

Project Title	Sasol Nitrous Oxide Abatement Project
ERM CVS Reference	2655.V1
CDM Project Reference Number	961
Client Name	MGM Carbon Portfolio, S.a.r.l
Client Address	5, rue Guillaume Kroll L-1882 Luxembourg

CDM Verification and Certification Report

ERM Certification and Verification Services

2nd Floor, Exchequer Court
33 St Mary Axe
London EC3A 8AA

Version Control	Date
Version 01	17 October 2014 (Draft Verification Report)
Version 02	16 March 2015 (Final Verification Report)

Table of Contents

1.	Project information	4
2.	Opinion	5
2.1.	Verification Opinion and Certification Statement.....	5
3.	Introduction.....	7
3.1.	Verification Objectives	7
3.2.	Scope and basis of verification work.....	7
3.3.	Appointment of Team Members and Technical Reviewer	8
3.4.	Verification activities	9
3.4.1.	Desk review	9
3.4.2.	Site Visit.....	9
3.4.3.	Reporting	10
3.4.4.	Independent technical review.....	10
4.	Verification Findings	11
4.1.	Status of open issues from validation or previous verifications.....	11
4.2.	Monitoring report form]	11
4.3.	Compliance of the project implementation with the registered project design document.....	11
4.3.1.	Overview of project design.....	12
4.4.	Compliance of the monitoring plan with the monitoring methodology including applicable tool(s).....	14
4.5.	Compliance of monitoring activities with the registered monitoring plan.....	15
4.5.1.	Compliance with calibration frequency requirements for measuring instruments.....	15
4.5.2.	Overview of monitoring system	15
4.5.3.	Completeness of monitoring parameters	16
4.5.4.	Data and parameters monitored	18
4.5.5.	Management and operational system	62
4.6.	Data and parameters determined at registration and not monitored.....	64
4.7.	Assessment of data and calculation of emission reductions	65
4.7.1.	Emission reduction calculations	65
4.8.	Comparison of emission reductions with those predicted in the PDD.....	67
4.9.	Other observations	68
5.	Remediation Requests	69
5.1.	Clarification Requests	69
5.2.	Corrective Action Requests	73
5.3.	Forward Action Requests	80
6.	Validation of Post Registration Changes	98
	Annex A: Reference Documents and Interviews	99

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
EB	Executive Board
CER	Certified Emission Reduction(s)
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
PCP	Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention for Climate Change
VVS	CDM Validation and Verification Standard

Project/Host Party specific abbreviations

AMS	Automated Monitoring System
DCS	Distributed Control System

1. Project information

Project Title	Sasol Nitrous Oxide Abatement Project
CDM Project reference	961
Project Location(s)	Cities of Sasolburg and Secunda, at Free State and Mpumalanga provinces respectively
Host Party	South Africa
Annex I Party(s)	United Kingdom of Great Britain and Northern Ireland, Switzerland, Germany
Project Participant(s)	Sasol Nitro; Sasol Financing (Pty) Limited, MGM Carbon Portfolio S.a.r.l., Sasol Germany GmbH and Sasol Solvents Germany GmbH
Methodology	AM0034 - Catalytic reduction of N ₂ O inside the ammonia burner of nitric acid plants
Methodology version number	Version 02
Additional Methodology [if second methodology]	AM0028 - Catalytic reduction of N ₂ O in the tail gas of Nitric Acid or Caprolactam Productions Plants (used to select the baseline scenario).
Additional Methodology version number [if second methodology]	Not Applicable

Monitoring report version made publicly available	Monitoring Report Version 1.0 dated 22 August 2014 Published on UNFCCC website on 27 August 2014
Final monitoring report version	Monitoring Report Version 4 dated 30 January 2015
Monitoring Period	6 th Monitoring Period: 01 August 2011 to 24 May 2014
Date(s) of Site Visit	30 September to 03 October 2014

Registered PDD and monitoring plan	PDD Version 5, dated 31 January 2007
Approved revised PDD (if applicable)	Not Applicable
Approved revised Monitoring plan (if applicable)	Not Applicable
Date of Registration	25 May 2007
Crediting Period	25 May 2007 to 24 May 2014

Number of emission reductions certified	1,807,077 tCO ₂ e
--	------------------------------

2. Opinion Verification Opinion and Certification Statement

ERM Certification and Verification Services (ERM CVS) was commissioned by MGM Carbon Portfolio, S.a.r.l to verify and certify the emissions reductions reported for the period 1 August 2011 to 24 May 2014 as set out in the monitoring report of the CDM project activity Sasol Nitrous Oxide Abatement Project, Registration Reference 961.

Basis of verification	ERM CVS based its verification work on: ▪ the approved methodology applied in the project design document (PDD) ▪ the registered PDD ▪ previous verification reports ▪ the CDM validation and verification standard (VVS), version 07.0 ▪ the CDM Project Standard (PS) and Project Cycle Procedure (PCP) ▪ UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords ▪ Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions ▪ Relevant guidance and clarification of the Executive Board applicable to this project: ○ EB51, Annex 12 ○ EB 31 - meeting report, paragraph 28 ○ EB 47 - Annex 10 ○ EB 51 - Annex 12 ○ EB 56 meeting report, paragraph 29 ○ EB 65 – Annex 6 ○ EB 66 – Annex 20 ○ EB 69 - Annex 3 - Standard for application of the global warming potentials to CDM project activities and PoAs for the second commitment period of the Kyoto Protocol
Responsibilities of ERM CVS	ERM CVS is responsible to provide an independent verification conclusion on the reported greenhouse gas (GHG) emission reductions for the project during the relevant monitoring period. The verification activities included desk review, site visit, close out of open issues, preparation of report and technical review.
Responsibilities of Project Participants	The Project Participants (PPs) are responsible for the preparation of the information and GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the applicable monitoring plan.
ERM CVS Opinion	Based on the verification activities undertaken, ERM CVS concludes that the project activity is implemented and operated as described in the registered Project Design Document. The GHG emissions reductions set out in the monitoring report dated 30 January 2015 were found to be appropriately measured and calculated in accordance with the applied monitoring methodology AM0034 - Catalytic reduction of N₂O inside the ammonia burner of nitric acid plants – Version 2 and the monitoring plan set out in the Project Design Document, PDD Version 5, dated 31 January 2007. Based on the verification activities undertaken, ERM CVS concludes that the reported emission reductions for the monitoring period 1 August 2011 to 24 May 2014 are fairly stated.

Total GHG emission reductions certified	Emission reductions: 1,807,077 tCO₂e tonnes CO₂ equivalent, including: • 1,014,238 tCO₂e up to 31 December 2012 • 792,839 tCO₂e from 01 January 2013 onwards	
Report approved by		Signature 
Name: Melanie Eddis		
Date: 16 March 2015		

3. Introduction

This report sets out the methodology and conclusions of the verification process and the ERM CVS Certification Statement. ERM CVS assessed and verified whether the implementation of the project activity and the steps taken to report emission reductions comply with the CDM criteria and relevant guidance provided by the CMP and the CDM Executive Board. Verification Objectives

As set out in the CDM modalities and procedures, verification is the periodic independent review and ex post determination by the Designated Operational Entity (DOE) of the monitored reductions in anthropogenic emissions by sources of greenhouse gases (GHGs) that have occurred as a result of a registered CDM project activity during the verification period. Certification is the written assurance by the DOE that, during a specified time period, a project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified.

The objective of the verification is to establish whether sufficient evidence exists to confirm, to reasonable assurance:

- Whether the project activity has been implemented and is being operated as per the PDD /3/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project activity are in place.
- Whether the applied monitoring plan /4/ is in compliance with the relevant approved CDM monitoring methodology /8/
- Whether the monitoring report /1/ and other supporting documents provided are complete and verifiable and in accordance with the monitoring plan and applicable CDM requirements.
- Whether the emission reductions as set out in the monitoring report /1/ have been measured, calculated and reported in accordance with the requirements of the monitoring plan /4/.
- Whether the reported data meet the key principles of data quality and are complete, reliable, consistent, accurate, valid, transparent and conservative.

ERM CVS also assessed whether the monitoring report and other supporting documents provided are complete in accordance with the latest applicable UNFCCC checklists and guidance for documentation required to be submitted with the Request for Issuance.

3.1. Scope and basis of verification work

The verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE.

Based on the key project information set out on page 4, the verification addresses the implementation and operation of the project activity as set out in the PDD /3/, and the information and reported emissions reductions set out in the monitoring report prepared by the project participant (PP) for this monitoring period.

The verification tests the data and assertions set out in the monitoring report prepared for this monitoring period by the PPs and is based on:

- the approved methodology /8/ applied in the PDD /3/;
- the PDD /3/ and monitoring plan /4/;
- previous verification reports /6/;
- UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords;
- the CDM Validation and Verification Standard (VVS) /9/;
- the CDM Project Standard (PS) and Project Cycle Procedure (PCP);
- relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions, and
- relevant methodological tools applicable during monitoring of the project activity /8/.

Only verification activities undertaken after the publication of the monitoring report on the UNFCCC CDM website are used as a basis for ERM CVS to conclude the verification and submit a request for issuance of CERs to the CDM EB.

The verification considers both quantitative and qualitative information on emission reductions. The monitoring report is assessed using rules based approach, against the principles of accuracy, relevance, credibility, reliability, completeness, consistency, and transparency. Conservativeness is applied throughout the process to ensure that emission reductions are not overstated.

ERM CVS conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification does not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

3.2. Appointment of Team Members and Technical Reviewer

Based on ERM CVS's review of the project, a verification team was established that takes into account the coverage of the technical area(s), sectoral scope(s) and relevant host country experience for verifying the emission reductions achieved by the project activity in the relevant monitoring period for this verification

Personnel who undertook this verification were:

Verification Team	Role	CDM Knowledge	Technical Area	Participated in site visit?
Braulio Pikman	Team Leader	full	full	Yes
Alice Correa	Verifier	full	partial	Yes

Technical Review	Role	CDM Knowledge	Knowledge relevant to the Technical Area
Huoyun Li	Technical Reviewer	full	Yes

Braulio Pikman has over 25 years of experience in GHG, energy and air quality related initiatives. He has extensive experience with the oil and gas and energy sectors. He is an expert in thermal measurements, combustion, energy efficiency, Climate Change, CDM Methodologies related to adipic acid, nitric acid and caprolactam production and EN 14181 uses. He has coordinated the Thermal Measurements Laboratory of the Technological Research Institute of Sao Paulo for 10 years, working with Combustion & Gasification Experimental Diagnostics, Air Emissions Monitoring & Control, development of instrumentation for measurements in flames and Energy Conservation Projects to the Oil & Gas Sector, Petrochemical and also Pulp & Paper. He has been responsible for the energy conservation program of the National Petroleum Agency of Brazil from 2000 to 2002 regarding the industrial and Transportation Sectors. Finally he is a member of the Methodological Panel of the United Nations Framework Convention on Climate Change since June 2005.

Alice Correa has been working in the Climate Change field since 2010 and has more than 20 years of professional experience in the environmental area. She has been involved in environmental audits and is experienced in developing documents and management system compatible with ISO 14001, OSHAS 18001, Ecuador Principles among others. She has conducted more than 100 projects associated to environmental audits/assessments for companies in diverse business sectors including chemical industries and has developed of GHG inventory for tobacco industry, which included the agricultural and processing activities. She has training as Lead Assessor for Mergers & Acquisitions, Auditing, Foundation Course in Environmental Auditing (EARA registered) and Advanced Environmental Management System Auditor. She is a civil engineer and has a Ph.D. in Engineering from the University of São Paulo and M.Sc. Environmental Sanitation (Chemical Engineering) from the University of Gent, Belgium.

Huoyun Li is a thermodynamic engineer and chartered accountant. She has eight years work experience in the power sector in China. Since 2006 she has worked in the carbon market, with project developers and now with ERM CVS. Her previous experience in CDM includes screening and due diligence of Carbon projects, investment appraisal, internal audit and risk management of CDM projects. She has managed carbon projects through the project design document (PDD) development, validation, registration and verification stages. She also has conducted technical review of CDM documentation during validation and verification stages. The sectors she was involved in include: Catalytic reduction of N₂O in HNO₃ plants, hydroelectricity, wind energy and solar energy, landfill gas, and coal mine methane. Huoyun Li graduated from Zhejiang University in China with a degree of BSc in Engineering (major in Energy). She also has a degree of BSc (Hons) in Applied Accounting from Brookes University, UK. Huoyun has completed the ERM CVS CDM validation and verification training course.

3.3. Verification activities

The verification approach is based on the approach depicted in the CDM VVS. The verification activities are designed to evaluate:

- Whether sufficient evidence is available, both in terms of frequency (time period between evidence) and coverage (in covering the full monitoring period);
- The source and nature of the evidence (external or internal, oral or documented);
- Cross checks against other sources such as comparable information, where available, from sources other than those used in the monitoring report to determine whether the stated figures are correct.

3.3.1. Desk review

A detailed desk review was undertaken prior to the site visit. This included the PDD /3/, the monitoring plan /4/, the validation report /5/, the applied monitoring methodology /8/, previous verifications reports if applicable /6/, relevant external data and reports, on-site documents, and relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board.

The desk review included

- A review of the data and information presented to verify completeness and consistency in accordance with relevant CDM requirements;
- A review of the monitoring plan and monitoring methodology, including applicable tools, paying particular attention to the frequency of measurements, quality of metering equipment (including calibration requirements) and the quality assurance and quality control (QA/QC) procedures;
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reductions; and
- Review of the monitoring report to ensure it is completed as per the standardised format.

A complete list of all documents reviewed is contained in Annex A.

3.3.2. Site Visit

A site visit to the project activity was undertaken to assess implementation and operation of the project activity and to review evidence, and interview key personnel to confirm evidence associated with the data generation, aggregation, calculation, and reporting of the monitoring parameters.

The site visit addressed:

- An assessment of the project implementation and operation as per the registered PDD /3/ (including site walk through to confirm physical existence and operation of project components) or any approved revised PDD;
- Review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan /4/. A list of all interviewees is included in Annex A.
- A cross-check between information provided in the monitoring report /1/ and data from other sources such as log books, inventories, purchase records or similar data sources to establish the existence of a clear audit trail and records that validate or invalidate the stated data;
- A check of monitoring equipment including calibration performance and observations of the monitoring practices against the requirements of the PDD /3/ and the selected methodology(ies) /8/ and corresponding tool(s), where applicable;
- A review of calculations and assumptions made in determining the GHG data and emission reductions; and
- Identification of quality control procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

3.3.3. Reporting

After the site visit, a draft report is prepared with the preliminary findings of the verification. Where issues are identified relating to the monitoring, implementation and operation of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions, these issues are discussed and concluded in the verification report through the following approaches:

- Clarification Request (CL): where information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.
- Corrective Action Request (CAR): This is issued where:
 - Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
 - Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
 - Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
 - Issues identified in a Forward Action Request (FAR) during validation (or previous verification) to be verified have not been resolved by the project participants.

The verification process may be stopped until this information has been made available to the verifiers' satisfaction. Failure to address a CL may result in a CAR. Information or clarification provided as a result of a CL may also lead to a CAR.

Forward Action Requests (FAR) may also be raised for actions if the monitoring and reporting require attention and/or adjustment for the next verification period. These have no impact upon the completion of the current verification activity.

After satisfactory close out of CARs and CLs, the final report presents the verification activities undertaken the issues raised, and explains how these issues have been closed out to enable the final verification conclusions to be made.

3.3.4. Independent technical review

The verification activities and content of the report are subject to a review by an independent technical reviewer. The role of the Technical Reviewer is to provide oversight that all procedures have been followed by the verification team and all conclusions justified and supported by evidence. The Technical Reviewer will either accept or reject the recommendations made by the verification team.

4. Verification Findings

4.1. Status of open issues from validation or previous verifications

Forward Action Request	Date and document (Validation or verification)	Verification activities undertaken to close the FAR	Draft OK/ CAR/CL	Final OK/ Not OK
None	Verification Reports of previous periods	Validation report /5/ and previous verification report were reviewed and no FARs were retained /6/	OK	OK

4.2. Monitoring report form

Compliance question	Verification activities undertaken	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Has the monitoring report been prepared using a valid monitoring report form available on the UNFCCC CDM website?	ERM CVS compared the monitoring report with the applicable monitoring report form.	ERM CVS confirms that the final version of monitoring report has been appropriately prepared using the applicable monitoring report form, and that all sections are completed.	OK	OK
Does the monitoring report section B.2 correctly present the status of post registration changes applicable to the project activity?	ERM CVS evaluated whether the monitoring report presents any post registration changes in accordance with the Guidelines for completing the monitoring report form (CDM-MR).	ERM CVS confirms that the monitoring report correctly presents the status of post registration changes. For this project activity there have been no Post Registration Changes.	OK	OK

4.3. Compliance of the project implementation with the registered project design document

As per VVS section 9.4.1, ERM CVS evaluated the conformity of the project activity and its operation with the PDD /3/, in particular, whether:

- The implementation and operation of the project activity has been conducted in accordance with the description contained in the registered PDD; or
- Any deviation or the proposed or actual changes in the implementation or operation of the project activity comply with the requirements of the Project Standard.

This assessment was undertaken on the basis of the site visit, review of documents and interviews with relevant personnel.

During the site visit, ERM CVS assessed whether all physical features of the project as described in the PDD are in place and that the PP has operated the project in accordance with operational criteria set out in the PDD /3/.

Based on the information available on the UNFCCC website/7/, the project was originally registered on 25 May 2007. This monitoring period dates are 1 August 2011 to 24 May 2014, which is entirely within the first crediting period of this project that is from 25 May 2007 to 24 May 2014.

4.3.1. Overview of project design

The project activity takes place at two nitric acid plants owned by Sasol Nitro located in the cities of Sasolburg and Secunda. It involves the installation of a new (not previously installed) catalyst below the oxidation gauzes (a “secondary catalyst”) with the purpose of decomposing N_2O . Additionally in order to monitor the emissions, the plants installed an Automated Monitoring System (AMS) at the stack, consisting of an Infrared Gas Analyzer and a Gas Flow meter.

This monitoring period cover several project campaigns: #8, #9, #10 and #11 at Sasolburg and #7, #8, #9, #10 and #11 at Secunda.

The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007.

Compliance question	Verification activities undertaken	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
What is the Implementation and operation status of the project?	Based on the review of documentation provided, and the site visit, ERM CVS evaluated whether the project has been implemented and equipment installed and operated as described in the PDD /3/.	The project has been implemented and all physical features are installed as described in the registered PDD and monitoring plan /3/, /4/.	OK	OK
Are all physical features of the project activity in place as per the PDD?	During the ERM CVS site visit, the verification team - Walked through the project sites and inspected the project facilities and its operations; - Checked the installed equipment, including the monitoring instruments, their name plates, and cross-checked them against the PDD and monitoring plan /03//04/ and the monitoring report/01/). - Interviewed the staff responsible for the monitoring and implementation of the project.	During this monitoring period there were no special events or situations that may impact the applicability of the methodology. The project was confirmed to be implemented and equipment installed and operated as described in the registered PDD. The Plants were found to be operational and all monitored parameters' instruments were verified to be handled according to the prescriptions of the monitoring plan.	OK	OK
Are there any new facilities or other changes at the project site(s)? If so, please describe and assess the potential impact on the CDM project activity.	During the ERM CVS site visit, the verification team took a detailed walk through the control room of the nitric acid production checking online readings and reviewed the detailed line diagram of the project and plant and its interconnections/diversions.	No changes were identified in relation to the registered PDD or any evidence that could suggest the presence of any new facility, equipment or installation at the project site.	OK	OK
Are the flows of mass and energy of the project as	Same as above described.	The details of the energy transfer and mass flows remain as described in the registered PDD and its usage in the	OK	OK

Compliance question	Verification activities undertaken	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
implemented are the same as described in the registered PDD?		project activity remains unchanged. Material/energy inputs are still from the same source as those stated in the registered PDD and monitoring plan, and there are no potential inputs from any other source not described in the PDD.		
Is any information (data and variables) provided in the monitoring report different from those set out in the registered PDD or any approved revised PDD, which has caused an increase in estimates of the emission reductions in the current monitoring period or likely to increase the estimates in future monitoring periods?	The parameters that result on Emission Reduction calculation were assessed individually and compared to the PDD. In addition, the ER for the period has been compared with the pro-rata ER of the estimation in the PDD.	The total ERs for the period were found to be lower than had been predicted in the PDD.	OK	OK
Does the monitoring report (sections A and B.1) correctly state the project description, and the implementation and operational status of the project activity in accordance with the applicable version of the 'Guidelines for completing the monitoring report form (CDM-MR)?	ERM CVS carried out the following activities to evaluate whether the sections A and B of the Monitoring Report correctly describes the implementation and operational status of the project activity: - Review of monitoring report (sections A and B) - Review of PDD - Review of current on-site operations, and - Review of information available in UNFCCC web site related to this project	Sections A and B.1 of the monitoring report were found, through document review, to correctly state the implementation and operational status of the project activity, in accordance with the Guidelines.	OK	OK

Conclusion

Based on the verifier's site visit, it can be confirmed that all physical features of the project activity have been fully implemented in accordance with the PDD /3/ and the monitoring equipment was installed as described in the approved Monitoring Plan /4/. ERM CVS confirmed, through the visual inspection that all physical features of the proposed CDM project activity have been implemented in accordance with the PDD.

The project activity was also confirmed to be fully operational in accordance with the PDD.

The information provided in the monitoring report sections A and B correctly states the implementation and operational status of

the project activity.

ERM CVS confirmed during the site visit that:

- the installed capacity and number of units have not changed;
- no component has been added nor the technology has been extended;
- the scale of the project has not changed.

4.4. Compliance of the monitoring plan with the monitoring methodology including applicable tool(s)

As per VVS section 9.4.2, ERM CVS evaluated whether the monitoring plan complies with the requirements of the applied methodology(ies) including applicable tool(s).

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring plan in compliance with the applied methodology including applicable tool(s)?	The verification team reviewed the monitoring plan in the PDD /3/ and compared it against the requirements of the applied methodology and the tools referred in the methodology	ERM CVS confirms that the monitoring plan includes appropriate provisions for the organization and management structure, monitoring and reporting procedures, measuring instruments, staff training, QA/QC procedures, data management and improvement to comply with the monitoring methodology/11/12/. ERM CVS confirms that monitoring processes for the data and parameters, which are required to be monitored by the methodology, are included in the monitoring plan. The application of the monitoring methodology was found to be appropriate and ERM CVS confirms that the monitoring plan is consistent with the requirements of AM0034 - Catalytic reduction of N₂O inside the ammonia burner of nitric acid plants – Version 2.	OK	OK
Are there any monitoring aspects that are not specified in the methodology, particularly in the case of small-scale methodologies (e.g. additional monitoring parameters, monitoring frequency and calibration frequency), which may enhance the level of accuracy and completeness of the monitoring plan?	The verification team reviewed the methodology <i>vis a vis</i> the specific project monitoring details set out in the approved monitoring plan to assess if there was any additional monitoring aspects not specified in the methodology that could enhance the level of accuracy and completeness of the approved monitoring plan.	ERM CVS did not note any relevant monitoring aspects that are not specified in the methodology, which may enhance the level of accuracy and completeness of the monitoring plan. The methodology is not related to small scale and the current level of detail of the approved monitoring plan is considered to render an adequate level of accuracy and completeness.	OK	OK

Conclusion

ERM CVS confirms that the monitoring plan is in accordance with the approved methodology applied by the CDM project activity.

4.5. Compliance of monitoring activities with the registered monitoring plan

As per VVS section 9.4.3, ERM CVS evaluated whether the monitoring of parameters relating to the GHG emissions reductions in the project activity has been implemented in accordance with the monitoring plan contained in the registered PDD/4/. The verification team evaluated whether

- The monitoring plan has been properly implemented and followed by the PPs,;
- All parameters stated in the monitoring plan, the applied methodology and relevant EB decisions have been sufficiently monitored and updated as applicable, including:
 - Project, baseline and leakage emission parameters (see section 4.5.3 and section 4.5.4);
 - Management and operational system (see section 4.5.5);
- The equipment used for monitoring is in accordance with required calibration frequency and is controlled and calibrated in accordance with the monitoring plan /4/, the applied methodology, the Board guidance, local/national standards, or as per the manufacturer's specification.
- Monitoring results are consistently recorded as per approved frequency;
- Quality assurance and quality control procedures have been applied in accordance with the monitoring plan or the revised monitoring plan.

4.5.1. Compliance with calibration frequency requirements for measuring instruments

ERM CVS evaluated whether the calibration of measuring equipment that can have an impact on the claimed emission reductions was conducted at the frequency specified in the applied monitoring methodology and/or the monitoring plan. Where the calibration frequency deviates from the prescribed frequency, one of the two situations is applied:

- Calibration has been delayed and the calibration has already been implemented (i.e. the results of delayed calibration are available). In this case, the PP must adopt a conservative approach in the calculation of emission reductions by either:
 - (i) *If the results of the delayed calibration do not show any errors in the measuring equipment, or if the error is smaller than the maximum permissible error* - Applying the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration or
 - (ii) *If the error is beyond the maximum permissible error of the measuring equipment* - Applying the error identified in the delayed calibration test,
- Calibration has been delayed and the results are not available at the time of verification. In this case, ERM CVS will request the project participants to conduct the required calibration and then apply a conservative approach as set out in (a) above.

If ERM CVS determines that it is not possible for the project participants to conduct the calibration at a frequency specified by either the applied methodology, guidance provided by the Board, and/or the registered monitoring plan due to reasons beyond the control of project participants, the requirements for post registration changes in section 9.5 of the VVS are followed (see section 5).

In cases where neither the monitoring methodology nor the monitoring plan specify any requirements for calibration frequency for measuring equipment, ERM CVS determines whether the equipment are calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer's specification or, if neither are available, appropriate international standards may be used.

The status of instrument calibration for this monitoring period is set in Section 4.5.4 below.

4.5.2. Overview of monitoring system

Both Sasolburg and Secunda plants have installed continuous gas analyzers series AO2000 model AO2040 from ABB. The specific module to measure N₂O at the stack is a non-dispersive infrared instrument (URAS 14). For stack flow measurement, Sasolburg plant has installed an ultrasound principle unit model Flowsick 100 manufactured by Sick. At Secunda the plant has installed an Annubar principle (multiple pressure differential) unit, model 3095 manufactured by Rosemount Inc. Both Sasolburg and Secunda Nitric acid plants are operated by a centralized automated control system.

At Sasolburg, all CDM data are monitored continuously on the DeltaV Distributed Control System (DCS) by production personnel in the Control Room. Plant operator is responsible for the AMS, data gathering and data report generation. Primary data storage is done in a PI database, which form an integral part of the DCS system, at two second intervals. With the completion of a campaign, data will be transferred from backup CD's to a DVD to minimize space requirements in the fireproof safe. The PI database interacts with an Excel spreadsheet to that extracts the required data for reporting purposes. Calculations of hourly and daily averages are an automatic function of the PI database. The Plant Manager is responsible of monitoring the variables of the CDM project and sending the data acquired every week to the Project Developer, that is in charge of the statistical management of data and ER calculations.

At Secunda, all CDM data are monitored continuously on the remote located PC (in the plant control room) via the SCADA INTOUCH and ACTIVE FACTORY software package. The PC has access rights to the Data Acquisition System (DAS) server computer where the raw data from the instruments is written on a continuous basis. The Plant operator is responsible for the AMS, data gathering and report generation. A daily summary report of hourly average data is generated by the DAS. All raw data is written in a server hard disk drives. Data acquired every week is send to the Project Developer, that is in charge of the statistical management of data and ER calculations.

Parameters based on metering devices are monitored by calibrated equipment with calibration frequency defined and in accordance with internal procedures established as a part of Quality Management System and associated to critical equipment for CDM project activities/16/17/.

As per the Methodology and PDD the project complies to EN 14181/13/14/ when monitoring the parameters NCSG (N₂O concentration in the stack gas for the project campaign) and VSG (volume flow rate in the stack gas for the project campaign). For details please refer to section 4.5.5 (*Management and operational system*), of this report.

4.5.3. Completeness of monitoring parameters

The verification team evaluated the monitoring of each parameter stated in the monitoring plan /4/. The parameters included in the monitoring plan are listed below and a full description of each parameter and the verification activities associated with monitoring of each one is included in Section 4.4.3.

Monitored parameter in monitoring plan				
Parameter	Description	Included in section D.2 of the Monitoring Report?	Draft OK/ CAR/CL	Final OK/ Not OK
NCSG	N ₂ O concentration in the stack gas for the project campaign	YES	~~CAR-1~~ ~~CAR-4~~ ~~CAR-5~~ ~~CAR-7~~ ~~CAR-9~~ ~~CL-2~~	OK OK OK OK OK OK
VSG	Volume flow rate in the stack gas for the project campaign	YES	~~CAR-1~~ ~~CAR-4~~ ~~CAR-5~~ ~~CAR-9~~ ~~CL-2~~	OK OK OK OK OK
PE_n	N ₂ O emission of n th project campaign	YES	~~CL-3~~	OK

Monitored parameter in monitoring plan		Included in section D.2 of the Monitoring Report?	Draft OK/ CAR/CL	Final OK/ Not OK
Parameter	Description			
OH	Total operating hours for the project campaign	YES	GL-3 GL4	OK OK
NAP	Total nitric acid production for the project campaign	YES	CAR-8 CAR-9 GL3	OK OK OK
TSG	Temperature of the stack gas during the project campaign	YES	CAR-9	OK
PSG	Pressure of the stack gas during the project campaign	YES	CAR-9 GL5	OK OK
EF _n	Project emission factor calculated from monitored data for the project campaign	YES	GL-3	OK
E _{man,n}	Moving average emission factor	YES	OK	OK
CL _n	Nitric acid produced during the nth campaign	YES	CAR-2	OK
EF _p	Emission factor used to calculate the emission from the particular campaign	YES	OK	OK
EF _{min}	Lowest EF _n observed during the first 10 campaigns	YES	CAR-3	OK
NCSG _{BC}	Mean concentration of N ₂ O in the stack gas for the baseline campaign	YES	OK	OK
VSG _{BC}	Mean gas volume flow rate in the stack gas during the baseline campaign	YES	OK	OK
BE _{BC}	N ₂ O emission for Baseline campaign	YES	OK	OK
OH _{BC}	Total operating hours for the baseline campaign	YES	OK	OK
NAP _{BC}	Total nitric acid production for the baseline campaign	YES	OK	OK
TSG _{BC}	Temperature of the stack gas during the baseline campaign	YES	OK	OK
PSG _{BC}	Pressure of the stack gas during the baseline campaign	YES	OK	OK
EF _{BL}	Baseline N ₂ O Emission Factor	YES	OK	OK
UNC	Overall Uncertainty of the Monitoring System	YES	OK	OK
AFR	Ammonia Gas Flow Rate to AOR (ammonia oxidation reactor)	YES	GL6	OK
AIFR	Ammonia to air flow ratio to the ammonia oxidation reactor	YES	GL-6	OK
CL _{BL}	Campaign length of baseline campaign	YES	OK	OK
OT _n	Oxidation temperature of the ammonia reactor for each hour	YES	GL-6	OK

Monitored parameter in monitoring plan				
Parameter	Description	Included in section D.2 of the Monitoring Report?	Draft OK/ CAR/CL	Final OK/ Not OK
<i>OP_h</i>	Oxidation pressure of the ammonia reactor for each hour	YES	OK	OK
<i>GS_{BL}</i>	Gauze supplier for the baseline campaign	YES	~~CAR-1~~	OK
<i>GS project</i>	Gauze supplier for the project campaigns	YES	~~CAR-1~~ OK	OK OK
<i>GC_{BL}</i>	Gauze composition for the baseline campaign	YES	~~CAR-1~~ OK	OK OK
<i>GC_{project}</i>	Gauze composition for the project campaign	YES	~~CAR-1~~ ~~CAR-6~~	OK OK
<i>EF_{reg}</i>	Emission level set by incoming policies or regulations, local and national regulations on N ₂ O and NO _x emissions	YES	OK	OK

Additional Parameters based on EB decisions				
Parameter	Description	Included in Monitoring Report?	Draft OK/ CAR/CL	Final OK/ Not OK
Not applicable	Not applicable	Not applicable	-	-

4.5.4. Data and parameters monitored

The verification findings for the monitoring of each parameter are set out below.

Data / Parameter:	NCSG	Project		
Data unit:	mg N ₂ O/Nm ³			
Description:	N ₂ O concentration in the stack gas for the project campaign			
Measured/calculated/default	Measured			
Compliance question	Verification findings		Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification		CAR-1	OK

Data / Parameter:	NCSG	Project	
Data unit:	mg N ₂ O/Nm ³		
Description:	N ₂ O concentration in the stack gas for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
applied?	Measured using AMS type: infrared gas analyzer (from ABB Series AO2000 model AO2040) at both Sasolburg and Secunda plants. All equipment was found to be in line with monitoring plan/methodology in terms of specification and accuracy. b) Calibration During this verification ERM CVS has reviewed QAL1 documentation provided by equipment supplier and presented in the PDD/3/ This documentation was deemed satisfactory and confirms that the equipment comply with the EN 14181 requirements. QAL 2 testing /13/14/ covers the entire monitoring period. Both sites have done a QAL 2 test on August 2010 and an AST/13/14/ on August, 2011. In 2012 Sasolburg did a QAL 2 test on August and Secunda an AST in that same month. On August 2013 both site did a QAL2 test. All tests have been conducted by SGS Environmental Services. ERM CVS has reviewed all of these reports and confirms that the equipment at both sites complies with the EN 14181 requirements and that the data given by the instruments comply with the data registered in the data acquisition systems of the plants as per the SGS reports mentioned above. During the cross checks conducted as part of this assessment it was noted that the initial version of the MR and of the CER calculator referred to dates and corrective factors for a QAL2 test related to previous monitoring period. CAR 4 and CL2 were raised and duly closed. The PP has opted to use the highest correction factor found in the set of the QAL 2 tests done during this monitoring period to simplify his calculations. As the approach renders a conservative result no further issue was raised. The correction factor used for the parameters NCSG for this monitoring period is: 1,016 data from the 2013 QAL2 at Sasolburg and 1,015 from the 2013 QAL2 at Secunda. ERM CVS confirms that theses correction factors have been duly used in the individual hourly readings of the parameters during the entire monitoring period. QAL 3 testing frequency is weekly at both plants. ERM CVS has revised test registers and certificates /20/21/ and confirms that the QAL3 testing have been consistently undertaken by site personnel as required with exception of the month of December 2013 at Secunda where QAL 3 testing did not occur due to lack of standard gas. CAR 7 was raised requiring the application of calibration delay in that month. CAR 7 has been duly closed. The overall calibration procedures have confirmed that the equipment have performed to the required level of accuracy. c) Measurement/reading/recording frequency Every two seconds	CAR-4 CAR-5 CAR-7 CL2	OK OK OK OK

Data / Parameter:	NCSG	Project	
Data unit:	mg N ₂ O/Nm ³		
Description:	N ₂ O concentration in the stack gas for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	d) QA/QC procedures applied EN14181 e) Cross check • The verifiers went through the values presented in the CER calculator cross checking figures against raw data. • Checked calculations and formulas in the CER calculators. • Cross checked downtimes of the AMS and potential impacts to CER calculations. • Review of all QAL 2 and AST reports During the cross check it was noted that the values for the mean N₂O concentration of the project campaign used in calculations were those before the application of statistical analysis. CAR 5 was raised and duly closed. ERM CVS confirms that in the final version of the calculator the mean concentration was obtained after elimination of error readings, extreme values (data lying out of the 95% confidence interval). During the cross check it was noted the existence of several events resulting in downtime of the Automated Measuring System during this monitoring period, noted to be more frequently at the Secunda plant. For these events PP had not corrected the results considering the requirement established in the methodology to use the highest measured value in the campaigns for the downtime periods. CAR 1 was raised and has been duly closed. FAR 01 was also raised associated to this parameter. The project documentation is composed by multiple documents to register different relevant operational events of the nitric acid plant and the operation of the AMS (downtimes). Multiple information sources and the need to cross check all of them increase the chances of misinterpretation leading to mistakes that may affect the final ER calculation. PP has been asked to standardize, consolidate and further detail information in a single document from next monitoring period on. It will contribute for transparency of the events affecting the CDM project. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. N₂O concentration is measured by on-line analyzer. A gas stream is continuously drawn from the stack by the sampling and driven to the infrared cell. The device is set up to measure concentration and record the output electronically every 2 seconds. Data is automatically acquired by the DCS/DAS. This raw data is transferred automatically on a week basis to an excel file and send to the Project Developer, for the statistical management of data and ER calculations.		

Data / Parameter:	NCSG	Project	
Data unit:	mg N ₂ O/Nm ³		
Description:	N ₂ O concentration in the stack gas for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CAR 9 was raised requiring PP to complete MR including for all monitoring equipment the date of last calibration and validity of calibration. CAR 9 was duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	CAR-9	OK
Conclusion	ERM CVS confirmed that - The equipment for monitoring has an appropriate accuracy and has been controlled and operated in accordance with the monitoring plan. - The calibrations have been conducted at the frequency as specified by the methodology and the monitoring plan of the registered PDD. - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	VSG	Project	
Data unit:	Nm ³ /hour		
Description:	Volume flow rate in the stack gas for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan.	CAR-1	OK
	a) Equipment specification Measured using AMS. At Sasolburg the project uses a ultrasound device (ultrasonic transducer model Flowsick 100 manufactured by Sick. At Secunda the project uses an Annubar device ((multiple pressure differential principle)	CAR-4	OK

Data / Parameter:	VSG	Project	
Data unit:	Nm ³ /hour		
Description:	Volume flow rate in the stack gas for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	manufactured by Rosemount model 3095. All equipment was found to be in line with monitoring plan/methodology in terms of specification and accuracy. b) Calibration During this verification ERM CVS has reviewed QAL1 documentation provided by equipment supplier and presented in the PDD/3/ This documentation was deemed satisfactory and confirms that the equipment comply with the EN 14181 requirements. QAL 2 testing /13/14/ covers the entire monitoring period. Both sites have done a QAL 2 test on August 2010 and an AST on August, 2011. In 2012 Sasolburg did a QAL 2 test on August, and Secunda an AST /13/14/ in that same month. On August 2013 both site did a QAL2 test. All tests have been conducted by SGS Environmental Services. ERM CVS has reviewed all of these reports and confirms that the equipment at both sites complies with the EN 14181 requirements and that the data given by the instruments comply with the data registered in the data acquisition systems of the plants and meet the demands of EN 14181 QAL3/22/23/ as per the SGS reports mentioned above. During the cross checks conducted as part of this assessment it was noted that the initial version of the MR and of the CER calculator referred to dates and corrective factors for a QAL2 test related to previous monitoring period. CAR 4 and CL2 were raised and duly closed. The PP has opted to use the highest correction factor found in the set of the QAL 2 tests done during this monitoring period to simplify his calculations. As the approach renders a conservative result no further issue was raised. The correction factor used for the parameters VSG for this monitoring period is: 0.964 data from the 2013 QAL2 at Sasolburg and 1,105 from the 2013 QAL2 at Secunda. ERM CVS confirms that theses correction factors have been duly used in the individual hourly readings of the parameters during the entire monitoring period. The overall calibration procedures have confirmed that the equipment have performed to the required level of accuracy. c) Measurement/reading/recording frequency Every 2 seconds. d) QA/QC procedures applied EN14181 e) Cross check The verifiers went through the values presented in the CER calculator	CAR-5	OK
		CL2	OK

Data / Parameter:	VSG	Project	
Data unit:	Nm ³ /hour		
Description:	Volume flow rate in the stack gas for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	cross checking figures against raw data. • Checked calculations and formulas in the CER calculators. • Cross checked downtimes of the AMS and potential impacts to CER calculations. • Review of all QAL 2 and AST reports During the cross check it was noted that the values for the mean flow rate of the project campaign used in calculations were those before the application of statistical analysis. CAR 5 was raised and duly closed. ERM CVS confirms that in the final version of the calculator the mean flow rate was obtained after elimination of error readings, extreme values (data lying out of the 95% confidence interval). During the cross check it was noted the existence of several events resulting in downtime of the Automated Measuring System during this monitoring period, noted to be more frequently at the Secunda plant. For these events PP had not corrected the results considering the requirement established in the methodology to use the highest measured value in the campaigns for the downtime periods. CAR 1 was raised and has been duly closed. FAR 01 was also raised associated to this parameter. The project documentation is composed by multiple documents to register different relevant operational events of the nitric acid plant and the operation of the AMS (downtimes). Multiple information sources and the need to cross check all of them increase the chances of misinterpretation leading to mistakes that may affect the final ER calculation. PP has been asked to standardize, consolidate and further detail information in a single document from next monitoring period on. It will contribute for transparency of the events affecting the CDM project. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. Gas flow rate is measured by on-line analyzer. The device is set up to measure flow and record the output electronically every 2 seconds. Data is automatically acquired by the DCS/DAS. This raw data is transferred automatically on a week basis to an excel file and send to the Project Developer, for the statistical management of data and ER calculations.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CAR 9 was raised requiring PP to complete MR including for all monitoring equipment the date of last calibration and validity of calibration. CAR 9 was duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the	CAR-9	OK

Data / Parameter:	VSG	Project	
Data unit:	Nm ³ /hour		
Description:	Volume flow rate in the stack gas for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	monitoring of this parameter during the monitoring period.		
Conclusion	ERM CVS confirmed that - The equipment for monitoring has an appropriate accuracy and has been controlled and operated in accordance with the monitoring plan. - The calibrations have been conducted at the frequency as specified by the methodology and the monitoring plan of the registered PDD. - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	PE _n	Project		
Data unit:	tonne N ₂ O			
Description:	N ₂ O emission of n th project campaign			
Measured/calculated/default	Calculated			
Compliance question	Verification findings		Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable b) Calibration Not applicable c) Measurement/reading/recording frequency		CL 3	OK

Data / Parameter:	PE _n	Project	
Data unit:	tonne N ₂ O		
Description:	N ₂ O emission of n th project campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	Once at the end of each project campaign. d) QA/QC procedures applied Not applicable e) Cross check Checked calculations and formulas in the CER calculators During the cross check it was noted that the values presented for this parameter in the 11th campaign at Secunda were inconsistent. CL 3 was raised and has been duly closed. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. Upon receiving the raw data the Project Developer does the statistical evaluation of data and ER calculations, including the calculation of this parameter.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	OH	Project
Data unit:	Hours	
Description:	Total operating hours for the project campaign	
Measured/calculated/default	Measured (from Process control system of Sasolburg and Secunda plants)	

Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable. b) Calibration Not Applicable. c) Measurement/reading/recording frequency Daily. d) QA/QC procedures applied Quality system and calibration of all CDM project equipment. e) Cross check • Cross checked the raw data generation files /10/ (daily average with total operating yours and hour by hour production data) with event log /18/19/ (nitric acid plant shut down events). This data was also cross checked with data presented in ER calculator. • Cross checked calculation and formulas in calculators. During the cross check it was noted that the values presented for this parameter in the 11th campaign at Secunda were inconsistent. CL 3 was raised and has been duly closed. During the cross check it was noted inconsistency in the criteria for considering the nitric acid plant operating between the MR and excel spread sheets (ER calculators). CL 4 was raised and has been duly closed. FAR 01 was also raised associated to this parameter. The project documentation is composed by multiple documents to register different relevant operational events of the nitric acid plant (that affect operating hours) and the operation of the AMS. Multiple information sources and the need to cross check all of them increase the chances of misinterpretation leading to mistakes that may affect the final ER calculation. PP has been asked to standardize, consolidate and further detail information in a single document from next monitoring period on. It will contribute for transparency of the events affecting the CDM project. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. At Sasol when both ammonia and air flow signals are above zero, the plant	CL-3 CL-4	OK OK

Data / Parameter:	OH	Project	
Data unit:	Hours		
Description:	Total operating hours for the project campaign		
Measured/calculated/default	Measured (from Process control system of Sasolburg and Secunda plants)		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	status is treated as ON. Upon receiving the raw data the Project Developer does the ER calculations, including the determination of this parameter.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	NAP	Project	
Data unit:	Tonnes 100% HNO ₃		
Description:	Total nitric acid production for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification At both sites production is measured using a Coriolis type mass flow measurement device. At Sasolburg the equipment is a Micromotion 2700 manufactured by Rosemount and in Secunda a Promass 83F model manufactured by Endress & Hauser. All equipment was found to be in line with monitoring plan/methodology in terms of specification and accuracy.	CAR-8	OK
		CL-3	OK

Data / Parameter:	NAP	Project	
Data unit:	Tonnes 100% HNO ₃		
Description:	Total nitric acid production for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	b) Calibration At Sasolburg the equipment is calibrated every 2 year and at Secunda every 4 years as per supplier recommendation/30/. ERM CVS has revised calibration certificates for both equipment /24/15/. At Sasolburg calibrations occurred on 12 July 2010, 29 November, 2011, 01 December, 2012, 14 May, 2013 and 8 May 2014. At Secunda Calibration occurred on 06 June, 2009 and 28 January,2011 ERM CVS confirms that the calibrations have been undertaken as required and were valid throughout the monitoring period. The calibrations have confirmed that the equipment has performed to the required level of accuracy. c) Measurement/reading/recording frequency Measured continuously/Recorded daily d) QA/QC procedures applied Calibration of critical equipment and monthly mass balance by the site e) Cross check • Cross-checked the values of the daily nitric acid production in the ER calculators and the raw daily data; • Cross-checked internal laboratory procedures for cross checking of concentration of nitric acid. /10/. It is noted however that the equipment used at both sites monitors both mass flow and concentration for nitric acid. Therefore the Coriolis type instrument is the primary calibrated instrument to determine the flow of nitric acid at 100% concentration. • Checked that the NAP of each project campaign corresponds to the Nitric Acid total production used to calculate the campaign emission factor as defined in the methodology. • Checked that the Nitric Acid production that is eligible for calculation of emission reduction took into account the cap in the eligible production given by the nameplate yearly capacity of each plant. During the cross check it was noted that the nitric acid production values for the Secunda plant were not corrected for 100% concentration of HNO₃. CAR 8 was raised and duly closed by the PP. Additionally, it was noted that the values presented for this parameter in the		

Data / Parameter:	NAP	Project	
Data unit:	Tonnes 100% HNO ₃		
Description:	Total nitric acid production for the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	11th campaign at Secunda were inconsistent. CL 3 was raised and has been duly closed. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. The measuring device is set up to measure and record the output electronically. Data is automatically acquired by the DCS/DAS. This raw data is transferred automatically on a week basis to an excel file and send to the Project Developer, for the statistical management of data and ER calculations.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CAR 9 was raised requiring PP to complete MR including for all monitoring equipment the date of last calibration and validity of calibration. CAR 9 was duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	CAR-9	OK
Conclusion	ERM CVS confirmed that - The equipment for monitoring has an appropriate accuracy and has been controlled and operated in accordance with the monitoring plan. - The calibrations have been conducted at the frequency as specified by the methodology and the monitoring plan of the registered PDD. - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	TSG	Project
Data unit:	°C	
Description:	Temperature of the stack gas during the project campaign	

Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification The equipment measuring this parameters is an specific temperature probe part of the AMS (flow meter device). At Sasolburg it is a thermocouple type K model iTemp TMT 181 manufactured by Endress &Hauser. At Secunda it is a RTD model 3095 manufactured by Rosemount. All equipment was found to be in line with monitoring plan/methodology in terms of specification and accuracy. b) Calibration These equipment are part of the AMS and calibrated during QAL 2 testing. ERM CVS confirms that the calibrations have been undertaken as required and were valid throughout the monitoring period. The calibrations have confirmed that the equipment has performed to the required level of accuracy. c) Measurement/reading/recording frequency The parameters is measured every 2 seconds d) QA/QC procedures applied EN 14181 e) Cross check Cross-checked the values of the ER Calculator with those in the raw data files associated to the operational conditions of the nitric acid plant. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. The measuring device is set up to measure and record the output electronically. Data is automatically acquired by the DCS/DAS. This raw data is transferred automatically on a week basis to an excel file and send to the Project Developer, for the statistical management of data and ER calculations.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CAR 9 was raised requiring PP to complete MR including for all monitoring equipment the date of last calibration and validity of calibration. CAR 9 was duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the	CAR-9	OK

Data / Parameter:	TSG	Project	
Data unit:	°C		
Description:	Temperature of the stack gas during the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	monitoring of this parameter during the monitoring period.		
Conclusion	ERM CVS confirmed that - The equipment for monitoring has an appropriate accuracy and has been controlled and operated in accordance with the monitoring plan. - The calibrations have been conducted at the frequency as specified by the methodology and the monitoring plan of the registered PDD. - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	PSG	Project	
Data unit:	Pa		
Description:	Pressure of the stack gas during the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification The equipment measuring this parameters is an specific pressure probe part of the AMS (flow meter device). At Sasolburg it is a pressure transmitter model 3051 manufactured by Rosemount. At Secunda the pressure transmitter is model 3095 also manufactured by Rosemount. All equipment was found to be in line with monitoring plan/methodology in terms of specification and accuracy. b) Calibration These equipment are part of the AMS and calibrated during QAL 2 testing. ERM CVS confirms that the calibrations have been undertaken as required	OK	OK

Data / Parameter:	PSG	Project	
Data unit:	Pa		
Description:	Pressure of the stack gas during the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	and were valid throughout the monitoring period. The calibrations have confirmed that the equipment has performed to the required level of accuracy. c) Measurement/reading/recording frequency The parameters is measured every 2 seconds. d) QA/QC procedures applied EN 14181. e) Cross check Cross-checked the values of the ER Calculator with those in the raw data files associated to the operational conditions of the nitric acid plant. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. The measuring device is set up to measure and record the output electronically. Data is automatically acquired by the DCS/DAS. This raw data is transferred automatically on a week basis to an excel file and send to the Project Developer, for the statistical management of data and ER calculations.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CAR 9 was raised requiring PP to complete MR including for all monitoring equipment the date of last calibration and validity of calibration. CAR 9 was duly closed. Inconsistent values were presented for the para parameter “pressure of the stack gas” at the Secunda plant in the original version of the MR. CL5 was raised and duly closed by the PP. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	CAR 9 CL5	OK OK
Conclusion	ERM CVS confirmed that The equipment for monitoring has an appropriate accuracy and has been controlled and		

Data / Parameter:	PSG	Project	
Data unit:	Pa		
Description:	Pressure of the stack gas during the project campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	operated in accordance with the monitoring plan. - The calibrations have been conducted at the frequency as specified by the methodology and the monitoring plan of the registered PDD. - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	EF _n	Project	
Data unit:	tonne N ₂ O / tonne 100% HNO ₃		
Description:	Project emission factor calculated from monitored data for the project campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable. b) Calibration Not applicable. c) Measurement/reading/recording frequency Once at the end of the project campaign. d) QA/QC procedures applied Not applicable.	GL-3	OK

Data / Parameter:	EF _n	Project	
Data unit:	tonne N ₂ O / tonne 100% HNO ₃		
Description:	Project emission factor calculated from monitored data for the project campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	e) Cross check Result of monitoring data used in calculations, formulas, calculations and parameters figures During the crosscheck it was noted that the value presented for this parameter in the 11th campaign at Secunda were inconsistent. CL 3 was raised and has been duly closed. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. Upon receiving the raw data the Project Developer does the ER calculations, including the determination of this parameter.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	$E_{man,n}$	Project		
Data unit:	tonne N ₂ O / tonne 100% HNO ₃			
Description:	Moving average emission factor			
Measured/calculated/default	Calculated			
Compliance question	Verification findings		Draft OK/ CAR/CL	Final OK/ Not OK

Data / Parameter:	$E_{man,n}$	Project	
Data unit:	tonne N ₂ O / tonne 100% HNO ₃		
Description:	Moving average emission factor		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable. b) Calibration Not applicable. c) Measurement/reading/recording frequency Once at the end of the project campaign. d) QA/QC procedures applied Not applicable. e) Cross check - Formulas, calculations and parameters figures, and - Verified project emission factors for previous campaigns/6/. During the crosscheck of the original calculations it was noted that the value presented for this parameter in the 11th campaign at Secunda were inconsistent due to inconsistency in the parameter EF_n for Secunda's 11th project campaigns (please refer to CL 3 above). f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. Upon receiving the raw data the Project Developer does the ER calculations, including the determination of this parameter.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review.	OK	OK

Data / Parameter:	$E_{man,n}$	Project	
Data unit:	tonne N ₂ O / tonne 100% HNO ₃		
Description:	Moving average emission factor		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
relating to the monitoring of this parameter during the monitoring period?	ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.		
Conclusion	ERM CVS confirmed that - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	CLn	Project	
Data unit:	tonne 100% HNO ₃		
Description:	Nitric acid produced during the nth campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable during this monitoring period. . b) Calibration Not applicable. c) Measurement/reading/recording frequency Calculated at the ned of each project campaign. d) QA/QC procedures applied Mass balance at the end-product storage tanks performed by plants and	CAR—2	OK

Data / Parameter:	CLn	Project	
Data unit:	tonne 100% HNO ₃		
Description:	Nitric acid produced during the nth campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	calibration procedures (please refer to the parameter NAP). e) Cross check - Cross-checked the values of the daily nitric acid production in the ER calculators represented as CLn and the raw daily data; - Cross-checked internal laboratory procedures for concentration adjustments to production and confirmed calculations/10/. During the cross check it was noted that PP considered the CLn (project campaign length) in a fashion not in line with the requirements of the methodology. CAR 2 was raised and PP was asked to determine the individual campaign length for each of the campaign under this monitoring period for both Sasolburg and Secunda plants and, as needed, recalculate the baseline emission factor. CAR 2 was duly closed. In the final version of the MR Verifiers confirm that for this monitoring period there was the need to recalculate baseline emission factor for several of the project campaigns once the production at several of them was lower than normal (CL_{Normal}). This has been the case at: Sasolburg: 8th, 10th, 11th and 12th Secunda: 7th, 8th, 9th, 10th and 11th Please refer to the parameter EF_{BL} (baseline emission factor) for verification activities associated to recalculation. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. Upon receiving the raw data the Project Developer does the ER calculations, including the determination of this parameter.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan.		

Data / Parameter:	CLn	Project		
Data unit:	tonne 100% HNO ₃			
Description:	Nitric acid produced during the nth campaign			
Measured/calculated/default	Calculated			
Compliance question	Verification findings		Draft OK/ CAR/CL	Final OK/ Not OK
	QA/QC procedures have been applied in accordance with the monitoring plan.			

Data / Parameter:	EF _p	Project	
Data unit:	tonne N ₂ O/tonne 100% HNO ₃		
Description:	Emission factor used to calculate the emission from the particular campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable. b) Calibration Not applicable. c) Measurement/reading/recording frequency Calculated at the end of each project campaign. d) QA/QC procedures applied Not applicable e) Cross check Cross-checked ER calculators formulas and data used in calculations; During the crosscheck of the original calculations it was noted that the value presented for this parameter was not consistent based on the inconsistency of	OK	OK

Data / Parameter:	EF _p	Project	
Data unit:	tonne N ₂ O/tonne 100% HNO ₃		
Description:	Emission factor used to calculate the emission from the particular campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	several of the parameters used in its calculations (please refer in especial to CAR 3 and CL3). In the final version of the MR ERM CVS confirms that calculations are correct and that the parameter has been determined in line with the requirements of the methodology). f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. Upon receiving the raw data the Project Developer does the ER calculations, including the determination of this parameter.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	EFmin	Project	
Data unit:	tonne N ₂ O/tonne 100% HNO ₃		
Description:	Lowest EF _n observed during the first 10 campaigns		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan.	CAR-3	OK

Data / Parameter:	EF _{min}	Project	
Data unit:	tonne N ₂ O/tonne 100% HNO ₃		
Description:	Lowest EF _n observed during the first 10 campaigns		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
applied?	a) Equipment specification Not applicable. b) Calibration Not applicable. c) Measurement/reading/recording frequency After the 10th project campaign. d) QA/QC procedures applied Not applicable. e) Cross check - Formulas, calculations and parameters figures - Verified project emission factors for previous campaigns/6/ During the crosscheck of the original calculations it was noted that the value presented for this parameter was not originally considered in the calculations. CAR 3 was raised requiring PP to incorporate the parameter and consider it to limit the subsequent values of the project emission factor EF_p (as required by the Methodology. CAR 3 was duly closed. f) Check of information flow ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. Upon receiving the raw data the Project Developer does the ER calculations, including the determination of this parameter.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the	OK	OK

Data / Parameter:	EFmin	Project	
Data unit:	tonne N ₂ O/tonne 100% HNO ₃		
Description:	Lowest EF _n observed during the first 10 campaigns		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
the monitoring period?	monitoring of this parameter during the monitoring period.		
Conclusion	ERM CVS confirmed that - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Data / Parameter:	NCSG _{BC}	Baseline	
Data unit:	mg N ₂ O/Nm ³		
Description:	Mean concentration of N ₂ O in the stack gas for the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007 b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period.	OK	OK

Data / Parameter:	NCSG _{BC}	Baseline	
Data unit:	mg N ₂ O/Nm ³		
Description:	Mean concentration of N2O in the stack gas for the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	e) Cross check - ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. - ERM CVS has also cross checked the recalculation of this values due to the need to recalculate the EF_{BL} for several of the project campaigns under this monitoring period. All were deemed correct. f) Check of information flow Not applicable in this monitoring period.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	VSG _{BC}	Baseline	
Data unit:	Nm ³ /hour		
Description:	Mean gas volume flow rate in the stack gas during the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006		OK

Data / Parameter:	VSG _{BC}	Baseline	
Data unit:	Nm ³ /hour		
Description:	Mean gas volume flow rate in the stack gas during the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	to 23 March 2007 b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. f) Check of information flow Not applicable in this monitoring period.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	<i>BE_{BC}</i>	<i>Baseline</i>
Data unit:	Tonne N ₂ O	
Description:	N ₂ O emission for Baseline campaign	

Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable b) Calibration Not applicable c) Measurement/reading/recording frequency Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issued by the PP. f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	OH _{BC}	Baseline	
Data unit:	Hour		
Description:	Total operating hours for the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007 b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	NAP _{BC}	Baseline	
Data unit:	tonne 100% HNO ₃		
Description:	Total nitric acid production for the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	TSG _{BC}	Baseline	
Data unit:	°C		
Description:	Temperature of the stack gas during the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	PSG _{BC}	Baseline	
Data unit:	Bar		
Description:	Pressure of the stack gas during the baseline campaign		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	EF _{BL}	Baseline	
Data unit:	tonne N ₂ O/tonne 100% HNO ₃		
Description:	Baseline N ₂ O Emission Factor		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007 b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check - ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. - Cross checked the need to recalculated the base line emission factor for several of the campaigns that occurred during this monitoring period (please refer to verification cross checks for the parameter CLn) - Cross checked recalculation of Baseline N₂O Emission Factor for Secunda campaigns 7th, 8th, 9th, 10th and 11th and for Sasolburg campaigns 8th, 10th, 11th and 12th. Formulas and values in calculation was deemed correct and done as per the guidance provided by EB 51 Annex 12. f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the	OK	OK

Data / Parameter:	EF _{BL}	Baseline		
Data unit:	tonne N ₂ O/tonne 100% HNO ₃			
Description:	Baseline N ₂ O Emission Factor			
Measured/calculated/default	Calculated			
Compliance question	Verification findings		Draft OK/ CAR/CL	Final OK/ Not OK
the monitoring period?	monitoring of this parameter during the monitoring period.			
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.			

Data / Parameter:	UNC	Baseline	
Data unit:	%		
Description:	Overall Uncertainty of the Monitoring System		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable. b) Calibration Not applicable. c) Measurement/reading/recording frequency Not applicable in this monitoring period. As per the Methodology the parameters is to be determined once at the commissioning of the equipment. d) QA/QC procedures applied Not applicable. e) Cross check ERM CVS cross checked information presented during this monitoring period with data presented in PDD related to reports prepared by	OK	OK

Data / Parameter:	UNC	Baseline	
Data unit:	%		
Description:	Overall Uncertainty of the Monitoring System		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	equipment supplier. f) Check of information flow Not applicable in this monitoring period.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirms that the use of this parameter in this monitoring period renders a conservative approach.		

Data / Parameter:	AFR	Baseline	
Data unit:	kg NH ₃ /hour		
Description:	Ammonia Gas Flow Rate to AOR (ammonia oxidation reactor)		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. This data was obtained from obtained from the operating condition campaign. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period.	OK	OK

Data / Parameter:	AFR	Baseline	
Data unit:	kg NH ₃ /hour		
Description:	Ammonia Gas Flow Rate to AOR (ammonia oxidation reactor)		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked information in PDD and all monitoring reports issues by the PP.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CL6 was raised due to inconsistent information in relation to this parameters presented in the initial version of the MR. CL 6 has been duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	CL-6	OK
Conclusion	ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	AIFR	Baseline	
Data unit:	kg NH ₃ /kg air		
Description:	Ammonia to air flow ratio to the ammonia oxidation reactor		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan.	OK	OK

Data / Parameter:	AIFR	Baseline	
Data unit:	kg NH ₃ /kg air		
Description:	Ammonia to air flow ratio to the ammonia oxidation reactor		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
procedures appropriately applied?	a) Equipment specification Not applicable in this monitoring period. This data was obtained from obtained from the operating condition campaign. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked information in PDD and all monitoring reports issues by the PP.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CL6 was raised due to inconsistent information in relation to this parameters presented in the initial version of the MR. CL 6 has been duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	CL-6	OK
Conclusion	ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	CL _{BL}	Baseline	
Data unit:	tonne 100% HNO ₃		
Description:	Campaign length of baseline campaign		
Measured/calculated/default	Calculated		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	a) Equipment specification Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check - ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. - Confirmed that CL_{BL} is equivalent to the NAP_{BL} f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that this parameter was established in the baseline campaign and verified during the first verification. ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	OT _h	Baseline	
Data unit:	°C		
Description:	Oxidation temperature of the ammonia reactor for each hour		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. This data was obtained from obtained from the operating condition campaign. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked information in PDD and all monitoring reports issues by the PP.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CL6 was raised due to inconsistent information in relation to this parameters presented in the initial version of the MR. CL 6 has been duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	CL-6	OK
Conclusion	ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	OP _n	Baseline	
Data unit:	Pa abs		
Description:	Oxidation pressure of the ammonia reactor for each hour		
Measured/calculated/default	Measured		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable in this monitoring period. This data was obtained from obtained from the operating condition campaign. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. b) Calibration Not applicable in this monitoring period. c) Measurement/reading/recording frequency Not applicable in this monitoring period. d) QA/QC procedures applied Not applicable in this monitoring period. e) Cross check ERM CVS cross checked information in PDD and all monitoring reports issues by the PP.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	GS _{BL}	Baseline	
Data unit:	Not applicable		
Description:	Gauze supplier for the baseline campaign		
Measured/calculated/default	Not applicable		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable. b) Calibration Not applicable. c) Measurement/reading/recording frequency Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. d) QA/QC procedures applied Not applicable. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. f) Check of information flow Not applicable in this monitoring period.	CAR-1	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	GS project	Project	
Data unit:	Not applicable		
Description:	Gauze supplier for the project campaigns		
Measured/calculated/default	Not applicable		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable b) Calibration Not applicable c) Measurement/reading/recording frequency Once at every at each campaign d) QA/QC procedures applied Not applicable. e) Cross check ERM CVS cross checked gauze supplier documentation for the campaign that occurred during this monitoring period/34/. f) Check of information flow Not applicable.	CAR-1	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan.		

Data / Parameter:	GC _{BL}	Baseline	
Data unit:	%		
Description:	Gauze composition for the baseline campaign		
Measured/calculated/default	Not applicable		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable b) Calibration Not applicable c) Measurement/reading/recording frequency Not applicable in this monitoring period. The baseline campaign took place from 12 June 2006 to 05 March 2007 for Secunda and from 29 August 2006 to 23 March 2007. d) QA/QC procedures applied Not applicable. e) Cross check ERM CVS cross checked original data generated during the baseline campaign and all monitoring reports issues by the PP. f) Check of information flow Not applicable in this monitoring period.	OK	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirms that its use in this monitoring period is correct.		

Data / Parameter:	GC _{project}	Project	
Data unit:	%		
Description:	Gauze composition for the project campaign		
Measured/calculated/default	Not Applicable		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable b) Calibration Not applicable c) Measurement/reading/recording frequency Once at every at each campaign d) QA/QC procedures applied Not applicable. e) Cross check ERM CVS cross checked gauze supplier documentation for the campaign that occurred during this monitoring period /34/. f) Check of information flow Not applicable.	CAR-1	OK
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. CAR 6 was raised once Gauze composition information was not provided in the original version of the MR. Car 6 is duly closed. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	CAR-6	OK

Data / Parameter:	GC _{project}	Project		
Data unit:	%			
Description:	Gauze composition for the project campaign			
Measured/calculated/default	Not Applicable			
Compliance question	Verification findings		Draft OK/ CAR/CL	Final OK/ Not OK
Conclusion	ERM CVS confirms that the monitoring results have been recorded consistently as per the approved frequency in the monitoring plan.			

Data / Parameter:	EF _{reg}	Baseline	
Data unit:	kg N ₂ O/tonne HNO ₃		
Description:	Emission level set by incoming policies or regulations, local and national regulations on N ₂ O and NOx emissions.		
Measured/calculated/default	Not applicable		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. a) Equipment specification Not applicable b) Calibration Not applicable c) Measurement/reading/recording frequency Recorded at date of regulatory value introduction or change of regulation d) QA/QC procedures applied Not applicable e) Cross check ERM CVS cross checked via internet search that there are no new environmental regulations that could impact the N₂O emissions reduction from this CDM project during this monitoring period.	OK	OK

Data / Parameter:	EF _{reg}	Baseline	
Data unit:	kg N ₂ O/tonne HNO ₃		
Description:	Emission level set by incoming policies or regulations, local and national regulations on N ₂ O and NOx emissions.		
Measured/calculated/default	Not applicable		
Compliance question	Verification findings	Draft OK/ CAR/CL	Final OK/ Not OK
	f) Check of information flow ERM CVS will check and verify the flow of information from data generation, aggregation, to recording, calculation and reporting at the date of regulatory value introduction or change of regulation. It is confirmed that the PP was a system in place to track eventual updates to regulations.		
Does the monitoring report (section D) correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report section D and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the final monitoring report (section D) and ER calculator correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that - The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. - QA/QC procedures have been applied in accordance with the monitoring plan.		

Conclusion

ERM CVS confirms that the all monitoring parameters stated in the monitoring plan, the applied methodology and the relevant CDM EB decisions been sufficiently monitored and updated as applicable.

4.5.5. Management and operational system

ERM CVS evaluated the management systems in place to implement the monitoring of the project activity. This included the organisational structure, roles and responsibilities, data collection, transfer and aggregation procedures, training of personnel, and data storage and archiving. Sasol has developed specific procedures under the Quality System associated to the CDM project. Of special relevance are:

- Designation of Responsibilities for both CDM Projects Secunda and Sasolburg (GENCD- 0002) - details of the role and duties of the designated responsible CDM Project coordinator/12/;
- CDM Project File structure (GENCDM 0003) - provides the necessary guideline to the CDM structure and documents for Secunda and Sasolburg with the necessary annexure/s and reference to documents at any remote or central access centres that may be of concern/12/;
- Training/ Awareness and Competence - This procedure covers the identification of CDM training needs, training practices and awareness programmes for employees and persons working for or on behalf of the organization/12/, and
- Interpretation of Shewart Control Charts in CDM Project activities (SSBCDM-0024), and
- Description of the Data Logging Systems AMS (SSBCDM-0012) - explains the process of the automatic measurement system (AMS) and data acquisition system (DAS) of the CDM project/11/.

The documents for this monitoring period are complete. An ER calculator for each of the sites /2/ including all relevant information from the project and information associated to this monitoring period was provided. This ER calculator template was verified to have been prepared on 30 July 2014 (revision 1). ERM CVS confirms that the document provides a conservative approach and is consistent with the monitoring plan; therefore, it is deemed appropriate.

The project boundary is consistent with the registered PDD. A management and operational system is in place. During the interviews with ERM CVS team Sasol professionals have demonstrated their knowledge and awareness related to the requirements associated with this CDM project as per the approved methodologies, PDD and the monitoring report.

After review of the latest version of all project documentation, ERM CVS could conclude that the management and operation of the monitoring system and the monitoring procedures are in conformance with the registered PDD and monitoring plan.

All CDM project activity related instruments and equipment are adjusted and/or calibrated as verified with the calibration planning/11/16/17/ and calibration certificates provided by Sasol or independent third party. The calibration requirements for the current period were checked with the reference documents (PDD, South African and international standards and manufacturer's information) and found to be in compliance with the guideline for assessing compliance with the calibration requirements, published in Annex 60 of EB52, applicable since 12 February, 2010. All calibration dates covering the entire period were provided in the final version of the Monitoring Report submitted by the PP or calibration delay guidance applied (please refer to CAR 7 and CAR 9). The calibration dates were found to be consistent with the previous MR and calibration certificates. ERM CVS verified that the calibrations performed are consistent and in accordance with the applicable QA/QC procedures.

NO_x emissions were reviewed and found to be below the legal emission limits during this monitoring period. Since the start of the project no new regulations have been issued related to NO_x or N₂O emission. This was confirmed by ERM CVS verification team.

Given the enlarged extension of the monitoring period and associated timeframe, there were multiple operational events in this monitoring period. Many of these events required additional explanations and evidences that were obtained during the site visit. All events were cross checked by ERM CVS (see also CAR 01 and CAR 09). ERM CVS has raised a FAR (FAR 01) associated to this once the project documentation is composed by multiple documents to register different relevant operational events of the nitric acid plant and the operation of the AMS – all related to the CDM project. Multiple information sources and the need to cross check increase the chances of misinterpretation leading to mistakes that may affect the final ER calculation. PP is asked to standardize, consolidate and further detail information in a single document from next monitoring period on. It will contribute for transparency of the events affecting the CDM project. ERM CVS verified that the emission reductions were appropriately accounted for downtime.

FAR 02 was also raised once there are opportunities to improve the control and organization of the project documentation associated to the calibration certificates including: maintaining dedicated files for the equipment associated to the CDM project (rather than having this information mingled with general plant equipment), keeping register readily available with clear tracking, correctly identify calibration certificates with TAG number and equipment description among other.

No event occurred which may have impacted the applicability of the methodology.

Regarding the compliance with EN14181:2004, the QAL1 documentation provided by equipment suppliers and presented in the PDD was reviewed. All were deemed satisfactory and they cover all the equipment involved in the monitoring of the parameters previously mentioned /13/, /14/. QAL1 confirms the suitability of the AMS for the specific measuring task of the project (measurement of N₂O concentration and flow).

QAL2 has been performed by an accredited quality assurance system according to EN ISO/IEC 17025, SGS Environmental Services. QAL 2 testing covers the entire monitoring period. Both sites have done a QAL 2 test on August 2010 and an AST on August, 2011. In 2012 Sasolburg did a QAL 2 test on August, and Secunda an AST in that same month. On August 2013 both site did a QAL2 test. ERM CVS has reviewed all of these reports /12/13/. and confirms that the equipment at both sites complies with the EN 14181 requirements and that the data given by the instruments comply with the data registered in the data acquisition systems of the plants and meet the demands of EN 14181 QAL3 as per the SGS reports mentioned above.

PP has opted to use the highest correction factor (cf) found in the set of the QAL 2 tests done during this monitoring period to simplify his calculations. As the approach renders a conservative result no issue was raised. The correction factor used for the parameters NCSG for this monitoring period is: 1.016 data from the 2013 QAL2 at Sasolburg and 1.015 from the 2013 QAL2 at Secunda. The correction factor used for the parameters VSG for this monitoring period is: 0.964 data from the 2013 QAL2 at Sasolburg and 1.105 from the 2013 QAL2 at Secunda. ERM CVS confirms that theses correction factors have been duly used in the individual hourly readings of the parameters during the entire monitoring period.

QAL3, ongoing quality assurance during operation, is done by conducting periodic zero and span checks on the AMS and evaluating results obtained using Shewart control charts.

This monitoring period cover several project campaigns: #8, #9, #10 and #11 at Sasolburg and #7, #8, #9, #10 and #11 at Secunda. It is noted that the reason for the finalization of campaign 12th at Sasolburg and campaign 11th at Secunda is associated to the end of the first crediting period in 24 May 2014. From 24 May 2014 onwards the plants continued its operation with the current gauzes and ERM CVS confirms that no emissions reduction is claimed beyond the final date of this monitoring period.

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
Has an appropriate management and operational system for monitoring and reporting, including responsibilities and authorities, been established in accordance with the monitoring plan?	ERM CVS carried out the following activities: Internal procedures /11/12/, and Interviews during the site visit with key personnel	Based on document review and interviews undertaken during the site visit, ERM CVS confirmed that a monitoring management system has been developed and implemented that appropriately controls all aspects of CDM monitoring, including organisation and responsibilities, equipment maintenance and calibration, data collection, recording and reporting, data archiving and transfer, treatment of equipment failure; quality control; training and emergency response. The documents for this monitoring period were found to be complete and management and operational systems are in place. The members of the team received appropriate training.	OK	OK

Conclusion

ERM CVS confirmed that the monitoring of all relevant parameters has been carried out in accordance with the monitoring plan and relevant EB requirements. It is confirmed that data acquisition process, data transferring process, archiving process and reporting process occur as required by the monitoring plan. The final monitoring report provides an accurate description of the monitoring for all parameters throughout the monitoring period.

4.6. Data and parameters determined at registration and not monitored

The verification team evaluated the status of data and parameters that were determined at registration and not monitored during the monitoring period, including default values and factors, and confirmed whether they were correctly presented in Section D.1 of the monitoring report and applied correctly in the emission reduction calculations.

Data and parameters that were determined at registration and not monitored during the monitoring period				
Parameter	Description	Presented correctly in section D.1 of the Monitoring Report and applied correctly in the emission reduction calculations?	Draft OK/ CAR/CL	Final OK/ Not OK
AFR_{max}	Maximum Ammonia Flow Rate	ERM CVS confirms that this parameter was correctly derived from PDD / Monitoring Plan and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK
CL_{normal}	The normal campaign length	ERM CVS confirms that this parameter was correctly derived from PDD / Monitoring Plan and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK

Data and parameters that were determined at registration and not monitored during the monitoring period				
Parameter	Description	Presented correctly in section D.1 of the Monitoring Report and applied correctly in the emission reduction calculations?	Draft OK/ CAR/CL	Final OK/ Not OK
AIFR_{max}	Maximum Ammonia to Air Flow Rate	ERM CVS confirms that this parameter was correctly derived from PDD / Monitoring Plan and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK
OT_{normal}	Normal Operating Temperature	ERM CVS confirms that this parameter was correctly derived from PDD / Monitoring Plan and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK
OP_{normal}	Normal Operating Pressure	ERM CVS confirms that this parameter was correctly derived from PDD / Monitoring Plan and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK
GS_{normal}	Gauze supplier during operating condition campaigns	ERM CVS confirms that this parameter was correctly derived from PDD / Monitoring Plan and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK
GC_{normal}	Gauze composition for the operation condition campaigns	ERM CVS confirms that this parameter was correctly derived from PDD / Monitoring Plan and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK

4.7. Assessment of data and calculation of emission reductions

As per VVS section 9.4.5, ERM CVS evaluated the data and calculations of GHG emission reductions achieved by/resulting from the project activity by the application of the selected approved methodology.

In conducting this evaluation, the verification team evaluated whether:

- A complete set of data for the monitoring period was available,
- Information provided in the monitoring report has been cross checked with other sources such as log books, inventories, purchase records, laboratory analysis;
- Calculations of baseline emissions, and project activity emission and leakage emissions as appropriate have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology;
- Any assumptions used in the emission calculations have been justified;
- Appropriate emission factors, IPCC default factors and other reference values have been correctly applied.

4.7.1. Emission reduction calculations

ERM CVS reviewed the emission reduction calculations in Section E of the monitoring report.

The calculation of emissions reduction was verified as based on the approved methodology AM0034, version 2. As stated previously, the project participants use an excel spreadsheet, called ER calculator, which presents in a transparent manner the electronic recorded data and formulae used in the calculation. The ER calculator comprises all the data and calculation for project and leakage emissions.

The total ERs for the period were found to be lower than had been predicted in the PDD. Detailed verification activities regarding this are addressed in Section 5.6.

During this monitoring period the nitric acid production (key factor in the emissions reductions calculations) was correctly limited to the yearly nameplate capacity of both plants. Additional ERM CVS confirms that the selection of the project emission factor has duly followed the methodology considering both the moving average of the emission factor as the Lowest EF_n observed during the first 10 campaigns.

According to methodology AM0034 version 2 “if the length of each individual project campaign CL_n is longer than or equal to the average historic campaign length CL_{normal}, then all N₂O values measured during the baseline campaign can be used for the calculation of EF; If CL_n < CL_{normal}, recalculate EF_{BL} by eliminating those N₂O values that were obtained during the production of tonnes of nitric acid beyond the CL_n (i.e. the last tonnes produced) from the calculation of EF_n.”. In this project campaign ERM CVS has confirmed that several campaign length were lower than CL_{normal} and therefore the baseline emission factor had to be recalculated (please refer to section 4.5.4 for verification activity associated to the baseline emission factor recalculations and the specific campaigns where this procedure was applied).

ERM CVS confirms that the gauze supplier and gauze composition have been the same as used during the baseline campaign.

The GHG emission reductions achieved by the project activity are calculated in accordance with the approved methodology using the following equation:

$$ER_y = (EF_{BL} - EF_y) * NAP_y * GWP_{N_2O}$$

Where:

ER_y = Emission reduction for campaign y

NAP_y = Nitric acid production for the project campaign y (tHNO₃).

EF_{BL} = Baseline emissions factor = (BE_{BC} / NAP_{BC}) (1 – UNC/100) (tN₂O/tHNO₃)

EF_y = Emissions factor used to calculate the emissions from campaign y

GWP_{N₂O} = Global warming potential of N₂O = 298 (PP has opted to use one single GWP to simplify his calculations. As the value selected results in a conservative approach (smaller emission reductions) this has been accepted.

Emission reductions are confirmed by ERM CVS to be calculated for each of the project campaigns by:

$$ER_y = (EF_{BL} - EF_y) * NAP_y * GWP_{N_2O}$$

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
Were data available throughout the monitoring period in accordance with the monitoring plan and methodology?	Data availability throughout the monitoring period, for each monitored parameter, was checked in the ER calculator (and its source of data, raw data). Data description and unit were verified against the monitoring plan and methodology.	As shown in the emission reduction calculation spreadsheet and confirmed by ERM CVS during the site visit, data were available throughout the monitoring period in accordance with the monitoring plan and methodology. Detailed parameter verification is performed in this report. In cases where the data were occasionally missing or incorrect due to calibration or failure of the measuring device, a conservative default value as per EB guidance has been applied.	OK	OK

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
Has the project participant used appropriate methods and formulae for calculating baseline, project and leakage emissions?	In order to verify whether the project participant used appropriate methods and formulae to calculate the baseline project and leakage emissions in line with the monitoring plan and methodology, the verification team has crosschecked the ER calculator and its formulae against the methodology and monitoring plan.	ERM CVS confirmed that the calculation of baseline, project and leakage emissions as set out in the emission reduction calculation spreadsheet has been based on appropriate methods and formulae and that the calculation of emission reductions during the monitoring period is accurate and in line with the monitoring plan and methodology.	OK	OK
Has the project participant justified all assumptions, emission factors and default values that have been applied?	ERM CVS evaluated the emission reduction calculation spreadsheet and reviewed all assumptions, emission factors and default factors that have been applied against the registered PDD and the methodology.	ERM CVS has confirmed that the emission reduction calculation spreadsheet and all assumptions, emission factors and default factors that have been applied have been appropriately justified and considered.	OK	OK
Do the monitoring report (section E) and associated emission reduction spreadsheet correctly present the data and formulae used to calculate the reported emission reductions?	ERM CVS reviewed the emission reduction spreadsheet and monitoring report section E to evaluate whether the data and formulae to calculate the emission reductions have been correctly presented.	ERM CVS confirmed that all data and formulae in the final documents have been correctly presented.	OK	OK

Conclusion

Emission reductions have been calculated in accordance with the monitoring plan and the applied methodology, and it was determined that the data processing and emission reductions calculations resulted in real and measurable emission reductions. Where there was any unavailability of data, conservative assumptions have been made. All assumptions, emission factors and default values have been justified and the information has been cross checked with other sources.

4.8. Comparison of emission reductions with those predicted in the PDD

ERM CVS reviewed the monitoring report to confirm that the PP has compared the emission reductions with the number of emission reductions estimated in the PDD for an equivalent number of days as the monitoring period.

The actual operational days during the monitoring period at Sasolburg plant were 1028 full days of 24 hours. The PDD estimated 515,837 t CO₂e per year considering 347 operating days. For a period of 1028 days the estimated value would be 1,528,495 CERs. For this current monitoring period the total ER claimed for Sasolburg plant are 1094,958 t CO₂e.

The operational days during the monitoring period at Secunda were 1028. The PDD estimated 444,485 t CO₂e per year considering 347 operating days. For a period of 1028 days the estimated value would be 1,316,803 t CO₂e. For this current monitoring period the total ER claimed for Secunda plant are 712,119 t CO₂e.

Compliance question	Verification findings (including justification/substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
Has the PP included (in section E.6 of the monitoring report) a comparison of the emission reductions	ERM CVS has reviewed the emissions reductions stated in the monitoring report and confirmed that the PP has presented a clear comparison of the emission reductions during the monitoring period with the prediction in the PDD.	OK	OK

for this monitoring period with the emission reductions for an equivalent length of monitoring based on the estimates in the PDD?			
Has the PP provided appropriate explanation for any increase in emission reductions compared with the prediction made in the PDD?	The total ERs for the period were therefore found to be lower than had been predicted in the PDD. The ER are correctly calculated and explained in the Monitoring Report.	OK	OK
Has the PP correctly presented the actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards in section E.7	Yes, PP correctly presented the actual emission reductions during the first commitment period and the period from 1 January 2013.	OK	OK

Conclusion

The PP has appropriately presented the emission reductions for the monitoring period and, where lower than predicted, has provided an appropriate explanation.

ERM CVS verified that these differences were correctly calculated and credibly explained and are in accordance and compliance with the methodology. Sasol's ER calculation is credible and reliable.

4.9. Other observations

Aside from the CLs specifically mentioned in this Verification report, other CLs were raised during the course of this verification. All CLs were duly closed. A complete list of the CLs can be found in section 5 of this report.

No other observations are made.

5. Remediation Requests

5.1. Clarification Requests

Where information was insufficient or not clear enough to determine whether the applicable CDM requirements have been met ERM CVS raises a Clarification Request (CL). The CLs raised during this monitoring period and a description of how each was resolved are set out below.

Clarification Request 1																						
Date raised	03 October 2014																					
Comment:	Inconsistent information is presented in the MR and excel calculator with respect to project campaign starting and ending dates.																					
Clarification Request:	PP is to clarify the starting and ending dates of all the project campaigns that occurred during this monitoring period both for Sasolburg and Secunda plant.																					
PP response	The campaigns dates for Sasolburg plant involved in this monitoring period are: <table><tr><th>Campaign</th><th>From (dd/mm/yyyy)</th><th>To (dd/mm/yyyy)</th></tr><tr><td>Baseline campaign</td><td>12/06/2006</td><td>05/03/2007</td></tr><tr><td>8th project campaign</td><td>01/08/2011*</td><td>22/03/2012</td></tr><tr><td>9th project campaign</td><td>23/03/2012</td><td>04/12/2012</td></tr><tr><td>10th project campaign</td><td>05/12/2012</td><td>04/08/2013</td></tr><tr><td>11th project campaign</td><td>05/08/2013</td><td>14/04/2014</td></tr><tr><td>12th project campaign</td><td>15/04/2014</td><td>24/05/2014**</td></tr></table> * First day of the monitoring period	Campaign	From (dd/mm/yyyy)	To (dd/mm/yyyy)	Baseline campaign	12/06/2006	05/03/2007	8 th project campaign	01/08/2011*	22/03/2012	9 th project campaign	23/03/2012	04/12/2012	10 th project campaign	05/12/2012	04/08/2013	11 th project campaign	05/08/2013	14/04/2014	12 th project campaign	15/04/2014	24/05/2014**
Campaign	From (dd/mm/yyyy)	To (dd/mm/yyyy)																				
Baseline campaign	12/06/2006	05/03/2007																				
8 th project campaign	01/08/2011*	22/03/2012																				
9 th project campaign	23/03/2012	04/12/2012																				
10 th project campaign	05/12/2012	04/08/2013																				
11 th project campaign	05/08/2013	14/04/2014																				
12 th project campaign	15/04/2014	24/05/2014**																				

Verification activity

Documentation provided/reviewed:

- SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015
- SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015
- SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015
- Weekly production reports for Sasolburg plant (NOX weekly report files) and daily reports for Secunda plant (files: N-Balance)
- Daily events log book - Sasolburg site (files under NOX main events log book)
- Daily events log book - Secunda site (files under Nitric Acid logbook title)

Reason for acceptance / non-acceptance

ERM CVS has cross checked production information and daily event log books with the information provided in the revised MR and ERM calculators and confirms that starting and ending dates of all the project campaigns that occurred during this monitoring period both for Sasolburg and Secunda plant are correctly reported.

CL 1 is closed.

Clarification Request 2	
Date raised	03 October 2014
Comment:	MR brings inconsistent information on dates of the QAL 2 and AST testing
Clarification Request:	PP to provide updated information on QAL2 and ASTs conducted during this monitoring period in the MR for both sites.
PP response	QAL2 and AST were performed in the same period for both sites. The correct information is: AST: August 2011 and August 2012 / QAL2: August 2010 and August 2013 The correct information above was included in the monitoring report version 2.

Verification activity**Documentation provided:**

- SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015
- Validation N₂O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – August 2010
- EN1481 AST Validation N₂O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – October 2011
- Validation N₂O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – January 2012
- EN1481 AST Validation N₂O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – August 2012
- EN1481 AST QAL2 N₂O and Flow measurements at Sasol Nitro acid plant located in Sasolburg – SGS – August 2013
- Validation N₂O measurement at the Sasol Nitro acid plant located in Secunda – SGS – August 2010
- EN1481 AST QAL2 N₂O measurements at the Sasol Nitro acid plant located in Secunda – SGS – August 2011
- EN1481 AST Validation N₂O measurements at the Sasol Nitro acid plant located in Secunda – SGS – August 2012
- EN1481 AST QAL2 N₂O and flow measurements at the Sasol Nitro acid plant located in Secunda – SGS – August 2013

Reason for acceptance / non-acceptance
ERM CVS revised the MR and confirms that information has been duly added and is in line with SGS QAL 2 and AST reports.
CL 2 is closed.

Clarification Request 3	
Date raised	03 October 2014
Comment:	Inconsistent information has been provided for Secunda Plant with respect to some parameters
Clarification Request:	PP please clarify operating hours, nitric acid production and project emissions factors of the 11 th campaign at Secunda.
PP response	The required information was corrected in calculations and in the monitoring report. Please check versions 3 of calculations and 2 of monitoring report for updates.
Verification activity	
Documentation provided: - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015 - SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015	
Reason for acceptance / non-acceptance	
ERM CVS revised the MR and ER Calculators and confirms that information is correctly presented.	
CL 3 is closed.	

Clarification Request 4	
Date raised	03 October 2014
Comment:	Inconsistency in the criteria for considering the nitric acid plant operating or not is noted to exist between the MR and excel spread sheets.
Clarification Request:	PP please clarify the criteria adopted to consider the nitric acid plants operating or not operating.
PP response	The criteria adopted are if both ammonia and air flow signals are above zero, the plant status of the plant is treated as ON. This approach is applied for both plants.

	The correct information above was included in the monitoring report version 2.
Verification activity	
Documentation provided: - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015 - SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015	
Reason for acceptance / non-acceptance	
ERM CVS revised the MR and ER Calculators and confirms that information is consistently presented.	
CL 4 is closed.	

Clarification Request 5	
Date raised	03 October 2014
Comment:	Inconsistent values are presented for the para parameter “pressure of the stack gas”.
Clarification Request:	PP please confirm the unit of measurement for the parameter “pressure of the stack gas” during the project campaign
PP response	The values of pressure provided in the Monitoring Report version 2 is in Pascal.
Verification activity	
Documentation provided: - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015 - SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015	
Reason for acceptance / non-acceptance	
ERM CVS has verified the revised documentation provided and confirms information is correctly presented.	
CL 5 is closed.	

Clarification Request 6	
Date raised	03 October 2014
Comment:	Inconsistent information is presented in relation to several parameters of the baseline campaign. The values in initial version of the monitoring report reflect data from the current monitoring period rather than data from the baseline campaign.
Clarification Request:	PP is asked to please clarify information on the monitored parameters during the baseline camping: AFR, AIFR, OTh and OPh.
PP response	The required information was corrected in the monitoring report. Please check version 2 of monitoring report for updates.
Verification activity	
Documentation provided:	
- SASOL – 6 th Monitoring Report v.4 dating from 30 January, 2015	
Reason for acceptance / non-acceptance	
ERM CVS has verified the revised documentation provided and confirms information is correctly presented.	
CL 6 is closed.	

5.2. Corrective Action Requests

ERM CVS raises a Corrective Action Request (CAR) where:

- 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 that will impair the estimate of emission reductions;

Corrective Action Request 1	
Date raised	03 October 2014
Comment:	Several events resulting in downtime of the Automated Measuring System were observed during this monitoring period.
Clarification Request:	PP is asked to please correct the calculation considering the requirement established in the methodology to use the highest measured value in the campaigns for the downtime periods.

PP response	The calculation has been corrected. Please check versions 3 of calculations and 2 of monitoring report for updates.
Verification activity	
Documentation provided/revised: - SECUNDA TOTAL – ER Calculation v4 TV dating from 30 January, 2015 - SASOLBURG TOTAL – ER Calculation v4 TV dating from 30 January, 2015 - Daily events log book - Sasolburg site (files under NOX main events log book) - Daily events log book - Secunda site (files under Nitric Acid logbook title)	
Reason for acceptance / non-acceptance	
ERM CVS has verified the ER calculations presented by the PP and confirms that downtime of the Automated Measuring System have been duly taken in account at both Secunda and Sasolburg site.	
CAR 1 is closed	

Corrective Action Request 2	
Date raised	03 October 2014
Comment:	PP has considered the CLn (project campaign length) not in line with the requirements of the methodology.
Clarification Request:	PP is asked to please determine the individual campaign length for each of the campaign under this monitoring period for both Sasolburg and Secunda plants and, as needed, recalculate the baseline emission factor.
PP response	The calculation has been corrected. Please check versions 3 of calculations and 2 of monitoring report for updates.
Verification activity	
- SECUNDA TOTAL – ER Calculation v4 dating from 31 January, 2015 SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015 - Sasolburg EFBL – recalculation version 1 - Secunda EFBL – recalculation version 1	
Reason for acceptance / non-acceptance	
ERM CVS has verified the MR calculations presented by the PP and confirms that individual campaign length for each of the	

campaign under this monitoring period for both Sasolburg and Secunda plants have been presented consistent with nitric acid production and are correctly considered in the ER calculation sheets.

Additionally ERM CVS confirms that due to a shorter campaign length it was necessary to recalculate the baseline emission factor for: Sasolburg campaigns 8th, 10th, 11 and 12th and Secunda campaigns 7, 8, 9, 10 and 11. ERM CVS reviewed baseline emission factor recalculation and confirms that they are correct and have taken in consideration EB 51 Annex 12 guidance.

CAR 2 is closed

Corrective Action Request 3	
Date raised	03 October 2014
Comment:	The project has reached the 10 th campaigns for both Sasolburg and Secunda.
Clarification Request:	PP is asked to incorporate the parameter EFmin (lowest EFn observed during the first 10 campaigns) and consider it to limit the subsequent values of the project emission factor EFp (emission factor used to calculate the emission from the campaign) as required by the Methodology.
PP response	The calculation has been corrected. Please check versions 3 of calculations and 2 of monitoring report for updates.
Verification activity	
Documentation provided: - SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015	
Reason for acceptance / non-acceptance	
ERM CVS has verified the MR calculations presented by the PP and confirms that parameter EFmin (lowest EFn observed during the first 10 campaigns) has been considered in the calculations as required by the Methodology.	
CAR 3 is closed	

Corrective Action Request 4	
Date raised	03 October 2014
Comment:	. QAL2 results reported refer to data from previous monitoring periods.
Clarification Request:	PP is asked to update the value of the correction factor for the QAL 2 test that is used in the calculation considering the test results associated to the monitoring periods being verified.
PP response	The calculation has been corrected. Please check versions 3 of calculations and 2 of monitoring report for updates.

Verification activity

Documentation provided/revised:

- SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015
- SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015
- SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015
- Validation N2O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – August 2010
- EN1481 AST Validation N2O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – October 2011
- Validation N2O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – January 2012
- EN1481 AST Validation N2O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – August 2012
- EN1481 AST QAL2 N2O and Flow measurements at Sasol Nitro acid plant located in Sasolburg – SGS – August 2013
- Validation N2O measurement at the Sasol Nitro acid plant located in Secunda – SGS – August 2010
- EN1481 AST QAL2 N2O measurements at the Sasol Nitro acid plant located in Secunda – SGS – August 2011
- EN1481 AST Validation N2O measurements at the Sasol Nitro acid plant located in Secunda – SGS – August 2012
- EN1481 AST QAL2 N2O and flow measurements at the Sasol Nitro acid plant located in Secunda – SGS – August 2013

Reason for acceptance / non-acceptance

ERM CVS has revised the documentation provided by PP and the usage of the correction factors in calculations. The PP has updated QAL2 information to consider only data associated to the monitoring periods under this verification. Additionally the PP has opted to use the highest correction factor found in the set of the QAL 2 tests done during this monitoring period to simplify his calculations. As the approach renders a conservative result no further issue was raised.

The correction factor used for the parameters NCSG for this monitoring period is: 1,016 data from the 2013 QAL2 at Sasolburg and 1,015 from the 2013 QAL2 at Secunda. The correction factor used for the parameters VSG for this monitoring period is: 0.964 data from the 2013 QAL2 at Sasolburg and 1.105 from the 2013 QAL2 at Secunda. ERM CVS confirms that theses

correction factors have been used in the individual hourly readings of the parameters during the entire monitoring period.

At Secunda de AST done in August 2012, indicated that for flow (VSG) the correction factor determined in the previous QAL2 was not valid anymore and requested PP to repeat QAL 2 in 6 months. This was not done and QAL 2 was only redone in 1 year (15 to 17 August, 2013). This QAL 2 has resulted in a correction factor of 1,105 that was applied to the entire monitoring period and not only for the period where the delay was noted. As the approach renders a conservative result no further issue was raised.

CAR 4 is closed.

Corrective Action Request 5	
Date raised	03 October 2014
Comment:	Values for the mean stack gas flow rate and mean N ₂ O concentration of the project campaign to be used in calculations are those obtained after the application of statistical analysis. Current formula in the ER calculators does not reflect this.
Clarification Request:	PP is asked to correct this formula incorporating the proper data in calculations.
PP response	The calculation has been corrected. Please check versions 3 of calculations and 2 of monitoring report for updates.

Verification activity

Documentation provided:

- SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015
- SASOLBURG TOTAL – ER Calculation v4 dating from 30 January, 2015
- SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015

Reason for acceptance / non-acceptance

ERM CVS has verified the ER calculations presented by the PP and confirms that the values for the mean stack gas flow rate and mean N₂O concentration of the project campaigns used in calculations are those obtained after the application of statistical analysis at both Secunda and Sasolburg site.

CAR 5 is closed.

Corrective Action Request 6

Date raised	03 October 2014
Comment:	Gauze composition information has not been provided.
Clarification Request:	PP is asked to provide in MR specific information on the gauze compositions for the individual project campaigns for both Sasolburg and Secunda plants.
PP response	Monitoring report updated according to required information. Please check monitoring report version 3 for corrections. The information presented in the Version 3 of Monitoring Report was confirmed by Hereaus, the catalyst provider in a letter dated from 18 November 2014.
Verification activity	
Documentation provided: - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015 - Sasol_confirmation_gauze-composition (letter from Gauze W.C.Heraeus GmbH informing Gauze composition for Sasol Nitro Secunda and Sasol Nitro Sasolburg)	
Reason for acceptance / non-acceptance	
ERM CVS has revised the MR and confirms information is correctly presented. The letter from the Gauze supplier confirms that the gauze composition has not been modified.	
CAR 6 is closed	

Corrective Action Request 7	
Date raised	03 October 2014
Comment:	During several days on December 2013 the gas analyzer Series AO2000 model AO2040 (measuring the NCSG) was not subjected to QAL 3 at the Secunda plant (no gas to standard gas was available for calibration).
Clarification Request:	Calibration delay is applicable and PP is please asked to correct the result.
PP response	The calculation has been corrected. Please check versions 3 of calculations and 2 of monitoring report for updates.
Verification activity	
Documentation provided: - SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015	

Reason for acceptance / non-acceptance

ERM CVS has revised the documentation provided by the PP and confirms that the calibration delay guidance has been correctly applied by the PP. PP has applied the max the error of the Measuring Equipment (2.67%, based on QAL1 documentation / manufacture information) to all readings during the month of December 2013.

CAR 7 is closed

Corrective Action Request 8	
Date raised	03 October 2014
Comment:	Nitric acid production values for the Secunda plant were not corrected for 100% concentration of HNO ₃ .
Clarification Request:	PP is asked to correct values in both the MR and calculation spread sheet.
PP response	The calculation has been corrected. Please check versions 3 of calculations and 2 of monitoring report for updates.
Verification activity	
Documentation provided: - SECUNDA TOTAL – ER Calculation v4 dating from 30 January, 2015 - SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015 - Daily reports for Secunda plant (files: N-Balance)	
Reason for acceptance / non-acceptance	
ERM CVS has verified the revised documentation presented by the PP and confirms that nitric acid values have been corrected for 100% HNO₃ concentration and are in line with production and laboratory information. It is noted that the equipment measuring NAP (coriolis type) is the primary calibrated instrument to determine the flow at 100% concentration of HNO₃. PP nevertheless cross checks with pH measures. In these specific cases PP miss interpreted the results.	
CAR 8 is closed.	

Corrective Action Request 9	
Date raised	08 October 2014
Comment:	As per the guidelines for completing the monitoring report form, PP is to provide for each of the monitoring equipment presented in section D.2. of the MR, information on type, accuracy class, serial number, calibration frequency, date of last calibration and validity of calibration.
Corrective Action Request:	PP is asked to please complete MR according to the guideline.
PP response	The required information was corrected in the monitoring report. Please check version 2 of monitoring report for updates.
Verification activity	
Documentation provided:	
- SASOL – 6th Monitoring Report v.4 dating from 30 January, 2015	
Reason for acceptance / non-acceptance	
ERM CVS has verified the revised documentation presented by the PP and confirms that the monitoring report has been duly completed in line with the specific guidelines and that all calibration information is in line with the calibration certificates reviewed by ERM CVS.	
CAR 9 is closed.	

5.3. Forward Action Requests

Forward Action Requests (FAR) may be raised for actions if the monitoring and reporting require attention and/or adjustment for the next verification period. These have no impact upon the completion of the current verification activity.

FAR 01: The project documentation is composed by multiple documents to register different relevant operational events of the nitric acid plant and the operation of the AMS – all related to the CDM project. Multiple information sources and the need to cross check increase the chances of misinterpretation leading to mistakes that may affect the final ER calculation. PP is asked to standardize, consolidate and further detail information in a single document from next monitoring period on. It will contribute for transparency of the events affecting the CDM project.

FAR 02 – There are opportunities to improve the control and organization of the project documentation associated to the calibration certificates including: maintaining dedicated files for the equipment associated to the CDM project (rather than having this information mingled with general plant equipment), keeping register readily available with clear tracking, correctly identify calibration certificates with TAG number and equipment description among other. PP is asked to establish therefore a system to control documents associated with calibration and manufacture specifications.

6. Validation of Post Registration Changes

No post registration changes have been identified during this monitoring period and the project activity is installed, operated and monitored in accordance with the registered PDD.

Crediting period is 25 May 2007 to 24 May 2014 as per information available in the project view page at the UNFCCC web page.

Annex A: Reference Documents and Interviews.

A.1: Documents

Reference	Title and version	Date
1	Monitoring Report for 'Sasol Nitrous Oxide Abatement Project, SASOL – 6 th Monitoring Report v. Final for Publication (made available for public consultation) SASOL – 6 th Monitoring Report 4 (Final)	22 August 2014 30 January 2015
2	ER calculation spreadsheet SECUNDA TOTAL – ER Calculation v.01 and SASOLBURG TOTAL – ER Calculation v.01 SECUNDA TOTAL – ER Calculation v.04 and SASOLBURG TOTAL – ER Calculations v.04	30 July 2014 30 January 2015
3	Project Design Document Registered PDD for Sasol Nitrous Oxide Abatement Project, version 05	31 January 2007
4	Monitoring Plan Monitoring Plan for the Sasol Nitrous Oxide Abatement Project -Section B.7 and Annex 4 (Monitoring Information) of PDD	31 January 2007
5	Validation Report Validation report prepared by Det Norske Veritas for Sasol Nitrous Oxide Abatement Project in South Africa – Revision no 01	07 February 2007
6	Previous Verification Reports Verification report for the 1 st to 5 th monitoring period prepared by Tuv SUD	
7	Project view page on the UNFCCC website http://cdm.unfccc.int/Projects/DB/DNV-CUK1171877538.97/view	
8	Approved Methodology and methodological tools applied for the project: AM0034 ver. 2 - Catalytic reduction of N ₂ O inside the ammonia burner of nitric acid plants AM0028 - Catalytic reduction of N ₂ O in the tail gas of Nitric Acid or Caprolactam Productions Plants (used to select the baseline scenario).	
9	CDM validation and verification standard (VVS), version 07.0	
10	Weekly production reports for Sasolburg plant (NOX weekly report files) and daily reports for Secunda plant (files: N-Balance)	
11	Internal Procedures – Project Operation: SSBCDM-0012 - Description of the Data Logging Systems AMS SSBCDM-0013 - Instrument Description	

Reference	Title and version	Date
	Sasol 0081 (work instruction) – ABB, Uras14, the calibration of the analyser SSBCDM-0024 - Interpretation of Shewart Control Charts in CDM Project activities	
12	Internal Procedures -Roles and responsibilities & competence: GENCDM-0002 - Designation of Responsibility for both CDM Projects Secunda & Sasolburg GENCDM 0003 - CDM Project File Structure GENCDM0004 - Competence, Training and Awareness GENCDM – 0007 - Clean Development Mechanism (CDM) Project Management Procedure	
13	Validation N ₂ O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – 16 and 17 August 2010 EN1481 AST Validation N ₂ O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – 16 th August, 2011 Validation N ₂ O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – 24 th January 2012 EN1481 AST Validation N ₂ O measurements at Sasol Nitro acid plant located in Sasolburg – SGS – 13 and 14 August 2012 EN1481 AST QAL2 N ₂ O and Flow measurements at Sasol Nitro acid plant located in Sasolburg – SGS – 12 and 13 August 2013	
14	Validation N ₂ O measurement at the Sasol Nitro acid plant located in Secunda – SGS – 20 th August 2010 EN1481 AST QAL2 N ₂ O measurements at the Sasol Nitro acid plant located in Secunda – SGS – 18th August 2011 EN1481 AST Validation N ₂ O measurements at the Sasol Nitro acid plant located in Secunda – SGS – 20 and 21 August 2012 EN1481 AST QAL2 N ₂ O and flow measurements at the Sasol Nitro acid plant located in Secunda – SGS – 15 to 17 August 2013	
15	Flowsic 100 – gas velocity monitor Manual	
16	List of critical instruments – Sasolburg site	
17	Critical instrumentation equipment – CDM Project Activities list – SECCDM-0010 - Secunda site	12 March 2012
18	Daily events log book - Sasolburg site (files under NOX main events log book)	
19	Daily events log book - Secunda site (files under Nitric Acid logbook title)	
20	Service and calibration reports for the infrared gas analyzer model AO2040 (Sasolburg Site)	
21	Service and calibration reports for the infrared gas analyzer model AO2040 (Secunda Site)	
22	Service and calibration reports for the ultrasonic transducer model Flowsick 100 (Sasolburg Site)	
23	Service and calibration reports for the annubar device (Secunda Site)	

Reference	Title and version	Date
24	Service and calibration reports for the Coriolis type mass flow micromotion 2700 manufactured by Rosemount (Sasolburg Site)	
25	Service and calibration reports for the Coriolis type mass flow Promass 83F model manufactured by Endress & Hauser (Secunda Site)	
26	Service and calibration reports for the temperature probe type K model iTemp TMT 181 manufactured by Endress & Hauser (Sasolburg)	
27	Service and calibration reports for the temperature probe RTD model 3095 manufactured by Rosemount (Secunda)	
28	Service and calibration reports for the pressure transmitter model 3051 manufactured by Rosemount (Sasolburg).	
29	Service and calibration reports for the pressure transmitter model 3095 also manufactured by Rosemount (Secunda).	
30	Sasol_confirmation_gauze-composition (letter from Gauze W.C.Heraeus GmbH informing Gauze composition for Sasol Nitro Secunda and Sasol Nitro Sasolburg)	
31	Baseline emission factor recalculation Sasolburg: File: Sasolburg EFBL – recalculation ver 1	
32	Baseline emission factor recalculation Secunda: Files SecundaEFBL – recalculation ver 1	
34	Gauze composition Secunda and Sasolburg - Files: Sasol_confirmation_gauze-composition (letter from Gauze W.C.Heraeus GmbH informing Gauze composition for Sasol Nitro Secunda)	18 November 2014

A.2: Persons interviewed

Reference	Name	Title & Organisation	Main topics discussed
1	Nuria Zanzottera	Assessor - MERCURIA Energy Trading S.A.	Data usage and calculations
2	Pablo Fernandez	Head of Portfolio Management /MERCURIA Energy Trading S.A.	Data usage, calculations and MR preparation
3	Martinette Reyneke	CDM Practitioner/Sasol Nitro	Data management, calibration and maintenance during the monitoring period at Sasolburg and Secunda
4	Paul Venter	Quality Manager/ Sasol Nitro	Data management, calibration and maintenance during the monitoring period at Sasolburg and Secunda
5	Fred Van Heerden	Control System specialist/Sasol Nitro	Project Operation, daily events ,site tour, calibration and maintenance during the monitoring period at Sasolburg
6	Christo van Schakwyk	Process Engineer/Sasol Nitro	Site visit and Calibration at Sasolburg
7	Thabiso Seboka	Business Analyst/ Sasol Nitro	Data management, calibration and maintenance during the monitoring period at Sasolburg.
8	William Locke	Consultant/Sasol Nitro	Project Operation, daily events ,site tour, calibration and maintenance during the monitoring period at Secunda
9	Sankelo Mthlane	Acting Lab Manager/ Sasol Fertilizer	Calibration at Secunda
10	Bobby Nathnagel	Environmental , Health and Safety officer/ Sasol Fertilizer	Site tour Secunda

Document template history
DO NOT DELETE

Approver's Name		Melanie Eddis
Approver's Title		Head of Climate Change
Date	Version Number	Change
09 February 2009	Version1	Initial Adoption
30 November 2009	Version 1.1	Editorial and structural updates
22 July 2010	Version 2	Editorial and structural updates
22 October 2011	Version 3	Editorial and structural updates
01 May 2012	Version 4	Revision of template to comply with the VVS
30 Oct 2012	Version 5	Updates to cross checks and calibration independence. Minor updates to Section 5 (post registration changes)
22 Nov 2012	Version 6	Corrections and update to Section 6. Structural adjustments.
10 Dec 2012	Version 7	Changes that reflect use of VVS version 03
14 Jan 2014	Version 8	Revised following performance assessment on project #2964, to include additional questions: to assess other facilities at the project site which could impact upon the project activity under verification; on energy/mass flows in order to assess waste gas flows, sources and usage; to assess the appropriateness of the calibration method; and to require reporting on real time checks of meters, where applicable.