the Delta-V system
/GC/	Gas-chromatograph Tail gas analysis reports
/IL/	List of installed instruments and calibration status
/K-CF/	Technical Information by Krohne regarding calibration frequency of the variable area flowmeter
/MCC/	Maintenance and Calibration Certificates
/MHCR/	Monthly Health Check Reports
/MR/	<ol style="list-style-type: none"> 1. Monitoring Report version 1 dated 04.08.2014 2. Monitoring Report version 1.1 dated 06.08.2014 3. Monitoring Report version 1.2 dated 03.09.2014

Reference	Document
/NGC/	Natural gas Certificates
/PR/	AFC Production Reports
/PRC/	Documentation of post registration change PRC-0490-001 – approved by the board on 2014-08-19
/QAL1/	TÜV Rheinland: QAL 1 Certificate of the annubar probe (dt. 2014-04-29)
/QAL2/	Airtec Gesellschaft für Umweltmessungen mbH: QAL 2 Report 2014 according to EN 14181
/QMS/	Quality Management System Procedures
/SF/	Overview Social Fund
/SHEW/	Shewart Control Charts
/SPL/	Spare Parts List
/WIR/	Weekly Visual Inspection Reports
/XLS/	ER calculation spreadsheet

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM19/	ACM0019 ver.02.0, “N ₂ O abatement from nitric acid production”
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/IPCC/	<ol style="list-style-type: none"> 1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book 3. IPCC publications
/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: “Catalytic N ₂ O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.” version 4.1, dated 2013-09-11
/PS/	CDM Project Standard (Version 7.0)
/T-L/	Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion (Version 2)
/T-MF/	Tool to determine the mass flow of a greenhouse gas in a gaseous stream (Version 2)
/VAL/	Validation Report for CDM project “Catalytic N ₂ O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.” version 05
/VER/	Documents of previous verifications (Monitoring report, verification report, ER calculation sheet) https://cdm.unfccc.int/Projects/DB/TUEV-SUED1151930566.53/view?cp=1
/VVS/	CDM Validation and Verification Standard (Version 07.0)

Table 7-3: Websites used

Reference	Link	Organisation
/dna-HP/	http://www.eeaa.gov.eg/	DNA of Arab Republic of Egypt
/dna-SP/	http://www.bmlfuw.gv.at/umwelt	DNA of Austria
	http://www.dehst.de/EN/Climate-Projects/climate-projects_node.html	DNA of Germany
/unfccc/	http://cdm.unfccc.int	UNFCCC

Table 7-4: List of interviewed persons



Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Bichler, Sonja	CARBON CLIMATE PROTECTION GmbH, Project Manager
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Hany, Fatehy	CARBON EGYPT Ltd. Control and Instrumentation Engineer
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Roshdy, Mahmoud	CARBON EGYPT Ltd. Control and Instrumentation Engineer

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

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 <i>Forward Action Requests</i>)
Raw data generation				
<ul style="list-style-type: none"> • Installation of measuring equipment • Dysfunction of installed equipment • Mal-operation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of technology 	<ul style="list-style-type: none"> • Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspections of installed equipment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is 	<ul style="list-style-type: none"> • Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures • Insufficient accuracy • Inappropriate QA/QC 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Accuracy of values supplied by Third Parties 	<ul style="list-style-type: none"> organized Training Internal audit procedures Internal check of QA/QC measures of involved Third Parties 	<ul style="list-style-type: none"> measures of Third Parties 	<ul style="list-style-type: none"> Application of CDM management system procedures Check of trainings Check of responsibilities Check of QA/QC documentation / evidences of involved Third Parties 	
Raw data collection and data aggregation				
<ul style="list-style-type: none"> Wrong data transfer from raw data to daily and monthly aggregated reporting forms IT Systems Spread sheet programming Manual data transmission Data protection Responsibilities 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Unintended usage of old data that has been revised Incomplete documentation Ex-post corrections of records Ambiguous sources of information Non-application of management system procedures Manual data transfer mistakes 	<ul style="list-style-type: none"> Check of data aggregation steps Counter-calculation Data integrity checks by means of graphical data analysis and calculation of specific performance figures Check of management system certification Check of data archiving system 	<ul style="list-style-type: none"> See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
	(Spreadsheets) <ul style="list-style-type: none"> Limited access to IT systems Data protection procedures 	<ul style="list-style-type: none"> Unintended change of spread sheet programming or data base entries Problems caused by updating/upgrading or change of applied software 	<ul style="list-style-type: none"> Check of application of Management system procedures 	
Other calculation parameters				
<ul style="list-style-type: none"> Emission factors, oxidation factors, coefficients 	<ul style="list-style-type: none"> The values and data sources applied are defined in the PDD and monitoring plan 	<ul style="list-style-type: none"> Unintended or intended Modification of calculation parameters Wrong application of values Misinterpretations of the applied methodology and/ or the PDD Missing update of applicable regulatory framework (e.g. IPCC values) 	<ul style="list-style-type: none"> Update-check of regulatory framework Countercheck of the applied MP in the MR against the methodology and the PDD 	<ul style="list-style-type: none"> See Table A-2
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Applied formulae Miscalculation Mistakes in spread-sheet calculation 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> The danger of miscalculation can only be minimized. 	<ul style="list-style-type: none"> Countercheck on the basis of own calculation. Spread sheet walk-through. Plausibility checks Check of plots 	<ul style="list-style-type: none"> See Table A-2
Monitoring reporting				
<ul style="list-style-type: none"> Data transfer to the author of the monitoring report Data transfer to the monitoring report Unintended use of outdated versions 	<ul style="list-style-type: none"> An experienced CDM consultant is responsible for monitoring reporting. CDM QMS procedures are defined 	<ul style="list-style-type: none"> The danger of data transfer mistakes can only be minimized Inappropriate application of QMS procedures 	<ul style="list-style-type: none"> Counter check with evidences provided. Audit of procedure application 	<ul style="list-style-type: none"> See Table A-2

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

Checklist Item (incl. guidance for the verification team)	Reference	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) <i>Check if section A.1 of the MR includes the following:</i> <ul style="list-style-type: none"> - 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/	<p>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:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Purpose of the PA and the measures taken to reduce GHG emissions <input checked="" type="checkbox"/> Brief description of the installed technology and equipments <input checked="" type="checkbox"/> Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc) <input checked="" type="checkbox"/> Total emission reductions achieved in this monitoring period <p>In this context the following findings have been identified: N/A</p>	OK	OK
A.2. Location of project activity (F-CDM-FORM, Attachment , A.2) <i>Check if section A.2 of the MR reflects correctly the following:</i> <ul style="list-style-type: none"> - Host Party(ies) - Region / State / Province etc. - City / Town / Community etc. 	/MR/ /PDD/ /IM01/	<p>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:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Host Party(ies) <input checked="" type="checkbox"/> Region / State / Province <input checked="" type="checkbox"/> City / Town / Community 	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
- <i>Physical / geographical location (e.g. Latitude and Longitude)</i>		<input checked="" type="checkbox"/> Physical / Geographical location In this context the following findings have been identified: N/A		
A.3. Parties and Project Participants (F-CDM-FORM, Attachment, A.3) <i>Check if section A.3 of the MR includes the following:</i> <ul style="list-style-type: none"> - <i>All PPs as displayed on the UNFCCC website</i> - <i>A correctly filled table as per the MR template</i> 	/MR/ /unfccc/	The verification team has checked section A.3 of the MR as well as the UNFCCC website and confirms that: <input checked="" type="checkbox"/> all PPs as displayed on the project related UNFCCC website are correctly listed <input checked="" type="checkbox"/> the table as per the template MR has been correctly filled In this context the following findings have been identified: N/A	OK	OK
A.4. Reference of applied methodology (F-CDM-FORM, Attachment, A.4) <i>Check if section A.4 of the MR correctly describes / includes the following:</i> <ul style="list-style-type: none"> - <i>Reference to the applicable version of the methodology</i> - <i>Reference to the applicable version(s) of relevant methodological tools</i> - <i>Relevant EB decisions, if applicable</i> 	/MR/ /PDD/ /unfccc/ /T-L/ /T-MF/	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: <input checked="" type="checkbox"/> Number, title and version of the applicable CDM Methodology <input checked="" type="checkbox"/> Name and version of applicable CDM methodological tools <input type="checkbox"/> Relevant EB decisions(N/A) In this context the following findings have been identified:	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		N/A		
A.5. Crediting period of project activity (F-CDM-FORM, Attachment, A.5) <i>Check if section A.5 of the MR correctly includes the following:</i> <ul style="list-style-type: none"> - <i>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.</i> - <i>Length and type of the crediting period</i> 	/MR/ /unfccc/	<p>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:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Start date of the crediting period. <input checked="" type="checkbox"/> Type and length of the crediting period <p>In this context the following findings have been identified: N/A</p>	OK	OK
A.6. Publication of the Monitoring Report (VVS, § 243) <i>Check if the monitoring report has been made publicly available on the UNFCCC website before the verification commenced.</i> <i>Check if comments have been received and if yes, how they have been addressed.</i>	/unfccc/	<p>The verification team has ensured and confirms by means of checking the respective project information on the UNFCCC website that:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> The draft monitoring report, as received from the project participants, has been made publicly available prior to the start of the verification activities. <input checked="" type="checkbox"/> No comments have been received. <p>In this context the following findings have been identified: N/A</p>	OK	OK
A.7. Compliance with standardized format of the Monitoring Report	/MRT/	<p>The verification team has checked all sections of the MR and confirms by means of comparison with the MR template that:</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(VVS, § 247 e) <i>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.</i>		<input checked="" type="checkbox"/> the standardized MR template has been used In this context the following findings have been identified: N/A		
B. Implementation of project activity				
B.1. Description of implemented registered project activity (F-CDM-FORM, Attachment, B.1) <i>Check if section B.1 of the MR correctly describes / includes the following:</i> <ul style="list-style-type: none"> - 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: <input checked="" type="checkbox"/> the description of the implementation status of the PA is in line with the applicable provisions of the project standard <input checked="" type="checkbox"/> 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: N/A	OK	OK
B.1.1. Initial project implementation (VVS; §§ 260 a, 261) <i>Assess whether the project has been implemented and operated as per the registered PDD and are all physical features of the project in place?</i> <i>Further focus on the potential phase wise implementation and check the reporting on the corresponding status and starting dates accordingly.</i>	/IM01/ /PDD/ /PRC/ /QAL1/	<i>Description:</i> The EnviNOx® system was installed in Sep. 2006. The continuous operation of catalytic reduction process of N ₂ O was launched in Oct. 2006. The EnviNOx® system is installed between the tail gas heaters and tail gas turbine, it has been implemented according to the PDD and equipment contracts. One temporary deviation was observed during this monitoring	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Check if the project is still in compliance with the applicability conditions of the methodology.</i></p> <p><i>Also, discuss – if applicable – the necessity of PRC notifications / approvals.</i></p>		<p>period. The PRC has been approved by EB on 2014-08-19.</p> <p><i>Verifier's action:</i></p> <p>On-site observation, interview and cross check the PDD, PRC assessment report, the equipment contracts and project information on UNFCCC website.</p> <p><i>Conclusion:</i></p> <p>As per current status the project has been implemented and operated as per the registered PDD and all physical features of the project are in place without any deviations. However, the Annubar probe has been installed delayed. This deviation has been approved by the EB and the reporting considers the corresponding correction factors.</p>		
<p>B.1.2. Technical equipment changes (VVS; §§ 260 a, 261)</p> <p><i>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</i></p> <p><i>Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.</i></p> <p><i>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.</i></p>	<p>/IM01/ /PDD/ /PRC/</p>	<p><i>Description:</i></p> <p>The technical equipment, including the EnviNOx® system and all relevant instruments like project relevant AOR instruments and EnviNOx® instruments are in line with the PDD and approved PRC, equipment specification and MR. The only relevant equipment that has been replaced during the MP is the venturi tube (please refer to the temporary deviation documentation).</p> <p><i>Verifier's action:</i></p> <p>By means of cross check the nameplate of key equipment, instrument specification against PDD and MR and information published on UNFCCC website, and further evidenced by on-site interview and observation.</p> <p><i>Conclusion:</i></p>	<p>OK</p>	<p>OK</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>In case of post registration changes pl. refer to chapter B.2.</i>		The anubar probe was installed in order to comply with the applied methodology ACM0019 ver.02.0. during the MP. No other relevant equipment was exchanged or modified within the monitoring period according to the registered PDD.		
B.1.3. Operation of the project activity (VVS; §§ 260 a, 261) <i>Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.</i> <i>Consider e.g. interviews with operational personnel, operation log sheets, data management system records.</i> <i>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.</i> <i>In case of post registration changes pl. refer to chapter B.2.</i>	/IM01/ /PDD/ /NGC/	Description: Nitrous oxide that is formed as a by-product of the nitric acid production is removed by an EnviNOx®-System. The system comprises one reactor with two catalyst beds where nitrogen oxides (NO _x) are catalytically reduced in the first bed by using ammonia as the reducing agent and nitrous oxide (N ₂ O) in the second bed by using natural gas as reducing agent are in line with the modes described in the registered PDD. Verifier's action: It was verified by means of checking with operation log sheets, data management system records covering this monitoring period and cross evidenced by on-site operator interview. Conclusion: No modification and exchanges on operation modes were detected during this monitoring period.	OK	OK
B.1.4. Incidents (VVS; §§ 260 a, 261) <i>Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?</i> <i>Consider e.g. interviews with operational personnel,</i>	/IM01/ /DRL/ /XLS/ /QAL1/	Description: During this monitoring period, the nitric acid plant was shut down twice: first is from 2014-04-01 (22:00) to 2014-04-03 (17:00) for Gauze change and second is from 2014-05-28 (21:00) to 2014-05-29 (16:00) due to ammonia leakage. For the shutdown period, there are no emission reductions claimed ^{/XLS/} . During the first shut-down the annubar probe has been installed.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>operational log sheets, analysis of performance data.</i>		<p><i>Verifier's action:</i></p> <p>It was verified by means of site observation, the plant operation logs check, equipments check & maintenance log check, emission reduction spreadsheet check and could be cross evidenced by interviewing personnel of the plant operator.</p> <p><i>Conclusion:</i></p> <p>Incidents during the monitoring period have been correctly described and considered in the MR.</p>		
<p>B.1.5. Legislation</p> <p>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.</p> <p>Assess, in case of changes, whether consequences for the PA with regard to relevant CDM requirements have been accounted for.</p> <p>In case of changes data sources shall be referenced.</p>	<p>/IM01/ /dna-HP/ /CL/ /SF/</p>	<p><i>Description:</i></p> <p>Relevant legislation incl. N₂O destruction, related environmental protection laws, sectoral policies and relevant regulations were not changed.</p> <p><i>Verifier's action:</i></p> <p>It was verified through consulting the official governmental website and as per the local and sectoral expertise of the verification team. Further a letter provided by the Egyptian Environmental Affairs Agency (= DNA of Egypt) regarding the N₂O related legislation has been checked. This letter confirms the absence of any N₂O related legislation in Egypt.</p> <p><i>Conclusion:</i></p> <p>No relevant changes since the validation were identified.</p>	OK	OK
<p>B.1.6. Open issues from validation (VVS; § 248)</p> <p><i>Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the</i></p>	/VAL/	<p><input checked="" type="checkbox"/> There were no open issues addressed in the RCP validation report</p> <p><input type="checkbox"/> All open issues from the validation have been appropriately addressed.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.				
validation report (e.g. FAR)?		<input type="checkbox"/> The following issues related to the validation have not yet been appropriately addressed:						
B.1.7. Open issues from previous verification (VVS; §§ 248, 319 h) <i>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.</i>	/VER/	<input checked="" type="checkbox"/> There were no open issues addressed in the previous verification report <input type="checkbox"/> All open issues from the previous verification have been appropriately addressed. <input type="checkbox"/> The following issues related to the previous verification have not yet been appropriately addressed:	OK	OK				
B.2. Post registration changes								
B.2.1. Are post registration changes applicable to the proposed project activity?	/PRC/	<input type="checkbox"/> 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) <input checked="" type="checkbox"/> 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) <i>(F-CDM-FORM, Attachment, B.2.1; VVS §§ 286 -</i>	/PS/ /unfccc/ /PRC/ /QAL1/	<table><tr><td><input type="checkbox"/></td><td>No TDfrMP or TDfMM have been submitted to the UNFCCC prior to the current monitoring period</td></tr><tr><td><input checked="" type="checkbox"/></td><td>The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC</td></tr></table>	<input type="checkbox"/>	No TDfrMP or TDfMM have been submitted to the UNFCCC prior to the current monitoring period	<input checked="" type="checkbox"/>	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC	CL 1	OK
<input type="checkbox"/>	No TDfrMP or TDfMM have been submitted to the UNFCCC prior to the current monitoring period							
<input checked="" type="checkbox"/>	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC							

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)				Draft Concl.	Final Concl.		
291) <i>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 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.</i>			1	Title	Temporary deviations from the monitoring plan or the monitoring methodology				
				Status	<input type="checkbox"/> under approval; <input checked="" type="checkbox"/> approved				
				Appr.date	2014-08-19				
				Ref. No.	PRC-0490-001				
			2	Title					
				Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved				
				Appr.date					
				Ref.No.					
		<input type="checkbox"/>	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						
		<input type="checkbox"/>	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:					
		<input type="checkbox"/>	The following TDfrMP or TDfMM for which appendix 1 of the PS is applicable have been applied:						
			1	Issue:					

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)			Draft Concl.	Final Concl.														
			2	Issue:																
		<p><i>In cases of approved TDfrMP or TDfM the EB guidance has been applied as follows:</i></p> <p>A correction factor of 2.49 % is applied to project emissions during the period from 2013-09-15 to 2014-04-01. Initially the approval for the temporary deviation was granted until 2014-10-31. However, the full approval period was not required as during the shutdown in April the new annubar probe could be installed. Thus the above correction factor has only been applied until the date given above.</p> <p><i>Detailed description and justification each TDfrMP or TDfM for which appendix 1 is applicable:</i></p> <p>N/A</p> <p>In this context the following findings have been identified:</p> <p>The status of the PRC needs to be updated in the MR (CL 1).</p>																		
B.2.3. Corrections (F-CDM-FORM, Attachment, B.2.2; VVS; §§ 292 - 294) <i>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.</i> <i>In cases where the correction(s) and the revised PDD are approved prior to the submission of this</i>	/MR/	<table><tr><td><input checked="" type="checkbox"/></td><td colspan="3">During the verification of the current MP no need for corrections has been identified.</td></tr><tr><td rowspan="3"><input type="checkbox"/></td><td colspan="3">The following corrections have been applied:</td></tr><tr><td>1</td><td>Issue:</td><td></td></tr><tr><td>2</td><td>Issue:</td><td></td></tr></table>			<input checked="" type="checkbox"/>	During the verification of the current MP no need for corrections has been identified.			<input type="checkbox"/>	The following corrections have been applied:			1	Issue:		2	Issue:		OK	OK
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	1	Issue:																		
	2	Issue:																		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.																											
<p><i>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.</i></p> <p><i>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.</i></p>		<p><i>Detailed description and justification each correction:</i></p> <p>In this context the following findings have been identified:</p> <p>N/A</p>																													
<p>B.2.4. Permanent changes from the registered monitoring plan or applied methodology (PCfrMP; PCfMM)</p> <p>(F-CDM-FORM, Attachment, B.2.3; VVS; §§ 295 - 303)</p> <p><i>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.</i></p> <p><i>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.</i></p>	/MR/	<table><tr><td><input checked="" type="checkbox"/></td><td colspan="3">No PCfrMP or PCfMM have been submitted to the UNFCCC prior to the current monitoring period</td></tr><tr><td rowspan="8"><input type="checkbox"/></td><td rowspan="4">1</td><td>Title</td><td></td></tr><tr><td>Status</td><td><input type="checkbox"/> under approval; <input type="checkbox"/> approved</td></tr><tr><td>Appr.date</td><td></td></tr><tr><td>Ref. No.</td><td></td></tr><tr><td rowspan="4">2</td><td>Title</td><td></td></tr><tr><td>Status</td><td><input type="checkbox"/> under approval; <input type="checkbox"/> approved</td></tr><tr><td>Appr.date</td><td></td></tr><tr><td>Ref.No.</td><td></td></tr><tr><td><input checked="" type="checkbox"/></td><td colspan="3">During the verification of the current MP no need for a PCfrMP or PCfMM has been identified. The monitoring</td></tr></table>	<input checked="" type="checkbox"/>	No PCfrMP or PCfMM have been submitted to the UNFCCC prior to the current monitoring period			<input type="checkbox"/>	1	Title		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved	Appr.date		Ref. No.		2	Title		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved	Appr.date		Ref.No.		<input checked="" type="checkbox"/>	During the verification of the current MP no need for a PCfrMP or PCfMM has been identified. The monitoring			OK	OK
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Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.				
		<div><div></div><div>plan is in accordance with the approved methodology applied by the PA</div></div>						
		<div><div><div><div></div></div></div><div>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.</div></div>						
		<div><div>1</div><div>Issue:</div><div></div></div>						
		<div><div>2</div><div>Issue:</div><div></div></div>						
		<div><div><div><div></div></div></div><div>The following PCfrMP or PCfMM for which appendix 1 of the PS is applicable have been applied:</div></div>						
		<div><div>1</div><div>Issue:</div><div></div></div>						
		<div><div>2</div><div>Issue:</div><div></div></div>						
		<div><i>In cases of approved PCfrMP or PCfMM the EB guidance has been applied as follows:</i></div> <div>-</div> <div><i>Detailed description and justification each TDfrMP or TDfM for which appendix 1 is applicable:</i></div> <div>-</div> <div>In this context the following findings have been identified:</div> <div>N/A</div>						
		B.2.5. Changes to the project design of the registered project activity			/MR/	<div><div><div><div></div></div></div><div>No CoPD has been submitted to the UNFCCC prior to</div></div>	OK	OK

☐ The following PCfrMP or PCfMM for which appendix 1 of the PS is applicable have been applied:

1

Issue:

2

Issue:

In cases of approved PCfrMP or PCfMM the EB guidance has been applied as follows:

-

Detailed description and justification each TDfrMP or TDfM for which appendix 1 is applicable:

-

In this context the following findings have been identified:

N/A

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.																																													
<p>(CoPD) (F-CDM-FORM, Attachment, B.2.4; VVS; §§ 304 - 317)</p> <p><i>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.</i></p> <p><i>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.</i></p>		<table border="1"> <tr> <td></td><td colspan="2">the current monitoring period</td></tr> <tr> <td><input type="checkbox"/></td><td colspan="2">The following CoPD has been approved or are under approval by the UNFCCC</td></tr> <tr> <td>1</td><td>Title</td><td></td></tr> <tr> <td></td><td>Status</td><td><input type="checkbox"/> under approval; <input type="checkbox"/> approved</td></tr> <tr> <td></td><td>Appr.date</td><td></td></tr> <tr> <td></td><td>Ref. No.</td><td></td></tr> <tr> <td>2</td><td>Title</td><td></td></tr> <tr> <td></td><td>Status</td><td><input type="checkbox"/> under approval; <input type="checkbox"/> approved</td></tr> <tr> <td></td><td>Appr.date</td><td></td></tr> <tr> <td></td><td>Ref.No.</td><td></td></tr> <tr> <td><input checked="" type="checkbox"/></td><td colspan="2">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</td></tr> <tr> <td><input type="checkbox"/></td><td colspan="2">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.</td></tr> <tr> <td>1</td><td>Issue:</td><td></td></tr> <tr> <td>2</td><td>Issue:</td><td></td></tr> <tr> <td><input type="checkbox"/></td><td colspan="2">The following CoPD for which appendix 1 of the PS is applicable have been applied:</td></tr> </table>		the current monitoring period		<input type="checkbox"/>	The following CoPD has been approved or are under approval by the UNFCCC		1	Title			Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved		Appr.date			Ref. No.		2	Title			Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved		Appr.date			Ref.No.		<input checked="" type="checkbox"/>	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		<input type="checkbox"/>	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:		<input type="checkbox"/>	The following CoPD for which appendix 1 of the PS is applicable have been applied:			
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		<table><tr><td></td><td>1</td><td>Issue:</td><td></td></tr><tr><td></td><td>2</td><td>Issue:</td><td></td></tr></table> <p><i>In cases of approved CoPD the EB guidance has been applied as follows:</i></p> <p>-</p> <p><i>Detailed description and justification each CoPD for which appendix 1 of the CDM Project Standard is applicable:</i></p> <p>-</p> <p>In this context the following findings have been identified:</p> <p>N/A</p>		1	Issue:			2	Issue:			
	1	Issue:										
	2	Issue:										
C. Description of monitoring system												
<p>C.1. Monitoring Plan – PDD Compliance (VVS, §§ 268-271)</p> <p><i>Check if the monitoring plan is in accordance with the monitoring plan contained in the registered PDD (or any accepted revised MP).</i></p> <p><i>Please check esp. if</i></p> <ul style="list-style-type: none">- <i>all parameters stated in the MP of the registered PDD have been monitored and updated as applicable</i>- <i>the monitoring equipment has been controlled</i>	/MR/ /PDD/ /PRC/	<p>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:</p> <table><tr><td><input checked="" type="checkbox"/></td><td>The MP is completely in accordance with the last registered/approved version of the PDD / MP.</td></tr></table> <p>In this context the following findings have been identified:</p> <p>N/A</p>	<input checked="" type="checkbox"/>	The MP is completely in accordance with the last registered/approved version of the PDD / MP.	OK	OK						
<input checked="" type="checkbox"/>	The MP is completely in accordance with the last registered/approved version of the PDD / MP.											

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.																
<i>and calibrated as per the MP</i> - <i>the monitoring results are consistently recorded as per the approved frequency</i> - <i>QA/QC procedures have been applied in accordance with the MP</i>																				
C.2. Monitoring Plan – Meth Compliance (VVS, §§ 264-267) <i>Check if the monitoring plan is in accordance with the applied methodology.</i> <i>In case the methodology references applicable tools it has to be ensured that the MP is also compliant with those tools.</i> <i>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.</i>	/MR/ /PDD/ /ACM19/ /T-L/ /T-MF/	<div>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:</div> <table><tr><td><input checked="" type="checkbox"/></td><td colspan="2">The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD)</td></tr><tr><td><input checked="" type="checkbox"/></td><td colspan="2">The MP is completely in accordance with the applied tools which the methodology references. A breakdown of the referenced tools is as follows:</td></tr><tr><td rowspan="3">1</td><td>Title (of the tool)</td><td>Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion</td></tr><tr><td>Version</td><td>02</td></tr><tr><td>MP compliance</td><td><input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)</td></tr><tr><td>2</td><td>Title (of the tool)</td><td>Tool to determine the mass flow of a greenhouse gas in a</td></tr></table>	<input checked="" type="checkbox"/>	The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD)		<input checked="" type="checkbox"/>	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	Version	02	MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)	2	Title (of the tool)	Tool to determine the mass flow of a greenhouse gas in a	OK	OK
<input checked="" type="checkbox"/>	The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD)																			
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2	Title (of the tool)	Tool to determine the mass flow of a greenhouse gas in a																		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.												
		<table><tr><td></td><td></td><td></td><td>gaseous stream</td></tr><tr><td></td><td></td><td>Version</td><td>02.0.0</td></tr><tr><td></td><td></td><td>MP compliance</td><td><input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)</td></tr></table> <p>In this context the following findings have been identified: N/A Regarding aspects that are not specified in the methodology the following issues have been identified which may enhance the level of accuracy and completeness of the MP: N/A</p>				gaseous stream			Version	02.0.0			MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)		
			gaseous stream													
		Version	02.0.0													
		MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)													
C.3. Management System (VVS, § 252 (a) (iii)) <i>Check if the GHG data monitoring system can be assessed as appropriate.</i> <i>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.</i> <i>In case of a stand-alone system, check how the GHG management system has been implemented and effectiveness is ensured.</i>	/DRL/ /ACM19/ /AER/ /QMS/ /AWMR/ /IL/ /MCC/ /MHCR/ /PR/ /WIR/	<i>Description:</i> All applicable procedures within the GHG monitoring system have been summarized in relevant QA/QC procedures, which address the processes for measurements, collection and compilation of data, data storage and archiving, calibration and maintenance. The training materials have been checked during on-site. It is confirmed that only the trained person can operate the project. <i>Verifier's action:</i> The QA/QC "Procedures for Carbon Egypt CDM Project at the Catalytic N ₂ O destruction project in the tail gas of the nitric acid plant of Abu Qir Fertilizers Co.", operation and maintenance records and training materials were checked by the verification	OK	OK												

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		team during on site visit. <i>Conclusion:</i> The GHG data monitoring system is assessed as appropriate.		
C.4. Metering diagram (F-CDM-FORM, Attachment, C; PS §242) <i>Check first if the MR includes a metering diagram showing all relevant monitoring points.</i> <i>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.</i>	/PS/ /MR/ /PDD/	<i>Description:</i> The MR includes metering diagram with all relevant monitoring points, and the diagram reflects the actual situation and is in line with registered PDD and the applied methodology. <i>Verifier's action:</i> The MR has been verified against PDD and on-site observation and interview with project operators. <i>Conclusion:</i> It is confirmed that the metering diagram reflects the actual situation and is in line with the registered PDD and with the requirements of the applied methodology.	OK	OK
C.5. Roles and Responsibilities (F-CDM-FORM, Attachment, C; PS §242) <i>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.</i> <i>Identify, if relevant personnel w.r.t. monitoring has been exchanged?</i> <i>If so, have appropriate training measures been</i>	/PS/ /IM01/ /QMS/ /MR/ /ACM19/	<i>Description:</i> Roles and responsibilities are clearly stated in the MR. The relevant personnel w.r.t. monitoring was not exchanged during this monitoring period. The main responsible personnel was present during the verification site visit. Pl. refer to chapter 7.4. <i>Verifier's action:</i> The staff training records have been checked and the roles have been checked against the PDD and MR. <i>Conclusion:</i> All roles and positions of each person in the GHG data	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>carried out.</i></p> <p><i>In case of changes, assure that the implemented monitoring procedures have not been affected.</i></p>		management process are clearly defined and implemented as stated in the monitoring plan.		
<p>C.6. Emergency procedures for the monitoring system (F-CDM-FORM, Attachment, C; PS §242)</p> <p><i>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</i></p>	<p>/PS/ /QMS/ /IM01/ /ACM19/ /SPL/</p>	<p><i>Description:</i></p> <p>Emergency procedures for monitoring system are stated completely. The emergency procedures of the EnviNOX® system have been determined. Emergency procedures for CDM purposes are in this case considered as essential part of ordinary plant operations. Further a spare parts list is maintained and all essential equipment is available to be exchanged in shortest time.</p> <p><i>Verifier's action:</i></p> <p>The project operation records, Monitoring Manual, LOG and O&M procedure and records have been checked and responsible staff has been interviewed.</p> <p><i>Conclusion:</i></p> <p>The relevant emergency procedures for the monitoring system have been included in the MR and assessed as appropriate.</p>	OK	OK
<p>C.7. Data archive and data protection (PS §56 b)</p> <p>Check whether all records of monitoring parameters are archived according to the monitoring plan.</p> <p>Assess further whether appropriate measures have been taken in order to avoid unintended or intended</p>	<p>/QMS/ /IM01/ /MR/ /PDD/ /DRL/</p>	<p><i>Description:</i></p> <p>Data archive and data protection procedure have been stated in the MR. The data from the daily reports generated by the Delta-V system are transferred to an excel sheet in order to present all parameters in an overall format. Further, EMERSON has provided a detailed explanation on how the Delta-V version control is managed in order to ensure a high data protection level.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
manipulation or loss of the measured data.	/DV-CF/ /DV-VC/	<p>The project owner ensured that all required documentation has been made available to the verifier. A corresponding CD has been handed over to the verification team.</p> <p><i>Verifier's action:</i></p> <p>The records of the monitoring data and the hard & soft copy have been checked.</p> <p>The operational daily log, daily and monthly records are checked.</p> <p><i>Conclusion:</i></p> <p>The data is assessed to be appropriate. All data has been archived according to monitoring plan.</p>		
D. Data and parameters				
D.1. Data and Parameters fixed ex ante				
<p>a) Compliance with registered PDD</p> <p>(F-CDM-FORM, Attachment; D1, VVS § 246 (d))</p> <p>Check whether the value applied is in compliance with the registered PDD.</p>	/PDD/ /MR/	<p><i>Description:</i></p> <p>All the relevant data and parameters have been indicated in the registered PDD. The parameters have been included in the MR as the ex-ante determined values.</p> <p><i>Verifier's action:</i></p> <p>The registered PDD and MR have been checked.</p> <p><i>Conclusion:</i></p> <p>The values applied are in compliance with the registered PDD.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
b) Compliance with the applied methodology (F-CDM-FORM, Attachment; D1) <i>Check whether the value applied is in compliance with the applied methodology or any other tool.</i>	/PDD/ /MR/ /ACM19/ /T-L/ /T-MF/ /IPCC/	<p><i>Description:</i></p> <p>All relevant data and parameters that have been indicated in the registered PDD have been included in the MR as ex-ante determined values in line with the applied methodology and its applicable tools. Ex-ante values are:</p> <p>Operating pressure: 383 kPa.</p> <p>EF_{historical} : 7.23 kg N₂O/t HNO₃</p> <p>EF_{default,y}: 8.4 (2013) and 8.2 (2014) kg N₂O/t HNO₃</p> <p>EF_{new,y}: 3.7 (2013) and 3.5 (2014) kg N₂O/t HNO₃</p> <p>P_{product,max}: 700,800 t HNO₃/a</p> <p>GWP_{N2O}: 298</p> <p>R_u: 8,314 Pa m³/kmol K</p> <p>MM_i: 44.02 kg/kmol (N₂O)</p> <p>P_n: 101,325 Pa</p> <p>T_n: 273.15 K</p> <p><i>Verifier's action:</i></p> <p>The registered PDD, applied methodology ACM0019 and MR have been checked.</p> <p><i>Conclusion:</i></p> <p>The values applied are in compliance with the applied methodology and the respective tools.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
D.2. Data and Parameters monitored				
D.2.1. P_{production,y}				
<p>a) Measurement / Determination method (VVS, §§ 268, 271)</p> <p><i>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)).</i></p> <p><i>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.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /PDD/ /ACM19/</p>	<p><i>Description:</i> As per registered PDD and in line with related methodology, the production of Nitric acid is monitored by the installed equipments.</p> <p>An electromagnetic flow meter measures the flow and the temperature transmitter measures the temperature. The meters are located downstream of the absorption tower of the nitric acid line. The data is recorded automatically by the DCS system on an hourly basis. Further the nitric acid density is measured and the nitric acid concentration is determined based on density and temperature. Finally, all the data are transferred to an excel sheet to calculate the HNO₃ (100%) production on an hourly basis.</p> <p>The data aggregation procedure applied by the PP is shown as follows: 1. The DCS system records the value from the flow meter and temperature transmitter hourly (log sheet no. 409/1/2/3A/F5) and the concentration is recorded using the sheet 410/3/3/F1. By use of an excel sheet the HNO₃ production per hour is calculated (DAL-1=ODL). 2. Based on the hourly reports, the final value was reported in the monitoring report (DAL0). The daily data of HNO₃ production and concentration are logged in sheet no. 409/1/2/3 F1 which used for cross-check.</p> <p><i>Verifier's action:</i></p>	FAR 1	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>It was verified by on-site interview and check of the hourly log sheets, calculation spreadsheet, against the "Procedures for Carbon Egypt CDM Project", the MP and the applied methodology.</p> <p>Furthermore, the following actions have been taken by the verification team to check the correctness of the data aggregation.</p> <p>The reported value in the MR (DAL0) has been recalculated by the verification team based on the values from the hourly sheets (DAL-1). Based on the underlying original data (DAL-1=ODL), the verification team calculated the data aggregation completely independent from the calculation provided by the PP.</p> <p><i>Conclusion:</i></p> <p>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. However the method to determine the Nitric Acid concentration could be elaborated more detailed. (FAR 1).</p>		
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278)</p> <p><i>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.</i></p> <p><i>Describe whether all applicable QA/QC procedures</i></p>	<p>/QMS/ /MCC/ /IL/ /14001/ /9001/</p>	<p><i>Description:</i></p> <p>The accuracy of magnetic flow meter is $\pm 0.25\%$, and the accuracy of temperature transmitter is $\pm 0.15^\circ\text{C}$ (in accordance with IEC 751).</p> <p>The data is measured continuously and recorded hourly.</p> <p>All the meters are calibrated according to the registered PDD and methodology.</p> <p>QA/QC procedures including calibration, maintenance and recording; procedure for monitoring staff training and</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i></p>		<p>competence are established and implemented and incorporated in the ISO9001:2008 and ISO14001:2009 procedures of AFC. The emergency procedure for monitoring system is elaborated in the MR and reasonable.</p> <p>The data flow and protection process was observed during the onsite verification.</p> <p><i>Verifier's action:</i> It was verified by on-site observation and cross checking the hourly and daily sheets, excel book and "Procedures for Carbon Egypt CDM Project" against the MR. Besides all the calibration reports, the ISO9001:2008 and ISO14001:2009 procedures of AFC were checked by the verification team.</p> <p><i>Conclusion:</i> The accuracy of equipment used for monitoring is checked as controlled and calibrated in accordance with the monitoring plan. By check of the calibration certificates it can be confirmed that the meters were duly calibrated for this entire monitoring period. QA/QC procedures were established and requirements are fulfilled.</p>		
<p>c) Correctness (VVS, §§ 268, 271)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>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</i></p>	/MR/ /DR/	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct (initial assessment)</p> <p><i>Description:</i></p> <p>P_{production,y} during this monitoring period are reported in the MR based on the hourly sheets.</p> <p><i>Verifier's action:</i></p> <p>By means of checking the ER spreadsheet against the hourly and daily sheets, excel book and "Procedures for Carbon Egypt CDM Project".</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>be given.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>		<p><i>Conclusion:</i></p> <p>The value given in the monitoring report is correct.</p>		
D.2.2. h_y				
<p>a) Measurement / Determination method (VVS, §§ 268, 271)</p> <p><i>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)).</i></p> <p><i>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.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /PDD/ /ACM19/</p>	<p><i>Description:</i></p> <p>As per registered PDD and in line with related methodology, the operation hours are monitored on the basis of the observed AOR temperatures.</p> <p>When the temperature of the two ammonia oxidation reactors ranges within the manufacturer's specification (i.e. from 850 to 910 °C), the AOR is considered to be in continuous operation. Hence, the operation hours is measured by monitoring the temperature.</p> <p>The data aggregation procedure applied by the PP is shown as follows:</p> <ol style="list-style-type: none"> 1. The temperature is measured and recorded automatically, the information is stored electronically on an hourly basis (DAL-1=ODL). 2. Based on the hourly records, the final value was reported in the monitoring report (DAL0). <p><i>Verifier's action:</i></p> <p>It was verified by on-site interview and observations, checking the electronic records and paper work against the ER calculation spreadsheet.</p> <p><i>Conclusion:</i></p> <p>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</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		applied methodology.		
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278)</p> <p><i>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.</i></p> <p><i>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.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i></p>	<p>/MCC/ /IL/ /14001/ /9001/</p>	<p><i>Description:</i></p> <p>The temperature is measured by two independent measurement points for each reactor. Each measurement points installed two transmitters, one is the main signal and the other is the back-up signal.</p> <p>The accuracy of temperature transmitter is $\pm 0.7^{\circ}\text{C}$, the digital accuracy is in line with IEC 584.</p> <p>The data is measured continuously and recorded hourly.</p> <p>All the meters are periodically calibrated according to the supplier's recommendation and methodology.</p> <p>QA/QC procedures including calibration, maintenance and recording; procedure for monitoring staff training and competence are established and implemented and incorporated in the ISO9001:2008 and ISO14001:2009 procedures of AFC.</p> <p>The data flow and protection process was observed during the onsite verification.</p> <p><i>Verifier's action:</i></p> <p>It was verified by on-site observation and cross check of the electronic records and paper work against the MR. Besides all the calibration reports, the ISO9001:2008 and ISO14001:2009 procedures of AFC were checked by the verification team.</p> <p><i>Conclusion:</i></p> <p>The accuracy of equipment used for monitoring is checked as controlled and calibrated in accordance with the monitoring plan. By check of the calibration certificates it can be confirmed that</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		the meters were duly calibrated for this entire monitoring period. QA/QC procedures were established and requirements are fulfilled.		
c) Correctness (VVS, §§ 268, 271) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>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.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/MR/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct (initial assessment) <i>Description:</i> h_y during this monitoring period is reported in the MR based on the hourly electronic records. <i>Verifier's action:</i> By means of checking the ER spreadsheet against the hourly electronic records. <i>Conclusion:</i> The value given in the monitoring report is correct.	OK	OK
D.2.3. h_{r,y}				
a) Measurement / Determination method (VVS, §§ 268, 271) <i>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)).</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination</i>	/IM01/ /PDD/ /ACM19/	<i>Description:</i> As per the registered PDD and in line with related methodology, h _{r,y} is number of hours (h) in year y where the tertiary N ₂ O abatement system is by-passed, underperforming or failing. When, as per ACM0019, the inequality below is true, the abatement system is deemed to be by-passed, not working or failed in the hour h. $F_{N_2O,tailgas,h} > EF_{existing,y} \times P_{NA,h}$ The value is determined and monitored as explained in the respective sections of parameters of F _{N₂O,tail gas,h} (see parameters V _{t,db,n} , v _{i,t,db} and C _{H₂O,t,db,n}), EF _{existing,y} and P _{NA,h}	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>		<p>(P_{production,y}).</p> <p><i>Verifier's action:</i> It was verified by on-site interview and observations, checking monitoring of parameter F_{N₂O,tail gas,h} (see parameters of V_{t,db,n}, v_{i,t,db} and C_{H₂O,t,db,n}), EF_{existing,y}, and P_{NA,h} (P_{production,y}) against the calculation of $F_{N_2O,tailgas,h} > EF_{existing,y} \times P_{NA,h}$.</p> <p><i>Conclusion:</i> 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.</p>		
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278)</p> <p><i>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.</i></p> <p><i>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.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in</i></p>	/ACM19/	<p><i>Description:</i> This is not a directly measured parameter; therefore the accuracy is derived from the original measurement parameters. Please refer to the respective chapters. In case accuracy requirements for the parameters v_{i,t,db}, C_{H₂O,t,db,n} and P_{production,y} are met this is deemed to be the case for h_{r,y} as well.</p> <p><i>Verifier's action:</i> -</p> <p><i>Conclusion:</i> -</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Annex 2.				
c) Correctness (VVS, §§ 268, 271) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>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.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/MR/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct (initial assessment) <i>Description:</i> $h_{r,y}$ during this monitoring period is reported in the MR as 0 based on the calculation $F_{N2O,tailgas,h} > EF_{existing,y} \times P_{NA,h}$. <i>Verifier's action:</i> The values and the respective calculations have been checked for each hour and found to be OK <i>Conclusion:</i> The value given in the monitoring report is correct.	OK	OK
D.2.4. V_{t,db,n}				
a) Measurement / Determination method (VVS, §§ 268, 271) <i>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)).</i> <i>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.</i>	/IM01/ /PDD/ /ACM19/ /DV-CF/ /DV-VC/ /QAL1/ /QAL2/	<i>Description:</i> As per registered PDD and in line with related methodology, the volumetric flow of the gaseous stream in time interval t on a dry basis is monitored by the installed equipments. Before 2014-04-01 During the first phase of the monitoring period, i.e. during the period of the temporary deviation, the volume flow measurement is based on a Venturi tube. It has been designed according to ISO 5167-Part 4:2003. Volume flow rates are automatically adjusted to standard temperature and pressure. Temperature transmitters are used to measure the temperature. Pressure transmitters are used to measure the pressure. The volumetric	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>		<p>flow is converted to normal conditions (Standard P=101,325Pa, Standard T=273.15K) in accordance with the methodology. The instruments are located in the tail gas line, downstream of the EnviNO_x® reactor. Differential pressure is measured with two differential pressure transmitters. For calculation of volume flow at standard conditions the system is equipped with two temperature and two pressure transmitters.</p> <p>From 2014-04-02 onwards During the second phase of the monitoring period the value is monitored by an annubar probe manufactured by SKI. The instruments are located in the tail gas, downstream of the EnviNO_x® reactor (21R004) (at stack). The data is measured continuously, read secondly and recorded hourly.</p> <p>The data aggregation procedure applied by the PP in both scenarios (venturi and annubar) is as follows: 1. The differential pressure is monitored continuously, converted to volume flow and recorded hourly through the automated data logging system, Delta-V. (DAL-1=ODL). 2. Based on the hourly reports, the final value was reported in the monitoring report (DAL0).</p> <p>The annubar probe has undergone a QAL 2 test from 2014-07-08 to 2014-07-10. The identified calibration factors have been applied retroactively.</p> <p><i>Verifier's action:</i> The data aggregation and calculation was verified during on-site visit by means of data analysis, excel – walkthroughs and</p>		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>interview with the Carbon Egypt team using Delta-V trend curves (generated from raw data), Delta-V files and the QAL 2 report. Further a comparison with theoretical data has been checked.</p> <p>100% of the hourly records have been verified by means of data analysis tools. The data transfer from the Delta-V system has been checked on a sample basis.</p> <p><i>Conclusion:</i></p> <p>Based on onsite observation and document check, it is can be confirmed that</p> <ul style="list-style-type: none"> - the measurement / determination method currently installed is in line with the registered monitoring plan of the PDD and the applied methodology. - The temporary deviation has been approved and the stipulations of the EB, i.e. application of a correction factor have been applied correctly. 		
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278)</p> <p><i>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.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line</i></p>	<p>/MCC/ /ACM19/ /QAL1/ /QAL2/ /DV-CF/ /DV-VC/ /14001/ /9001/</p>	<p><i>Description:</i></p> <p>Before 2014-04-01</p> <p>The differential pressure of the venturi has been measured with two differential pressure transmitters. For calculation of volume flow at standard conditions the system was equipped with two temperature and two pressure transmitters. The accuracy of differential pressure transmitters is $\pm 0.075\%$ of calibrated span, the accuracy of temperature transmitter is $\pm 0.1\%$ of calibrated span, and the accuracy of pressure transmitter is $\pm 0.075\%$ of calibrated span.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i></p>		<p>From 2014-04-02 onwards</p> <p>The annubar probe has undergone a QAL2 test. As per the respective QAL2 report the uncertainty has been determined to be 1.96 %.</p> <p>QA/QC procedures are covered by the ISO 9001:2008 and ISO 14001:2009 procedures of AFC of the nitric acid plant. QA procedures applied are in accordance with the monitoring plan. All transmitters were properly installed and calibrated. Instruments have a valid calibration covering the whole monitoring period. The calibration certificates were provided as evidence of the work performed.</p> <p>The data flow and protection process was observed during the onsite verification.</p> <p><i>Verifier's action:</i> It was verified by on-site observation and cross checking the Delta-V trend curves (generated from raw data) and Delta-V mdi files against the MR. Besides all the calibration reports, the ISO9001:2008 and ISO14001:2009 procedures of AFC were checked by the verification team.</p> <p><i>Conclusion:</i> The accuracy of equipment used for monitoring is checked as controlled and calibrated in accordance with the monitoring plan. By check of the calibration certificates it can be confirmed that the meters were duly calibrated for this entire monitoring period. QA/QC procedures were established and requirements are fulfilled.</p>		
c) Correctness	/MR/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct (initial assessment)	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(VVS, §§ 268, 271) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>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.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>		The data transfer, calculation and application of correction factors / calibration factors are deemed to be correct.		
D.2.5. $v_{i,t,db}$				
a) Measurement / Determination method (VVS, §§ 268, 271) <i>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)).</i> <i>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.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring</i>	/IM01/ /PDD/ /ACM19/ /DV-CF/ /DV-VC/ /GC/	<i>Description:</i> As per registered PDD and in line with the applicable methodology, the volumetric fraction of the greenhouse gas i in a time interval t on a dry basis is monitored by the EnviNOx®-System NDIR analyser supplied by Emerson. The sample take-off is located in the tail gas line, downstream of the EnviNOx® reactor (21R004) and leads (via sample gas line) to the analyzer house (located close to the EnviNOx® reactor), where analyzers and standard gases for calibrations are installed. The data is measured continuously, read secondly and recorded hourly. The data aggregation procedure applied by the PP is shown as follows:	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>plan of the PDD and the applied methodology.</i>		<p>1. The concentration of N₂O in the tail gas is continuously measured by non-dispersive infrared photometry (NDIR) analyser which is self-calibrated, using a set of certified gases. The N₂O concentration is measured in ppmv and automatically converted to tN₂O/Nm³ and Nm³ N₂O / Nm³ dry gas recorded through the automated data logging system, DeltaV, and hourly reports are generated including the values in ppm and mgN₂O/Nm³ (DAL-1=ODL).</p> <p>2. Based on the hourly reports, the final value was reported in the monitoring report (DAL0).</p> <p><i>Verifier's action:</i> The N₂O concentration values were verified during on-site visit, by means of data comparison tests, interviews and observations. The Delta-V hourly reports, Delta-V trend curves the ER calculation spreadsheet as well as QA/QC documentation has been checked. Further also the results of the periodic Gas Chromatography measurements have been analyzed and compared with the NDIR measurement results. 100% of the hourly records have been evaluated during the verification, whereas the data transfer from the Delta-V system has only been checked on a sample basis.</p> <p><i>Conclusion:</i> It can be confirmed that the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>		
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278) <i>In case of measured (or estimated) values, check</i></p>	<p>/MCC/ /QAL2/ /14001/ /9001/</p>	<p><i>Description:</i> The accuracy of the NDIR Analyser is considered to be ±1% (zero/span).</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>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.</i></p> <p><i>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.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i></p>		<p>The accuracy of the span gas is also specified as $\pm 1\%$</p> <p>The overall combined standard accuracy of the concentration measurement has been determined during the QAL 2 measurement to be 1.07 %.</p> <p>Numerous QA/QC checks, such as:</p> <ul style="list-style-type: none"> - check of analytical function (zero and span check) - EN 14181 compliance (QAL 1 to QAL 3, AST) - Regular checks by the plant maintenance team, - Service checks by the manufacturer and - Data checks by the CDM team <p>are carried out in order to ensure a high data integrity level. The accuracy and the QA/QC check intervals of the monitoring equipment is in accordance with the relevant guidance provided by the CDM Executive Board and in accordance with the monitoring plan.</p> <p>Factory instructions by Emerson Process Management for accuracy safeguarding are followed and complied. These are related to regular self-calibration and quality of used calibration gases.</p> <p>The calibration gases used are found to cover the range of measurements in the monitoring period The test gas covers the usual measuring range appropriately.</p> <p>QA/QC procedures are documented in the ISO9001:2008 and ISO14001:2009 procedures of AFC of the nitric acid plant. QA</p>		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>procedures applied are in accordance with the monitoring plan.</p> <p><i>Verifier's action:</i> The various QA/QC measures and related documentation have been checked during the on-site visit and afterwards on the basis of the submitted full documentation.</p> <p><i>Conclusion:</i> QA/QC procedures have been established and requirements are deemed to be fulfilled. No deviations from the implemented procedures, the PDD and the MP have been identified. Thus it can be confirmed that the meters were duly operated and for this entire monitoring period.</p>		
<p>c) Correctness (VVS, §§ 268, 271)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>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.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>	/MR/	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct (initial assessment)</p> <p><i>Description:</i> The data transfer, calculation and application of correction factors / calibration factors are deemed to be correct.</p>	OK	OK
D.2.6. C_{H2O,t,db,n}				
<p>a) Measurement / Determination method (VVS, §§ 268, 271)</p>	/IM01/ /PDD/ /ACM19/	<p><i>Description:</i> As per registered PDD and in line with related methodology, the moisture content of the gaseous stream at normal conditions is</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>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)).</i></p> <p><i>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.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	/QAL2/	<p>measured according to the USEPA CF42 method 4 – Gravimetric determination of water content. 3 measurements have been carried out from 2014-07-08 to 2014-07-10 in the course of the QAL2 test. It was determined that the moisture content is well below the threshold value as per the “Tool to determine the mass flow of a GHG in a gaseous stream” of 0.05 kgH₂O/m³ dry gas and thus the gas can be considered as dry (for the purpose of mass flow calculations in line with the above mentioned tool).</p> <p><i>Verifier’s action:</i> The QAL 2 report has been checked and the referenced value could be confirmed.</p> <p><i>Conclusion:</i> 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 so that the gas can be considered as dry.</p>		
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278)</p> <p><i>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.</i></p> <p><i>Describe whether all applicable QA/QC procedures</i></p>	/MCC/ /QAL2/	<p><i>Description:</i> The measurement institute (AIRTEC) has confirmed that the measurement has been carried out in line with the above mentioned standard.</p> <p><i>Verifier’s action:</i> The result was verified from the QAL2 report.</p> <p><i>Conclusion:</i> QA/QC procedures were established and requirements are fulfilled.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i></p>				
<p>c) Correctness (VVS, §§ 268, 271)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>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.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>	/MR/	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct (initial assessment)</p> <p>The applied measurement method is appropriate and the value used is deemed correct.</p>	OK	OK
D.2.7. FC_{i,iv}				
<p>a) Measurement / Determination method (VVS, §§ 268, 271)</p> <p><i>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)).</i></p>	<p>/IM01/ /PDD/ /ACM19/ /DV-CF/ /DV-VC/ /NGC/</p>	<p><i>Description:</i></p> <p>Natural gas is used as a reducing agent in the EnviNOX® system (21R004). As per registered PDD and in line with related methodological tool, the quantity of the fuel combusted in process is monitored by a standard natural gas flow meter. Pressure and temperature transmitter are installed for the conversion to standard conditions.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>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.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>		<p>The meters are located in the natural gas line, upstream of the EnviNOX® reactor.</p> <p>The data is measured continuously, read secondly and recorded hourly.</p> <p>The data aggregation procedure applied by the PP is shown as follows:</p> <ol style="list-style-type: none"> 1. The natural gas input is measured in Nm³ and automatically converted to tCH₄ and recorded through the automated data logging system, DeltaV, and hourly reports are generated including the values in Nm³ and tCH₄. (DAL-1=ODL). 2. Based on the hourly reports, the final value was reported in the monitoring report (DAL0). <p><i>Verifier's action:</i> It was verified during on-site visit by means of visual inspection, interviews and data analysis that the measurement system as described in the PDD is in place and correctly working. In detail values from the automated data logging system, DeltaV, have been checked on an hourly basis.</p> <p><i>Conclusion:</i> Based on onsite observation and document check, it can be confirmed that the measurement is in line with the registered monitoring plan of the PDD and the applied methodology.</p>		
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for</i></p>	<p>/14001/ /9001/ /MCC/ /K-CF/</p>	<p><i>Description:</i></p> <p>The accuracy of natural gas flow meter is ±1.6% (in accordance with VDI/VDE 3513), the accuracy of temperature transmitter is ±0.1% of calibrated span, and the accuracy of pressure</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>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.</i></p> <p><i>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.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i></p>	/DV-CF/	<p>transmitter is $\pm 0.075\%$ of calibrated span.</p> <p>The accuracy and the calibration interval of the monitoring equipment is in accordance with the relevant guidance provided by the CDM Executive Board and is controlled and calibrated in accordance with the monitoring plan.</p> <p>The inspection reports including the test results from the calibration procedures performed were checked and the transmitters were reported to meet the applicable specifications.</p> <p>QA/QC procedures are covered by ISO9001:2008 and ISO14001:2009 procedures of AFC. QA procedures applied are in accordance with the monitoring plan. The meters were properly installed and calibrated. Instruments have a valid calibration covering the whole monitoring period. The calibration certificates were provided as evidence of the work performed.</p> <p>The data flow and protection process was observed during the onsite verification.</p> <p><i>Verifier's action:</i> It was verified by on-site observation and checking the calibration records against the MR. Besides the ISO9001:2008 and ISO14001:2009 procedures of AFC were checked by the verification team.</p> <p><i>Conclusion:</i> The accuracy of equipment used for monitoring is checked as controlled and calibrated in accordance with the monitoring plan. By check of the calibration certificates it can be confirmed that the meters were duly calibrated for this entire monitoring period. QA/QC procedures were established and requirements are</p>		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		fulfilled.		
c) Correctness (VVS, §§ 268, 271) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>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.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/MR/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct (initial assessment) The applied measurement methods, the equipment installed and the results achieved are deemed appropriate and thus the final value used for ER calculation is deemed correct.	OK	OK
D.2.8. W_{C,i,v}				
a) Measurement / Determination method (VVS, §§ 268, 271) <i>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)).</i> <i>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.</i>	/IM01/ /PDD/ /ACM19/ /NGC/	Description: As per registered PDD and in line with related methodology, the weighted average mass fraction of carbon in the natural gas is derived from the certificate of hydrocarbon supplier. The certificate is supplied by the hydrocarbon supplier at least once per year. The mass fraction of carbon is calculated based on the analysis as shown in the certificate. Verifier's action: During on-site visit the certificates and the calculation have been checked. Further the calculation has been reproduced and found to be not fully correct. Conclusion: Based on onsite observation and document check, it can be	CAR D1	OK

Checklist Item (incl. guidance for the verification team)	Reference	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.		confirmed that the analysis of the natural gas used is appropriate and correct. However the calculation method for the weighted average is deemed to be not fully correct. In this context a CAR has been raised (CAR D1) .		
b) Accuracy and QA/QC Procedure (VVS, §§ 272-278) <i>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.</i> <i>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.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i>	/MCC/ /GC/	<i>Description:</i> The accuracy is dependent on the gas-chromatograph results as achieved and provided by the gas supplier and thus outside the control of the operator. <i>Verifier's action:</i> The analysis has been checked for plausibility and the calculation has been reproduced. <i>Conclusion:</i> The calculation shows a minor mistake. In this context a CAR has been raised (CAR D1) .	CAR D1	OK
c) Correctness (VVS, §§ 268, 271) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the</i>	/MR/	<input type="checkbox"/> Correct <input checked="" type="checkbox"/> Not correct (initial assessment) <i>Description:</i> The mistake needs to be corrected. In this context a CAR has been raised (CAR D1) .	CAR D1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>				
D.2.9. $\rho_{i,y}$				
<p>a) Measurement / Determination method (VVS, §§ 268, 271)</p> <p><i>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)).</i></p> <p><i>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.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /PDD/ /ACM19/ /NGC/</p>	<p><i>Description:</i> As per registered PDD and in line with related methodology, the weighted average density of the natural gas is derived from the analysis certificate of the hydrocarbon supplier. The certificate is supplied usually on a monthly basis but at least once per year. The average density for a specific month has been calculated and a conservative value has been used.</p> <p><i>Verifier's action:</i> The analysis certificates have been checked and the calculation has been reproduced.</p> <p><i>Conclusion:</i> The value used for the ER calculation has not been fully derived as described in the MP. In this context a CAR has been raised (CAR D2).</p>	CAR D2	OK
<p>b) Accuracy and QA/QC Procedure (VVS, §§ 272-278)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for</i></p>	<p>/MCC/ /GC/</p>	<p><i>Description:</i> The accuracy is dependent on the gas-chromatograph results as achieved and provided by the gas supplier and thus outside the control of the operator.</p>	CAR D2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>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.</i></p> <p><i>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.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Annex 2.</i></p>		<p>QA/QC procedures is not applicable.</p> <p><i>Verifier's action:</i> The analysis has been checked for plausibility and the calculation has been reproduced.</p> <p><i>Conclusion:</i> The value used for the ER calculation has not been fully derived as described in the MP. In this context a CAR has been raised (CAR D2).</p>		
<p>c) Correctness (VVS, §§ 268, 271)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>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.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>	/MR/	<p><input type="checkbox"/> Correct <input checked="" type="checkbox"/> Not correct (initial assessment)</p> <p><i>Description:</i> The value has not been completely calculated as described in the monitoring plan. However a conservative value has been applied and thus the value is deemed to be correct. CAR D2 has been raised in this context.</p>	CAR D2	OK
D.3. Sampling				
a) Implementation of sampling plan		<input checked="" type="checkbox"/> No sampling approach has been used by the PP to	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(F-CDM-FORM, Attachment; D3) <i>Check whether the PP has applied a sampling approach to determine the monitored values (as per section D.2 above).</i> <i>If this is the case, please provide an assessment whether the PPs have correctly and sufficiently described the implemented sampling plan including</i> <ul style="list-style-type: none"> 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. 		determine the monitored parameters		
b) Sampling during verification <i>In case the VT has applied a sampling approach in the course of the verification the approach shall be described for each parameter.</i>		<input checked="" type="checkbox"/> A sampling approach has been applied by the VT for the transfer of data from the Delta-V System to the Excel calculation sheet. A data set of 3 randomly selected days has been checked to confirm the correctness of the data transfer. No data mismatch was identified.	OK	OK
E. Calculation of Emission reductions				
E.1. Traceability (VVS, §§ 247, 249) <i>Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spreadsheet shall be used. All applied formulae must be visible.</i>	/XLS/ /SHEW/	<i>Description:</i> An unprotected ER calculation spreadsheet has been provided. All applied formulas are visible. <i>Verifier's action:</i> The ER calculation spreadsheet has been checked.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p><i>Conclusion:</i> The calculation is completely traceable.</p>		
<p>E.2. Parameter consistency (VVS, § 249)</p> <p><i>Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet?</i></p> <p><i>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.</i></p>	<p>/XLS/ /SHEW/</p>	<p><i>Description:</i> All internal and external parameters and data used in calculation sheet are consistent with the MR.</p> <p><i>Verifier's action:</i> The values in the ER calculation spreadsheet were checked against meter readings, data records and calibration records, the registered PDD and the MR.</p> <p><i>Conclusion:</i> All parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet.</p>	OK	OK
<p>E.3. Correctness of calculation (VVS, §§ 279-280)</p> <p><i>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.</i></p> <p><i>Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.</i></p> <p><i>Check especially that no standard or old values have been used for calculation where calculations based</i></p>	<p>/XLS/ /MR/ /PDD/ /SHEW/</p>	<p><i>Description:</i> According to applied methodology, the Emission Reduction is calculated as followings: $ER_y (tCO_{2e}/y) = BE_y - PE_y - LE_y$ Where: <i>ER_y</i> are the emission reductions <i>BE_y</i> are the baseline emissions. <i>PE_y</i> are the project emissions <i>LE_y</i> are the leakage emissions (which are deemed negligible)</p> <p>The emission reduction is based on the monitored data</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>on up-to-date data is required.</i>		<p>measured during this monitoring period. The provided calculations are complete and reflect all requirements of the monitoring plan.</p> <p><i>Verifier's action:</i></p> <p>The ER calculation spreadsheet and MR were checked with the MP and applied methodology.</p> <p><i>Conclusion:</i></p> <p>The calculation is correct and in line with the registered PDD and methodology ACM0019.</p>		
<p>E.4. Emission reductions table (F-CDM-FORM, Attachment, E.4)</p> <p><i>Check if the MR includes a summary table of the emission reductions calculation specifying separately</i></p> <ul style="list-style-type: none"> - <i>Total baseline emissions</i> - <i>Total project emissions:</i> - <i>Total leakage</i> - <i>Total emission reductions.</i> <p><i>Assess whether the values are correct or need to be revised as a consequence of issues identified above.</i></p>		<p><input checked="" type="checkbox"/> The MR includes in section E.4 a summary table of the emission reductions calculation.</p> <p><input checked="" type="checkbox"/> The summary table specified the total baseline, project and leakage emissions as well as the total emission reductions separately.</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> 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.</p> <p>In this context the following additional findings have been identified:</p> <p>N/A</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>E.5. Comparison with ex-ante determined emission reductions (F-CDM-FORM, Attachment, E.5; E.6)</p> <p>Check if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.</p> <p>Check further whether in case of an increase an appropriate explanation is included in the MR.</p> <p>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.</p>	<p>/XLS/ /MR/ /PDD/</p>	<p><i>Description:</i></p> <p>The MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.</p> <p>The actual ER of 1,132,822 tCO₂e (as per the draft MR) is higher than the value estimated in the PDD (378,406 tCO₂e (108 days) in 2013 and 1,278,874 tCO₂e (365 days) in 2014 equal to 1,012,587 tCO₂e for 289 days from 2013-09-15 to 2014-06-30).</p> <p><i>Verifier's action:</i></p> <p>By means of MR, ER sheet and registered PDD check.</p> <p><i>Conclusion:</i></p> <p>The explanation given by the PP in the MR has been checked during the on-site visit and found to be correct. The number of shut-down days was significantly lower than expected ex-ante. Thus the explanation is deemed acceptable. The actual ER according to the final MR are 1,132,802 tCO₂e.</p>	OK	OK
<p>E.6. ER during the 1st commitment period and the period from 1 January 2013 onwards (F-CDM-FORM, Attachment, E.7)</p> <p>Check if the MR includes in chapter E.7 a breakdown of the actual ER into</p> <p>a) ER up to 2012-12-31 and</p> <p>b) ER from 2013-01-01 onwards</p>		<p><input checked="" type="checkbox"/> The MR in section E.7 includes a summary table of the ER breakdown</p> <p>a) ER up to 2012-12-31 and</p> <p>b) ER from 2013-01-01 onwards</p> <p><input type="checkbox"/> The breakdown of the ERs during the first commitment period and from 2013-01-01 onwards is as follows:</p> <p><input type="checkbox"/> The ER have completely been generated during the first commitment period</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>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.</i>		<input checked="" type="checkbox"/> The ERs have completely been generated from 2013-01-01 onwards, <input type="checkbox"/> The ERs have partly been generated during the first commitment period and partly from 2013-01-01 onwards. <input checked="" type="checkbox"/> The breakdown of the ERs is correct, considering the applicable guidance. In this context the following additional findings have been identified: N/A		

ANNEX 2: CALIBRATION DATES AND VALIDITY OF INSTALLED MONITORING EQUIPMENT

Related monitoring parameter ¹	Monitoring equipment [Tag-No.]	Serial number	Type	Accuracy or accuracy class	Previous calibration ²	Calibration date(s) during this monitoring period	Validity of calibration(s)	Delay in calibration: [yes/no]	Period of delayed calibration
P _{production,y}	FT21411	0870188456	Magnetic flow meter	±0.25%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
		0252528	Magnetic flow meter	±0.25%	2013-10-17	-	2016-04-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
P _{production,y}	TE21042	2304657	Temperature transmitter	±0.15°C	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
		2551332	Temperature transmitter	±0.15°C	2013-10-28	-	2015-10-27	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
h _y	TE21014	2304376	Temperature transmitter	±0.7°C	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
h _y	TE21015	2304377	Temperature transmitter	±0.7°C	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
h _y	TE21020	2304378	Temperature transmitter	±0.7°C	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
h _y	TE21021	2304379	Temperature transmitter	±0.7%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:

¹ as per applicable registered monitoring plan

² last calibration before start of this monitoring period



Related monitoring parameter	Monitoring equipment [Tag-No.]	Serial number	Type	Accuracy or accuracy class	Previous calibration ²	Calibration date(s) during this monitoring period	Validity of calibration(s)	Delay in calibration: [yes/no]	Period of delayed calibration
$V_{t,db,n}$	FT 218003A	8657986	Differential pressure transmitter	±0.075%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$V_{t,db,n}$	FT 218003B	8657987	Differential pressure transmitter	±0.075%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$V_{t,db,n}$	TE 218005A	2420014	Temperature transmitter	±0.1%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$V_{t,db,n}$	TE 218005B	2420015	Temperature transmitter	±0.1%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$V_{t,db,n}$	PT 218006A	8657989	Pressure transmitter	±0.075%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$V_{t,db,n}$	PT 218006B	8657990	Pressure transmitter	±0.075%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$V_{t,db,n}$	FT-21492	13069588	Differential pressure transmitter	1.89 % (as per QAL 1)		2014-05-29	2014-06-25	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$V_{i,db,n}$	AT218002	99056146289 5	NDIR Analyser	±1%	Zero calibration daily Span calibration every other day	Automatically	Done on daily basis	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
$FC_{i,j,y}$	FT218002	6/191199.001	Natural gas flow meter	±1.6%	2013-04-09	-	2015-04-08	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:



Related monitoring parameter ¹	Monitoring equipment [Tag-No.]	Serial number	Type	Accuracy or accuracy class	Previous calibration ²	Calibration date(s) during this monitoring period	Validity of calibration(s)	Delay in calibration: [yes/no]	Period of delayed calibration
FC_{i,j,y}	TE218004	2420017	Temperature transmitter	±0.1%	2013-09-03	-	2015-09-02	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To::
FC_{i,j,y}	PT218004	8195466	Pressure transmitter	±0.075%	2013-04-25	-	2015-04-24	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To::

ANNEX 3: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL



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	TR SUBCATEGORIES
1.1	Thermal Energy Generation	
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
4.1	Cement Sector	
4.3	Iron and Steel	
4.5	Waste Heat Recovery	
4.8	Glass	
5.1	Chemical Process Industries	
9.1	Metal Production	
11.1	Chemical Process Industries	
11.2	GHG Capture and Destruction	
12.1	Chemical Process Industries	
13.1	Waste Handling and Disposal	13.1.1 Waste Management

003 - Rev. 7, Date: 2013-07-02

003_S01-VA060-F20_2012-10-12_rev7.doc

S01-VA060-F20 rev3 / 2012-10-25



Statement of Competence

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

Mr. Ramy Marei

SCHEME	STATUS	VALID UNTIL
CDM	Trainee	2014-02-01
VCS	Trainee	2014-02-01

194 - Rev. 0, Date: 2011-03-17

194_001-F003_0011-03-17_000

001-F003 0000 / 0010-03-17



Statement of Competence

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

Mr. Dirk Speyer

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2016-04-16
VCS / ISO 14064-2	Senior Assessor	2016-04-16

Authorization status for technical areas within sectoral scopes:

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

244 - Rev. 7, Date: 2013-04-17

244_S01-VA060-F20_2013-04-17_rev7.doc

S01-VA060-F20 rev3 / 2012-10-25



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

Mr. Kunal Rami

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2016-02-27
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2016-02-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.2	Renewable Energies	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
6.1	Construction	
13.1	Waste Handling and Disposal	13.1.1 Waste Management 13.1.2 Waste Water Management

224 – Rev. 4, Date: 2013-02-28

224_S01-1/N000-F30_2013-02-28_rev4.doc

S01-1/N000-F20 rev3 / 2012-10-25



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	TR SUBCATEGORIES
1.1	Thermal energy generation	
1.2	Renewable Energy	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
2.2	Heat distribution	
3.1	Energy demand	
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management
13.2	Animal waste management	
15.2	Animal waste management	

163 – Rev. 3, Date: 2014-07-28

163_S01-F00L_2014-07-28_rev3.doc

S01-F003 rev1 / 2011-08-02