South Asia

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Validation Report

VALIDATION OF THE RENEWAL OF CREDITING PERIOD OF AN EXISTING CDM-PROJECT:

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

(UNFCCC REGISTRATION REF. NO. 0490)

REPORT NO. 00824EM

2 December 2013

TÜV SÜD South Asia Pvt. Ltd.
Environmental Technology
Carbon Management Service
Solitaire, I.T.I. Road, Aundh
Pune- 411007
INDIA

Date of first issue of this report	Revision No. of this report
19/08/2013	05
Project Participant (contractor): Carbon Egypt Ltd. (Client) 2 Simon Bolivar Square Garden City P.O. Box 489 11461 Cairo Egypt **Further PPs** KOMMUNALKREDIT PUBLIC CONSULTING GmbH (Republic of Austria) Energie AG Oberösterreich (Republic of Austria) RWE Power AG (Federal Republic Germany)	**Project Site(s):** ABU QIR FERTILIZER Co., El-Tabya Plants, Rash-eed Road, Al-Iskandariyah Province (Alexandria Province), Abu Qir GPS coordinates: N31.272513° E30.09755° **Host Country:** Egypt
Applied Methodology / Version: ACM0019 / Version 2.0.0	**Scope(s):** 5 **Technical Area(s):** 5.1
First PDD Version: PDD version date: 19/07/2013 Version No.: 4.0 (renewal of crediting period update)	**Final PDD version:** PDD version date: 11/09/2013 Version No.: 4.1

VALIDATION OPINION

TÜV SÜD has performed a validation of the request for renewal of the crediting period of the aforementioned existing CDM project activity.

Standard auditing techniques have been used for the validation process.

The validation has been performed following the requirements of the latest version of the CDM VVS.

The review of the project design documentation, subsequent follow-up interviews, and further verification and validation of references have provided TÜV SÜD with sufficient evidence to determine the validity of the original baseline and to confirm that the estimated emission reductions are in line with the applied methodology. In our opinion, the project meets all relevant UNFCCC requirements and hence TÜV SÜD recommends the renewal of the crediting period of this project.

Considering that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 1 273 974 tCO_2e and a total estimated of 8 917 815 tCO_2e as specified within the final PDD version for the second crediting period.

The single purpose of this report is its use during the renewable of the crediting period process as part of the CDM project cycle. Based on the work described in this report, nothing has come to our attention that causes us to believe that any project component or issue has not been covered by the validation process.

Pune, 2/12/2013

Shivraj Sharma
Member
Certification Body “Environment and Energy”
TÜV SÜD South Asia

Abbreviations

ACM	Approved Consolidated Methodology
CAR	Corrective Action Request
CB	Certification Body
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	GreenHouse Gas(es)
GSP	Global Stakeholder Consultation / Process
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
PCP	Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
TÜV SÜD	TÜV SÜD South Asia Pvt Ltd
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation And Verification Standard

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1 INTRODUCTION

1.1 Objective

The objective of the validation of the renewal of crediting period process of an existing project is to determine whether the project participants have updated the PDD in the sections related to the baseline, estimated emission reductions and monitoring plan using the most recent version of the baseline and monitoring methodology applicable for the project activity.

The ultimate decision on the acceptance to renew the crediting period of a proposed project activity rests with the CDM-EB.

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities, the scope is set by:

- The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Decision 2/CMP.1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Clean Development Mechanism Validation and Verification Standard (VVS) published under http://cdm.unfccc.int
- Decisions and specific guidance outlined by the EB which are published under http://cdm.unfccc.int
- Guidelines for Completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Baselines and monitoring methodologies (including GHG inventories)
- Management systems and auditing methods
- Environmental issues relevant to the applicable sectoral scope
- Applicable environmental and social impacts and aspects of CDM project activity
- Sector specific technologies and their applications
- Current technical and operational knowledge of the specific sectoral scope and information on best practice

The validation process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

The purpose of a validation related to the renewal of the crediting period of a project is an assessment according to the VVS and includes an assessment of an updated PDD in accordance with the relevant sections of the PS related to the renewal of crediting period and in particular to:

(a) Consistency of the names of the Project Participants;

(b) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period at the time of requesting renewal of crediting period;

(c) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

2 VALIDATION METHODOLOGY

The information provided by the project participants is assessed by applying the means of validation specified in the VVS and where appropriate standard auditing techniques.

Before the assessment begins, a competent team is selected to perform the process. The team is selected to cover the technical area(s), sectoral scope(s), and relevant host country experience for evaluating the CDM project activity. The members of the team carry out a desk review, follow-up actions, resolution of identified issues, and the preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB "Environment and Energy" before being submitted to the CDM-EB.

In case the validation team identifies issues that require further elaboration, research or expansion in order to determine whether the project activity meets the applicable CDM requirements, and can achieve credible emission reductions findings are raised as specified in the VVS.

To request the renewal of the crediting period of the project activity, all CARs and CLs must be resolved.

All CARs, CLs and FARs are found in Annex 1 to this validation report including the responses provided by the project participants, the means of validation of the responses and references to any resulting changes in the PDD or supporting annexes.

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "Environment and Energy".

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Validator (V);
- Validator Trainee (T);
- Technical Experts (TE);
- Country expert (CE);
- Technical reviewer (TR).

It is required that the sectoral scope(s) and the technical area(s) (TA) linked to the methodology and project has to be covered by the assessment team.

A technical review is conducted to perform a check on quality and completeness.

Assessment Team:

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect	Host country experience	Conducted On-site visit
Javier Castro	**ATL**	☑	☑ (All)	☑	☑	☑
Konrad Tausche	V	☑	☑ (All)	☑	☑	☑

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect	Host country experience	Conducted On-site visit
Olena Maslova*	V			☑	☑	

*Former ATL

Technical Reviewer:

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect
Eric Tolcach	**TR**			
Dante Tollio	TE	☑ (All)	☑ (All)	

Appointment certificates are attached to this report in Annex 3.

2.2 Review of Documents

The first version of the updated PDD to the latest applicable methodology ACM0019 and additional background documents, related to the project design and baseline have been reviewed to verify the correctness, credibility, and interpretation of the presented information and their compliance to the applicable requirements for requesting the renewal of crediting period. Furthermore, a cross-check between information provided and information from other sources has been done as an initial step of the validation process. A complete list of all documents and evidence material reviewed is attached as Annex 2 to this report.

2.3 Follow-up Interviews

TÜV SÜD performed interviews, telephone conferences, and physical site inspections during 13/01/2013 to 15/01/2013 with project stakeholders to confirm relevant information and to resolve issues identified in the document review, further telephone conferences have been performed after the update of the PDD to the latest applicable methodology. A list of all persons interviewed in this process is presented in Annex 3 to this report.

2.4 Cross-check

During the validation process, the team has made reference to available information related to similar projects or technologies as this CDM project activity. Project documentation has also been reviewed against the approved methodology applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD`s conclusion on the project design. The CARs and CLs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in Annex 1 to this report.

2.6 Internal Quality Control

Internal quality control within the team is assured by means of a technical review process that takes place after the on-site assessment and after closure of findings. The internal quality control in the

validation process is given by the final decision (Validation Opinion) made by the CB “Environment and Energy”.

3 REPORTING REQUIREMENTS

The assessment work and the main results are described below in accordance with the Clean Development Mechanism Validation and Verification Standard (VVS). The reference documents indicated in this section and Annex 1 are stated in Annex 2 of this report.

3.1 Project design document

The PDD is compliant with relevant form and guidance as provided by UNFCCC. The most recent version of the PDD form was used.

3.2 Description of project activity

The information presented in the PDD on the technical design has been assessed for accuracy and completeness using standard auditing techniques including:

(a) Document review including

- A review of data and information;
- Cross checks between information provided in the PDD and information from sources other than those used, the DOE´s sectoral or local expertise. If necessary, independent background investigations were performed.

(b) Follow-up actions including:

- Interviews with relevant stakeholders in the host country, personnel with knowledge of the project design and implementation;
- Cross checks between information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted.

(c) Reference to available information relating to projects or technologies similar to the proposed project activity under validation;

The names of the project participants included in the request for renewal of crediting period are consistent with the names stated already at UNFCCC website (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1151930566.53/view).

In opinion of TÜV SÜD the project description, as included in the PDD, is accurate and complete; and it provides a correct understanding of the proposed project activity.

3.3 Validity of the selected baseline and monitoring methodology

The project at hands was originally registered based on version 01 of the approved CDM methodology AM0028. A CDM-PDD for the 2nd crediting period using the version 5.1.0 of AM0028 has been positive validated. The PPs decided to withdraw this report from the UNFCCC system and instead a new revised CDM-PDD using the latest applicable methodology for this kind of projects has been presented to the validation team.

The change from methodologies has been discussed with the secretariat via e-mail and there is no requirement that does not allow updating the methodology at this stage. The present report refers only to the latest update of the PDD to the ACM0019, early information related to AM0028 is not relevant for this report.

3.3.1 Applicability of the selected baseline and monitoring methodology to the project activity

The project applies the approved baseline methodology ACM0019 (version 2.0.0) “N2O abatement from nitric acid production” in combination with “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” (version 02) and “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” (version 02.0.0).

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology has been demonstrated. The relevant tools do not have any special applicability condition. The tools used are following the requirements of the methodology, which in this case is the only applicability condition that is per-se complied with.

The validation team assessed by checking the UNFCCC webpage that the baseline and monitoring methodology selected by the project participants is the valid version of that approved by the Board.

Applicability criterion No. 1 from ACM0019
In the case that the nitric acid plant started commercial operation before the implementation of the CDM project activity, the project participants shall demonstrate that there was no secondary or tertiary abatement technology installed in the respective nitric acid plant
Information from PDD:
The project is installed in a nitric acid plant without secondary or tertiary abatement technology prior to the start of the project in 2006 (first crediting period).
Assessment:
The validator confirms the installation in a nitric acid plant and the information regarding the abatement technology has been already confirmed during the validation for the registration of the project. Furthermore this information was crosschecked with help of the daily records of the plant’s nitric acid production and operating parameters for the years 2000-2005 (IRL 4b).
Validation opinion:
The documentation content is correctly quoted and interpreted in the PDD. The applicability criterion is met by the project activity.
Applicability criterion No. 2 from ACM0019
Continuous real-time measurements of the N2O concentration and the total gas volume flow can be carried out in the tail gas stream after the abatement of N2O emissions throughout the crediting period of the project activity
Information from PDD:
A dedicated AMS system was already installed in the plant, which allows a continuous real-time measurement.
Assessment:
The information presented can be confirmed taking into account that the project in the past did also measure in a continuous real-time the required parameters.
Validation opinion:
The applicability criterion is met by the project activity.
Applicability criterion No. 3 from ACM0019
No law or regulation which mandates the complete or partial destruction of N2O from nitric acid plants exists in the host country where the CDM project activity is implemented.
Information from PDD:

No laws or regulations exist in the host country for such activities.
Assessment: The validator interviewed the responsible person from the government of Egypt to confirm the statement presented in the PDD.
Validation opinion: The applicability criterion is met by the project activity.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

3.3.2 Validity of Baseline

The baseline scenario identified at the validation of the project activity (CDM-PDD version 2(b) dated 20/06/2006) was the continuation of emitting N_2O to the atmosphere, without the installation of N_2O destruction or abatement technologies.
According to the methodological tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of crediting period" (Version 03.0.1) the following procedure was applied to assess the validity of the baseline:

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

As described in the PDD, the following relevant mandatory national sectoral policy applicable to the project activity came into effect after the submission of the project activity for validation: the national Environment Law number 4 of Egypt (year 1994) has been revised by the Prime Minister Resolution number 710 for 2012 on 23/06/2012 (IRL 9a-b). According to this revision, the NO_X emissions at nitric acid plants are limited to 400 mg/m³ for the AFC nitric acid plant (the former value was 3,000 mg/m³).

TÜV SÜD confirms that the current baseline complies with this policy as verified with the plant's operating parameters records (IRL 4b) which were provided for the time where the plant operated a SCR DeNOx unit before the start of the project activity in October 2006.
No other national and / or sectoral policies applicable to the project activity came into effect after the submission of the project activity for validation, which was confirmed by the DNA of Egypt (IRL 3, 9c).

Step 1.2: Assess the impact of circumstances

Since the baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment- the continuation of emitting N_2O to the atmosphere, without the installation of N_2O destruction or abatement technologies- an assessment of the changes in the market characteristics shall be applied. Based on the sectoral expertise of the assessment team, TÜV SÜD confirms that in such kind of projects no potential marketable (by) product exists and thus no financial benefit other than CERs can be generated. It is confirmed that the conditions used to determine the baseline emissions in the previous crediting period are still valid. The assessment of availability of new fuels or raw materials and the impact of electricity or fuel prices in the identification of the current practice for the baseline emissions is not applicable for this kind of projects.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.
The baseline scenario identified at the validation of the project activity (CDM-PDD version 2(b) dated 20/06/2006) was the continuation of emitting N_2O to the atmosphere at the Abu Qir nitric acid plant, without the installation of N_2O destruction or abatement technologies. The nitric acid plant at Abu Qir II is a dual pressure plant, manufactured by Uhde. Further, the baseline contains SCR DeNOx unit installed at the plant. Using its sectoral expertise, TÜV SÜD confirms that the dual pressure nitric acid plant, manufactured by Uhde and SCR DeNOx are currently the state of the art technologies, for nitric acid production and NOx abatement respectively, considering the sectoral market penetration. As demonstrated (IRL 6b-e), several nitric acid plants with selective catalytic NOx reduction, manufactured by Uhde started their operation approx. 20 years ago and are still operational. Thus it is confirmed that the remaining technical lifetime of the equipment that would have continued to be used in the absence of the project activity, as determined in the CDM-PDD, exceeds the crediting period for which renewal is requested.

Step 1.4: Assessment of the validity of the data and parameters
Data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period have been assessed in the revised PDD. Taking into account that the methodology has been change, all the data and parameters fixed at the start of the crediting period are not relevant for the present PDD.
As per the ACM0019 applied, the parameters fixed ex-ante are correctly presented in the revised PDD and are totally consistent with the methodology applied.

Step 2: Update the current baseline and the data and parameters
Step 2.1: Update the current baseline
Due to the change of the methodology the baseline has been updated to the one established in the applied methodology.

Step 2.2: Update the data and parameters
The relevant parameters have been updated as described in detail in step 1.4 above.

3.3.3 Identification of the baseline scenario

As per the methodology applied the baseline scenario is that the N2O emitted to the atmosphere with no N2O abatement measure being implemented.

3.3.4 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions, leakage, and emission reductions. Corresponding calculations have been carried out based on calculation spreadsheets (IRL 7). The parameters and equations presented in the PDD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology and respective tools. Formulae comparison has been performed by the validation team to ensure consistency between all the formulae presented in the calculation files and in the PDD, methodology, and tools.

The estimate of the baseline emissions are considered correct as the calculations have been reproduced by the audit team with the attainment of the same results.

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been reviewed. The following sources of information were used for crosscheck the information contained in the PDD:

- Plant's log sheets with the nitric acid production and operating parameters (IRL 4b-c, e);
- Official statement from the plant's constructer Uhde GmbH on the design capacity of the Abu Qir nitric acid plant (IRL 4a);
- Operating Manual for the SCR DeNOx unit (IRL 4d);
- Operating Manual for Abu Qir Nitric acid plant (IRL4f);
- Operating Manual for EnviNOx technology installed at Abu Qir Nitric acid plant (IRL 4g);
- The daily data set for the 1st crediting period (IRL 7).

The emission reductions estimated for the 2nd crediting period are higher than assumed in the initial PDD version 2 (b), dated 20 June 2006 due to the change of methodology and the use of more accurate information from the first crediting period.

TÜV SÜD confirms the following statements:

(a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;

(b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;

(c) All values used in the PDD are considered reasonable in the context of the proposed project activity;

(d) The baseline methodology and corresponding tools have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

(e) The result of the baseline emissions calculation can be replicated using the data and parameter values provided in the PDD;

(f) The used monitored data or parameters are reasonable for estimating the emission reductions in the PDD;

(g) Different options for equations and parameters are selected appropriately;

(h) The data and parameters fixed ex-ante are conservative and appropriate.

The emission reductions calculations are in line with the latest applicable methodology.

The $EF_{historical}$ is one of the most important parameters for the emission reduction calculation, therefore here is explained in detail how this parameter has been validated.

$EF_{historical}$ is obtained by dividing the total Quantity of N2O at inlet of destruction facility by the total HNO3 Production within the period between 1 of January and 31 of December for each year of the first crediting period, the lowest emission factor obtained in one calendar year was used (IRL 7d).

This calculation is correct according to the definition of the $EF_{historical}$, the values presented have been verified against the verified data from all the monitoring periods of the first crediting period, and cross checked with the information public available from the monitoring reports.

Hence it can be confirmed that the calculation of the $EF_{historical}$ is correct and that the lowest yearly value from the first crediting period has been used for the emission reduction calculation.

3.4 Additionality

As establish by the applied methodology, the project is additional if there is no laws or regulations which mandate the complete or partial destruction of N_2O from nitric acid plants, which is the case in Egypt. Hence no additionality assessment is required.

3.5 Validity of Monitoring plan

The project applies the approved monitoring methodology within ACM0019. The original monitoring plan was updated based on requirements of the new applied methodology.

The monitoring plan presented in the PDD complies with the requirements of the applicable methodology. The assessment team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found.

The procedures have been reviewed by the assessment team through document review and/or interviews with the relevant personnel. The information provided and a physical inspection has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project activity. The relevant points of monitoring plan have been discussed with the PPs. Specifically; these points include the location of meters, data management, and the quality assurance and quality control procedures to be implemented in the context of the project. Therefore, TÜV SÜD confirms that the PPs are able to implement the monitoring plan and the achieved emission reductions can be reported ex-post and verified.

Annex 1
List of Findings

South Asia

Compilation and Resolutions of CARs, CRs and FARs

Corrective Action Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	Baseline statements on the PDD is not in accordance with the applied methodology	Finding closed ☑ IRL 1 IRL 2
Requirement	ACM0019 §12	
Corrective Action Request	**Corrective Action Request No.1** The correct definition of baseline according to the methodology shall be used in the PDD	
Response	The correct definition of baseline according to the methodology ACM0019 v2 was added to the PDD, paragraph A.1. and A.3.: *"According to the applied methodology ACM0019 "N_2O abatement from nitric acid production" (Version 02.0.0) operators of nitric acid plants have no economic incentives to take any N_2O abatement measures in the absence of regulations requiring the abatement of N_2O emissions, because this entails capital and operating costs, but no financial benefits. Therefore, the baseline scenario is that the N_2O is emitted to the atmosphere with no N_2O abatement measure being implemented.* *Since no laws or regulations exist at present, which mandate the complete or partial destruction of N_2O from nitric acid plants in the Arab Republic of Egypt, AFC has no economic incentives to take any N_2O abatement measures in its nitric acid plant. Hence, the baseline scenario is that the N_2O is emitted to the atmosphere with no N_2O abatement measure being implemented."*	
Assessment Means of validation	The PDD has been updated using the wording of the applied methodology. The statements have been checked against the methodology and are correct. According to the interviews performed during on-site the statement that no laws or regulations exists at present is correct.	
Adjustment on project design	PDD has been updated to include this information	
	Comments and Results	Conclusion and IRL

Corrective Action Requests by the assessment team		
Issue	EN 14181 shall be used, in PDD only the possibility is given	Finding closed ☑ IRL 1 IRL 2
Requirement	ACM0019 §26 (a)	
Corrective Action Request	**Corrective Action Request No.2** Requirements that are a must, cannot be presented as could	
Response	Paragraph B.7.1. was changed accordingly.	
Assessment Means of validation	The PDD clearly state the need to use EN 14181.	
Adjustment on project design	PDD has been updated	
	Comments and Results	Conclusion and IRL
Issue	Required information regarding monitoring parameters is not complete or confusing. E.g. calibration of a time meter; missing definition of underperforming or failed	Finding closed ☑ IRL 1 IRL 2
Requirement	VVS § 132 (b)	
Corrective Action Request	**Corrective Action Request No.3** The monitoring plan shall be sufficient to ensure that the emission reductions achieved can be reported.	
Response	The monitoring procedures of paragraph B.7.1. were adapted and more accurately described: • h_y: A measurement procedure was added and QA/QC procedures were adapted accordingly. • $h_{r,y}$: A measurement procedure was added and QA/QC procedures were adapted accordingly.	

Corrective Action Requests by the assessment team		
	• $v_{i,t,db}$: TAG number was corrected. EN 14181 is mentioned in QA/QC procedures.	
Assessment Means of validation	The monitoring plan has been updated with clarifications on the calibration requirements / best practice activities for different parameters, correction of TAG number and clarification on the QA/QC procedure. Each parameter has been assessed and it is in compliance with the requirements of the methodology and applicable tools.	
Adjustment on project design	PDD has been updated	
	Comments and Results	Conclusion and IRL
Issue	Discrete measurement based on a USEPA CF42 method 4 is a sampling approach and is not included as such in the PDD	Finding closed ☑ IRL 1 IRL 2 IRL 5
Requirement	GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT FORM: B.7.2.	
Corrective Action Request	**Corrective Action Request No.4** Any data and parameters monitored in section B.7.1 above to be determined by a sampling approach, shall provide a description of the sampling plan in accordance with the recommended outline for a sampling plan in the "Standard for sampling and surveys for CDM project activities and programme of activities"	
Response	The "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" was applied correctly in order to determine the moisture content of the gaseous stream. The measurement procedures in paragraph B.7.1. were described in more detail as following: *"The mean value among three consecutive measurements performed in the same day (at least 2 hours each) will be considered. Measurement will coincide with the first Annual Surveillance Test (associated with requirements of the EN 14181 standard) or the first calibration of the flow meter for the gaseous stream."*	
Assessment Means of validation	The parameter Moisture content of the gaseous stream at normal conditions, in time interval t, is now defined with the wording of the tool. As explicitly mentioned in the tool, it is only required to take 3 consecutive measurements in the same day. No sampling process is required as the tool explicitly mentions that only 3 consecutive measurements are to be considered. Hence it	

Corrective Action Requests by the assessment team		
	can be considered that the tool implicitly gives the approach to measure this parameter and therefore it is accepted the response as no sampling is required.	
Adjustment on project design	PDD has been updated including the wording of the tool	

Clarification Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	Source of data presented in the PDD is not clear as when cross checking with information of the issued MRs, the information is not consistent or similar	Finding closed ☑ IRL 1 IRL 7
Requirement	VVS § 21 - 22	
Clarification Request	**Clarification Request No. 1** The source of information presented in the PDD is not clear enough to allow a cross check with available information of the project (previous MRs)	
Response	Detailed sources of information as well as parameters from the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" and from the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" were added: • **$EF_{historical}$:** Source of data and calculation was provided; The calculation is based on historical data of the years 2006 and 2012. • **$P_{product,max}$:** Value was corrected according to previous PDD under AM0028. • **Operation days:** The determination of operation days is based on most recent monitor-	

Clarification Requests by the assessment team		
	ing year 2012. • **$F_{N2O,tail\ gas,h}$**: The mass flow was determined according to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" including available data taken from e.g. manufacturer specifications´, flow diagrams etc. and the calculation was described in the excel file. According to the applied methodology the amount of N_2O emissions from the tail gas stream of the project plant shall be determined using the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", but the parameters P_t and T_t do not need to be monitored – except, if applicable, for the purpose of determining the moisture content in the gaseous stream – if the N_2O concentration and the volume or mass flow of the tail gas and by-pass are automatically converted to normal conditions by the AMS during the monitoring process. Since the N_2O concentration and the volume flow of the tail gas and by-pass are automatically converted to normal conditions, the parameters P_t and T_t need not to be monitored. Therefore, Equation 5, 6 and 11 of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" were derived in order to determine a fixed value for the density at normal conditions ($P_t = P_n = 101{,}325$ Pa; $T_t = T_n = 273.15$ K). Accordingly, the density at normal conditions was determined to be 1.96 kg/m³. • $FC_{i,j,y}$, $w_{C,i,y}$ and $\rho_{i,y}$ were added to monitoring parameters and P_n and T_n were added as fixed parameters (need not to be monitored).	
Assessment Means of validation	The source of information is clearly available in the ER excel file. This has been cross checked against the information available in the issued monitoring reports for year 2012 which is the reference year for the different calculations and values. The assumptions taken when defining some historical data have been assessed and are plausible, hence can be accepted based on the technical expertise of the team. The $EF_{historical}$ values as presented in excel file are correct, the same have been checked against the verified data from the first crediting period. Hence the determination of $EF_{historical}$ is in line with the applied methodology ACM0019 and latest VVS	

Clarification Requests by the assessment team		
Adjustment on project design	The PDD includes some minor comments. The ER excel file has been updated to include all the details for the calculation and assumptions taken when defining historical data.	

Forward Action Requests by the assessment team		
	Comments and Results	
Issue	N/A	
Requirement		
Forward Action Request		

Annex 2
Information Reference List

Project title: Catalytic N2O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.

Interviewed Persons during onsite assessment:

Name	Function	Company
Hesham Elsayed Eissa	General Manager, General Department of Mitigation & CDM	DNA Egypt
Montasser Badr	Head Sector of Nitric Acid Plant	Abu Qir Fertilizers Co.
Essam Ahmed Abass	Vice head sector of Development and Technology and N.A plant Supervisor	Abu Qir Fertilizers Co.
Mohamed Ahmed El-Adawy	General Manager of Nitric Acid Plant	Abu Qir Fertilizers Co.
Hani Riskalla	General Manager	Carbon Egypt Ltd.
Maha M. Shehata	Project Manager	Carbon Egypt Ltd.
Fatehy Hany Ashour	Project Manager, Control and Instrumentation engineer	Carbon Egypt Ltd.
Mahmoud Mohamed Roshdy	Project Manager, Control and Instrumentation engineer	Carbon Egypt Ltd.
Hans-Jürgen Salmhofer	Project Manager	Carbon Climate Protection GmbH
Andreas Moser-Rammelmüller	Project Manager	Carbon Climate Protection GmbH

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
1.	UNFCCC Webpage	**Project Design Documents, Previous Verification Reports, Monitoring Reports for the first crediting period** a. PDD of the CDM project "Catalytic N2O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co." (CDM Registration Nr. 490), version 2(b), dated 20/06/2006 b. Validation Report for the CDM project "Catalytic N2O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co." (Report Nr. 611173) issued by TÜV SÜD on 03/07/2006 c. Monitoring reports for the 1st crediting period as available on the unfccc web page d. Verification reports for the 1st crediting period as available on the unfccc web page e. PDD of the CDM project "Catalytic N2O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co." (CDM Registration Nr. 490), version 3, dated 17/12/2012 f. PDD of the CDM project "Catalytic N2O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co." (CDM Registration Nr. 490), version 4, dated 19/07/2013 g. PDD of the CDM project "Catalytic N2O destruction project in the tail gas of the Nitric Acid Plant of Abu Qir Fertilizer Co." (CDM Registration Nr. 490), version 4.1, dated 11/09/2013	Various, see left column.	PDD, Validation Report, Monitoring Reports, Verification Reports
2.	UNFCCC IPCC UNEP Risoe	**References and requirements at UNFCCC** a. UNFCCC homepage http://www.unfccc.int including the CDM section http://cdm.unfccc.int/index.html.		

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
	Center	b. Approved baseline and monitoring methodology ACM0019 version 2.0.0 - N2O abatement from nitric acid production. c. Guidelines for completing the project design document form, version 01.0 (Annex 8, EB66) d. 2006 IPCC Guidelines for National Greenhouse Gas Inventories e. CDM Glossary version 06 (EB66) http://cdm.unfccc.int/Reference/glossary.html f. CDM Validation and Verification Standard, version 04.0 http://cdm.unfccc.int/Reference/Standards/index.html g. CDM Project Standard, version 04.0 http://cdm.unfccc.int/Reference/Standards/index.html h. CDM Project Cycle Procedure, version 04.0 i. Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period", version 3.0.1 j. The UNEP Risoe CDM/JI Pipeline Analysis and Database http://www.cdmpipeline.org/		
3.	TÜV SÜD	List of participants in the on-site interviews conducted by the TÜV SÜD assessment team.	13/01/2013 - 15/01/2013	Onsite audit
4.	Uhde GmbH (Uhde) ABU QIR Fertilizers Co.	**Project Implementation, Licenses** a. Memorandum from Uhde on the Abu Qir plant's design capacity, issued on 28/06/2006 b. Daily records for the Abu Qir II plant's nitric acid production and operating parameters for 2000-2005	Various, see left column.	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		c. Consolidated data records for Abu Qir II, Nitric Acid Plant for the fiscal years 1994/95 until 2003/04 d. Operating Manual for the SCR DeNOx unit, issued by Uhde e. Plant's log sheets 2012 f. Operating Manual for Abu Qir Nitric acid plant, Vol. 3, issued by Uhde g. Operating Manual for EnviNOx technology installed at Abu Qir Nitric acid plant, issued by Uhde		
5.	Various	**Procedures and standards** a. European Standard EN14181 Stationary source emissions - Quality assurance of automated measuring systems dated on July 2004 b. Internal procedure "EnviNOx" QSPR 409/1/2/3/A, Abu Qir Fertilizers Co. issuance 1,dated 1/10/2006 and issuance 2, dated 1/8/2010 c. Internal procedure "Nitric Acid Production" QSPR 409/1/2/3, Abu Qir Fertilizers Co. rev. 0, dated 13/1/2008	Various, see left column	Procedures for maintenance and operation of the plant, EnviNOx
6.	ABU QIR Fertilizers Co. ThyssenKrupp Uhde GmbH (Uhde) IPPC UBA, diverse equipment manufacturers	**Monitoring Equipment** a. Abu Qir Nitric acid Plant flow diagrams b. BVT Vol Inorganic chemicals- Ammonia, Acids and Fertilisers, issued by IPPC, dated 2007 c. State-of-the-art for the production of nitric acid with regard to the IPPC directive, issued by UBA Federal Environment Agency – Austria, dated 2001 d. Reference list for nitric acid plants with installed Selective Catalytic NOx Reduction, issued by ThyssenKrupp Uhde, dated August 2012	Various, see left column.	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		e. Reference list for nitric acid and caprolactam plants with installed EnviNOx systems, issued by ThyssenKrupp Uhde, dated August 2012 f. Instrumentation Data Sheets for pressure and temperature transmitters, issued by Krohne, Rosemount, Emerson. g. Guarantee Test Run Procedure EnviNOx system, Abu Qir, issued by Uhde, dated 04/09/2006 h. Confirmation of the proper installation of the EnviNOx system at Abu Qir plant, issued by TÜV Nord, dated 12/10/2006 i. List of equipment EnviNOx system, issued by Uhde, dated 01/02/2006		
7.		**Calculation Tool** a. Emission reductions calculation tool, ACM0019 b. Emission reductions calculation tool, ACM0019 c. The daily data set for the 1st crediting period (2006-2012) d. Detail EF values for the 1st crediting period (2006-2012)	Submitted 19/07/2013 Submitted 11/09/2013	
8.		**Qualification and trainings** a. Certificate ISO 14001, valid until 30/11/2014 b. Certificate ISO 9001, valid until 30/11/2014	Various, see left column.	
9.	The Prime Minister, Environmental Affairs Agency, DNA, Intergral Consult	**Environment, Legislative Conformance** a. The National Environment Law number 4 of Egypt (year 1994) b. The Prime Minister's Resolution No. 710 for 2012, issued on 23/06/2012 c. Official letter confirming that there is no N2O regulation in Egypt, issued by Egypt DNA on 11/12/2012	Various, see left column	NOx, N2O regulations

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
		d. EIA Study, prepared by Intergral Consult, dated May 2006 e. Approval for the EIA study, issued by The Central Department for Environmental Impact Assessment, Environmental Affairs Agency, Ministry of State for Environmental Affairs, Cabinet of Ministers, Arab Republic of Egypt, dated 15/06/2006		

Annex 3
Appointment Certificates

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

South Asia

CERTIFICATE OF APPOINTMENT

Mr. Castro, Javier fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12	21.11.12	1.2, 5.1, 4.9, 11.1, 12.1, 13.1, 13.2, 15.2

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12	21.11.12				
Further countries						
Financial Expertise						
Date	21.11.12					

Qualification in technical areas	
Technical Area	**Date**
1.2_Energy generation from renewable energy source	21.11.12
5.1_4.9_11.1_12.1_Chemical process industries	21.11.12
13.1_Waste handling and disposal	21.11.12
13.2_15.2_Animal waste management	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0009/002.

Date	Signature
01.03.2013	

IS-CMS-CB-POG-01/05, version 02

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TÜV SÜD South Asia

CERTIFICATE OF APPOINTMENT

Mr. Tausche, Konrad fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12	21.11.12	1.1, 4.9, 4.10, 5.1, 11.1, 12.1, 13.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12					
Further countries						
Financial Expertise						
Date	21.11.12					

Qualification in technical areas	
Technical Area	**Date**
1.1_4.10_Thermal energy generation.....	21.11.12
5.1_4.9_11.1_12.1_Chemical process industries	21.11.12
13.1_Waste handling and disposal	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0042/002

Date	Signature
01.03.2013	

IS-CMS-CB-POG-01/05, version 02

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South Asia

CERTIFICATE OF APPOINTMENT

Ms. Maslova, Olena fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12		

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12					
Further countries						
Financial Expertise						
Date	21.11.12					

Qualification in technical areas	
Technical Area	**Date**

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0029/002.

Date	Signature
01.03.2013	

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South Asia

CERTIFICATE OF APPOINTMENT

Mr. Tolcach, Eric Rodolfo fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		21.11.12	21.11.12	21.11.12	21.11.12	13.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date	21.11.12	21.11.12				
Further countries						
Financial Expertise						
Date						

Qualification in technical areas	
Technical Area	**Date**
13.1_Waste handling and disposal	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0045/002

Date	Signature
01.03.2013	

IS-CMS-CB-POG-01/05, version 02

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South Asia

CERTIFICATE OF APPOINTMENT

Mr. Tollio Vanhaz, Dante Luis fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

Qualification applicable to					
Standard	CDM	GS	VCS	VER	Other
Date	21.11.12				

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date						4.9, 5.1, 11.1, 12.1

Other qualification						
Country Expertise						
Region	1	2	3	4	5	Other
Date		21.11.12				
Further countries						
Financial Expertise						
Date						

Qualification in technical areas	
Technical Area	**Date**
5.1_4.9_11.1_12.1_Chemical process industries	21.11.12

This appointment is valid until 28.02.2014 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.
In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.
Your Certificate has the internal reference no. CB-IND-CCP-0058/002.

Date	Signature
01.03.2013	

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