



Validation report form for post-registration changes for CDM project activities
(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for post-registration changes for CDM project activities" at the end of this form.

VALIDATION REPORT ON POST-REGISTRATION CHANGES (PRCs)

Title and reference number of the project activity	N2O ABATEMENT PROJECT AT NITRIC ACID PLANT NO. 11 AT AFRICAN EXPLOSIVES LTD. (AEL), SOUTH AFRICA UNFCCC ID: 1364 TN P-No. : 8000457336 – 16/028			
Process track	<input checked="" type="checkbox"/> Prior approval <input type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period			
Version number of the validation report on PRCs	Version 1.0			
Completion date of the validation report on PRCs	23/12/2016			
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan to a registered project activity <input checked="" type="checkbox"/> Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline <input type="checkbox"/> Changes to the project design of a registered project activity <input type="checkbox"/> Types of changes specific to afforestation and reforestation project activities			
Version number of PDD to which this report applies	Version 2			
Project participant(s)	AEL Mining Services Limited N.serve Environmental Services GmbH Nordic Environment Finance Corporation			
Host Party	South Africa			
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 2 3 4	Energy Industries (renewable- /non-renewable sources) Energy distribution Energy demand Manufacturing industries

CDM-PRCV-FORM

	<input checked="" type="checkbox"/>	5	Chemical industry
	<input type="checkbox"/>	6	Construction
	<input type="checkbox"/>	7	Transport
	<input type="checkbox"/>	8	Mining/Mineral production
	<input type="checkbox"/>	9	Metal production
	<input type="checkbox"/>	10	Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/>	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/>	12	Solvents use
	<input type="checkbox"/>	13	Waste handling and disposal
	<input type="checkbox"/>	14	Afforestation and Reforestation
	<input type="checkbox"/>	15	Agriculture
	<input type="checkbox"/>	16	Carbon capture and storage
Applied Methodology(ies) and/or standardized baseline		AM0034 Version 2 - "Catalytic reduction of N ₂ O inside the ammonia burner of nitric acid plants"	
Name of DOE		TÜV NORD CERT GmbH	
Name, position and signature of the approver of the validation report on PRCs		 Rainer Winter, Final Approver	

SECTION A. Executive summary

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AEL Mining Services Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the assessment on post registration changes for the project:

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

with regard to the relevant requirements for CDM project activities.

The project activity aims to reduce levels of N₂O emissions from the production of nitric acid with secondary N₂O abatement technology (secondary catalyst).

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

Table A-1:Project Characteristics

Item	Data	
Project title	N ₂ O ABATEMENT PROJECT AT NITRIC ACID PLANT NO. 11 AT AFRICAN EXPLOSIVES LTD. (AEL), SOUTH AFRICA	
Project type	<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> PoA
Project size	<input checked="" type="checkbox"/> Large Scale	<input type="checkbox"/> Small Scale
Technical Area(s)	5.2: Caprolactam, nitric and adipic acid	
Location	See table A-2.	
Crediting period	<input type="checkbox"/> Renewable Crediting Period (7 y) <input checked="" type="checkbox"/> Fixed Crediting Period (10 y)	

Details of the project location are given in table A-2 below:

Table A-2: Project Location

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

Basic technical details of the project are summarized in table A-3.

Table A-3: Technical data of the project activity as per PDD version 2 and technical data sheets as well as supporting documents

Parameter	Unit	Value
Design capacity	100% tHNO ₃ /a	282,875 (775 metric tonnes per day with 365 operating days per year)
OT _{normal}	°C	820 – 905
OP _{normal}	kPa (gauge)	365 - 450
AFR _{max}	tNH ₃ /h	9.094
AIFR _{max}	%	11,5
CL _{normal}	tHNO ₃	127,302.4
CL _{BL}	tHNO ₃	134,700
GS _{normal} (Gauze supplier for the campaigns under this monitoring period)	-	W.C Heraeus
GC _{normal} (Gauze composition for the campaigns under this monitoring period)	%	Platinum (Pt) 56.5 Rhodium (Rh) 3.8 Palladium (Pd) 39.7

For a detailed project description please refer to the registered PDD and/or the latest verification report.

SECTION B. Validation team, technical reviewer and approver

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On the basis of a competence analysis and individual availabilities an assessment team, consistent of one team leader and no further additional team members, were appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the following table below.

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Winter	Stefan	TN CERT GmbH	X	x	X	X
2.	Team member	EI	Kochaniewicz	Gregor	-	x	x	x	x

B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer/Approver	IR	Winter	Rainer	TÜV NORD CERT
2.	Technical Reviewer	EI	Li	Yongjun	-

SECTION C. Means of validation**C.1. Desk review**

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The *assessment of post registration changes* consisted of the following steps:

- Appointment of team members and technical reviewers
- A desk review of the registered and revised PDD^{/PDD/} submitted by the client and additional supporting documents
- On-Site assessment (if required)
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Resolution of corrective actions (CARs / CLs) (if any)
- Final reporting
- Technical review
- Final approval.

In this case all activities were carried subsequent to the 8th verification of this project activity. The request for issuance for the 8th verification has already been submitted.

The registered as well as the revised PDD and supporting background documents related to the project design and the post registration changes were reviewed.

As far as required the assessment team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

A list all documents reviewed or referenced during this validation is presented in Appendix 4.

C.2. On-site inspection

Duration of on-site inspection: 15/03/2016 to 16/03/2016				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening Meeting: <ul style="list-style-type: none">• Introduction of participants;• Detailed audit planning;• Induction by the plant	AEL Mining Ltd	15/03/2016	Stefan Winter, Gregor Kochaniewicz
2.	Check of operation and management changes, with regards to application of new methodology	AEL Mining Ltd		
3.	<ul style="list-style-type: none">• Plant performance and update on recent changes and QA/QC measures:• Changes of<ul style="list-style-type: none">• Technical Setup• Instrumentation• Personnel / Responsibilities• Plant performance<ul style="list-style-type: none">• Shut-downs,• Gauze changes• Problems• QAL2 measurements• Other calibrations	AEL Mining Ltd		
4.	Preparation of site visit: <ul style="list-style-type: none">• PPE etc.• P&I diagrams• Technical Specifications	AEL Mining Ltd		
5.	Site/Plant Visit: <ul style="list-style-type: none">• Control room• Analyzer cabinet• Field equipment• Laboratory	AEL Mining Ltd		
6.	Data analysis and calculation: <ul style="list-style-type: none">• Raw data analysis• Check of DCS programming• Check of ER calculation• Counter calculation	AEL Mining Ltd	16/03/2016	
7.	Check of additional evidences: <ul style="list-style-type: none">• Technical data of the plant• Situation of legislation	AEL Mining Ltd		
8.	Quality Management System: <ul style="list-style-type: none">• Check of ISO certificates• Calibration procedure• Data storage/Back-up• Data aggregation and processing• Qualification of personnel	AEL Mining Ltd		
9.	Closing meeting	AEL Mining Ltd		

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Burger	Hendrik	AEL	16/03/2016	All issues	Stefan Winter, Gregor Kochaniewicz
2.	Gutknecht-Stöhr	Niko	n.serve			
3.	Govender	Dan	AEL			

C.4. Clarification requests, corrective action requests and forward action requests raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	-	-
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	-	-	-
Corrections	-	-	-
Changes to the start date of the crediting period	-	-	-
Inclusion of a monitoring plan to a registered project activity	-	-	-
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	-	-	-
Changes to the project design of a registered project activity	-	-	-
Types of changes specific to afforestation and reforestation project activities	-	-	-
Others (please specify)	-	-	-
Total	0	0	0

SECTION D. Validation findings**D.1. Compliance with PDD form**

Means of validation	The project participants used a later version of the PDD form for the revised PDD than the version of the PDD form of the registered PDD. By means of checking updated PDD with the latest applicable and available PDD template form the DOE can confirm that the information transferred to the later version of the PDD form is materially the same as that in the registered PDD besides those changes highlighted and assessed under this report.
Findings	-
Conclusion	The updated PDD is in line with the latest applicable PDD form.

D.2. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	Type of change(s):	<input type="checkbox"/>	Temporary Deviation from Monitoring Plan	
		<input type="checkbox"/>	Temporary Deviation from Monitoring Methodology	
	Description of post registration change			
	Start Date: Please provide the start date of the change	DD/MM/YYYY	End Date: Please provide the end date of the change, if applicable	DD/MM/YYYY
	Description: Please give a detailed description of the change(s)	n.a.		
	Assessment of post registration change – Temporary deviations from MP or MM			
	Accuracy: Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.			
Conservative-ness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to				

	ensure that ER will not be overestimated.	
	Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	
Findings		
Conclusion	Based on the above the temporary deviation(s) from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline in the VVS.	
	Revised PDD	
	Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input type="checkbox"/> The changes have correctly been reflected in the revised PDD. <input type="checkbox"/> A revision of the PDD is not required (in case of temp. changes). <input type="checkbox"/> The revised PDD has been forwarded in (i) track-change and (ii) clean version.
	Prior Approval	
	Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/> The post registration change requires prior approval <input type="checkbox"/> The post registration change does not require prior approval

D.3. Corrections

Means of validation	Description of post registration change			
	Start Date: Please provide the start date of the change	12/08/2016	End Date: Please provide the end date of the change, if applicable	07/02/2018
	Description: Please give a detailed description of the change(s)	The following main corrections have been applied to the new PDD next to editorials: 1. Transfer to PDD template ver 7 2. Updated name of PP as per previous acceptance of UNFCCC 3. Update of PPs as per UNFCCC project webpage		
	Assessment of post registration change – Corrections			
	Accuracy: Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The conducted corrections are accurately reflected in the updated PDD as checked with UNFCCC project webpage and documents found during latest verification.		
	Conservative-ness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	The corrections do not refer to calculation of ER.		
	Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	The changes are as per PS Appendix 1 Point 1.		
Findings	-			
Conclusion	Based on the above stated the corrections to the registered PDD are in accordance			

with applicable validation requirements related to the corrections in the VVS.

Revised PDD**Rev. of PDD:**

Check whether the changes have been fully addressed in a revised PDD.



The changes have correctly been reflected in the revised PDD.



A revision of the PDD is not required (in case of temp. changes).



The revised PDD has been forwarded in (i) track-change and (ii) clean version.

Prior Approval**Prior approval:**

Assess whether the change requires prior approval of the board



The post registration change requires prior approval



The post registration change does not require prior approval

D.4. Changes to the start date of the crediting period

Means of validation	Description of post registration change																																																
	<table border="1"> <tr> <td> Start Date: Please provide the registered start date of the CP. </td><td>DD/MM/YYYY</td><td> Revised Start Date: Please provide the proposed revised start date of the CP </td><td>DD/MM/YYYY</td></tr> <tr> <td> Description: Please give a detailed description /reasoning of the requested revision of CP starting date: </td><td colspan="3">n.a.</td></tr> <tr> <td> LDC: Please check if the host country is an LDC. In case of LDCs the timeframes of the below defined categories are to be doubled. </td><td><input type="checkbox"/></td><td colspan="2">The host country is a LDC</td></tr> <tr> <td></td><td><input type="checkbox"/></td><td colspan="2">The host country is not a LDC</td></tr> <tr> <td> Categories: Please check under which category - as defined below – the requested changes fall. In case of LDCs the timeframes are to be doubled. </td><td><input type="checkbox"/></td><td colspan="2">Category A: $> \pm 2$ a</td></tr> <tr> <td></td><td><input type="checkbox"/></td><td colspan="2">Category B: $< \pm 1$ a; not before registration date</td></tr> <tr> <td></td><td><input type="checkbox"/></td><td colspan="2">Category C: $(SD_{old} \pm 1 \text{ a}) \leq SD_{new} \leq (SD_{old} \pm 2 \text{ a})$</td></tr> <tr> <th colspan="4">Assessment of post registration change</th></tr> <tr> <td> Cat. A: $> \pm 2$ a Changes of start date of more than 2 years (4 years for LDCs) are not allowed as per the PS. </td><td><input type="checkbox"/></td><td colspan="2">The change is a cat. A case. The change of the CP start date as requested by the PP is not allowed as per the PS. Thus a corresponding CAR has been raised.</td></tr> <tr> <td> Cat. B: $< \pm 1$ a Prior notification is not required if changes of less than 1 year are requested. The CP start date shall not be earlier than the date of the project registration. </td><td><input type="checkbox"/></td><td colspan="2">The change is a cat. B case. The proposed new CP start date differs less than ± 1 year (2 years in case of LDCs) from the registered CP start date. Furthermore it is confirmed that the proposed new CP start date is not before the registration date of the PA. Thus a prior approval is not required.</td></tr> <tr> <td> Cat. B: $\pm 1 \text{ a} < SD < \pm 2 \text{ a}$ Check whether the project falls under this category. If yes prior </td><td><input type="checkbox"/></td><td colspan="2">The change is a cat. C case.</td></tr> <tr> <td></td><td><input type="checkbox"/></td><td colspan="2">The PPs have provided the assessment team with a sufficient demonstration regarding (i) potential effects on the baseline and (ii) progress made to start the project.</td></tr> </table>	Start Date: Please provide the registered start date of the CP.	DD/MM/YYYY	Revised Start Date: Please provide the proposed revised start date of the CP	DD/MM/YYYY	Description: Please give a detailed description /reasoning of the requested revision of CP starting date:	n.a.			LDC: Please check if the host country is an LDC. In case of LDCs the timeframes of the below defined categories are to be doubled.	<input type="checkbox"/>	The host country is a LDC			<input type="checkbox"/>	The host country is not a LDC		Categories: Please check under which category - as defined below – the requested changes fall. In case of LDCs the timeframes are to be doubled.	<input type="checkbox"/>	Category A: $> \pm 2$ a			<input type="checkbox"/>	Category B: $< \pm 1$ a; not before registration date			<input type="checkbox"/>	Category C: $(SD_{old} \pm 1 \text{ a}) \leq SD_{new} \leq (SD_{old} \pm 2 \text{ a})$		Assessment of post registration change				Cat. A: $> \pm 2$ a Changes of start date of more than 2 years (4 years for LDCs) are not allowed as per the PS.	<input type="checkbox"/>	The change is a cat. A case. The change of the CP start date as requested by the PP is not allowed as per the PS. Thus a corresponding CAR has been raised.		Cat. B: $< \pm 1$ a Prior notification is not required if changes of less than 1 year are requested. The CP start date shall not be earlier than the date of the project registration.	<input type="checkbox"/>	The change is a cat. B case. The proposed new CP start date differs less than ± 1 year (2 years in case of LDCs) from the registered CP start date. Furthermore it is confirmed that the proposed new CP start date is not before the registration date of the PA. Thus a prior approval is not required.		Cat. B: $\pm 1 \text{ a} < SD < \pm 2 \text{ a}$ Check whether the project falls under this category. If yes prior	<input type="checkbox"/>	The change is a cat. C case.			<input type="checkbox"/>	The PPs have provided the assessment team with a sufficient demonstration regarding (i) potential effects on the baseline and (ii) progress made to start the project.	
Start Date: Please provide the registered start date of the CP.	DD/MM/YYYY	Revised Start Date: Please provide the proposed revised start date of the CP	DD/MM/YYYY																																														
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Cat. A: $> \pm 2$ a Changes of start date of more than 2 years (4 years for LDCs) are not allowed as per the PS.	<input type="checkbox"/>	The change is a cat. A case. The change of the CP start date as requested by the PP is not allowed as per the PS. Thus a corresponding CAR has been raised.																																															
Cat. B: $< \pm 1$ a Prior notification is not required if changes of less than 1 year are requested. The CP start date shall not be earlier than the date of the project registration.	<input type="checkbox"/>	The change is a cat. B case. The proposed new CP start date differs less than ± 1 year (2 years in case of LDCs) from the registered CP start date. Furthermore it is confirmed that the proposed new CP start date is not before the registration date of the PA. Thus a prior approval is not required.																																															
Cat. B: $\pm 1 \text{ a} < SD < \pm 2 \text{ a}$ Check whether the project falls under this category. If yes prior	<input type="checkbox"/>	The change is a cat. C case.																																															
	<input type="checkbox"/>	The PPs have provided the assessment team with a sufficient demonstration regarding (i) potential effects on the baseline and (ii) progress made to start the project.																																															

	<p>approval is required. The assessment team shall assess on the basis of a demonstration by the PPs whether the conservativeness of the baseline is not affected by changes that have occurred in-between. Further it has to be assessed, whether substantive progress has been made by the PPs to start the project activity.</p>	<input type="checkbox"/>	<p>On the basis of a detailed analysis of the PP's demonstration as well as background investigation (incl. on-site inspection) the assessment team confirms that no changes have occurred to the PA which would result in a less conservative baseline. This assessment is based on the following considerations: < further details ></p>																									
		<input type="checkbox"/>	<p>On the basis of a detailed analysis of the PP's demonstration as well as background investigation (incl. on-site inspection) the assessment team confirms that substantive progress has been made by the PPs to start the PA. This assessment is based on the following considerations: < further details ></p>																									
Findings																												
Conclusion	<p>Based on the assessment above the changes to the start date of the crediting period are in accordance with applicable validation requirements related to the changes to the start date of the crediting period in the VVS.</p> <table border="1"> <tr> <td colspan="4">Revised PDD</td></tr> <tr> <td rowspan="3"> Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD. </td><td> <input type="checkbox"/> </td><td colspan="2">The changes have correctly been reflected in the revised PDD.</td></tr> <tr> <td> <input type="checkbox"/> </td><td colspan="2">A revision of the PDD is not required (in case of temp. changes).</td></tr> <tr> <td> <input type="checkbox"/> </td><td colspan="2" rowspan="2">The revised PDD has been forwarded in (i) track-change and (ii) clean version.</td></tr> <tr> <td colspan="4">Prior Approval</td></tr> <tr> <td rowspan="2"> Prior approval: Assess whether the change requires prior approval of the board </td><td> <input type="checkbox"/> </td><td colspan="2">The post registration change requires prior approval</td></tr> <tr> <td> <input type="checkbox"/> </td><td colspan="2">The post registration change does not require prior approval</td></tr> </table>			Revised PDD				Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input type="checkbox"/>	The changes have correctly been reflected in the revised PDD.		<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).		<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.		Prior Approval				Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval		<input type="checkbox"/>	The post registration change does not require prior approval	
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Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval																										
	<input type="checkbox"/>	The post registration change does not require prior approval																										

D.5. Inclusion of a monitoring plan to a registered project activity

Means of validation	Description of post registration change			
	Start Date: Please provide the start date of the change	DD/MM/YYYY	End Date: Please provide the end date of the change, if applicable	DD/MM/YYYY
	Description: Please give a detailed description of the change(s)	n.a.		
	Assessment of post registration change – Inclusion of a MP			
	MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.			
	Later version of MM: Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.			

	Accuracy: Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.																							
	Conservativeness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.																							
	Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.																							
Findings																								
Conclusion	Based on the above stated the inclusion of a monitoring plan to the registered project activity is in accordance with applicable validation requirements related to the inclusion of a monitoring plan to a registered project activity in the VVS.																							
	<table border="1"> <tr> <td colspan="3">Revised PDD</td> </tr> <tr> <td> Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD. </td> <td> <input type="checkbox"/> </td> <td>The changes have correctly been reflected in the revised PDD. </td> </tr> <tr> <td></td> <td> <input type="checkbox"/> </td> <td>A revision of the PDD is not required (in case of temp. changes). </td> </tr> <tr> <td></td> <td> <input type="checkbox"/> </td> <td>The revised PDD has been forwarded in (i) track-change and (ii) clean version. </td> </tr> <tr> <td colspan="3">Prior Approval</td> </tr> <tr> <td> Prior approval: Assess whether the change requires prior approval of the board </td> <td> <input type="checkbox"/> </td> <td>The post registration change requires prior approval </td> </tr> <tr> <td></td> <td> <input type="checkbox"/> </td> <td>The post registration change does not require prior approval </td> </tr> </table>			Revised PDD			Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input type="checkbox"/>	The changes have correctly been reflected in the revised PDD.		<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).		<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.	Prior Approval			Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval		<input type="checkbox"/>	The post registration change does not require prior approval
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Prior Approval																								
Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval																						
	<input type="checkbox"/>	The post registration change does not require prior approval																						

D.6. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

Means of validation	Type of change(s):	<input checked="" type="checkbox"/>	<i>Permanent Change from Monitoring Plan</i>	
		<input type="checkbox"/>	<i>Permanent Change from Monitoring Methodology</i>	
	Description of post registration change			
	Start Date: Please provide the start date of the change	12/08/2016	End Date: Please provide the end date of the change, if applicable	07/02/2018
	Description: Please give a detailed description of the change(s)	<ol style="list-style-type: none"> 1. Correction of the ex-ante fixed parameters in accordance with the values verified during first verification. 2. Deletion of reference to ISO9001/14001 verifier (SABS) in B.6.2 and B.7.1. 3. Update of Section B.6.3 w.r.t. the actual values verified during first verification of the determination method and calculation of baseline campaign esp. parameter EF_{BL}. 4. Specifications w.r.t. monitoring frequency or calibration details 		
Assessment of post registration change – Permanent changes from MP or MM				

	MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.	1. W.r.t. the update of the values, this is line with the related applied methodology. Besides further details w.r.t. the calibration of related measurement equipment has been provided. 2. The deletion is in line with the methodology. As the PDD has specified the name of the related verifier a sentence and the name has been deleted as also other verifier could conduct the related audit service. The updated PDD is now providing general statements. Therefore this is in line with the methodology. 3. The update of the determination method and the calculation of esp. parameter EF_{BL} is as per related methodology. Further based on the update of the values the ex-ante emission reductions result has been affected and updated as well. 4. The updates w.r.t. monitoring frequency and calibration have been checked during site visit for latest monitoring period 8 as well as related certificates. Therefore in line with methodology or related tools. The correctness of updated data and values has been checked against verification report of monitoring period 1 ^{/VER/} , ER spreadsheet of previous verification report ^{/XLS/} as it contains all baseline calculations and data as well as related calibration sheets esp. those for QAL and AST. Based on that all changes are correct and in line with the methodology.
	Later version of MM: Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	Not applicable
	Accuracy: Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.	The applied changes especially those w.r.t. the update reflecting the values of the baseline campaign as verified during first verification increases the accuracy of the previous calculated ex-ante emission reduction which have been based on plant design parameters as stated in Appendix 5 of the revised PDD. The updates w.r.t. monitoring frequency and calibration have been checked during site visit for latest monitoring period 8 as well as related certificates.
	Conservativeness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	As the applied revised values are verified during first verification which has already been issued and that the values in the first verification report have been crosschecked with the updated PDD the ex-ante ER result is accurate and therefore not leading to overestimation. The updated ex-ante ER result is lower than the previous stated results.
	Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	The issue does not fall to any of the issues mentioned in PS Appendix 1.
Findings	-	
Conclusion	Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in	

accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.		
Revised PDD		
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.
	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).
	<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.
Prior Approval		
Prior approval: Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval
	<input type="checkbox"/>	The post registration change does not require prior approval

D.7. Changes to the project design of a registered project activity

Means of validation	Type of change(s):	<input type="checkbox"/>	<i>Changes to the project design</i>	
		<input type="checkbox"/>	<i>Changes to the PoA design</i>	
	Description of post registration change			
	Start Date: Please provide the start date of the change	DD/MM/YYYY	End Date: Please provide the end date of the change, if applicable	DD/MM/YYYY
	Description: Please give a detailed description of the change(s)	n.a.		
	Applicability and application of the Approved Baseline Methodology			
	Description: Please give a detailed description on how the changes affect the applicability and application of the approved Baseline Methodology. Check if the actual changes would adversely affect the conclusions during validation.			
	Additionality assessment			
	Description: Please give a detailed description re-assessment of additionality, Check whether the actual changes would adversely affect the conclusions during validation. If required please make use of the assessment tables in the annex.			
	Scale of the Project activity			
Description: Please give a detailed description regarding the effect of the changes on the scale of the PA (i.e. LSC or SSC).				

	Revised PDD		
	Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD. In this context pl. refer to <ul style="list-style-type: none"> - Changes in the effect-tive output capacity. - Addition of components or extension of technology - In case of multiple site projects: Removal or addition of sites - Operational parameters under the control of PPs differing from expected parameters - Changes to the baseline Meth (e.g. addition of a new Meth or change of the BL scenario. - Effects with regards to B, C and D above incl. compliance with the MP and level of accuracy and completeness of monitoring. 	<input type="checkbox"/>	The post registration change has correctly been reflected in the revised PDD. This assessment is based on the following considerations: -
Findings			
Conclusion	Based on the above the changes to the project design of a registered project activity are in accordance with applicable validation requirements related to the changes to the project design of a registered project activity in the VVS.		
	Traceability: Check if the PPs have provided a revised PDD in both clean and track-change version.	<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.
	Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The changes do not raise concerns with respect to aspects outlined in the PS: <ul style="list-style-type: none"> a. applicability and application of the Approved Baseline Methodology under which the project activity has been registered. b. additionality of the project c. scale of the CDM project activity and Prior Approval by the Board is not required.
		<input type="checkbox"/>	The post registration change requires prior approval.

D.8. Types of changes specific to afforestation and reforestation project activities

Means of validation	n.a.
Findings	
Conclusion	Based on the above the changes specific to afforestation and reforestation project activities are in accordance with applicable validation requirements related to the types of changes specific to afforestation and reforestation project activities in the VVS.

SECTION E. Internal quality control

>>

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

As a result of the technical review process the assessment opinion as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

SECTION F. Validation opinion

>>

The below listed changes have occurred after the registration of the project / PoA.

Type of Change occurred	Total No. of changes	No. of changes which require prior approval
<input type="checkbox"/> Temporary deviations from the MP	-	-
<input type="checkbox"/> Temporary deviations from the MM	-	-
<input checked="" type="checkbox"/> Corrections that do not affect the project	3	0
<input type="checkbox"/> Change to the start date of the crediting p.	-	-
<input checked="" type="checkbox"/> Permanent changes from the MP	4	4
<input type="checkbox"/> Permanent changes from the MM	-	-
<input type="checkbox"/> Design changes to the project activity / PoA	-	-
<input type="checkbox"/> Changes specific to AR projects	-	-

The above listed post registration changes require prior approval of the Board.

Essen, 23/12/2016



Stefan, Winter
TÜV NORD JI/CDM CP
Assessment Team Leader

Essen, 23/12/2016




Rainer, Winter
TÜV NORD JI/CDM CP
Final Approval

Appendix 1. Abbreviations

Abbreviations	Full texts
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO₂	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
DNA	Designated National Authority
EB	CDM Executive Board
GHG	Greenhouse gas(es)
PA	Project activity
PDD	Project Design Document
PoA	Programme of Activities
PRC	Post Registration Changes
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JICDM Certification Program

Mr. Stefan Winter


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

Authorization status for technical areas within sectoral scopes:

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

163 - Rev. 4, Date: 2015-01-05

163_S01-VA050-F20_2015-01-05_rev4.doc S01-VA050-F20 rev3 / 2012-10-25



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JICDM Certification Program

Mr. Grzegorz Kochaniewicz


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2019-02-08
VCS / ISO 14064-2	Senior Assessor	2019-02-08

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy Demand
14.1	Afforestation and Reforestation

173 - Rev. 7, Date: 2016-02-09

173_S01-VA050-F20_2016-02-09_rev7.doc S01-VA050-F20 rev3 / 2012-10-25



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JICDM Certification Program

Mr. Rainer Winter


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2016-07-01
J1	Senior Assessor Technical Reviewer	2016-07-01
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2016-07-01

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.1	Thermal Energy Generation	
1.2	Renewables	
4.1	Cement and lime production	
4.2	Paper	
5.1	Chemical Industry	
5.2	Caprolactam, nitric and adipic acid	
8.1	Mining/mineral production	
9.1	Aluminum and magnesium production	
9.2	Iron, steel and Ferro-alloy production	
11.2	Refrigerant gas production	
12.1	Chemical industry	
13.1	Solid waste and wastewater	

003 - Rev. 9, Date: 2015-05-18

003_003_S01-VA050-F20_2015_05_18_rev9.doc S01-VA050-F20 rev3 / 2012-10-25



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JICDM Certification Program

Mr. Yongjun Li

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2019-06-28
VCS / ISO 14064-2	Senior Assessor (Validation, Verification) Technical Reviewer	2019-06-28

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
13.1	Solid waste and wastewater

039 - Rev. 6, Date: 2016-10-26

039_S01-VA050-F20_2016-10-26_rev6.doc S01-VA050-F20 rev3 / 2012-10-25

Appendix 3. Documents reviewed or referenced

No.	Reference	Author	Title	References to the document	Provider
1	UNFCCC	/AM34/	ACM0034 "Catalytic reduction of N ₂ O inside the ammonia burner of nitric acid plants", version 2		Other
2	DOE	/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)		Other
3	IPCC	/IPCC/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	www.ipcc-nggip.iges.or.jp	Other
4	UNFCCC	/KP/	Kyoto Protocol (1997)	http://unfccc.int/kyoto_protocol/items/2830.php	Other
5	UNFCCC	/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)	http://cdm.unfccc.int/Reference/COPMOP/index.html	Other
6	PP	/MR/	Monitoring Report for CDM project: "N ₂ O ABATEMENT PROJECT AT NITRIC ACID PLANT NO. 11 AT AFRICAN EXPLOSIVES LTD. (AEL), SOUTH AFRICA" N ₂ O abatement project at nitric acid plant No. 11 at African Explosives Ltd. (AEL), South Africa" version 03, dated 10/06/2016		Other
7	UNFCCC	/PDD-T/	Project Design Document Form (F-CDM_PDD) (Version 6.0)	https://cdm.unfccc.int/Reference/PDDs_Forms/index.html	Others
8	UNFCCC	/PDD/	Project Design Document for CDM project: "N ₂ O ABATEMENT PROJECT AT NITRIC ACID PLANT NO. 11 AT AFRICAN EXPLOSIVES LTD. (AEL), SOUTH AFRICA" version 1.c, dated 25/09/2007 Revised PDD reflecting the intended / implemented changes version 2 dated 08/07/2016		Other
9	UNFCCC	/PS/	CDM Project Standard (Version 9.0)	http://cdm.unfccc.int/Reference/Standards/index.html	Other
10	PP	/VAL/	Validation Report for CDM project "N ₂ O abatement project at nitric acid plant No. 11 at African Explosives Ltd. (AEL), South Africa" version 1, dated 27/09/2007		Other
11	PP/UNFCCC	/VER/	Documents of previous verifications (Monitoring report, verification report, ER calculation sheet) especially 1 st verification	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1190979826.1/view	Other
12	UNFCCC	/VVS/	CDM Validation and Verification Standard (Version 09.0)	http://cdm.unfccc.int/Reference/Standards/index.html	Other
13	UNFCCC	/SAMPL E/	"Guidelines for Sampling and Surveys for CDM Project Activities and Programme Activities" (Version 03.0) "Standard for Sampling and Surveys for CDM Project Activities and Programme Activities" (version 4.1)	https://cdm.unfccc.int/Reference/Guidclarif/index.html http://cdm.unfccc.int/Reference/Standards/index.html	Other

14	UNFCCC	/TA/	<ul style="list-style-type: none"> • Tool to calculate baseline, project and/or leakage emissions from electricity consumption Version 1 • Tool to calculate the emission factor for an electricity system Version 4.0 • Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 2.0.0 • Upstream leakage emissions associated with fossil fuel use Version 2.0 	http://cdm.unfccc.int/Reference/tools/index.html	Other
15	UNFCCC	/GOT/	Glossary "CDM terms" (version 08.0)	https://cdm.unfccc.int/filestore/e/x/t/extfile-20150226124447549-glos_CDM.pdf/glos_CDM.pdf?t=UmZ8bnFjODI3fDCW9A3vJwR03kQQh4sbLiYu	Other
16	Müller-BBM GmbH	/AST/	Report for AST (03/07/2012 – 04/07/2012) issued by Müller-BBM GmbH, Report Nr: M100097/02 dated 08/08/2012 Report for AST (07/08/2013 and 22/10/2013 – 24/10/2013) issued by Müller-BBM GmbH, Report Nr: M106390/02 dated 13/02/2014 Report for AST (01/03/2016 – 02/03/2016) issued by Müller-BBM GmbH, Report Nr: M124040/02 dated 21/03/2016		PP
17	PP	/BR/	Breakdown reports		PP
18	PP, supplier	/CAL/	<ul style="list-style-type: none"> • Calibration procedures • Calibration certificates and documentation done by supplier • Calibration certificates from day-to-day checks/calibrations and documentation done by AEL • Tax invoice for E+H differential pressure flow meter • Tax invoice for new ABB sampler 		PP
19	Linde Group	/CoC/	Certificate of Conformance for Test Gases: N2O, Nitrogen (zero and span gas)		PP
20	PP	/FSNA/	Flow Sheet Nitric Acid Plant		PP
21	PP SABS	/ISO/	<ul style="list-style-type: none"> • ISO 9001:2008 certificate for "The design, manufacture and supply of ANFO explosives (ammonium nitrate fuel oil), powergel emulsion explosives and energan bulk explosives", • ISO 14001:2004 certificate for "The manufacture, sale and distribution of fertilizer and related products". • Related procedures of the Quality Management System handbook esp. those with respect to the project activity <ul style="list-style-type: none"> - CSQMS0014: Calibration and Maintenance - CSQMS0018: Supplier quality 	https://www.sabs.co.za/Business_Units/Standards_SA/SABSTAN/STANDARDS_DEVELOPMENT/Published_Standards/PS070.PDF	PP

			assurance - CSHR0003: Process operations: Education, Training and Development •List of local standards in South Africa		
22	PP	/LOG/	Record log sheet of operator including main operation data and HNO3 temperature and density taken by manual measurement and concentration.		PP
23	PP	/NATGAS/	Gas Composition Specification for calibration gas for NO, NOx and N2O		PP
24		/OCS/	Actual operating condition values of the N2O destruction facility during the on-site visit. DCS printout on nitric acid concentration calculation by the DCS system		PP
25	PP	/P&I/	P&I Diagram		PP
26	PP	/PPT/	Presentation of the company AEL Mining Services Ltd. and production facilities		PP
27	PP	/PROD/	Production data for the period October 2014 to January 2016 on monthly basis Nitrates balance for year 2014 and 2015		PP
28	TÜV SÜD	/QAL1/	Suitability testing report by TÜV SÜD, Germany, report no. 2410 6657 and 170 608 dated June 2006		PP
29	Müller-BBM GmbH	/QAL2/	Report for QAL2 test (22/06/2011 – 25/06/2011) issued by Müller-BBM GmbH, Report Nr: M92 321/2 , dated 30/09/2011 Report for QAL2 test (23/09/2014 – 25/09/2014) issued by Müller-BBM GmbH, Report Nr: M114144/02 , dated 08/12/2014		PP
30	PP	/QAL3/	Daily and Monthly Check log sheets for the Emerson N2O analysers		PP
31	PP	/RAW/	Raw data: Hourly and monthly summarized data from AMS Technical Managers log spreadsheet		PP
32	PP	/Train/	Training protocols for the operation of the Monitoring System esp. the Analyser.		PP
33	PP	/TS/	Technical data sheets of installed monitoring equipment		PP
34	PP	/XLS/	Initial and final emission reduction calculation spreadsheet ver02 of Monitoring period 8		PP

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 2. CL from this validation

CL ID	xx	Section no.	Date: DD/MM/YYYY
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Description of CL	
<i>n.a.</i>	
Project participant response	Date: DD/MM/YYYY
Documentation provided by project participant	
DOE assessment	
Date: DD/MM/YYYY	

Table 3. CAR from this validation

CAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of CAR				
<i>n.a.</i>				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Table 4. FAR from this validation

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
<i>n.a.</i>				
Project participant response				Date: DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				Date: DD/MM/YYYY

Appendix 5. Assessment of Financial Parameters

Assessment of Financial Parameters (VVS, §§ 129, 130 / in case financial parameters from FSR §131 and §132)

<input type="checkbox"/>	No financial parameters are used for additionality justification					
<input type="checkbox"/>	Assessment of all financial parameters see below					
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
<i>n.a.</i>				//	<input type="checkbox"/>	
				//	<input type="checkbox"/>	
				//	<input type="checkbox"/>	
				//	<input type="checkbox"/>	
				//	<input type="checkbox"/>	
				//	<input type="checkbox"/>	
				//	<input type="checkbox"/>	

Appendix 6. Assessment of Barrier Analysis

Assessment of Barrier Analysis (VVS, §§ 133-136)

<input type="checkbox"/>	No barrier parameters are used for additionality justification			
<input type="checkbox"/>	Assessment of barriers see below			
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
<i>n.a.</i>			<input checked="" type="checkbox"/>	
			<input checked="" type="checkbox"/>	
			<input checked="" type="checkbox"/>	
			<input checked="" type="checkbox"/>	
			<input checked="" type="checkbox"/>	
			<input checked="" type="checkbox"/>	
			<input checked="" type="checkbox"/>	

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	23 March 2015	Initial publication by UNFCCC
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		

TÜV NORD Revision history

<i>Version</i>	<i>Date</i>	<i>Description</i>
3.0	18.06.2015	Adoption of UNFCCC report template to TÜV NORD certification and quality system as well as TÜV NORDs reporting guidance
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		