




**Verification and certification report form for  
CDM project activities  
(Version 04.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the project activity</b>	Transalloys Manganese Alloy Smelter Energy Efficiency Project UNFCCC ID: 1027		
<b>Scale of the project activity</b>	<input checked="" type="checkbox"/> Large-scale <input type="checkbox"/> Small-scale		
<b>Version number of the verification and certification report</b>	1.2		
<b>Completion date of the verification and certification report</b>	16/11/2021		
<b>Monitoring period number and duration of this monitoring period</b>	MP 5 <sup>th</sup> 01/05/2011 – 30/09/2014 (including both days)		
<b>Version number of the monitoring report to which this report applies</b>	5		
<b>Crediting period of the project activity corresponding to this monitoring period</b>	Fixed/Renewable Crediting Period 01/10/2004 – 30/09/2014 (including both days)		
<b>Project participants</b>	Highveld Steel and Vanadium Corporation Limited		
<b>Host Party</b>	Republic of South Africa		
<b>Applied methodologies and standardized baselines</b>	CDM Methodology: AM0038 - Methodology for improved electrical energy efficiency of an existing submerged electric arc furnace used for the production of SiMn ver. 1 and ACM0002 ver. 6 - Consolidated methodology for grid-connected electricity generation from renewable sources  Standardized baseline: N/A		
<b>Mandatory sectoral scopes</b>	Sectoral Scopes: 9 (Metal production) and 1 (Energy industries (renewable - / non-renewable sources))		
<b>Conditional sectoral scopes, if applicable</b>	N/A		
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD</b>	227,739 t CO <sub>2e</sub>		
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period</b>	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
	360,565 <sup>1</sup> t CO <sub>2e</sub>	250,244 t CO <sub>2e</sub>	0 t CO <sub>2e</sub>
<b>Name and UNFCCC reference number of the DOE</b>	TÜV NORD CERT GmbH; E-0022		

<sup>1</sup> rounded down value.

<b>Name, position and signature of the approver of the verification and certification report</b>	 Christina Stöhr Final Approver
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**SECTION A. Executive summary**

Brundtland (Pty) Ltd. in the name of the PP as confirmed by related letter has commissioned the TÜV NORD JI/CDM Certification Program to carry out this periodic verification of the project:

“Transalloys Manganese Alloy Smelter Energy Efficiency Project”

with regard to the relevant requirements for CDM project activities.

This verification covers the period as indicated on the title page.

The project reduces GHG emissions due to the use of higher efficient electric arc furnaces as during baseline due to improvement measures conducted at furnaces number F3, F5 and F7. F1 and F6 furnaces have also been considered to be improved however this did not happen until today. The project activity therefore reduces emission reduction by consuming less electricity from the connected the national grid of South Africa which is mainly fossil fuel dominated.

Details of the project location are given in table A-1 below:

**Table A-1:** Project Location

No.	Project Location
Host Country	South Africa
Region:	Mpumalanga
Project location address:	Emalahleni, formerly known as Witbank, approximately 100 km east of Tshwane (formerly known as Pretoria)
Latitude:	S25°53'43"
Longitude:	E29°07'00"

The location has been crosschecked with google maps as per following screenshots as well as onsite inspection.

Basic technical details of the project are summarized in table A-2.

**Table - A-2:** Technical data of the project activity/<sup>PDD/</sup>

Furnace #	Size/Capacity in MVA	Commissioning date of furnace	Actual retrofitting period
1	21	1964	Originally planned to be retrofitted in 2009, but delayed due to poor market conditions. To date, no retrofit.
3	21	1964	28 May – 18 October 2005
5	48	1979	30 May – 04 December 2005
6	22	1980	Originally planned to be retrofitted in 2008, but delayed due to poor market conditions. To date, no retrofit.
7	48	1990	12 July – 06 September 2004

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology,
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of this periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

**SECTION B. Verification team, technical reviewer and approver****B.1. Verification 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 <sup>2</sup>	Interview(s)	Verification findings
1.	Team Leader	EI	Stefan	Winter	TÜV NORD CERT	x	x	x	x

**B.2. Technical reviewer and approver of the verification and certification report**

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 <sup>3</sup>	IR	Stöhr	Christina	TÜV NORD CERT
2.	Technical reviewer	IR	Krupp	Eric	TÜV NORD CERT
3.	Approver <sup>4</sup>	IR	Nuske	Alexandra	TÜV NORD CERT

**SECTION C. Application of materiality****C.1. Consideration of materiality in planning the verification**

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

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

Materiality Threshold

The verification is based on the materiality threshold identified in table C-1 below:

**Table C-1:** Applied Materiality Threshold

	Threshold	Related to
<input type="checkbox"/>	0.5 %	Emission reductions or removals for registered CDM project activities achieving a total emission reduction or removal equal to or more than 500,000 tonnes of carbon dioxide equivalent per year <sup>5</sup> ;
<input type="checkbox"/>	1 %	Emission reductions or removals for registered CDM project activities achieving a total emission reduction or removal of between 300,000 and 500,000 tonnes of carbon dioxide equivalent per year;
<input checked="" type="checkbox"/>	2 %	Emission reductions or removals for registered large-scale CDM project activities achieving a total emission reduction or removal of 300,000 tonnes of carbon dioxide equivalent per year or less;

<sup>2</sup> Remote via alternative means

<sup>3</sup> Approver in response to incomplete notification received 3<sup>rd</sup> Nov 2021

<sup>4</sup> Approver of the initial submission for requesting issuance

<sup>5</sup> A year refers to a period of 12 consecutive months.

	Threshold	Related to
<input type="checkbox"/>	5 %	Emission reductions or removals for registered small-scale CDM project activities other than registered CDM project activities covered under next category below;
<input type="checkbox"/>	10 %	Emission reductions or removals for the type of registered CDM project activities referred to in decision 3/CMP.6, paragraph 38 (referred to as microscale project activities).

### Strategic Analysis

At the beginning of the verification, the verification team leader has assessed the nature, scale and complexity of the verification tasks by carrying out a strategic analysis of all activities relevant to the project activity. The team leader has collected and reviewed the information relevant to assess that the designated verification team is sufficiently competent to carry out the verification and to ensure that it is able to conduct the necessary risk analysis.

### Risk analysis and detailed audit testing planning

For the identification and assessment of potential reporting risks and to determine the necessary detailed audit testing procedures for residual risk areas the following table is used.

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	<i>Overlook relevant differences when cross checking electricity data from main meter and invoices.</i>	<i>low</i>	<i>Even though there are procedures in place for all metering and cross-checking processes the personnel could overlook important differences when performing the electricity reports.</i>	<i>Interview with personnel as well as demonstration of how the cross check is done. Crosscheck electricity data from both meters directly by the VT.</i>
2.	<i>Omissions and misstatements in data transfer from SCADA into digital Excel ER spreadsheet</i>	<i>low</i>	<i>Ineffective quality control of data transfer due to unclear QA/QC procedure</i>	<i>Check QM procedure/manual. PP may demonstrate how to transfer data and how this is crosschecked. Conduct interview with related personnel whether procedure is actually conducted but not adequately described.</i>
3.	<i>Missing data due to failure of measurement equipment</i>	<i>Low</i>	<i>The monitoring plan defines emergency procedures in case a meter fails. Besides back-up meters are either installed or available onsite for fast exchange.</i>	<i>Check if related meters are installed as per monitoring plan. Check if emergency procedure is known across related personnel via interviews. Check back-up meters on correct calibration.</i>

Based on the risk analysis the verification has been planned. A detailed audit/verification plan has been prepared and submitted to the project participant(s) in due time before the remote audit inspection.

### **C.2. Consideration of materiality in conducting the verification**

Based on the verification planning the verification has been carried out. The concept of materiality has been considered. A breakdown of the chosen approaches is included in the following table.

<i>Parameter</i>	<i>Approach*</i>	<i>Errors* detected</i>	<i>Corrected</i>	<i>Remaining verification risk after correction</i>
Q <sub>P<sub>y</sub>,monitored</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
EC <sub>y</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Q <sub>pcoal,y</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Q <sub>pcoke,y</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Q <sub>ppaste,y</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
EF <sub>pcoal,y</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
EF <sub>pcoke,y</sub>	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
EF <sub>ppaste,y</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Quality of coal <sub>p</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Quality of coke <sub>p</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Quality of electrode paste <sub>p</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
EF <sub>y,offsite</sub>	CDC	<input type="checkbox"/>	<input type="checkbox"/>	Not material
Quality of SiMn <sub>p</sub>	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Quality of ore	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Quality of fluxes	CDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not material
Aggregate				Materiality threshold not exceeded

*\*) incl. omissions and misstatements*

*+) Verification Approaches:*

CDC: Complete data check of data including all data aggregation steps

NDC: Non-complete data check – omissions not material

SPL: Sampling approach (all data available)

ASP: Acceptance Sampling

COM: Data check at higher data aggregation levels and sampling at original data levels

The verification was mainly carried out as per the corresponding verification plan. However, based on the actual situation during desk review and remote audit and the errors, omissions and misstatements identified during the verification minor deviations from the original plan occurred. However, due to the reason that the verification team has check all data and did not apply any sampling, it was not required to adjust the audit planning due to these mistakes identified as per table above. Esp. there was no need for significant modification of the sampling approaches (if applicable) or for additional / less locations to be checked during the remote audit. Related findings have been raised which are ow to be addressed by the PP to correct the mistakes identified.

## SECTION D. Means of verification

### D.1. Desk/document review

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

- the last revision of the PDD including the monitoring plan<sup>/PDD/</sup>,
- the last revision of the validation report<sup>/VAL/</sup>,
- the monitoring report, emission reduction spreadsheet and verification report of previous verifications<sup>/VER/</sup>,
- the monitoring report, including the claimed emission reductions for the project<sup>/MR/</sup>,
- the emission reduction calculation spreadsheet<sup>/XLS/</sup>.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

**D.2. On-site inspection**

Duration of on-site inspection: 27/11/2019 to 28/11/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting	Transalloy (Pty) Ltd.	27/11/2019	Stefan Winter
2.	General introduction to the project activity, current status and main steps (construction start, commissioning, major break downs), any changes, set up of QM system, legal status/changes, etc.			
3.	Visit South Africa Transalloys (Pty) Ltd. - Verify facilities and equipment installed against reg PDD, - Verification of installed monitoring equipment incl. DCS, meters, calibrations - Interview with operation personnel, data coordinators, process engineers and other key personnel at site			
4.	Document check: - Check QMS records, maintenance records, instrument specifications, monitoring diagram, calibration records, training and qualification records; - Check the operation logs, delivery notes, weighing notes, invoices, raw data from scada and the data collecting/archiving/calculation process; - others		28/11/2019	
5.	Document check: Check of ER calculation esp. spreadsheet (method, correctness, consistency) Discussion on open issues from previous day			
6.	Findings summary presentation to the client			
7.	Closing meeting			

**D.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Sa	Henk	Brundtland (Pty) Ltd.	27 and 28/11/2019	All	Stefan Winter
2	Timmer	Jan Willem	Brundtland (Pty) Ltd.		All	
3	Sutherland	Kobus	Transalloy (Pty) Ltd.		All	

**D.4. Sampling approach****D.4.1. Sampling during monitoring**

<input checked="" type="checkbox"/>	No sampling approach has been used by the PP to determine the monitored parameters				
<input type="checkbox"/>	A sampling approach has been taken for the following monitored parameter(s):				
	Parameter	Sampling approach <sup>1)</sup>	Sampling Type <sup>2)</sup>	Population	Sample Size
	Not applicable				

<sup>1)</sup> Sampling Approaches:

- SiRS: Simple Random Sampling  
 StRS: Stratified Random Sampling  
 SS: Systematic Sampling  
 CS: Cluster Sampling  
 MSS: Multi-stage Sampling  
 AS: Acceptance Sampling

<sup>2)</sup> Sampling Types:

- PS: Parameter Sampling

## D.4.2. Sampling approaches during verification

<input checked="" type="checkbox"/>	No sampling approach has been used by the VT to verify the monitored parameters				
<input type="checkbox"/>	A sampling approach has been applied by the VT for the following monitored parameter(s):				
	Parameter	Sampling approach <sup>1)</sup>	Sampling Type <sup>2)</sup>	Population	Sample Size
	Not applicable				

<sup>1)</sup> Sampling Approaches:

SiRS: Simple Random Sampling  
 StRS: Stratified Random Sampling  
 SS: Systematic Sampling  
 CS: Cluster Sampling  
 MSS: Multi-stage Sampling

<sup>2)</sup> Sampling Types:

AS: Acceptance Sampling  
 PS: Parameter Sampling  
 COM: Full data check at higher data aggregation levels and sampling at original data levels

## D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	2 CAR 01 CAR 12	-
Compliance of the project implementation and operation with the registered PDD	-	1 CAR 02	1 FAR 02
Post-registration changes	-	2 CAR 03 CAR 04	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	3 CAR 05 CAR 06 CAR 10	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	1 FAR 01
Assessment of data and calculation of emission reductions or net removals	-	4 CAR 08 CAR 09 CAR 07 CAR 13	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (missing supporting documents)	-	1 CAR 11	-
<b>Total</b>	0	13	2

## SECTION E. Verification findings

## E.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	<p>A draft monitoring report was submitted to the verification team by the project participants. The DOE has made this report publicly available prior to the start of the verification activities. No comments were received.</p> <p>By means of the UNFCCC website it has been checked whether the latest applicable MR template CDM-MR-FORM has been used.</p> <p>Further, it has been checked whether the latest instructions for filling out the MR</p>
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	<p>template have been followed. Every section has been checked against the respective guidance.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /MRT/</li> <li>• /unfccc/</li> </ul>
<b>Findings</b>	<input type="checkbox"/> The latest reporting template CDM-MR-FORM as listed on the UNFCCC website has been used for the Monitoring Report to be uploaded.
	<input type="checkbox"/> The latest instructions for filling out the MR have been followed. No adverse finding has been identified in the course of this verification.
	<input checked="" type="checkbox"/> The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context: CAR 01, CAR 12
<b>Conclusion</b>	<input type="checkbox"/> No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/> The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	<p>The latest version of the MR has been used and the latest instructions for filling out the MR have been followed. No adverse finding has been identified in the course of this verification. However, CAR 1 and CAR 12 have been raised.</p>

## E.2. Remaining forward action requests from validation and/or previous verifications

During the validation, the validating DOE might have raised issues that could not be closed or resolved during the validation stage. For this purpose, FARs might have been raised. Likewise, FARs might have been raised in the course of previous verifications.

In the course of this verification the latest version of the PDD <sup>/PDD/</sup> and the previous verification report <sup>/VER/</sup>, where applicable, have been checked in order to identify any remaining forward action requests. For the current monitoring period the following applies:

### (i) Open issues from validation:

<input checked="" type="checkbox"/>	There were no open issues, which have been addressed in the latest version of the validation report.
<input type="checkbox"/>	All open issues from the validation have been appropriately addressed in the context of previous verifications.
<input type="checkbox"/>	All issues related to the validation have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
<input type="checkbox"/>	The following issues related to the validation have <b>not</b> yet been appropriately addressed (for details please refer to appendix 4):
	- N/A

### (ii) Open issues from previous verifications:

<input type="checkbox"/>	N/A – as this is the first monitoring period for this CDM project activity.
<input checked="" type="checkbox"/>	There were no open issues which have been addressed in the previous verification report
<input type="checkbox"/>	All issues related to the previous verification have been appropriately addressed in the course of the current monitoring period (for details please refer to appendix 4)
<input type="checkbox"/>	The following issues related to the previous verification have <b>not</b> yet been appropriately addressed (for details please refer to appendix 4):
	- N/A

### E.3. Compliance of the project implementation and operation with the registered project design document

<b>Means of verification</b>	<p>By means of an in-depth review of the PDD in its latest form – as downloaded from the UNFCCC project webpage - and the checks carried out during the remote audit an assessment has been carried out whether the project has been implemented and operated in line with the latest approved version of the PDD and whether all physical features of the project are in place. The following has been checked: implemented technology, project equipment as well as monitoring and metering equipment.</p> <p>Further, it has been checked if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period and consistent notations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied.</p> <p>Interviews with operational personnel have been carried out, QMS records, maintenance records, instrument and technical specifications were checked in this context to assess that all physical features (technology, project equipment, and monitoring and metering equipment) of the registered CDM project activity specified in the registered PDD are in place and that the project participants have operated the project activity as per the registered PDD or any approved revised PDD.</p> <p>Special focus has further been laid to determine whether a potential phase wise implementation has occurred within the crediting period or any delays with respect to the starting dates have occurred.</p> <p>Further, it has been checked whether any observed deviations from the registered project design have been identified and have been correctly addressed as PRCs.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /PDD/</li> <li>• /MR/</li> <li>• /VVS/</li> <li>• /XLS/</li> <li>• /QMS/</li> <li>• /MTR/</li> <li>• /INSTR/</li> <li>• /unfccc/</li> </ul>																
<b>Findings</b>	<table border="1"> <tr> <td data-bbox="432 1189 512 1279"><input type="checkbox"/></td><td data-bbox="512 1189 1457 1279">The project has been implemented and operated as described in the latest version of the PDD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.</td></tr> <tr> <td data-bbox="432 1279 512 1402"><input type="checkbox"/></td><td data-bbox="512 1279 1457 1402">The following deviations from the registered / approved project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): - N/A</td></tr> <tr> <td data-bbox="432 1402 512 1469"><input checked="" type="checkbox"/></td><td data-bbox="512 1402 1457 1469">In this context the following CARs, CLs have been raised: CAR 02, FAR 02</td></tr> <tr> <td colspan="2" data-bbox="432 1469 1457 1503"><i>In case of phased implementation:</i></td></tr> <tr> <td data-bbox="432 1503 512 1559"><input checked="" type="checkbox"/></td><td data-bbox="512 1503 1457 1559">N/A</td></tr> <tr> <td data-bbox="432 1559 512 1626"><input type="checkbox"/></td><td data-bbox="512 1559 1457 1626">The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.</td></tr> <tr> <td data-bbox="432 1626 512 1715"><input type="checkbox"/></td><td data-bbox="512 1626 1457 1715">The description in section B.1 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation as identified during the onsite inspection.</td></tr> <tr> <td data-bbox="432 1715 512 1816"><input type="checkbox"/></td><td data-bbox="512 1715 1457 1816">The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A or add as appropriate</td></tr> </table>	<input type="checkbox"/>	The project has been implemented and operated as described in the latest version of the PDD as well as in section B.1 of the monitoring report. No deviations thereof have been identified in the course of this verification.	<input type="checkbox"/>	The following deviations from the registered / approved project design and or the project description in the MR have been identified in the course of this verification (for further details please refer to section E.4): - N/A	<input checked="" type="checkbox"/>	In this context the following CARs, CLs have been raised: CAR 02, FAR 02	<i>In case of phased implementation:</i>		<input checked="" type="checkbox"/>	N/A	<input type="checkbox"/>	The phased implementation has correctly and in sufficient detail been described in the latest version of the PDD.	<input type="checkbox"/>	The description in section B.1 of the MR differs in content or the level of detail from the latest version of the PDD. However, the description in the MR is correct and reflects the situation as identified during the onsite inspection.	<input type="checkbox"/>	The project description in the PDD/MR is not deemed sufficient. The detailed implementation timeline is as follows: N/A or add as appropriate
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<input checked="" type="checkbox"/>	In this context the following CARs, CLs have been raised: CAR 02, FAR 02																
<i>In case of phased implementation:</i>																	
<input checked="" type="checkbox"/>	N/A																
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<b>Conclusion</b>	<table border="1"> <tr> <td data-bbox="432 1816 512 1883"><input type="checkbox"/></td><td data-bbox="512 1816 1457 1883">No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.</td></tr> <tr> <td data-bbox="432 1883 512 1973"><input checked="" type="checkbox"/></td><td data-bbox="512 1883 1457 1973">The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.</td></tr> <tr> <td colspan="2" data-bbox="432 1973 1457 2063">After response to the issue raised, it can be confirmed that the project is implemented as per registered PDD. Besides, as per interview with related personnel during onsite inspection and company presentation besides check of</td></tr> </table>	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	After response to the issue raised, it can be confirmed that the project is implemented as per registered PDD. Besides, as per interview with related personnel during onsite inspection and company presentation besides check of											
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	following webpage <a href="http://Highveld Steel and Vanadium Corporation Limited -- Company History (company-histories.com)">Highveld Steel and Vanadium Corporation Limited -- Company History (company-histories.com)</a> , the PP Highveld Steel and Vanadium Corporation Limited has acquired Transalloys (Pty) Ltd. in 1985 and is part of the group company Hghveld. FAR 02 is raised for editorial correction of PDD w.r.t. editorial mistake of capacity of Furnace 3.
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#### E.4. Post-registration changes

##### E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents<sup>6</sup>

It has been checked whether Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been applied during this monitoring period. The result is summarized in the table below.

<input checked="" type="checkbox"/>	No Temporary deviations from the registered monitoring plan (TDfrMP) or Temporary deviations from monitoring methodology or standardized baseline (TDfMM) have been submitted to the UNFCCC prior to the current monitoring period.		
<input type="checkbox"/>	The following TDfrMP or TDfMM have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved (approval No.: )
		Appr.date	
		Ref. No.	
	2	Title	
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved (approval No.: )
		Appr.date	
		Ref.No.	
<input checked="" type="checkbox"/>	During the verification of the current MP no need for a TDfrMP or TDfMM has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
<input type="checkbox"/>	An approval of the following TDfrMP or TDfMM is to be requested from the EB for the current MP as appendix 1 of the project standard does not apply. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		
	1	Issue:	
	2	Issue:	
<input type="checkbox"/>	The following TDfrMP or TDfMM for which appendix of the PS, "Indicative list of post-registration changes that may be suitable for approval under the issuance track", is applicable have been applied:		
	1	Issue:	
	2	Issue:	

##### E.4.2. Corrections

It has been checked whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

<input checked="" type="checkbox"/>	During the verification of the current MP no need for corrections has been identified.
-------------------------------------	--

<sup>6</sup> Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

<input type="checkbox"/>	The following corrections have been applied:	
1	Issue:	
2	Issue:	
The PDD has been revised accordingly: (New) version No.: Revision date:		
It is confirmed that the updated / corrected information is an accurate reflection of the actual project information and that the corrected parameters are in accordance with the applied methodology and the monitoring plan.		
<input type="checkbox"/> A related post registration change has been submitted prior to the issuance request. The approval has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z. <input type="checkbox"/> A related post registration change is submitted along with this issuance request. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.		

**E.4.3. Change to the start date of the crediting period of the project activity**

<input checked="" type="checkbox"/>	N/A - as this is not the first verification within the crediting period
<input type="checkbox"/>	The PPs do not intend to change the start date of the crediting period.
<input type="checkbox"/>	As the change in the start date was below the related time period as indicated in PS § 233 and § 234 no prior approval was required but only a notification. This notification has been submitted by the PP without involvement of the DOE. The change and new start date has been checked from the related UNFCCC project webpage.
<input type="checkbox"/>	The PPs intend to change the start date of the crediting period. As the intended change in start date beyond the related time period as indicated in PS § 235 and as per §236 prior approval by the Board is required. For detailed assessment of the change please refer to related PRC validation report. As per assessment in this report the DOE confirms that the change to the start date of the crediting period are in line with the related requirements of the VVS and PS.
<input type="checkbox"/>	The approval to change the start date of the crediting period has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z

**E.4.4. Inclusion of a monitoring plan**

<input checked="" type="checkbox"/>	N/A - as this monitoring plan was part of the registered PDD
<input type="checkbox"/>	In line with PS § 237 and § 83 the PP has forwarded a monitoring plan to the DOE for validation. No prior approval of the monitoring plan was required as the PP in line with PS § 83 wished to submit the monitoring plan together with the request for issuance for the first monitoring period. Please refer to the related PRC report submitted along with this issuance request for further details w.r.t. the assessment of the PRC.
<input type="checkbox"/>	In line with PS § 237 and § 83 the PP submitted a monitoring plan prior to the submission of the request for issuance for validation to the DOE. A DOE has assessed the monitoring plan in line with related VVS requirements and submitted a related PRC report for prior approval. The approval has been received on DD/MM/YYYY via approval number PRC-XXXX-00Z.

Related CAR 03 has been raised and successfully closed.

### E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

It has been checked whether any permanent changes or deviations from the registered monitoring plan (PCfrMP) or applied methodologies (PCfMM) including standardized baselines (PCfSB) or other methodological regulatory documents have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

<input type="checkbox"/>	No PCfrMP, PCfMM or PCfSB have been submitted to the UNFCCC prior to the current monitoring period		
<input checked="" type="checkbox"/>	The following PCfrMP, PCfMM or PCfSB have been approved or are under approval by the UNFCCC		
	1	<p>Title</p> <p>Request for revision of monitoring plan for project activity 1027 "Transalloys Manganese Alloy Smelter Energy Efficiency Project"</p> <p>(a) The recording frequency of the Quantity of SiMn production in year y during the project activity (i.e. <math>QP_{y,monitored}</math>) was not clearly mentioned in the registered PDD.</p> <p>(b) The recording frequency of the annual consumption of electrode paste used as electrode in the submerged electric arc furnace (i.e. <math>Q_{ppaste,y}</math>) was not clearly mentioned in the registered PDD.</p> <p>(c) The recording frequency of the emission factor applied for the coal consumed as reductant in year y (i.e. <math>EF_{pcoal,y}</math>) was not mentioned in the registered PDD since the IPCC 2006 value was used.</p> <p>(d) The source of the data for the Emission factor applied for the electrode paste consumed as electrode in year y (i.e. <math>EF_{ppaste,y}</math>) was not mentioned in the registered PDD as per the requirement of the methodology.</p> <p>In addition, it is also added under the comments that the parameter will be monitored on a monthly basis.</p> <p>It has also been added for parameters "Quality of <math>coal_p</math>" and "Quality of <math>coke_p</math>" that the monitoring will be done on a monthly basis.</p>	
		Status <input type="checkbox"/> under approval; <input checked="" type="checkbox"/> approved	
		Appr.date 25/10/2009	
		Ref. No. No ref number as submitted as notification of changes when PRC numbering was not in place. <a href="https://cdm.unfccc.int/filestorage/Z/W/L/ZWL0IXEFJP4S8CKM5TVU1BA7HD6OGR/Revised_Monitoring_Plan.pdf?t=Q2d8cXhiYnl2fDAxG8uf7b8LUbY9WvOn7ix8">https://cdm.unfccc.int/filestorage/Z/W/L/ZWL0IXEFJP4S8CKM5TVU1BA7HD6OGR/Revised_Monitoring_Plan.pdf?t=Q2d8cXhiYnl2fDAxG8uf7b8LUbY9WvOn7ix8</a>	
	2	Title	
		Status <input type="checkbox"/> under approval; <input type="checkbox"/> approved	
		Appr.date	
		Ref.No.	
	<input checked="" type="checkbox"/>	During the verification of the current MP no need for a PCfrMP, PCfMM or PCfSB has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA	
	<input type="checkbox"/>	An approval of the following PCfrMP, PCfMM or PCfSB is to be requested from the EB for the current MP as appendix of the PS, "Indicative list of post-registration changes that may be suitable for approval under the issuance track", does not apply.	
	1	Issue:	
	2	Issue:	
<input type="checkbox"/>	The following PCfrMP, PCfMM or PCfSB for which appendix of the PS, "Indicative list of post-registration changes that may be suitable for approval under the issuance track", is applicable have been applied:		

1	Issue:	
2	Issue:	

Related CAR 04 has been raised and successfully closed.

#### E.4.6. Changes to the project design

It has been checked whether any changes to the project design (CoPD) have been approved prior or during this monitoring period or submitted with this monitoring report. The result is summarized in the table below.

<input checked="" type="checkbox"/>	No CoPD has been submitted to the UNFCCC prior to the current monitoring period		
<input type="checkbox"/>	The following CoPD have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved
		Appr.date	
		Ref. No.	
	2	Title	
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved
		Appr.date	
		Ref.No.	
<input checked="" type="checkbox"/>	During the verification of the current MP no need for a CoPD has been identified. the project design is in line with the description as per latest registered PDD.		
<input type="checkbox"/>	An approval of the following CoPD.is to be requested from the EB for the current MP as appendix of the PS, "Indicative list of post-registration changes that may be suitable for approval under the issuance track", does not apply.		
	1	Issue:	
	2	Issue:	
<input type="checkbox"/>	The following CoPD for which appendix of the PS, "Indicative list of post-registration changes that may be suitable for approval under the issuance track", is applicable have been applied:		
	1	Issue:	
	2	Issue:	

#### E.4.7. Changes specific to afforestation and reforestation project activities

It has been checked whether any changes specific to afforestation and reforestation project activities (CsARPA) have been approved prior or during this monitoring period, or submitted with this monitoring report. The result is summarized in the table below.

<input checked="" type="checkbox"/>	N/A - as this is no A/R project activity		
<input type="checkbox"/>	No CsARPA has been submitted to the UNFCCC prior to the current monitoring period		
<input type="checkbox"/>	The following CsARPA have been approved or are under approval by the UNFCCC		
	1	Title	
		Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved
		Appr.date	
		Ref. No.	
	2	Title	

	Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved	
	Appr.date		
	Ref.No.		
<input type="checkbox"/>	During the verification of the current MP no need for a CsARPA has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA		
<input type="checkbox"/>	An approval of the following CoPD.is to be requested from the EB for the current MP as appendix of the PS, "Indicative list of post-registration changes that may be suitable for approval under the issuance track", does not apply.		
	1	Issue:	
	2	Issue:	
<input type="checkbox"/>	The following CsARPA for which "Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents, Version 02.0" (EB 66, Annex 24) is applicable have been applied:		
	1	Issue:	
	2	Issue:	
	The changes listed above are identified as minor in nature and do not require prior approval by the EB.		
<input type="checkbox"/>	The following CsARPA for which "Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities" (Version 01.1) (EB68, Annex 31)" is applicable have been applied:		
	1	Issue:	
	2	Issue:	
	All changes listed above are applied in line with "Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities" (Version 01.1) (EB68, Annex 31) and are applicable to the project.		

#### E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

<b>Means of verification</b>	By means of comparison of the MR with (i) the applied CDM methodology (ii) all applicable CDM Meth tools and (iii) if applicable, a standardized baseline the verification team has checked whether the MP is in compliance with the MP related requirements of the applied methodology/tools/SB. The following sources of information have been used in this context: <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /METH/</li> <li>• /TOOL/</li> <li>• /unfccc/</li> </ul>			
<b>Findings</b>	<input checked="" type="checkbox"/>	The MP is completely in accordance with the approved methodology applied by the CDM project (last registered/approved version of the PDD) The breakdown of MP accordance of the referenced tools is as follows:		
	<input checked="" type="checkbox"/>	1	Title (of the tool)	TOOL 01 "Tool for the demonstration and assessment of additionality"
			Version	7.0.0
			MP compliance	<input checked="" type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A (for MP)
		2	Title (of the tool)	-
			Version	-
			MP compliance	<input type="checkbox"/> full compliance

			<input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A						
	<input type="checkbox"/>	The breakdown of MP accordance of the applicable SB is as follows:							
		1	<table border="1"> <tr> <td>Title (of the SB)</td> <td>-</td> </tr> <tr> <td>Version</td> <td>-</td> </tr> <tr> <td>MP compliance</td> <td> <input type="checkbox"/> full compliance  <input type="checkbox"/> findings have been raised  <input type="checkbox"/> N/A           </td> </tr> </table>	Title (of the SB)	-	Version	-	MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A
		Title (of the SB)	-						
Version	-								
MP compliance	<input type="checkbox"/> full compliance <input type="checkbox"/> findings have been raised <input type="checkbox"/> N/A								
<b>Conclusion</b>	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CL 04, CAR 11							
	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.							
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.							
		-							

## E.6. Compliance of monitoring activities with the registered monitoring plan

### E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

<b>Means of verification</b>	By means of comparison of the MR and the ER calculation with the latest version of the registered PDD the verification team has checked whether all parameters fixed ex-ante have been applied correctly. Further, it has been checked whether the GWP for the respective period have been correctly applied. The following list of ex-ante fixed parameters have been applied:				
	<b>No.</b>	<b>Parameter abbreviation</b>	<b>Description</b>	<b>Value as per initial MR</b>	<b>Unit</b>
	1.	QP <sub>i</sub>	Quantity of SiMn production for 7 years preceding the project activity	Please refer to table E.6.1.1 below	Tonnes of SiMn/year
	2.	EC <sub>i</sub>	Annual grid electricity consumption by the submerged electric arc furnace for 7 years preceding the project activity	Please refer to table E.6.1.2 below	MWh/year
	3.	Q <sub>bcoal,i</sub>	Annual consumption of coke used as reductant in the submerged electric arc furnace for 7 years preceding the project activity	Please refer to table E.6.1.3 below	Tonnes of coal/year
	4.	Q <sub>bcoke,i</sub>	Annual consumption of coke used as reductant in the submerged electric arc furnace for 7 years preceding the project activity	Please refer to table E.6.1.4 below	Tonnes of coke/year
	5.	Q <sub>bpaste,i</sub>	Annual consumption of electrode paste used as electrode in the submerged electric arc furnace for 7 years preceding the project activity	Please refer to table E.6.1.5 below	Tonnes of paste/year
	6.	EF <sub>bcoal,i</sub>	Emission factor applied for the coal consumed as reductant based on carbon content	3.1	tCO <sub>2</sub> /tcoal



7.	EF <sub>bcoke,i</sub>	Emission factor applied for the coke consumed as reductant based on carbon content	EF <sub>bcoke,i</sub> (tCO <sub>2</sub> /tcoke)		tCO <sub>2</sub> /tcok e
			Year	EF	
			1997	3.09	
			1998	3.13	
			1999	3.1	
			2000	3.12	
			2001	3.15	
			2002	3.17	
			2003	3.19	
			Average 97-03	3.13	
8.	EF <sub>bpaste,i</sub>	Emission factor applied for the electrode paste consumed as electrode based on carbon content	3.32		tCO <sub>2</sub> /t of carbon paste
9.	Quality of coalb	Quality of coal based on elementary analysis and other relevant properties	Please refer to table E.6.1.6 below		Mass fraction of each component (%m/m)
10.	Quality of cokeb	Quality of coke based on elementary analysis and other relevant properties	Please refer to table E.6.1.7 below		
11.	Quality of electrode pasteb	Quality of electrode paste based on elementary analyses and other relevant properties	Please refer to table E.6.1.8 below		
12.	Quality of SiMnb	Quality of SiMnb, based on elementary analysis and other relevant properties	Please refer to table E.6.1.9 below		
13.	Quality of ore	Quality of ore, based on elementary analysis and other relevant properties	Please refer to table E.6.1.10 below		Text
14.	Quality of fluxes	Quality of fluxes, based on elementary analysis and other relevant properties	Please refer to table E.6.1.11 below		

Table E.6.1.1:

QP <sub>i</sub> (tSiMn/y)					
Furnace	1	3	5	6	7
1997	21,685	21,930	38,847	22,571	40,685
1998	7,506	9,518	42,005	24,188	42,399
1999	21,779	17,680	35,788	8,238	44,477
2000	18,641	19,731	35,877	21,269	34,862
2001	21,809	22,660	34,843	21,846	31,933
2002	23,349	22,159	41,898	22,618	43,700
2003	21,321	21,601	35,108	21,632	37,717
<b>Total 97-03</b>	<b>136,090</b>	<b>135,279</b>	<b>264,366</b>	<b>142,362</b>	<b>275,773</b>

Table E.6.1.2:

EC <sub>i</sub> (MWh/y)					
Furnace	1	3	5	6	7
1997	115,511	115,381	224,774	130,113	231,635
1998	41,735	51,814	248,046	136,458	256,158
1999	111,837	93,474	205,295	44,755	260,410
2000	97,656	100,458	214,388	120,804	208,377
2001	107,293	111,287	168,826	107,474	173,106
2002	109,409	104,833	200,136	119,525	216,880
2003	99,142	99,678	172,039	110,109	192,187
<b>Total 97-03</b>	<b>682,583</b>	<b>676,925</b>	<b>1,433,504</b>	<b>769,238</b>	<b>1,538,753</b>

Table E.6.1.3:

Qbcoal,i (tcoal/y)					
Furnace	1	3	5	6	7
1997	14,538	15,064	28,939	17,345	31,098
1998	4,494	5,862	33,313	16,586	31,741
1999	13,005	11,529	31,738	5,764	37,165
2000	13,426	13,055	33,574	17,146	31,216
2001	16,304	17,863	31,619	19,936	26,698
2002	16,704	16,871	35,932	20,993	37,788
2003	18,501	19,475	32,739	20,195	33,883
<b>Total 97-03</b>	<b>96,972</b>	<b>99,719</b>	<b>227,854</b>	<b>117,965</b>	<b>229,589</b>

Table E.6.1.4:

Qbcoke,i (tcoke/y)					
Furnace	1	3	5	6	7
1997	1,480	1,718	3,644	1,734	3,702
1998	554	803	3,361	2,245	4,172
1999	1,652	1,479	2,986	788	3,517
2000	1,234	1,409	2,656	1,687	2,085
2001	1,163	1,234	1,151	1,002	1,964
2002	563	836	2,247	823	1,880
2003	1,011	973	1,507	1,118	1,689
<b>Total 97-03</b>	<b>7,657</b>	<b>8,452</b>	<b>17,552</b>	<b>9,397</b>	<b>19,009</b>

Table E.6.1.5:

Qbpaste,i (tpaste/y)					
Furnace	1	3	5	6	7
1997	1,127	1,136	2,123	1,175	2,023
1998	350	487	2,344	1,275	2,045
1999	1,086	946	1,763	417	2,123
2000	1,032	104	2,045	1,143	2,009
2001	1,141	1,147	2,031	958	1,543
2002	1,029	1,025	1,968	975	1,739
2003	1,097	956	1,690	1,028	1,721
<b>Total 97-03</b>	<b>6,862</b>	<b>5,801</b>	<b>13,964</b>	<b>6,971</b>	<b>13,203</b>

Table E.6.1.6:

Quality of coalb				
Composition (%)	Fixed C	Volatiles	S	P
Average 2003	52.9	30.4	0.74	0.22

Table E.6.1.7:

Quality of cokeb				
Composition (%)	Fixed C	Volatiles	S	P
Average 2003	85.6	1.7	0.93	0.35

Table E.6.1.8:

GREEN PASTE			
Property	Unit	Standard	Typical
Ash Content	%	< 6 - 7	6.4
Volatile Matter	%	13 - 15	13.6
Fixed Carbon Content	%	> 79	79.8
Apparent Density	g/cm <sup>3</sup>	> 1.56	1.6
Plasticity Range	%	15 - 55	24
Specific Heat	J/gC	> 0.8	0.88

Softening Point	C	55 - 59	Per customer
		68 - 73	
Size (Cylinders)	mm	Diameter: 400 x Length 550	Per customer
		Diameter: 500 x Length 550	
		Diameter: 400 x Length 1000	
		Diameter: 600 x Length 1000	
		Diameter: 700 x Length 1000	
Extruder Block Size	mm	100 x 100 x 80	

PASTE BAKED @ 1000C			
Property	Unit	Standard	Typical
Ash Content	%	< 8	7.3
Fixed Carbon Content	%	> 90	93
Apparent Density	g/cm <sup>3</sup>	> 1.35	1.4
Relative Density	g/cm <sup>3</sup>	> 1.8	1.87
Total Porosity	%	> 23	24.9
Specific Electrical Resistivity	Ohm.mm <sup>2</sup> /m	< 80	65.7
Thermal Shock Resistance	kW	> 12	12.5
Thermal Conductivity	W/mK	8.0 - 9.0	8.8
Specific Heat	J/gC	> 0.7	0.75
Cold Crushing Strength	kg/cm <sup>2</sup>	> 50	54
Bending Strength	kg/cm <sup>2</sup>	30 - 50	46.4
Elasticity Modulus	kg/cm <sup>2</sup> x 104	3.0 - 5.0	4.4
Linear Coeff. Of Thermal Expansion	20 - 950 C		Nil

Table E.6.1.9:

Quality of SiMnb				
SiMn Specifications (Contractual elements with customer):				
Elements		Max (%)	Min (%)	Typical (%)
<b>Mn</b>	Manganese	68*	65.0	66.7
<b>Si</b>	Silicon	18.0	16.0	17.1
<b>C</b>	Carbon	2.0	-	1.6
<b>P</b>	Phosphorus	0.150	-	0.1
<b>S</b>	Sulphur	0.015	-	0.01
* Mn content of SiMn produced by furnaces 1 and 3 don't have a maximum Mn content allowed (because it is used for different applications)				

Table E.6.1.10:

Quality of ore			
Composition (%)	Mn	Fe	SiO <sub>2</sub>
Average 2003	38.2	4.4	5
Composition (%)	CaO	MgO	P
Average 2003	15.1	3.6	0.017

Table E.6.1.11:

Quality of fluxes						
Composition of Metal rich slag:						
Composition (%)	Mn	C	Si	Fe	CaO	MgN
Average 2003	11.7	0.6	19.8	0.9	24.3	4.7
Composition of pellets:						
Composition (%)	MnO	SiO <sub>2</sub>	CaO	MgO	FeO	C
Average 2003	30.8	28.3	6.0	8.5	1.9	7.2

W.r.t. parameter EF<sub>bpaste,i</sub> the value has to be calculated as following:

	<p style="text-align: center;"><b>Equation 4.19</b></p> <p style="text-align: center;">Carbon Content of Ferroalloys Reducing Agents</p> <p style="text-align: center;">Total C-content in reducing agent i = fix C in i + Content of volatiles in i · Cv</p> <p>Where:</p> <p>Cv = Carbon content in volatiles. Unless other information is available, Cv = 0.65 is used for coal and 0.80 for coke.</p> <p>Cv value employed is the same as for coke (0.80), since both have similar characteristics:</p> <ul style="list-style-type: none"> <li>- 78.5% of the paste is anthracite, which is a form of coal with high calorific value and carbon content (like coke)</li> <li>- 21.5% of the paste is the binder, which itself is composed of a minimum of 45% of coking-value.</li> </ul> <p>This has been checked from related supporting documents and is based on sectoral knowledge and experience in the sector.</p> <p>Therefore the %m/m of carbon in the paste is <math>79.8 + (13.6 \cdot 0.80) = 90.68\%</math> and <math>EF_{bpaste,i} = 3.32tCO_2/t \text{ paste}</math> (which is still lower than the IPCC value of 3.4).</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /XLS/</li> <li>• /PDD/</li> <li>• /PS/</li> <li>• /VVS/</li> <li>• /unfccc/</li> </ul>	
<b>Findings</b>	<input checked="" type="checkbox"/> The MR and the ER calculation have considered the parameters fixed ex-ante or at the renewal of the crediting period correctly, no deviations have been observed.	
	<input type="checkbox"/> The following deviations from the parameters fixed ex-ante or at renewal of crediting period have been identified in the course of this verification: -	
	<input type="checkbox"/> In this context the following CARs, CLs, FARs have been raised: -	
<b>Conclusion</b>	<input checked="" type="checkbox"/> No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.	
	<input type="checkbox"/> The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	
	-	

### E.6.2. Data and parameters monitored

<b>Means of verification</b>	<p>During the verification all relevant monitoring parameters as listed in registered or latest approved PDD have been verified with regard to the</p> <ul style="list-style-type: none"> <li>(i) appropriateness of the applied measurement / determination method,</li> <li>(ii) the correctness of the values applied for ER calculation,</li> <li>(iii) the accuracy, and applied QA/QC measures.</li> </ul> <p>The results as well as the verification procedure are described parameter-wise in the project specific verification checklist (Appendix 5).</p>
<b>Findings</b>	<input checked="" type="checkbox"/> Based on document check, interviews conducted and/or onsite inspection (physically or virtual/remotely) it is confirmed that all parameters stated in the registered monitoring plan and relevant Board decisions have been monitored and updated as applicable, including: <ul style="list-style-type: none"> <li>(i) Project emission or net removal parameters;</li> <li>(ii) Baseline emission or net removal parameters;</li> <li>(iii) Leakage parameters;</li> <li>(iv) Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the registered monitoring plan;</li> </ul>
	<input checked="" type="checkbox"/> In this context the following CARs, CLs, FARs have been raised: CAR 06
<b>Conclusion</b>	<input type="checkbox"/> No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.

	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		After corrections it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements. The registered monitoring plan has been properly implemented and followed by the project participants during this monitoring period.

### E.6.3. Implementation of sampling plan

<b>Means of verification</b>	Based on monitoring report, ER spreadsheet, interview with PP and check of related supporting documents. The following sources of information have been used in this context: <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /XLS/</li> <li>• /PDD/</li> <li>• /PS/</li> <li>• /VVS/</li> <li>• /unfccc/</li> <li>• /EG/</li> <li>• /EF/</li> </ul>		
<b>Findings</b>	<input checked="" type="checkbox"/>	The PPs have not applied sampling approaches for the parameters monitored.	
	<input type="checkbox"/>	The PPs have applied sampling approaches for the following parameters monitored.	
		1	Parameter: -
			Name: -
			Description on how the sampling efforts and survey comply with the validated sampling plan: -
		2	Parameter: -
			Name: -
			Description on how the sampling efforts and survey comply with the validated sampling plan: -
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:	
		-	
<b>Conclusion</b>	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.	
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	
		-	

### E.7. Compliance with the calibration frequency requirements for measuring instruments

<b>Means of verification</b>	During the verification, the relevant monitoring equipment has been checked whether the calibration requirements have been met; especially if the calibration frequency is in line with the requirements of the validated PDD and/or the applicable calibration standards. The results as well as the verification procedure are described equipment-wise in the project specific verification checklist (Appendix 6). The following sources of information have been used in this context: <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /XLS/</li> <li>• /CC/.</li> </ul>		
<b>Findings</b>	<input type="checkbox"/>	Based on the details listed in appendix 6 the verification team can confirm that all installed monitoring equipment has been duly calibrated for this entire monitoring period.	
	<input checked="" type="checkbox"/>	Based on the assessment and information as per appendix 6 delay(s) in calibration have been identified. The PP has applied 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.	

		From the related calibration certificates and emission reduction calculation the verification team confirms that the maximum permissible error has been applied in a conservative manner so that the adjusted measured values due to the delayed calibration result in fewer claimed emission reductions. For details please refer to appendix 6
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: FAR 01
	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
<b>Conclusion</b>		There were calibration gaps during the MP, which were properly identified by the PP. The raw data used for the ER calculation was adjusted with the maximum permissible error of the related measurement equipment. Depending whether this contributes to baseline or project emissions the MPE has been deducted or added to result in lower emission reductions. Therefore this is in line with §365-371 of the VVS version 2, the ER calculation is considered conservative and correct. It is confirmed by the calibration certificates that none of the meters surpassed the maximum permissible error. However, related FAR 01 has been raised as delays beyond the monitoring period have been identified.

## E.8. Assessment of data and calculation of emission reductions or net removals

### E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	During the verification, the calculation of baseline GHG emissions has been checked. In detail the following has been verified:											
	<ul style="list-style-type: none"><li>• <i>Transparency:</i> It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.</li></ul>											
	<ul style="list-style-type: none"><li>• <i>Parameter consistency:</i> It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.</li></ul>											
	<ul style="list-style-type: none"><li>• <i>Correctness:</i> It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.</li></ul>											
	<ul style="list-style-type: none"><li>• <i>Completeness:</i> It has been checked whether all calculations are complete and without omissions.</li></ul>											
	The GHG calculation is based on the following equation:											
	$BE_y = BE_{y,offsite} + BE_{y,onsite}$											
	Sample (2012, F5):											
	$\begin{aligned} BE_y &= 95,798 \text{ tCO}_2 + 207,695 \text{ tCO}_2 \\ &= 303,493 \text{ tCO}_2 \end{aligned}$											
	<table><tr><th>Variable</th><th>Definition</th><th>Unit</th></tr><tr><td><math>BE_y</math></td><td>Baseline emissions</td><td>tCO<sub>2</sub></td></tr><tr><td><math>BE_{y,offsite}</math></td><td>Offsite baseline (grid) electricity emissions associated with the electricity consumption of the submerged arc furnace</td><td>tCO<sub>2</sub></td></tr><tr><td><math>BE_{y,onsite}</math></td><td>Onsite baseline emissions associated with the consumption of Reductant (Coal and Coke) and electrode paste during the production of SiMn</td><td>tCO<sub>2</sub></td></tr></table>	Variable	Definition	Unit	$BE_y$	Baseline emissions	tCO <sub>2</sub>	$BE_{y,offsite}$	Offsite baseline (grid) electricity emissions associated with the electricity consumption of the submerged arc furnace	tCO <sub>2</sub>	$BE_{y,onsite}$	Onsite baseline emissions associated with the consumption of Reductant (Coal and Coke) and electrode paste during the production of SiMn
Variable	Definition	Unit										
$BE_y$	Baseline emissions	tCO <sub>2</sub>										
$BE_{y,offsite}$	Offsite baseline (grid) electricity emissions associated with the electricity consumption of the submerged arc furnace	tCO <sub>2</sub>										
$BE_{y,onsite}$	Onsite baseline emissions associated with the consumption of Reductant (Coal and Coke) and electrode paste during the production of SiMn	tCO <sub>2</sub>										

$$BE_{y,offsite} = QP_{y,max} * sec_b * EF_{y,offsite}$$
$$QP_{y,max} = \min^m \text{ of } (QP_{y,monitored}, QP_{historic})$$

$$QP_{historic} = \sum_{i=1}^n \frac{Qp_i}{n}$$

$$sec_b = \frac{\sum_{i=1}^n EC_i}{\sum_{i=1}^n Qp_i}$$

$$EF_{y,offsite} = (EF_{OM} + EF_{BM}) / 2$$

Example (2012, F5):

$$BE_{y,offsite} = 31,357 \text{ tSiMn} * 5.422 \text{ MWh/tSiMn} * 1.222 \text{ tCO}_2\text{e/MWh}$$

$$= 207,695 \text{ tCO}_2\text{e}$$

$$QP_{y, max} = \text{MIN} (31,357, 37,767) = 31,357 \text{ tSiMn}$$

$$QP_{historic} = \text{SUM} (264,366 / 7) = 37,767 \text{ tSiMn}$$

$$Sec_b = 1,433,504 / 264,366 = 5.422 \text{ MWh/tSiMn}$$

$$EF_{y,offsite} = (1.195 + 1.248) / 2 = 1.222 \text{ tCO}_2\text{e/MWh}$$

Variable	Definition	Unit
$BE_{y,offsite}$	Offsite baseline (grid) electricity emissions associated with the electricity consumption of the submerged arc furnace	tCO <sub>2</sub> e
$QP_{y, max}$	Quantity of SiMn production in year y maximised at historic average via equation 3. This value is used in both the baseline and the project emission calculations	tSiMn/y
$sec_b$	Historic (at least a three year vintage period) average grid electricity consumption per tonne of SiMn produced	MWh/t SiMn
$EF_{y,offsite}$	Grid electricity emissions factor, estimated using ACM0002	tCO <sub>2</sub> e/MWh
$QP_{y, max}$	Value of SiMn production used for estimating baseline and project emissions for the year y	tSiMn/y
$QP_{y, monitored}$	Monitored production of SiMn in year y during the project activity	tSiMn/y
$QP_{historic}$	Historic (at least a three year vintage period) average annual production of SiMn	tSiMn/y
$QP_{historic}$	Historic (at least a three year vintage period) average annual production of SiMn	tSiMn/y
$Qp_i$	Annual SiMn production for the i <sup>th</sup> year preceding the project activity	tSiMn/y
$sec_b$	Historic (at least a three year vintage period) average grid electricity consumption per tonne of SiMn produced	MWh/t SiMn
$EC_i$	Annual grid electricity consumption by the submerged electric arc furnace for the i <sup>th</sup> year preceding the project activity	MWh/y
$Qp_i$	Annual SiMn production for the i <sup>th</sup> year preceding the project activity	tSiMn
$EF_{y,offsite}$	Weighed-average of EF <sub>OM</sub> and EF <sub>BM</sub> determined ex ante and will be constant through the crediting period	tCO <sub>2</sub> e/MWh
$EF_{OM}$	Determined ex ante for years 2002, 2003 and 2004 as this is the most recent period for which information is available	tCO <sub>2</sub> e/MWh
$EF_{BM}$	Determined ex ante by using the same equation as above, except that the sample of plants used is not i	tCO <sub>2</sub> e/MWh

$$BE_{y,onsite} = QP_{y, max} * EF_{b,onsite}$$

$$EF_{b,onsite} = \frac{\sum_{i=1}^n Q_{bcoal,i} * EF_{bcoal,i} + \sum_{i=1}^n Q_{bcok,i} * EF_{bcok,i} + \sum_{i=1}^n Q_{bpaste,i} * EF_{bpaste,i}}{\sum_{i=1}^n Qp_i}$$

Example (2012, F5):

$$BE_{y,onsite} = 31,357 \text{ tSiMn} * 3.06 \text{ tCO}_2\text{e/tSiMn} \\ = 95,798 \text{ tCO}_2\text{e}$$

$$EF_{b,onsite} = ((227,854 * 3.10) + (17,552 * 3.13) + (13,964 * 3.32)) / 264,366 \\ = 3.1 \text{ tCO}_2\text{e/tSiMn}$$

Variable	Definition	Unit
$BE_{y,onsite}$	Onsite baseline emissions associated with the consumption of Reductant (Coal and Coke) and electrode paste during the production of SiMn	tCO <sub>2</sub> e
$QP_{y, max}$	Value of SiMn production used for estimating baseline and project emissions for the year y	tSiMn/y
$EF_{b,onsite}$	Baseline emission factor associated with the (onsite) consumption of reductant (Coal and Coke) and electrode paste per tonne of SiMn produced (tCO <sub>2</sub> e/tSiMn). The average onsite emissions are based on historic (at least a three year vintage period) average annual consumption as calculated in equation 7	tCO <sub>2</sub> e/MWh
$EF_{b,onsite}$	Baseline emission factor associated with the (onsite) consumption of reductant (Coal and Coke) and electrode paste per tonne of SiMn produced	tCO <sub>2</sub> e/t SiMn
$Q_{bcoal, i}$	Historic (at least a three year vintage period) annual consumption of coal used as reductant in the submerged electric arc furnace in tonnes of coal per year	tCoal/y
$EF_{bcoal, i}$	Emissions factor applied for the coal consumed as reductant	tCO <sub>2</sub> e/t Coal
$Q_{bcoke, i}$	Historic (at least a three year vintage period) annual consumption of coke used as reductant in the submerged electric arc furnace in tonnes of coke per year	tCoke/y
$EF_{bcoke, i}$	Emissions factor applied for the coke consumed as reductant	tCO <sub>2</sub> e/t Coke
$Q_{bpaste, i}$	Historic (at least a three year vintage period) annual consumption of electrode paste used as electrode in the submerged electric arc furnace in tonnes of electrode paste per year	tPaste/y
$EF_{bpaste}$	Emissions factor applied for the electrode paste consumed as electrode	tCO <sub>2</sub> e/t Paste
$QP_i$	Annual SiMn production for the i <sup>th</sup> year preceding the project activity	tSiMn

In the table below the baseline emission equations are applied across the monitoring period.

Period per furnace	$BE_y$	$BE_{y,offsite}$	$QP_{y, max}$	$QP_{historic}$	$sec_b$	$EF_{y,offsite}$	$BE_{y,onsite}$	$EF_{b,onsite}$
	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tSiMn	tSiMn	MWh/t SiMn	tCO <sub>2</sub> e	tCO <sub>2</sub> e	tCO <sub>2</sub> e/tSiMn
<b>Furnace 3</b>								
2011 (May-Dec)	138,972	97,242	15,909	19,326	5.00	1.22	41,731	2.62
2012	156,376	109,419	17,902	19,326	5.00	1.22	46,957	2.62
2013	132,054	92,401	15,117	19,326	5.00	1.22	39,653	2.62
2014 (Jan-Sep)	173,427	118,123	19,326	19,326	5.00	1.22	55,304	2.62
<b>Furnace 5</b>								
2011 (May-Dec)	270,949	185,424	27,995	37,767	5.42	1.22	85,525	3.06
2012	303,493	207,695	31,357	37,767	5.42	1.22	95,798	3.06



	2013	315,502	215,913	32,598	37,767	5.42	1.22	99,588	3.06
	2014 (Jan-Sep)	379,060	250,146	37,767	37,767	5.42	1.22	128,914	3.06
	<b>Furnace 7</b>								
	2011 (May-Dec)	296,951	207,131	30,390	39,396	5.58	1.22	89,820	2.96
	2012	371,191	258,916	37,988	39,396	5.58	1.22	112,275	2.96
	2013	282,497	197,049	28,911	39,396	5.58	1.22	85,448	2.96
	2014 (Jan-Sep)	389,691	268,512	39,396	39,396	5.58	1.22	121,179	2.96
	<b>Cumulative Baseline Emissions <math>BE_y = 3,210,162 \text{ tCO}_2\text{e}</math></b>								
	The following sources of information have been used in this context:								
	<ul style="list-style-type: none"> <li>• /MR/</li> <li>• /XLS/</li> <li>• /PDD/</li> <li>• /EF/</li> </ul>								
<b>Findings</b>	<input type="checkbox"/>	The calculation of the baseline emissions was found to be fully compliant with the above stated principles. The calculations of baseline GHG emissions or baseline net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information has been identified.							
	<input checked="" type="checkbox"/>	The verification team has identified mistakes in the baseline emissions calculation or the underlying calculation approaches.							
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CAR 07, CAR 08 and CAR 09							
<b>Conclusion</b>	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.							
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.							
	Where corrections were required a revised baseline emissions calculation was prepared by the PPs and presented to the verification team. All raised issues were addressed appropriately so that it can be confirmed that the baseline calculation is overall correct.								

### E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

<b>Means of verification</b>	<p>During the verification, the calculation of project GHG emissions has been checked. In detail the following has been verified:</p> <p>Transparency: It has been checked whether the calculation of project emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.</p> <p>Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.</p> <p>Correctness: It has been checked whether the applied formulae and methods for calculating project emissions are in accordance with the monitoring plan and the approved methodology.</p> <p>Completeness: It has been checked whether all calculations are complete and without omissions.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /MR/</li> </ul>
------------------------------	---

- /PDD/
- /XLS/
- /TOOL/
- /METH/

The project emissions are calculated as follows:

$$PE_y = PE_{y, \text{offsite}} + PE_{y, \text{onsite}}$$

Example (2012, F5):

$$\begin{aligned} PE_y &= 136,976 \text{ tCO}_2\text{e} + 84,387 \text{ tCO}_2\text{e} \\ &= 221,363 \text{ tCO}_2 \end{aligned}$$

Variable	Definition	Unit
$PE_y$	Project emissions	tCO <sub>2</sub> e
$PE_{y, \text{offsite}}$	Offsite project (grid) electricity emissions associated with the electricity consumption of the submerged arc furnace	tCO <sub>2</sub> e
$PE_{y, \text{onsite}}$	Onsite project emissions associated with the consumption of Reductant (Coal and Coke) and electrode paste during the production of SiMn	tCO <sub>2</sub> e

$$PE_{y, \text{offsite}} = QP_{y, \text{max}} * sec_{p, y} * EF_{y, \text{offsite}}$$

$$sec_{p, y} = EC_y / QP_{y, \text{monitored}}$$

Example (2012, F5):

$$\begin{aligned} PE_{y, \text{offsite}} &= 31,357 \text{ tSiMn} * 3.58 \text{ MWh/tSiMn} * 1.221 \text{ tCO}_2\text{e/MWh} \\ &= 136,976 \text{ tCO}_2\text{e} \end{aligned}$$

$$sec_{p, y} = 112,183 \text{ MWh} / 31,357 \text{ tSiMn} = 3.58 \text{ MWh/tSiMn}$$

Variable	Definition	Unit
$PE_{y, \text{offsite}}$	Offsite project (grid) electricity emissions associated with the electricity consumption of the submerged arc furnace	tCO <sub>2</sub> e
$QP_{y, \text{max}}$	Value of SiMn production used for estimating baseline and project emissions for the year y, estimated using equation 3 of the baseline emission section	tSiMn/y
$sec_{p, y}$	Grid specific electricity consumption per tonne of SiMn produced in the project situation in year y	MWh/tSiMn
$EF_{y, \text{offsite}}$	Grid electricity emissions factor, estimated using ACM0002	tCO <sub>2</sub> e/MWh
$sec_{p, y}$	Grid specific electricity consumption per tonne of SiMn produced in the project situation in year y	MWh/tSiMn
$EC_y$	Annual grid electricity consumption by the submerged electric arc furnace in year y	MWh
$QP_{y, \text{monitored}}$	Monitored production of SiMn in year y during the project activity	tSiMn/y

$$PE_{y, \text{onsite}} = QP_{y, \text{max}} * EF_{p, \text{onsite}}$$

$$EF_{p, y, \text{onsite}} = (Q_{p\text{coal}, y} * EF_{p\text{coal}, y} + Q_{p\text{coke}, y} * EF_{p\text{coke}, y} + Q_{p\text{paste}, y} * EF_{p\text{paste}, y}) / QP_{y, \text{monitored}}$$

Example (2012, F5):

$$\begin{aligned} PE_{y, \text{onsite}} &= 31,357 \text{ tSiMn} * 2.69 \text{ tCO}_2\text{e/tSiMn} \\ &= 84,387 \text{ tCO}_2\text{e} \end{aligned}$$

$$\begin{aligned} EF_{p, y, \text{onsite}} &= ((24,210 * 3.1) + (1,564 * 3.05) + (1,231 * 3.67)) / 31,357 \\ &= 2.69 \text{ tCO}_2\text{e/tSiMn} \end{aligned}$$

Variable	Definition	Unit
$PE_{y,onsite}$	Onsite project emissions associated with the consumption of Reductant (Coal and Coke) and electrode paste during the production of SiMn	tCO <sub>2</sub> e
$QP_{y,max}$	Value of SiMn production used for estimating baseline and project emissions for the year y	tSiMn/y
$EF_{p,onsite}$	Project emission factor associated with the (onsite) average consumption of reductant (Coal and Coke) and electrode paste per tonne of SiMn in year y as calculated in equation 12	tCO <sub>2</sub> e/tSiMn
$EF_{p,y,onsite}$	Project emission factor associated with the (onsite) average consumption of reductant (Coal and Coke) and electrode paste per tonne of SiMn produced in year y	tCO <sub>2</sub> e/tSiMn
$Q_{pcoal,y}$	Consumption of coal used as reductant in the submerged electric arc furnace in tonnes of coal per year	tCoal/year
$EF_{pcoal,y}$	Emissions factor applied for the coal consumed as reductant	tCO <sub>2</sub> e/tCoal
$Q_{pcoke,y}$	Consumption of coke used as reductant in the submerged electric arc furnace in tonnes of coke per year	tCoke/y
$EF_{pcoke,y}$	Emissions factor applied for the coke consumed as reductant	tCO <sub>2</sub> e/tCoke
$Q_{ppaste,y}$	Consumption of electrode paste used as electrode in the submerged electric arc furnace in tonnes of electrode paste per year	tPaste/y
$EF_{ppaste,y}$	Emissions factor applied for the electrode paste consumed as electrode, using the relevant emissions factor for the carbon paste as specified by the manufacturer for the vintage period	tCO <sub>2</sub> e/tPaste
$Q_{py,monitored}$	Monitored production of SiMn in year y during the project activity	tSiMn

In the table below the project emission equations are applied across the monitoring period.

Period per furnace	$PE_y$	$PE_{y,offsite}$	$sec_{p,y}$	$PE_{y,onsite}$	$EF_{p,y,onsite}$
	tCO <sub>2</sub> e	tCO <sub>2</sub> e	MWh/tSiMn	tCO <sub>2</sub> e	tCO <sub>2</sub> e/tSiMn
<b>Furnace 3</b>					
2011 (May-Dec)	105,412	69,320	3.57	36,092	2.27
2012	125,372	83,166	3.80	42,206	2.36
2013	118,102	73,923	4.00	44,179	2.92
2014 (Jan-Sep)	156,941	101,096	3.93	55,844	2.65
<b>Furnace 5</b>					
2011 (May-Dec)	219,673	141,074	4.13	78,599	2.81
2012	221,307	136,976	3.58	84,387	2.69
2013	270,567	171,214	4.30	99,354	3.05
2014 (Jan-Sep)	326,217	209,696	4.07	116,521	2.76
<b>Furnace 7</b>					
2011 (May-Dec)	224,680	146,835	3.96	77,845	2.56
2012	275,477	182,382	3.93	93,095	2.45
2013	234,055	151,690	4.30	82,365	2.85
2014 (Jan-Sep)	313,502	205,531	4.11	107,971	2.63

	<b>Cumulative Project Emissions <math>PE_y = 2,591,361 \text{ tCO}_2\text{e}</math></b>	
<b>Findings</b>	<input type="checkbox"/>	The calculation of the project emissions was found to be fully compliant with the above stated principles. The calculations of project GHG emissions or actual net GHG removals have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission or removal calculations have been justified. Appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	<input checked="" type="checkbox"/>	The verification team has identified mistakes in the project emissions calculation or the underlying calculation approaches.
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CAR 07, CAR 08 and CAR 09
<b>Conclusion</b>	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		After the correction it is confirmed that the proper consideration of the possible use of fossil fuel was taken into consideration, so it can be confirmed that the project emissions are determined correctly, in line the registered PDD and applied methodology.

### E.8.3. Calculation of leakage GHG emissions

<b>Means of verification</b>	During the verification, it has been checked whether leakage emissions have to be considered and, in cases where leakage emissions have to be calculated, the respective calculation of leakage GHG emissions has been checked. In such cases the same verification principles have been considered as for the baseline and project emissions calculation. Please refer to E.8.1 and E.8.2. The following sources of information have been used in this context: <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /XLS/.</li> </ul>	
<b>Findings</b>	<input checked="" type="checkbox"/>	No leakage emissions were to be considered (LE = 0).
	<input type="checkbox"/>	The calculation of the leakage emissions was found to be fully compliant with the above stated principles (see 8.1 and 8.2). The calculations of leakage GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in leakage emissions calculations have been justified. Where applicable, appropriate emission factors, IPCC default values, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information have been identified.
	<input type="checkbox"/>	The verification team has identified mistakes in the project emissions calculation or the underlying calculation approaches.
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:
		-
<b>Conclusion</b>	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		-

### E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

<b>Means of verification</b>	<p>The verification team has checked if the MR includes a summary table of the emission reductions calculation specifying separately</p> <ul style="list-style-type: none"> <li>- Total baseline emissions,</li> <li>- Total project emissions,</li> <li>- Total leakage,</li> <li>- Total emission reductions.</li> </ul> <p>It has been assessed whether the values are correct or need to be revised as a consequence of issues identified above.</p>	
<b>Findings</b>	<input checked="" type="checkbox"/>	Section E.4 of the MR includes in a summary table of the emission reductions calculation.
	<input checked="" type="checkbox"/>	The summary table specified the total baseline, project and leakage emissions as well as the total emission reductions separately.
	<input type="checkbox"/>	The values as specified in the ER summary table are correct; no issues have been identified during the verification, which requires changes in the ER calculation.
	<input checked="" type="checkbox"/>	During the verification, issues with impact on the ER calculation have been identified.
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CAR 07, CAR 09
<b>Conclusion</b>	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
<p>It is concluded that the GHG emission reductions are calculated correctly and in line the registered PDD and applicable methodology and tool.</p> $ER_y = BE_y - PE_y - LE_y$ $= 3,210,162 \text{ tCO}_2\text{e} - 2,591,361 \text{ tCO}_2\text{e} - 0 \text{ tCO}_2\text{e}$ $= 618,801 \text{ tCO}_2\text{e}$ <p>Additionally an uncertainty adjustment has to be deducted as following: if <math>ER_{onsite,y} &gt; 0</math></p> $ER_{uncertainty} = 0.09 * (BE_{y,onsite} - PE_{y,onsite})$ <p><math>ER_{onsite,y} \leq 0</math> <math>ER_{uncertainty} = 0</math></p> <p>Applying this to the furnaces on the calendar year annual emission reduction values leads in total to 7,992 tCO<sub>2</sub>e which have to be deducted from the final result above.</p> <p>This leads to final emission reduction achieved during this monitoring period of</p> $ER_y = (618,801 - 7,992) \text{ tCO}_2\text{e}$ $= 610,809 \text{ tCO}_2\text{e (due to rounding)}$		

### E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

<b>Means of verification</b>	<p>The verification team has checked if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.</p> <p>It has further checked which of the below listed cases is applicable for the calculated ER of the current monitoring period.</p>	
<b>Findings</b>	<input type="checkbox"/>	Case 1: The ex-ante estimated value was found to be proportionally higher than the ex-post determined value. No further action is deemed required.
	<input type="checkbox"/>	Case 2: The ex-ante estimated value fits very good to the actually monitored value. No further justification is deemed required.
	<input checked="" type="checkbox"/>	Case 3: The ex-ante estimated value was found to be proportionally lower than the ex-post determined value.
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised:

		CAR 13
Conclusion	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		PP has provided related justification in MR on higher achieved emission reductions result than ex-ante estimated.

#### E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification		On the basis of the above comparison of actual values of the monitoring period with the estimations in the registered PDD the verification team has checked whether (in case 3) an appropriate explanation is included in the MR.
Findings	<input type="checkbox"/>	No further justification or explanation is deemed required as actual emissions of this MP do not exceed significantly the ex-ante calculated emission reductions (applicable for case 1 and 2).
	<input checked="" type="checkbox"/>	<p>For case 3: The PP has provided a related justification in the MR. The reasons for the increase are as follows:  The forecasted emission reduction in the PDD for the monitoring period is 227,739 tCO<sub>2</sub>e. During this monitoring period the emission reductions amount to 610,809 tCO<sub>2</sub>e, which exceeds the forecast by 168%. The reasons for this difference are listed below:</p> <ul style="list-style-type: none"> <li>- On-site emission reductions: The methodology requires the inclusion of on-site emissions in the project boundary, although it was assumed in the PDD that they would not be affected.</li> <li>- Higher electricity savings: The savings realised were much closer to the initial target (i.e. 1 MWh/tSiMn) than the saving of 0.4 MWh/tSiMn originally forecast in the PDD;</li> <li>- Delay of F1 &amp; F6 retrofit: In the PDD, F6 was expected to be retrofitted in early 2008, and F1 in 2009. However, due to poor market conditions, the retrofitting works have not yet commenced. Hence the PDD estimates incorporate more furnaces than have contributed to the achieved emission reductions.</li> </ul>
	<input checked="" type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: CAR 13
Conclusion	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input checked="" type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
		<p>The related reasons for increased emission reduction in such extent has been checked during onsite assessment. Especially the 2<sup>nd</sup> reason that the actual initial target of energy saving of 1.0 MWh/tSiMn was almost achieved compared to 0.4 MWh/tSiMn as applied to determine ex-ante emission reduction contributes to this high increase. Considering an energy saving of 1.0 MWh/tSiMn would lead to ex-ante ER of 568,889 tCO<sub>2</sub>e considering all furnace would have been retrofitted and 402,823 tCO<sub>2</sub>e considering only the actual retrofitted furnaces. Considering the latter this would be an increase of 1.77 or 177% compared to the value in PDD and hence shows that this is the actual reason for the higher actual achieved emission reductions during this crediting period. The increase in emission reduction is not due to a change in project design but due to the fact that the initial assumption on the actual energy saving was far too low. This is also substantiated by previous verification reports for previous three monitoring reports who also identified higher or even higher ER results than during this monitoring period. Hence, this increase and justification is reasonable and plausible.</p> <p>However, as this is a high increase and considering that this is the 4<sup>th</sup> consecutive monitoring period with increased emission reductions and energy savings are part of the financial analysis for demonstrating additionality, the financial analysis has been re-calculated considering the initial target value for energy saving of 1.0 MWh/tSiMn. The result of the re-calculation shows that the IRR value is 11.1% which is still lower than the benchmark value of 12.0% as applied in registered PDD. If applying actual energy savings achieved the IRR would result in 9.72% and</p>

	applying the electricity savings based on the historic electricity consumption over the period 1997 – 2003 instead of only 2003, the project IRR is 11.2%. Hence, the project would still be additional even considering the higher energy savings of 1.0 MWh/tSiMn at time of registration, actual achieved savings and savings over period of 1997-2003. Hence, this increase in ER does not affect the additionality and related proper justification is provided.
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### E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

<b>Means of verification</b>	The verification team has checked chapter E.4 of the MR and the emission reduction calculation sheet /MR//XLS/.				
<b>Findings</b>	<input checked="" type="checkbox"/> The MR in section E.4 includes a summary table of the ER breakdown <ul style="list-style-type: none"> <li>a) ER before 01/01/2013 and</li> <li>b) ER from 01/01/2013 until 31/12/2020</li> <li>c) ER from 01/01/2021</li> </ul> <input checked="" type="checkbox"/> The breakdown of the ERs before 01/01/2013 (during the first commitment period), from 01/01/2013 until 31/12/2020 and from 01/01/2021 onwards is as follows: <ul style="list-style-type: none"> <li><input type="checkbox"/> The ER have completely been generated before 01/01/2013 (during the first commitment period)</li> <li><input type="checkbox"/> The ERs have completely been generated from 01/01/2013 until 31/12/2020,</li> <li><input type="checkbox"/> The ERs have completely been generated from 01/01/2021 onwards,</li> <li><input checked="" type="checkbox"/> The ERs have partly been generated before 01/01/2013 (during the first commitment period) and partly from 01/01/2013 until 31/12/2020 and no further ERs from 01/01/2021,</li> <li><input type="checkbox"/> The ERs have partly been generated from 01/01/2013 until 31/12/2020 and partly from 01/01/2021,</li> <li><input type="checkbox"/> The ERs have partly been generated before 01/01/2013 (during the first commitment period) and partly from 01/01/2013 until 31/12/2020 and remaining partly from 01/01/2021.</li> </ul> <input checked="" type="checkbox"/> The breakdown of the ERs is correct, considering the applicable guidance.				
		<b>before 01/01/2013</b>	<b>from 01/01/2013 – 31/12/2020</b>	<b>from 01/01/2021</b>	<b>Sum</b>
	<b>Emission reductions [tCO<sub>2e</sub>]</b>	360,565 <sup>7</sup>	250,244	0	610,809
	<input checked="" type="checkbox"/> In this context the following CARs, CLs, FARs have been raised: CAR 07, CAR 08, CAR 09 and CAR 13				
<b>Conclusion</b>	<input type="checkbox"/> No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.				
	<input checked="" type="checkbox"/> The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.				
	The GHG emission reductions have been generated partly before and after 01/01/2013. No GHG emission reductions occurred after 01/01/2021. However, findings have been raised which have impact on the final ER result. The same has been addressed adequately.				

### E.9. Assessment of reported sustainable development co-benefits

<b>Means of verification</b>	<input checked="" type="checkbox"/>	N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.
	<input type="checkbox"/>	The project participants have monitored the sustainable development co-

<sup>7</sup> Rounded down value

		benefits of the registered CDM project activity, and requested the DOE to verify them. The following sources of information have been used in this context: <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /PDD/</li> <li>• /DSD/</li> <li>• /unfccc/.</li> </ul>
<b>Findings</b>	<input checked="" type="checkbox"/>	N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.
	<input type="checkbox"/>	Therefore the DOE has assessed and confirms that: (a) The monitoring has been carried out in accordance with the document for monitoring sustainable development co-benefits, if such document was developed and published on the UNFCCC CDM website in accordance with the “CDM project standard for project activities”;  (b) The reported monitoring results correspond to the sustainable development co-benefits of the project activity as observed by the DOE.
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised: -
<b>Conclusion</b>	<input type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.
	<input checked="" type="checkbox"/>	N/A – as the PP has not monitored the sustainable development co-benefits of the registered CDM project activity or not requested the DOE to verify them.
	-	

**E.10. Global stakeholder consultation**

<b>Means of verification</b>		In accordance with the PCP the DOE has submitted the initial version of the monitoring report provided by the PP for this monitoring period to be published on the UNFCCC webpage. The monitoring report has been published from 28/01/2021 for 21 days. The following sources of information have been used in this context: <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /unfccc/.</li> </ul>
<b>Findings</b>	<input checked="" type="checkbox"/>	No comments have been received on the published monitoring report for this monitoring period.
	<input type="checkbox"/>	Comments have been received and the DOE has concluded that comments are related to issues outside the CDM rules and requirements. Please refer to the list provided under Conclusion of this Section below for related information.
	<input type="checkbox"/>	Comments have been received. The DOE has <ul style="list-style-type: none"> <li>- requested further information from the submitters of the comments</li> <li>- informed the project participants of the comments received, and requested their feedback within a specified timeframe,</li> <li>- considered the input received and has assessed whether such comments are relevant to the CDM project activity,</li> <li>- acknowledged receipt of all submitted comments on the MR of the proposed CDM project activity,</li> <li>- assessed whether the comments are related to the CDM rules and requirements (if so related findings have been raised as per below),</li> <li>- used all possible means to determine the authenticity of the name and contact details of the individual or organization on whose behalf the comments have been submitted,</li> <li>- contacted the secretariat to make them publicly available (if only addressed to the DOE),</li> <li>- determined whether authentic and relevant comments in the global stakeholder consultation were taken into due account in the PDD of the</li> </ul>



		proposed CDM project activity.		
	<input type="checkbox"/>	In this context the following CARs, CLs, FARs have been raised, i.e. as the DOE concludes that the comments are related to the CDM rules and requirements:		
		-		
<b>Conclusion</b>	<input checked="" type="checkbox"/>	No CARs/CLs/FARs have been raised in this context. No correction was required. The project is in line with the respective requirements.		
	<input type="checkbox"/>	The raised CARs/CLs/FARs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.		
		As the DOE has concluded that comments are related to issues outside the CDM rules and requirements the comments and information gathered are listed as follows:		
		<b>No.</b>	<b>Original comment received</b>	<b>Feedback by the PP</b>
		1	-	-
		2	-	-
		3	-	-
		4	-	-

## SECTION F. Internal quality control

Before the submission of the final verification report a technical review of the whole verification procedure was carried out. The technical reviewers are competent GHG auditors being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may have been confirmed or revised. Furthermore, reporting improvements might have been achieved.

After the successful technical review an overall (esp. procedural) assessment of the complete verification has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step, the submission for requesting for issuance is conducted.

**SECTION G. Verification opinion**

Brundtland (Pty) Ltd. in the name of the PP as confirmed by related letter has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 5<sup>th</sup> periodic verification of the project:

**“Transalloys Manganese Alloy Smelter Energy Efficiency Project”**

With regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to the use of higher efficient electric arc furnaces as during baseline scenario due to improvement measures conducted at certain furnaces number F3, F5 and F7.

This verification covers the period from 01/05/2011 – 30/09/2014 (including both days).

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated PDD,
- the monitoring plan is in accordance with the applied approved CDM methodology, i.e., AM0038 version 01.0 and ACM0002 version 06,
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated.
- the monitoring system is in place and functional. The project has generated GHG emission reductions,
- the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.
- The first day of this monitoring period is directly following the previous monitoring period.

TÜV NORD JI/CDM CP further confirms that the project has achieved ER in the above-mentioned reporting period as follows:

GHG Emission Reductions: **610,809 tCO<sub>2e</sub>.**

**SECTION H. Certification statement**

As a duly accredited DOE, TÜV NORD CERT confirms that the project

**“Transalloys Manganese Alloy Smelter Energy Efficiency Project”**

registered under

UNFCCC-No. : 1027

has achieved emission reductions in accordance with all applicable requirements for registered CDM project activities during the current monitoring period

MP-No.: 5<sup>th</sup>

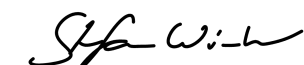
from: 01/05/2011

to: 30/09/2014

(including both days) as follows:

Emission reductions: 610,809 tCO<sub>2e</sub>.

Essen, 16/11/2021




Stefan Winter  
Team Leader

## Appendix 1. Abbreviations

Abbreviations	Full texts
CL	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CO <sub>2</sub>	Carbon dioxide
CO <sub>2eq</sub>	Carbon dioxide equivalent
CL	Clarification Request
DCS	Digital Control System
DOE	Designed Operational Entity
DVerR	Draft Verification Report
EAF	Electric Arc Furnace
ER	Emission Reduction
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IM	Interview Memo
MP	Monitoring Plan or Monitoring Period
MR	Monitoring Report
PA	Project Activity
PCD	Pitch Centre Diameter
PCP	Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
SANAS	South African National Accreditation System
SiMn	Silicone Manganese
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VT	Verification Team
XLS	Emission Reduction Calculation Spread Sheet

## Appendix 2. Competence of team members and technical reviewers



**Statement of Competence**  
Appointment and authorization according to the provisions  
of the TÜV NORD ACCOM Certification Program

**Mr. Stefan Winter**


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2025-07-07
VCS / ISO14001-2	Senior Assessor (Validation, Verification) Technical Reviewer	2025-07-07

Authorization status for technical areas within selected scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
2.1	Energy demand
4.1	Concrete and brick production
4.3	Paper
5.3	Composites, resin and alloys and
9.1	Aluminium and magnesium production
9.2	Iron, steel and Ferro alloy production
10.1	Engine emissions from oil and gas
10.1	Solid waste and wastewater
10.2	Marine

103 - Rev. 7, Date: 2019-07-22

043\_04-00000\_F02\_000001\_02.pdf      000-00000020-0001-000-0000



**Statement of Competence**  
Appointment and authorization according to the provisions  
of the TÜV NORD ACCOM Certification Program

**Ms. Christina Stöhr**


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2025-05-05
VCS / ISO 14001-2	Senior Assessor/Technical Reviewer	2025-05-05

Authorization status for technical areas within selected scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
10.1	Solid waste and wastewater

200 - Rev. 0 Date: 2021-09-29

004\_004-00000\_F02\_00000000\_000-0000      000-00000020-0001-000-0000



**Statement of Competence**  
Appointment and authorization according to the provisions  
of the TÜV NORD ACCOM Certification Program

**Mr. Eric Krupp**

Authorization status for technical areas within selected scopes:

CODE	TECHNICAL AREA
1.1	Thermal Energy Generation
2.1	Transport
9.1	Aluminium and Magnesium production

013 - Rev. 6, Date: 2016-07-05

004\_004-00000\_F02\_00000000\_000-0000      000-00000020-0001-000-0000

## Appendix 3. Documents reviewed or referenced

No.	Author	Reference	Title	References to the document	Provider
1.	UNFCCC	<b>/METH/</b>	<a href="#">AM0038</a> – Methodology for improved electrical energy efficiency of an existing submerged electric arc furnace used for the production of SiMn <a href="#">ACM0002 ver. 6</a> – Consolidated methodology for grid-connected electricity generation from renewable sources	<a href="https://cdm.unfccc.int/methodologies/Pamet/hodologies/approved">https://cdm.unfccc.int/methodologies/Pamet/hodologies/approved</a>	Other
2.	DOE	<b>/CPM/</b>	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)		Other
3.	UNFCCC	<b>/GOT/</b>	Glossary “CDM terms” (version 10.0)	<a href="https://cdm.unfccc.int/Reference/index.html">https://cdm.unfccc.int/Reference/index.html</a>	Other
4.	IPCC	<b>/IPCC/</b>	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	<a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>	Other
5.	UNFCCC	<b>/KP/</b>	Kyoto Protocol (1997)	<a href="http://unfccc.int/kyoto_protocol/items/2830.php">http://unfccc.int/kyoto_protocol/items/2830.php</a>	Other
6.	UNFCCC	<b>/MA/</b>	Decision 3/CMP. 1 (Marrakesh – Accords)	<a href="http://cdm.unfccc.int/Reference/COPMOP/index.html">http://cdm.unfccc.int/Reference/COPMOP/index.html</a>	Other
7.	PP	<b>/MR/</b>	Monitoring Report: Transalloys Manganese Alloy Smelter Energy Efficiency Project, versions: - Version 1, 04/11/2019 - Version 2, 18/02/2020 - Version 3, 09/10/2020 - Version 4, 27/11/2020 - Version 5, 03/09/2021	<a href="https://cdm.unfccc.int/Projects/DB/DNV-CUK1174913531.12/view">https://cdm.unfccc.int/Projects/DB/DNV-CUK1174913531.12/view</a>	Other
8.	UNFCCC	<b>/MRT/</b>	Monitoring Report Form (CDM-MR-FORM), Version 8.0	<a href="https://cdm.unfccc.int/Reference/PDDs_For.ms/index.html">https://cdm.unfccc.int/Reference/PDDs_For.ms/index.html</a>	Other
9.	UNFCCC	<b>/VAL/</b>	Project Design Document for CDM project activity: “Transalloys Manganese Alloy Smelter Energy Efficiency Project” version 6, dated 02/03/2007 Validation report for CDM project activity: “Transalloys Manganese Alloy Smelter Energy Efficiency Project” version 2, dated 29/08/2007 Revised Monitoring plan approved 25/10/2009 Validation report on post registration changes – revised monitoring plan dated 03/08/2009	<a href="https://cdm.unfccc.int/Projects/DB/DNV-CUK1174913531.12/view">https://cdm.unfccc.int/Projects/DB/DNV-CUK1174913531.12/view</a>	Other
10.	UNFCCC	<b>/VER/</b>	Documents of previous verification activities	<a href="https://cdm.unfccc.int/Projects/DB/DNV-CUK1174913531.12/view">https://cdm.unfccc.int/Projects/DB/DNV-CUK1174913531.12/view</a>	Other

No.	Author	Reference	Title			References to the document	Provider
11.	UNFCCC	/PS/	CDM Project Standard (Version 2.0)			<a href="http://cdm.unfccc.int/Reference/Standards/index.html">http://cdm.unfccc.int/Reference/Standards/index.html</a>	Other
12.	UNFCCC	/TOOL/	Rel.	Name	Ver.	<a href="http://cdm.unfccc.int/Reference/tools/index.html">http://cdm.unfccc.int/Reference/tools/index.html</a>	Other
			<input type="checkbox"/>	Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion	-		
			<input type="checkbox"/>	Emissions from solid waste disposal sites	-		
			<input type="checkbox"/>	Tool to calculate baseline, project and/or leakage emissions from electricity consumption	-		
			<input type="checkbox"/>	Project emissions from flaring Version	-		
			<input type="checkbox"/>	Tool to calculate the emission factor for an electricity system	-		
			<input type="checkbox"/>	Tool to determine the mass flow of a greenhouse gas in a gaseous stream	-		
			<input type="checkbox"/>	Tool to determine the baseline efficiency of thermal or electric energy generation systems	-		
			<input type="checkbox"/>	Tool to determine the remaining lifetime of equipment	-		
			<input type="checkbox"/>	Project and leakage emissions from transportation of freight	-		
			<input type="checkbox"/>	Determining the baseline efficiency of thermal or electric energy generation systems	-		
			<input type="checkbox"/>	Project and leakage emissions from anaerobic digesters	-		
			<input type="checkbox"/>	Upstream leakage emissions associated with fossil fuel use	-		
			<input type="checkbox"/>	Project and leakage emissions from biomass	-		
			<input type="checkbox"/>	Leakage in biomass small-scale project activities	-		
			<input checked="" type="checkbox"/>	Tool for the demonstration and assessment of additionality	7		
13.	UNFCCC	/VVS/	CDM Validation and Verification Standard (Version 02.0)			<a href="http://cdm.unfccc.int/Reference/Standards/index.html">http://cdm.unfccc.int/Reference/Standards/index.html</a>	Other
14.	PP	/EG/	<b>Evidence of Energy Generation covering the monitoring period:</b> <ul style="list-style-type: none"> <li>- Monthly electricity invoices for the entire monitoring period by ESKOM</li> </ul>			N/A	PP
15.	PP	/DATA/	Following logbooks, ledger and records for entire monitoring period: <ul style="list-style-type: none"> <li>• Manufacturing account for total SiMn Furnaces for the monitoring period</li> <li>• Monthly Raw Materials ledger</li> </ul>				PP

No.	Author	Reference	Title	References to the document	Provider
			including daily data on input material use, production values and energy consumption <ul style="list-style-type: none"> <li>Furnace data including daily data on electricity consumption, input material and production data as well as average or specific values besides analysis values for each furnace separately</li> <li>Monthly Raw Materials Stock Movement ledger by Technical Director</li> <li>Paste data sheets</li> </ul>		
16.	PP	<b>/ICC/</b>	Calibration certificates for: <ul style="list-style-type: none"> <li>Landis+Gyr Energy meters by Power Meter Technics (Pty) Ltd. certified Lab #143 by SANAS</li> <li>Purchase orders for elec. Meter and related quotes</li> <li>Weigh bridge calibration certificate</li> </ul> Supporting document of weighing platform certification against test weight	N/A	PP
17.	PP	<b>/XLS/</b>	ER Calculation spreadsheet corresponding to related version of MR Version 1 dated 04/11/2019 Version 2 dated 18/02/2020 Version 3 dated 09/10/2020 Version 4 dated 27/11/2020 Version 5 dated 03/09/2021	N/A	PP
18.	Manufacturer	<b>/MAN/</b>	User Manuals for following measurement equipment: <ul style="list-style-type: none"> <li>Multi Function Weighing Transmitter Type 6004MF</li> <li>ART Series Indicators Weighing computer</li> <li>Landis+Gyr Combimeter for active and reactive energy</li> </ul>		PP
19.	PP	<b>/TPR/</b>	Transalloys Company and Project activity Presentation, July 2019	N/A	PP
20.	PP	<b>/ANA/</b>	Monthly Analysis spreadsheets of following raw materials and products for the years 2011 – 2014: <ul style="list-style-type: none"> <li>Ore</li> <li>SiMn</li> <li>Coke</li> <li>Coal</li> <li>fluxes</li> </ul> Analysis of ordered Electrode Pastes for this monitoring period	N/A	PP
21.	PP	<b>/TRAIN/</b>	<ul style="list-style-type: none"> <li>Training evidence</li> </ul>		PP
22.	PP	<b>/PIC/</b>	Pictures of all measurement equipment		PP
23.	DNA	<b>/LoA/</b>	Letter of Approval by South African DNA for project activity "Transalloys Manganese Alloy Smelter Energy		PP

No .	Author	Reference	Title	References to the document	Provider
			Efficiency Project” for Transalloys (Pty) Ltd. dated 22/02/2021		
24.	PP	<b>/MOC/</b>	Modalities of Communication Annex 2 for project activity “Transalloys Manganese Alloy Smelter Energy Efficiency Project” for Transalloys (Pty) Ltd. dated 19/03/2021		PP
25.	PP	<b>/AUT/</b>	Authorization letter by Transalloys (Pty) Ltd. confirming that contracting DOE is part of Brundtland (Pty) Ltd. contract with Transalloys (Pty) Ltd. dated 03/10/2019		PP
26.	SANAS	<b>/sanas/</b>	SANAS webpage	<a href="http://sanas.co.za">South African National Accreditation System   National, Regional, Global Trust (sanas.co.za)</a>	Other
27.	PP	<b>/FIN/</b>	Financial calculation spreadsheet dated 14/11/2021		PP



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

**Table 3. Remaining FAR from validation and/or previous verifications**

<b>FAR ID</b>	xx	<b>Section no.</b>	E.2	<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
<i>Not applicable</i>				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

**Table 4. CL from this verification**

<b>CL ID</b>	XX	<b>Section no.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of CL</b>				
<i>Not applicable</i>				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

**Table 5. CAR from this verification**

<b>CAR ID</b>	01	<b>Section no.</b>	1.1	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
As per monitoring report title page the monitoring period ends 30/06/2014. However, the related ER calculation spreadsheet shows that the ERs are calculated until the end date of the related crediting period 30/09/2014 and at several places the ER spreadsheet refers to an end date of the monitoring period of 30/09/2014. Pls clarify and revise accordingly.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
The monitoring period runs from 01/05/2011 till 30/09/2014. Both the MR and the ER spreadsheet have been updated to consistently reflect it.				
<b>Documentation provided by project participant</b>				
<ul style="list-style-type: none"> <li>- Updated Monitoring Report</li> <li>- Updated ER Spreadsheet</li> </ul>				
<b>DOE assessment</b>				<b>Date:</b> 06/03/2020
<p>Ok. The MR and ER has been updated accordingly and throughout the documents in in between documents the start and end date of the monitoring period is now consistent.</p> <p>Besides, the end date of the published MR is indicated with 30/06/2014. The final MR has therefore a different, later end date of 30/09/2014. This is due to the reason that the PP decided to include the remaining 3 months of the crediting period in this monitoring period and possible as per PCP ver 2 §203. Further, the DOE has indicated the related change of monitoring period in the CDM-ISS-FORM as well as the end date is prior to the date of the onsite inspection conducted and therefore no additional onsite is required.</p> <p>However, following issues have been identified:</p> <ol style="list-style-type: none"> <li>1. Page 1: <ol style="list-style-type: none"> <li>a. The Version number of the PDD applicable to this monitoring report is not in line with the PDD available on the project website.</li> <li>b. The host party PP is not in line with the name on the project website.</li> <li>c. the ex-ante value and the ERs achieved before and after 2013 are missing units.</li> </ol> </li> <li>2. Section A.3: the PP's name differs the name on the project website.</li> <li>3. Section A.4: the guideline to fill the MR requests the following in this section: "... Indicate the exact references titles, versions and UNFCCC reference numbers) of... any other methodologies or</li> </ol>				

<i>methodological tools to which the applied methodologies refer...</i>	
4. Section B.2.5: the guideline to fill the MR requests the following in this section: " ... provide the approval date and reference number of the post-registration change ..."	
<b>Project participant response</b>	<b>Date:</b> 10/08/2021
The MR has been updated accordingly as per issues identified.	
<b>Documentation provided by project participant</b>	
- Updated Monitoring Report	
<b>DOE assessment</b>	<b>Date:</b> 03/09/2021
1. Page 1: <ul style="list-style-type: none"> <li>a. VT: Updated to version 6 in line with PDD as per UNFCCC project webpage.</li> <li>b. VT: The name has been corrected to be consistent with the UNFCCC webpage. A change in PP is considered and ongoing but yet not finally processed.</li> <li>c. VT: The related ERs before and after 2013 have been added.</li> </ul> 2. Section A.3: VT: Corrected see point 1. B) above 3. Section A.4: VT: The titles have been corrected as well as the only tool applied on additionality has been added. 4. Section B.2.5: VT: The approval date of 25/10/2009 is provided however there is no approval number as this was at times when this was not established yet. At that time changes have been submitted as notification of changes. The related link has been included in the MR. The same is indicated in the report. 5. Title page on top refers to version 07.0 of MR template version whereas current latest version is 8.0. Pls clarify.	
<b>Project participant response</b>	<b>Date:</b> 09/09/2021
The MR has been updated accordingly as per issues identified.	
<b>Documentation provided by project participant</b>	
- Updated Monitoring Report	
<b>DOE assessment</b>	<b>Date:</b> 09/09/2021
5. Title page: Version number now corrected to 8.0 Finding closed	

<b>CAR ID</b>	02	<b>Section no.</b>	B.1	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
Following issues w.r.t section B.1 have been identified:				
1. B.1 states that the capacity of furnace F1 and F3 would be 21MVA. However, as per onsite inspection and data provided it is 18 MVA for furnace 1 and 22 MVA for furnace 3. 2. Further, this section gives a Table 2. Please clarify which table is table 1. 3. Finally B.1 gives a list of downtimes. Please clarify why data outside this monitoring period, after 30/06/2014 is provided. Same list is given in ER spreadsheet with related same dates outside this monitoring period.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
1. The PDD indicates that the capacities of the different furnaces are: <ul style="list-style-type: none"> <li>- F7 and F5: 48MVA</li> <li>- F6: 22MVA</li> <li>- F1 and F3: 21MVA</li> </ul> The capacity remained the same across the crediting period. Capacity references has been removed from the MR to avoid further confusion.         2. The table in section A.3. is Table 1. A table title has been added to the section in the MR. 3. The monitoring period runs until 30/09/2014. The MR and ER Spreadsheet have been updated accordingly. The last downtime recorded dates 29/08/2014.				
<b>Documentation provided by project participant</b>				
- Updated MR - Updated ER Spreadsheet				
<b>DOE assessment</b>				<b>Date:</b> 06/03/2020
1. Not ok. As per VVS § 354 DOE has to assess whether the actual implemented project is in conformity with the registered PDD. As per onsite inspection and provided documents the capacities stated above are not consistent. Please clarify the inconsistency. 2. Ok. Table in Section A.3 has now been indicated as Table 1. 3. Ok. Related clarification is provided. Due to the reason that the end date of the monitoring period has been extended until the end date of the crediting period by 3 months related down times for these additional 3 months are also provided. DOE has checked the downtimes with related supporting documents and can confirm that the list is complete and correct.				

<b>Project participant response</b>	<b>Date:</b> 09/10/2020
<p>1. Confirmation of the capacity of Furnace 1 and Furnace 3:  F1: The project was not implemented for furnace 1 during the monitoring period due to adverse market conditions as such the capacity following the implementation of the project cannot be determined for furnace 1  F3: The reference to 22MVA relates to the capacity of the transformer providing electricity to Furnace 3. The DOE has been provided with supporting documentation regarding the relevant transformer capacity. The capacity of Furnace 3 itself depends on a number of variables, some of which depend on the operational configuration of the furnace where others are more fundamental such as losses within the different components of the furnace. However, the capacity of the furnace can never exceed the capacity of the transformer providing electricity to it. This dynamic forms the basis for the 21MVA reference made in the PDD. Page 23 or page 1 of Annex 1 of the documentation provided to the further supports the capacity reference in the PDD.</p>	
<b>Documentation provided by project participant</b>	
<ul style="list-style-type: none"> <li>- Furnace 3 transformer data sheet</li> <li>- Furnace 3 transformer capacity rating name plate</li> <li>- Verification Report furnace 3 capacity</li> </ul>	
<b>DOE assessment</b>	<b>Date:</b> 19/11/2020
<p>1. F1 furnace has not been refurbished yet and related capacity as per registered PDD is not relevant. The same is substantiated by checking of raw data and ER spreadsheet does also not consider any data from furnace F1.  F3 furnace: Provided supporting document "7 Furnace 3 transformer capacity rating name plate" also refers to 22MVA which can also be recalculated from values provided on the name plate e.g. Volts 17121 and Ampere 742 which is equal <math>P = \text{SQR}(3) \times 17121 \times 742 = 22,003.59\text{kVA} = 22.0\text{MVA}</math> (rounded). As per PP at time of validation the PP calculated with rounded values e.g. 17000 V and then ended with 21. Therefore, the editorial mistake in PDD may be corrected accordingly in a future revision. FAR 02 is raised in order to correct this.</p>	
Finding closed.	

<b>CAR ID</b>	03	<b>Section no.</b>	B.2.4	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
Clarification is requested why related stated information is given under this section. At the time of revision of the monitoring plan the monitoring plan has been already included in the PDD and therefore no inclusion of a monitoring plan has ever happened. Related revision requested.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
Section B.2.4 of the MR has been updated to reflect that no inclusion of a monitoring plan has taken place during this monitoring period.				
<b>Documentation provided by project participant</b>				
- Updated Monitoring report.				
<b>DOE assessment</b>				<b>Date:</b> 06/03/2020
Ok. MR Section A.2.4 states now that no inclusion of a monitoring plan has taken place during this monitoring period. The section is not applicable for this monitoring period. This finding is closed.				

<b>CAR ID</b>	04	<b>Section no.</b>	B.2.5	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
Section B.2.5 states that the monitoring plan has been revised and approved 25/10/2009. However, as per instruction a summary of the changes conducted has to be provided. This is missing in MR.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
Section B.2.5 has been expanded to include a summary of the revisions made in the monitoring plan.				
<b>Documentation provided by project participant</b>				
- Updated Monitoring report.				
<b>DOE assessment</b>				<b>Date:</b> 06/03/2020
Ok. In line with related validation report of revised monitoring plan a summary has been provided now in section B.2.5 of the monitoring report. As these changes have been assessed and approved in 2009 no approval number is available. This finding is closed.				

<b>CAR ID</b>	05	<b>Section no.</b>	C	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
Section C last sentence of 2 <sup>nd</sup> bullet point is not finished. Pls clarify the sentence. Further it is stated that the company is ISO 9001 certified, which is true, however, as per PDD it is stated that the ISO 14001 management system helps to ensure the quality procedures are in place. Therefore, please specify whether ISO14001 reflects CDM related issues as well.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
<ul style="list-style-type: none"> <li>- The MR has been updated to include the last sentence of 2<sup>nd</sup> bullet point of section C.</li> <li>- The ISO 14001 management system does not specifically refer to CDM related issues. However, the standard sets out the requirements which an organization's Environmental Management System (EMS) should meet. The certification under ISO14001 itself provides the framework that assists the establishment and maintenance of the quality procedures relevant to the CDM.</li> </ul>				
<b>Documentation provided by project participant</b>				
Updated Monitoring report.				
<b>DOE assessment</b>				<b>Date:</b> 06/03/2020
<p>Not Ok. Section has been updated accordingly. Last two bullet points are now provided. However, please clarify in MR section C in which way the ISO14001 is relevant to the management system considering the following sentence in reg PDD or clarify whether the description in the PDD is incorrect and has to be revised:</p> <p>"The ISO 14001 management system implemented by Transalloys and its parent company Highveld will also help ensure that quality procedures are in place."</p> <p>Further; PDD refers to the ISO 14001 management system for QA/QC procedure for uncertainty of coal and coke consumption pg41 and pg72 of reg PDD.</p>				
<b>Project participant response</b>				<b>Date:</b> 09/10/2020
<p>In the PDD reference is made to the company's ISO certification in relation to the quality assurance of the SiMn production process and more specifically the uncertainty around the quantities of coal and coke used. In the reduction process coal and coke are added to the furnaces via loadcells which measure the tones of each raw material in each batch. The DOE has been provided with the following QA/QC procedures that forms part of management system:</p> <ul style="list-style-type: none"> <li>- The PSOP021 procedure aims to determine the accuracy of the weighing hoppers and ensure that raw materials are loaded into the furnaces as per predetermined feed rates and forms part of the Safety, Health, Environment and Quality system.</li> <li>- The SOP SiMn 201 procedure ensures accurate loading of furnace recipes ensuring metallurgical stability of furnaces via the provision of detailed flow diagrams</li> <li>- The SiMn 300 procedure provides specific guidelines on the checking of batchweigh totals as well as tap weights recorded on the furnace logsheets, in order to render the values auditable during CDM verification</li> <li>- The TAOP 230 procedure provides detailed step by step instructions for carrying out batch weigh scale tests including examples of actions to be taken under different calibration scenarios</li> </ul> <p>In addition to the provision of procedures the ER spreadsheet and the MR have been updated to include a 9% haircut on the onsite emission reductions as per section B.6.3. chapter 4. The discount on onsite emission reductions by the uncertainty of overall onsite emissions has reduced the overall ERs during the monitoring period by 7,992 ERs.</p>				
<b>Documentation provided by project participant</b>				
<ul style="list-style-type: none"> <li>- Updated Monitoring report</li> <li>- Updated ER Spreadsheet</li> <li>- QA/QC procedures</li> </ul>				
<b>DOE assessment</b>				<b>Date:</b> 19/11/2020
<p>Ok. Related internal quality procedures have been provided which confirm the response by PP how the ISO certification and related quality and environmental management procedures are considered in the CDM management system.</p> <p>Besides, in line with related registered PDD which states in B.6.3 that "For the reasons above, making corrections to calculated emissions to take uncertainty into account is viewed as a statistically inaccurate approach. However, the project participants have been required to make these corrections and therefore will discount onsite emission reductions by the uncertainty of overall onsite emissions, which has been calculated at 9.0%", the final emission reduction value has been reduced by this 9.0%.</p> <p>Finding closed.</p>				

<b>CAR ID</b>	06	<b>Section no.</b>	D.2	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
Following issues w.r.t. section D.2 of the MR have been identified:				
1. QP <sub>y,monitored</sub> :				

- a. The given units and description is not fully in line with the latest approved monitoring plan. Pls unify
- b. The calibration frequency, serial number, date of last calibration and validity of monitoring equipment is missing.
2. EC<sub>y</sub>:
  - a. The given units and description is not fully in line with the latest approved monitoring plan. Pls unify
  - b. Measuring/reading/recording is not in line with latest approved monitoring plan. MR states "recorded daily" whereas the latest approved MP states "[...] and recorded monthly". Pls clarify.
  - c. The information stated for monitoring equipment is not complete as per onsite inspection and therefore, the stated calibration details do not cover the monitoring period.
  - d. Besides, during onsite inspection it has been identified that meters have been exchanged but not all dates on exchange are provided in MR.
3. Q<sub>p,coal,y</sub>; Q<sub>p,coke,y</sub>:
  - a. The given units and description is not fully in line with the latest approved monitoring plan. Pls unify
  - b. The stated details for the monitoring equipment dates are not covering the monitoring period.
  - c. Further, the serial numbers of the hoppers are missing.
4. Q<sub>p,paste,y</sub>:
  - a. The given units and description is not fully in line with the latest approved monitoring plan. Pls unify
  - b. MR states that the consumption of paste is monitored via weigh hoppers. However, as per onsite inspection and monitoring plan this is done via different method. Sum of truck deliveries via weigh bridge of input materials and stock changes. Revision requested and details of the raw material weigh bridge are required.
5. EF<sub>coal,y</sub>: The parameter is given as EF<sub>pcoal,y</sub> in the latest approved monitoring plan
6. EF<sub>p,paste,y</sub>: Description under calculation method is not identical with the description in related approved latest MP. The MP refers also to the following:  
"Fix carbon and volatiles content will be taken from the supplier. Carbon content in the volatiles (Cv) will be taken from supplier if available; if not available, the same CV as for coke will be taken (see the justification in the table of EFbpaste)."
7. Quality of coal<sub>p</sub> and Quality of coke<sub>p</sub>:
  - a. Related values for this monitoring period are missing in MR.
  - b. Related QA/QC is as per latest approved MP is missing in MR.
8. Quality of electrode paste<sub>p</sub>:
  - a. Under Measured it is referred to that the parameter is "Calculated". However, under "Calculation method it is stated "That is based on supplier laboratory analyses report". Please clarify. And if calculated from analyses report then the calculation method should be provided even though the approved MP states that this parameter value is taken from supplier's data when purchased.
  - b. Related values for this monitoring period are missing in MR.
  - c. QA/QC refers to "gives a typical emission factor of 3.4tCO<sub>2</sub>/tpaste". However this is quality of paste and not emission factor of paste. Pls clarify the statement.
9. Quality of SiMnp:
  - a. Description of parameter is incon between MR and latest approved MP. Pls unify.
  - b. Related values for this monitoring period are missing in MR.
10. Quality of ore:
  - a. Related values for this monitoring period are missing in MR.
11. Quality of fluxes:
  - a. Related values for this monitoring period are missing in MR.
  - b. The description under calculation method is inconsistent to latest approved MP. MR refers to flux analyses at least monthly when new batches are used whereas the MP refers to that lab analyses are done at least monthly to determine the composition of the ore. No reference is given there that this is only done when new batches are used. Further, MR states that "only pellets" are considered under this MR. Please clarify which "pellets" are meant.

**Project participant response****Date:** 18/02/2020

1. QP<sub>y,monitored</sub>:
  - a. The MR has been updated to reflect the correct units and description.
  - b. The MR has been updated to include the type, serial number, calibration frequency, date of last calibration and validity has been added.
2. EC<sub>y</sub>:
  - a. The MR has been updated to reflect the correct units and description.
  - b. The MR has been updated to align with the latest version of the approved monitoring plan.
  - c. The MR has been updated to provide the full details of the meters used during the period (i.e.

95679335 (F3), 96756043 (F5) and 96505392 (F7)). It is important to consider that, as per the supplier's manual (p.48) meters are factory calibrated and do not require further calibration.

- d. The MR has been updated to reflect the installation date of the meters used during the monitoring period:
  - F3: installed on 23/10/2010
  - F5: installed on 19/09/2010
  - F7: installed on 28/11/2010
 Additional documentation underpinning the installation date has been provided to the DOE
3.  $Q_{p,coal,y}$ ;  $Q_{p,coke,y}$ :
  - a. The MR has been updated to reflect the correct units and description.
  - b. The MR has been expanded with Annex I to list all the dates at which the monitoring equipment has been calibrated as well as their corresponding validity. As per EB52 Annex 60, when there is no calibration record, the maximum error is employed for conservativeness. The ER spreadsheet has been designed to apply this correction per furnace for each period a meter is outside its calibration window.
  - c. Per furnace a set of components are combined and used to weigh the raw materials fed into the furnace per hopper. The process descriptions on how the calibration is conducted for the hoppers per furnace have been provided to the DOE. The serial numbers per component have been extracted electronically and added to the MR.
4.  $Q_{p,paste,y}$ :
  - a. The MR has been updated to reflect the correct units and description.
  - b. The MR has been updated to reflect the correct monitoring equipment (i.e. not a weight hopper but the weighbridge) and its details. And the calibration certificates relating to the weighbridge have been added to the project folder for the DOE's review.
5.  $EF_{coal,y}$ : The MR has been updated to reflect  $EF_{pcoal,y}$  accordingly.
6.  $EF_{p,paste}$ : The MR has been updated to reflect the correct calculation method.
7. Quality of coal<sub>p</sub>, quality of coke<sub>p</sub>:
  - a. The MR has been updated to include the quality values for coal and coke.
  - b. The MR has been updated to align with the latest version of the approved monitoring plan.
8. Quality of electrode paste<sub>p</sub>:
  - a. The MR has been updated to reflect the latest version of the approved monitoring plan.
  - b. A table with the data provided by the supplier has been included in the MR.
  - c. The MR has been updated to reflect the correct QA/QC procedure as per the latest approved monitoring plan.
9. Quality of SiMnp:
  - a. The MR has been updated to reflect the latest version of the approved monitoring plan.
  - b. A table with the related values per furnace has been included in the MR.
10. Quality of ore:
  - a. A table with the related values has been included in the MR.
11. Quality of fluxes:
  - a. A table with the related values has been included in the MR.
  - c. The description under calculation method has been made consistent to latest approved monitoring plan.

#### Documentation provided by project participant

- Updated Monitoring report.
- Updated ER Spreadsheet.
- Annex I with weekly calibration data for the weight hoppers and platform scales.

#### DOE assessment

Date: 09/03/2020

1.  $Q_{p,y,monitored}$ :
  - a. Ok. The MR has been updated and is now consistent with reg PDD / Monitoring plan.
  - b. Ok. Related information on serial number, accuracy and calibration etc. as required by the instructions to fill MR have now been provided. The information has been checked during onsite inspection as well as related supporting documents<sup>/PIC/CAL/</sup>.
2.  $EC_y$ :
  - a. Ok. The MR has been updated and is now consistent with reg PDD / Monitoring plan.
  - b. Ok. Corrected in line with registered monitoring plan.
  - c. Ok. Related information has now been provided in line with information found and checked during onsite inspection as well as provided supporting documents<sup>/PIC/CAL/</sup>. Based on supporting documents provided the equipment is calibrated as per manufacturer specifications and for this entire monitoring period.
  - d. Ok. Related specification has been included into the MR now, which is correct as per documents checked during onsite inspection<sup>/PO/</sup>.

3.  $Q_{p,coal,y}$ ;  $Q_{p,coke,y}$ :
  - a. Ok. The MR has been updated and is now consistent with reg PDD / Monitoring plan.
  - b. Ok. Related dates have now been provided covering the entire monitoring period. However, delays in calibration or missing calibrations have been identified. Therefore, PP applied related steps as per VVS §366. DOE can confirm that the adjustment has been applied in a conservative manner in such that the final ER result is lowered. Further, that the adjustment is applied to all values during the delay/missing calibration period. Besides, the delayed or subsequent calibration showed no permissible error outside the accuracy.
  - c. Ok. The related details are now provided and consistent with supporting documents and onsite inspection.
4.  $Q_{p,paste,y}$ :
  - a. Ok. The MR has been updated and is now consistent with reg PDD / Monitoring plan.
  - b. Ok. MR has been updated accordingly. Besides, related details of the weighbridge have been also provided which are correct as per onsite inspection and provided supporting documents.
5.  $EF_{coal,y}$ : Ok. The parameter has been corrected accordingly in line with registered monitoring plan.
6.  $EF_{p,paste,y}$ : Ok. The description in the MR has been updated accordingly and is now consistent with the reg MP.
7. Quality of coal<sub>p</sub>, quality of coke<sub>p</sub>:
  - a. Ok. Related values for this monitoring period have been provided and checked against provided supporting documents. Therefore the values provided are correct.
  - b. OK. MR has been corrected and is now consistent with latest reg MP.
8. Quality of electrode paste<sub>p</sub>:
  - a. Ok. The MR has been updated accordingly. The description under Measured has been deleted and switched to “-“. This is correct as the value is neither measured nor calculated as it is taken from supplier data.
  - b. Not Ok. Related values for this monitoring period have been now provided. DOE checked the values against provided supporting documents. Therefore please clarify how the values have been derived considering the three documents provided from Ferrovelde and SiliconSmelter.
  - c. OK. MR has been corrected and is now consistent with latest reg MP.
9. Quality of SiMnp:
  - a. OK. MR has been corrected and is now consistent with latest reg MP.
  - b. Ok. Related values for this monitoring period have been provided and checked against provided supporting documents. Therefore the values provided are correct.
10. Quality of ore:
  - a. Ok. Related values for this monitoring period have been provided and checked against provided supporting documents. Therefore the values provided are correct.
11. Quality of fluxes:
  - a. Ok. Related values for this monitoring period have been provided and checked against provided supporting documents. Therefore the values provided are correct.
12. Ok. The description under calculation method is now consistent with the reg MP.

<b>Project participant response</b>	<b>Date:</b> 09/10/2020
8.b. The MR has been update to include a comparison between the baseline paste specifications and the project specifications for both Ferrovelde and SiliconSmelter. In the absence of monthly data on the quality of electrode paste a conservative value 3.67 tCO <sub>2</sub> /t (i.e. 100% carbon) has been applied for the full monitoring period as per the guidance for $EF_{ppaste,y}$ of the revised monitoring plan.	
<b>Documentation provided by project participant</b>	
- Updated Monitoring report	
<b>DOE assessment</b>	<b>Date:</b> 20/11/2020
Not ok. The MR has been revised and states now the data as per related provided supporting documents. However, the MR may be crosschecked with correct use of dot and comma for values e.g 7,3 and 7.3 under “Value(s) of monitored parameter” and “Additional comments”.	
<b>Project participant response</b>	<b>Date:</b> 23/11/2020
As a result of working on the MR and the ER spreadsheet on different computers with different country settings and therefore different uses of decimal points and commas, the MR got populated with both in some cases. The MR has been reviewed in detail and where commas were used they were replaced with decimal points.	
<b>Documentation provided by project participant</b>	
- Updated Monitoring report	
<b>DOE assessment</b>	<b>Date:</b> 27/03/2021

<p>OK. MR is now applying dot and comma correctly. However, the following has been identified:</p> <ol style="list-style-type: none"> <li>parameter QPy,monitored: to which time frame does the additional comment refer to? Please add this information to the MR.</li> <li>parameter Qpcoal,y: do the presented values for 2011 and 2014 reflect the whole year or only the MP-time?</li> </ol>	
<b>Project participant response</b>	<b>Date:</b> 10/08/2021
<ol style="list-style-type: none"> <li>related timeframe added</li> <li>specification added.</li> </ol>	
<b>Documentation provided by project participant</b>	
- Updated Monitoring report	
<b>DOE assessment</b>	<b>Date:</b> 03/09/2021
<ol style="list-style-type: none"> <li>Parameter QPy,monitored: Ok. It is added that this is applied always for periods when meter is outside the cal window throughout the crediting period / Monitoring period. The cal period is short listing all periods would be not reasonable.</li> <li>Parameter Qpcoal,y: Ok. Following is added: The monitored values relate to the monitoring period only (from 01/01/2011 till 30/09/2014, including both days). Hence, the values for year 2011 and 2014 are for the times of the monitoring period only and not the entire year.</li> </ol>	
Finding closed.	

<b>CAR ID</b>	07	<b>Section no.</b>	ER calc	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
<p>Following issues w.r.t. provided ER spreadsheet have been identified:</p> <ol style="list-style-type: none"> <li>Sheet "ER Calculation", "Generic A", "Monitoring system C" are referring to end date of 30/09/2014 for the Monitoring period whereas MR and ER sheet "MR tables E" refer to 30/06/2014 to end date. Unification is requested.</li> <li>Sheet "Monitoring system C" does not provide all meters installed during the monitoring period as well as is missing several calibration dates.</li> <li>Sheet "ER Calculation" Row 55: During determination of parameter <math>Q_{Phistoric}</math> the cell does not contain the related function as per equation (3) of the PDD and methodology but "<math>= (MIN(J56/MR\ tables\ D2!\\$F\\$13;J57/12))*12</math>". Please clarify why not the equation as per PDD is applied and followed. Further, several of the results for this parameter shown in the spreadsheet in row 55 are the higher of the two values whereas the equation requires to use the minimum of the two values <math>Q_{Phistoric}</math> and <math>Q_{Pmonitored}</math>. Revision is requested.</li> <li>Sheet "MR tables D2": The results for the <math>EF_{coke}</math> parameter are inserted but as per monitoring plan this value is calculated by several analyzed input parameters. Therefore clarify how <math>EF_{coke}</math> is determined and how this is in line with the latest registered monitoring plan. Revision requested.</li> <li>Sheet "F3 - Daily Furnace Data": <ol style="list-style-type: none"> <li>Month August 2012: the values for coal and coke are inconsistent with related stated source. Pls clarify and correct.</li> <li>Generally it has been identified that in many cases the average kg per cylinder of paste is not reasonable e.g. 6<sup>th</sup> Aug 2012 for Furnace 5 of 971 kg. Pls clarify and revise accordingly. Further, as per onsite inspection and interview with the Production Manager the raw data file must not be used as source for the Paste consumption but the Management Account File.</li> </ol> </li> <li>Sheet "F5 - Daily Furnace Data": <ol style="list-style-type: none"> <li>Generally it has been identified that in many cases the average kg per cylinder of paste is not reasonable e.g. 6<sup>th</sup> Aug 2012 for Furnace 5 of 971 kg. Pls clarify and revise accordingly. Further, as per onsite inspection and interview with the Production Manager the raw data file must not be used as source for the Paste consumption but the Management Account File.</li> </ol> </li> <li>Sheet "F7 - Daily Furnace Data": <ol style="list-style-type: none"> <li>For months May 2013 amounts of paste is given whereas the number of paste cylinders is stated as zero. This is not reasonable. Pls clarify and correct accordingly.</li> <li>Besides, for the same month May 2013 Coke consumption is only given for the days 28<sup>th</sup> to 31<sup>st</sup> May whereas the raw data provides values from 20<sup>th</sup> to 31<sup>st</sup> May 2013 please clarify the inconsistency.</li> <li>Months Oct 2013 the values for Nbr of castings and tons of paste as well as the resulting average kg per cylinder are either inconsistent with the underlying raw data spreadsheet or are unreasonable (average kg). Pls clarify and revise accordingly.</li> <li>Generally it has been identified that in many cases the average kg per cylinder of paste is not reasonable e.g. 26<sup>th</sup> Oct 2013 for Furnace 5 of 4516 kg. Pls clarify and revise accordingly. Further, as per onsite inspection and interview with the Production Manager the raw data file</li> </ol> </li> </ol>				



- must not be used as source for the Paste consumption but the Management Account File.
- e. Data for Furnace 7 for May 2011 as presented in ER spreadsheet are data for Furnace 5. Please include the correct data for Furnace 7 in ER spreadsheet "F7 – Daily Furnace Data".
8. Further, during crosscheck of input data with the manufacturing accounts it has been identified that the values for Furnace 7 for the year 2013 are different by approx. 50%. Pls clarify this huge difference.

<b>Project participant response</b>	<b>Date: DD/MM/YYYY</b>
<ol style="list-style-type: none"> <li>The monitoring period runs from 01/05/2010 till 30/09/14. Reference made to 30/06/14 is made in error and has been corrected across both the MR as well as the ER calculation sheet.</li> <li>The MR and ER spreadsheet have been updated to include additional meters and calibration dates.</li> <li>The function in row 55 of the "ER Calculation" tab in the ER spreadsheet has been replaced to be aligned with equation (3) of the PDD and methodology.</li> <li>An additional tab has ("Quality of Coke") been added to the ER spreadsheet in which the quality of coke<sub>p</sub> is used to determine EF<sub>pcoke,y</sub> in accordance with monitoring plan.</li> <li>Sheet "F3 - Daily Furnace Data":             <ol style="list-style-type: none"> <li>Month August 2012: The coal and coke data in the source file are not corrected for the maximum permissible error where this is the case in the ER calculation spreadsheet. The raw data can be matched to the values in the ER calculations by looking inside the equation and where the monitoring equipment is inside the calibration validity window.</li> <li>Paste cylinders: The data used to determine the tonnes of paste used has been replace with that from the Management accounts. It is important to consider that these are monthly totals and are therefore captured on the last day of the month. Other days in a moth are recorded as zero to enable correct accumulation per year in tab "MR tables D2" cells G202 to L206.</li> </ol> </li> <li>Sheet "F5 - Daily Furnace Data":             <ol style="list-style-type: none"> <li>Paste cylinders: The data used to determine the tonnes of paste used has been replace with that from the Management accounts. It is important to consider that these are monthly totals and are therefore captured on the last day of the month. Other days in a moth are recorded as zero to enable correct accumulation per year in tab "MR tables D2" cells G202 to L206.</li> </ol> </li> <li>Sheet "F7 - Daily Furnace Data":             <ol style="list-style-type: none"> <li>Paste cylinders: The data used to determine the tonnes of paste used has been replace with that from the Management accounts. It is important to consider that these are monthly totals and are therefore captured on the last day of the month. Other days in a moth are recorded as zero to enable correct accumulation per year in tab "MR tables D2" cells G202 to L206.</li> <li>May 2013 coke consumption: The process to bring furnace 7 back online started on 20/05/2013 with the consumption of electricity used to heat up the furnace. Once the furnace reached temperatures at which the reduction process occurs (28/05/2013) coke was added.</li> <li>Paste cylinders: The data used to determine the tonnes of paste used has been replace with that from the Management accounts. It is important to consider that these are monthly totals and are therefore captured on the last day of the month. Other days in a moth are recorded as zero to enable correct accumulation per year in tab "MR tables D2" cells G202 to L206.</li> <li>Paste cylinders: The data used to determine the tonnes of paste used has been replace with that from the Management accounts. It is important to consider that these are monthly totals and are therefore captured on the last day of the month. Other days in a moth are recorded as zero to enable correct accumulation per year in tab "MR tables D2" cells G202 to L206.</li> <li>May 2011 data: The copy and paste error has been corrected by replacing the furnace 7 data for May 2011 with the correct data from the relevant raw data file.</li> </ol> </li> <li>Furnace 7 2013 data deviation: following a more detailed cross examination of the data used for furnace 7 in 2013 it became apparent that the incorrect raw data file had been used for March 2013 and September 2013 (which was a duplication of October 2013). The correct data files have been included in the data folder and used to update the data used in the ER calculation spreadsheet across all three furnaces (3, 5, 7) in tabs: "F3 - Daily Furnace Data", "F5 - Daily Furnace Data", "F7 - Daily Furnace Data".</li> </ol>	
<b>Documentation provided by project participant</b>	
<ul style="list-style-type: none"> <li>- Updated Monitoring Report.</li> <li>- Updated ER Spreadsheet.</li> <li>- Folder with calibration certificates and meter photos.</li> <li>- Raw data files for March and September 2013 (filename: 23_Furnace_Data_March_2013 (v2) and 29_Furnace_Data_September_2013 (v2))</li> </ul>	
<b>DOE assessment</b>	<b>Date: 20/03/2020</b>
<ol style="list-style-type: none"> <li>Ok. End date has been unified to 30/09/2014 throughout and between documents now. Therefore, the PP extended the end date of the monitoring period by 3 months until the end date of the crediting period from 30/06/2014 to 30/09/2014. This is in line with PCP §203. The final date of the changed monitoring period is still before the date when the DOE conducted the related onsite inspection. All data until the end date of the changed monitoring period have been checked and info could be analysed and</li> </ol>	

confirmed.

2. Not ok. Diagram 2 in MR and sheet "Monitoring system C" in ER spreadsheet have been corrected accordingly and are now consistent with related monitoring plan and equipment found during onsite inspection. However, the following issues have been identified:
  - a. For weighing platform 2 the ER spreadsheet provides the last three weekly calibration dates during the monitoring period whereas for weighing platform 3 the last calibration provided is on 11/06/2013. Pls specify whether additional calibrations have been conducted after this date. If not have requirements as per delay for calibration been applied accordingly VVS §366.
  - b. MR states for furnace 5 and Meter 06390018 that is has been replaced with meter number 9675604 whereas related spreadsheet Monitoring system C states replaced with 96756043. Pls unify.
  - c. Calibration date(s) for meters 06460054 and 06390018 are missing
3. Ok. The ER spreadsheet has been corrected accordingly in line with related methodology.
4. Ok. The ER spreadsheet has been corrected accordingly and the related parameter is now calculated in line with methodology and monitoring plan.
5. Sheet "F5 - Daily Furnace Data":
  - a. Ok. Check as indicated in PP response has been conducted and found that data is consistent with source but also adjusted due to delay in calibration.
  - b. OK. The values in ER spreadsheet have been adjusted to those from the Management Account File e.g. "08 – AAA – Raw Materials Ledger (Aug 12).xls". As this file only provides the monthly used value the value is included in ER spreadsheet on the last day of each month and others are kept zero. This is reasonable.
6. Sheet "F5 - Daily Furnace Data":
  - a. OK. The values in ER spreadsheet have been adjusted to those from the Management Account File e.g. "08 – AAA – Raw Materials Ledger (Aug 12).xls". As this file only provides the monthly used value the value is included in ER spreadsheet on the last day of each month and others are kept zero. This is reasonable.
7. Sheet "F7 - Daily Furnace Data":
  - a. Not ok. A value of 41.04 is now provided in ER spreadsheet and consistent with related source. However, during check of other months it has been identified that e.g. for months Feb 2013 the value in ER spreadsheet is zero whereas the Management ledger states 31.63 t. Pls clarify and revise accordingly.
  - b. OK. As per check of daily raw data it can be confirmed that electricity consumption started on 20<sup>th</sup> May and consumption of raw materials, coke, coal etc started only on 28<sup>th</sup>. Values are correct.
  - c. Ok. The values are now consistent between ER and source.
  - d. OK. The values in ER spreadsheet have been adjusted to those from the Management Account File e.g. "08 – AAA – Raw Materials Ledger (Aug 12).xls". As this file only provides the monthly used value the value is included in ER spreadsheet on the last day of each month and others are kept zero. This is reasonable.
  - e. OK. Values have been corrected and ER spreadsheet provides now the values for Furnace 7 and not 5 as before.
8. Ok. The values have been checked with related sources and it can be confirmed that the values are now consistent and correct.

Project participant response	Date: 09/10/2020
<ol style="list-style-type: none"> <li>2. Meter calibration:           <ol style="list-style-type: none"> <li>a. Although weighing platform 3 was calibrated on a regularly basis after 11/06/2013 the documentation underpinning this was destroyed in a fire. The DOE has been provided with the calibration results dated 22/09/2015. The calibration results show a deviation of 1.36% where the maximum permissible error for weighing platform 3 is 2.5%. In accordance with VVS §366 delayed calibration the ER calculations have been amended in a conservative manner and the MR updated accordingly.</li> <li>b. The number 3 at the end of meter number 96756043 was omitted in error. The MR has been update to included the full serial number of the electricity meter for F5: 96756043.</li> <li>c. Prior to the start of the is monitoring period (01/05/2011) meters 06460054 (calibrated on 22/11/2006) was replaced by meter 96756043 on 28/11/2010 and meter 06390018 (calibrated on 28/09/2006) was replaced by meter 96505392 on 19/09/2010. The calibration dates of the meters active during the monitoring period are included in the MR.</li> </ol> </li> <li>7. Sheet "F7 - Daily Furnace Data":           <ol style="list-style-type: none"> <li>a. All input values have been reviewed and the following revisions:               <div style="margin-left: 40px;">                 F5 – Daily Furnace Data:                      Dec 2012: 196.04                  F7 – Daily Furnace Data:                      Nov 2011: 152.99                      Feb 2013: 31.63               </div> </li> </ol> </li> </ol>	

Apr 2013: 37.16 Nov 2013: 0.00	
<b>Documentation provided by project participant</b>	
<ul style="list-style-type: none"> <li>- Updated Monitoring report</li> <li>- Updated ER Spreadsheet</li> <li>- Copy of weight transaction report</li> </ul>	
<b>DOE assessment</b>	<b>Date:</b> 20/11/2020
<p>2. Related revision has been conducted to the MR and ER spreadsheet. The following has been identified:</p> <ul style="list-style-type: none"> <li>a. Ok. As per onsite inspection and conducted interview with personnel it is confirmed that related data was destroyed in a fire. As related information could not be made available PP has consider this as a delay in calibration. For all periods for which a delayed calibration is identified the ER has been updated accordingly by applying related maximum permissible error of 2.5% to all values in the delayed period which lasts e.g. for the last calibration for weighing platform 3 from 18/06/2013 (one week after last calibration dated 11/06/2013) until 21/09/2015. The maximum permissible error has been applied in a conservative way, deducted in case of baseline emissions and added in case of project or leakage emissions. However, the end date of this monitoring period is 30/09/2014 and hence the end date of the related delay period is beyond the end date of this monitoring period. Subsequently DOE has raised a related FAR for consideration of DOE verifying the next monitoring period.</li> <li>b. Ok. Corrected, MR and ER spreadsheet refer now to the same serial number for the replaced measurement equipment 96505392.</li> <li>c. Not Ok. As the two meters have been replaced prior to the start of the monitoring period the calibration dates for these meters are not require. However, please clarify why related information for monitoring equipment which has not been used during this monitoring period is provided as instruction to fill MR state "Include data and parameters that were monitored during <u>this</u> monitoring period".</li> </ul> <p>7. Ok. The ER has been updated accordingly and the incorrect value has been revised in line with underlying document.</p>	
<b>Project participant response</b>	<b>Date:</b>
Reference to meters 06460054 and 06390018 have been removed from the monitoring report and the ER Spreadsheet. In addition, reference to meter 06470035 and 00061498 has also been removed as it was replaced on 23/10/2010 which is prior to the start of the monitoring period.	
<b>Documentation provided by project participant</b>	
<ul style="list-style-type: none"> <li>- Updated Monitoring report</li> <li>- Updated ER Spreadsheet</li> </ul>	
<b>DOE assessment</b>	<b>Date:</b> 27/03/2021
OK. Related information has been removed as not applicable for this monitoring period. However, the Tab generic A: the table needs to be consistent with the final version of the MR.	
<b>Project participant response</b>	<b>Date:</b> 10/08/2021
After updating MR the ER spreadsheet has been made compliant with the MR.	
<b>Documentation provided by project participant</b>	
<ul style="list-style-type: none"> <li>- Updated Monitoring report</li> <li>- Updated ER Spreadsheet</li> </ul>	
<b>DOE assessment</b>	<b>Date:</b> 03/09/2021
OK. Updated accordingly. Finding closed.	

<b>CAR ID</b>	08	<b>Section no.</b>	E.1, E.2	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
As per instructions for each equation a sample calculation is to be provided. The same is missing only a final calculation of BE and PE is provided with final values. Revision requested.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
A sample calculation for BE has been added to section E.1. A sample calculation for PE has been added to section E.2. A sample calculation for ER has been added to section E.4.				
<b>Documentation provided by project participant</b>				
- Updated Monitoring report				
<b>DOE assessment</b>				<b>Date:</b> 20/03/2020
Ok MR provides now a sample calculation for one months during the monitoring period. Finding closed.				

<b>CAR ID</b>	09	<b>Section no.</b>	E.1, E.2	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
It has been identified that the raw data files / digital log sheets for months Sept and October 2013 are identical. Pls clarify.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
A file copy error occurred. The correct raw data file has been recovered and the ER spreadsheet updated accordingly for the month of October 2013.				
<b>Documentation provided by project participant</b>				
- Updated ER spreadsheet				
<b>DOE assessment</b>				<b>Date:</b> 20/03/2020
Ok. The correct raw data file for months September 2013 has been now provided. Values are now consistent with ER spreadsheet and therefore this finding can be closed.				

<b>CAR ID</b>	10	<b>Section no.</b>	D.1	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
Section D.1 is missing several parameters as given in the related registered PDD esp w.r.t. Quality of product and input materials: Quality of coal <sub>b</sub> Quality of coke <sub>b</sub> Quality of electrode paste <sub>b</sub> Quality of SiMn <sub>b</sub> Quality of ore Quality of fluxes. Update of MR is requested.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
The MR has been updated to include the following parameters as per the latest version of the approved monitoring plan: - Quality of coal <sub>b</sub> - Quality of coke <sub>b</sub> - Quality of electrode paste <sub>b</sub> - Quality of SiMn <sub>b</sub> - Quality of ore - Quality of fluxes				
<b>Documentation provided by project participant</b>				
- Updated Monitoring report - Updated ER spreadsheet				
<b>DOE assessment</b>				<b>Date:</b> 20/03/2020
OK. All required monitoring parameters as per latest registered monitoring plan have not been include in the revised monitoring report. The finding is closed.				

<b>CAR ID</b>	11	<b>Section no.</b>	-	<b>Date:</b> 28/11/2019
<b>Description of CAR</b>				
Following documents are to be provided: - Supporting document for exchange of meters - Supporting document to confirm the accuracy of the monitoring equipment esp the weigh bridges/platforms as given in MR.				
<b>Project participant response</b>				<b>Date:</b> 18/02/2020
The following document have been added to the quality folder: - Documents on the exchange of meters - Documents on the accuracy of monitoring equipment				
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> 20/03/2020
1. Ok. Provided 2. Ok. Provided As all required documents have been provided this finding is closed.				

<b>CAR ID</b>	12	<b>Section no.</b>	-	<b>Date:</b> 01/09/2021
<b>Description of CAR</b>				
The MR template used is not the latest version thereof. Please update the MR to the latest template version issued by UNFCCC. In due course please also update the ER spreadsheet as it refers to the MR.				
<b>Project participant response</b>				<b>Date:</b> 03/09/2021
- MR and ER spreadsheet updated accordingly.				
<b>Documentation provided by project participant</b>				
MR ver 5 and new ER spreadsheet				
<b>DOE assessment</b>				<b>Date:</b> 06/09/2021
Ok. MR has been updated in line with latest MR template. Further the ER spreadsheet has been updated in line with latest MR version				
As all required documents have been provided this finding is closed.				

<b>CAR ID</b>	13	<b>Section no.</b>	E.4, E.5 and E.6.1	<b>Date:</b> 19/04/2021
<b>Description of CAR</b>				
Following issues have been identified:				
1. Section E.4: the values of the sample calculation of $ER_{uncertainty}$ do not reflect the data from E.1 and E.2 (Sample (2012, F5)).				
2. Section E.5.1: the total numbers of MP are actually 1249 days.				
3. Section E.6:				
a. the difference between ex ante and real ERs are actually 268%.				
<b>Project participant response</b>				<b>Date:</b> 10/08/2021
A file copy error occurred. The correct raw data file has been recovered and the ER spreadsheet updated accordingly for the month of October 2013.				
<b>Documentation provided by project participant</b>				
- Updated monitoring report				
<b>DOE assessment</b>				<b>Date:</b> 03/09/2021
1. Section E.4: Ok. The values have been updated accordingly.				
2. Section E.5.1: Ok. Corrected accordingly.				
3. Section E.6:				
a. Ok. As the difference is very high, please add to the three reasons mentioned which point results in which % of the increase. This would be reasonable to see which reason has the highest influence. MR states that the actual ER exceed the ex-ante "by" 168% which is equal to 383,070. Adding 227,739 as ex-ante makes it 610,809. Table has been provided to further specify this.				
4. Section E.5.1: The states ex-ante value for this monitoring period is inconsistent with other sections of the MR. Pls clarify.				
<b>Project participant response</b>				<b>Date:</b> 09/09/2021
Error occurred.				
<b>Documentation provided by project participant</b>				
- Updated monitoring report				
<b>DOE assessment</b>				<b>Date:</b> 09/09/2021
5. Section E.5.1: Ok. Corrected accordingly and values are now consistent throughout the MR.				
Finding closed				

Table 3. FAR from this verification

<b>FAR ID</b>	01	<b>Section no.</b>		<b>Date:</b> 20/11/2020
<b>Description of FAR</b>				
Delay in calibration for weighing scale 2 has been identified for the period from 18/06/2013 (one week after last calibration dated 11/06/2013) until 21/09/2015. As the end date of this monitoring period is 30/09/2014 and hence the end date of the related delay period is beyond the end date of this monitoring period. The DOE verifying the next subsequent monitoring period shall consider this delayed calibration in its assessment accordingly.				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

<b>FAR ID</b>	02	<b>Section no.</b>		<b>Date:</b> 19/11/2020
<b>Description of FAR</b>				
F3 furnace: Provided supporting document "7 Furnace 3 transformer capacity rating name plate" also refers to 22MVA which can also be recalculated from values provided on the name plate e.g. Volts 17121 and Ampere 742 which is equal $P = \text{SQR}(3) \times 17121 \times 742 = 22,003.59\text{kVA} = 22.0\text{MVA}$ (rounded). As per PP at time of validation the PP calculated with rounded values e.g. 17000 V and then ended with 21. Therefore, the editorial mistake in PDD may be corrected accordingly in a future revision.				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

## Appendix 5. Monitored Parameters

**Table A-5:** Periodic Verification Checklist – Monitored Parameters

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.						
A. QP <sub>y,monitored</sub>		Quantity of SiMn production in year y during the project activity.								
<p><b>a) Measurement / Determination method (VVS, §§ 360-364)</b> <i>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/</p>	<p><i>Description:</i> The quantity of SiMn production by the project activity is measured by two weighing platforms number 2 and 3 having serial number 1004206 and 1009758. Every full ladle is measured prior to tapping. The daily value is the sum of all tappings of that day.</p> <p>The weighing platforms have an accuracy of 2.5% and are calibrated against a test weight on weekly basis. The empty ladles are also weighed on regular basis.</p> <p>The data from the weighing platforms is recorded digitally and transferred to a digital control system where all data from the EAF is recorded enabling the operational personnel to manage, operate and control the SiMn production for each furnace and to determine its performance.</p> <p>In case one platform is not working the other platform is used.</p> <p><i>Verifier’s action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.</p> <table><tr><td><input checked="" type="checkbox"/></td><td colspan="2">In this context the following findings have been raised:</td></tr><tr><td><input checked="" type="checkbox"/></td><td colspan="2">CAR 05 , CAR 06</td></tr></table>	<input checked="" type="checkbox"/>	In this context the following findings have been raised:		<input checked="" type="checkbox"/>	CAR 05 , CAR 06		<p>CAR 05, CAR 06</p>	OK
<input checked="" type="checkbox"/>	In this context the following findings have been raised:									
<input checked="" type="checkbox"/>	CAR 05 , CAR 06									

<p><b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b></p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/IM01/ /PDD/ /METH/  /XLS/  /EG/  /Meter/  /CC/  /MR/  /EF/	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	Ok	OK
			<input checked="" type="checkbox"/>		
		<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
		<input checked="" type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: From: 14/08/2017 To: 25/08/2017  From: 25/08/2019 To: 29/08/2019  For both meters, the main and backup		
		<input checked="" type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:		
			<input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
			<input checked="" type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
			<input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
<input checked="" type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals					
<input checked="" type="checkbox"/> The error has been applied all measured values taken					



				during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/>	In this context the following findings have been raised:			
		<input type="checkbox"/>				
<b>B. EC<sub>y</sub></b>		Annual grid electricity consumption by the submerged electric arc furnace				
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/ /DATA/ /MAN/	<input checked="" type="checkbox"/>	Description: The annual grid electricity consumption by the submerged electric arc furnace is measured by individual electricity/energy meters with serial numbers: 95679335, 96756043 and 96505392. Each furnace has its own separate meter. The elec. meters are monitoring continuously. The data from the meters is transferred digitally to a digital control system where all data from the EAF is recorded enabling the operational personnel to manage, operate and control the SiMn production for each furnace and to determine its performance. Besides, there is an invoice of the electricity consumption by the grid company ESKOM.  The meters 06470035, 06460054 and 06390018 have been replaced by the meters 95679335, 96756043 and 96505392 prior to this monitoring period.  The elec. meter have an accuracy of 0.5% and are factory calibrated by manufacturer and do not require subsequent re-calibration as per related manual (p.48).  Verifier's action: By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and manual as well as crosscheck with monthly accounting ledger and production sales data as well as electricity invoices by ESKOM.  Conclusion: The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.		CAR 05, CAR 06	OK
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> In case of measured (or estimated) values, check	/IM01/ /PDD/ /METH/	<input checked="" type="checkbox"/>	In this context the following findings have been raised:  <input checked="" type="checkbox"/> CAR 05 and CAR 06		Ok	OK

<p><i>whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/XLS/ /EG/ /Meter/ /CC/ /MR/ /EF/	<table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td>For details regarding the accuracy and calibration details please refer to Appendix 6</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>No delayed calibration has occurred</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>As per the initial assessment the monitored value is deemed to be correct.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Based on calibration certificates checked a delay in calibration has been identified for the following period: -</td> </tr> <tr> <td><input type="checkbox"/></td> <td>A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>In this context the following findings have been raised:</td> </tr> <tr> <td><input type="checkbox"/></td> <td>-</td> </tr> </table>	<input checked="" type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	<input checked="" type="checkbox"/>	No delayed calibration has occurred	<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.	<input checked="" type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.	<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: -	<input type="checkbox"/>	A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the:	<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration	<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument	<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument	<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals	<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.	<input type="checkbox"/>	In this context the following findings have been raised:	<input type="checkbox"/>	-		
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<input type="checkbox"/>	-																													
C. $Q_{pcoal,y}$		Annual consumption of coal used as reductant in the submerged electric arc furnace																												

<p><b>a) Measurement / Determination method (VVS, §§ 360-364)</b>  Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/IM01/ /PDD/ /METH/  /XLS/  /CC/  /MR/	<p><i>Description:</i> The annual consumption of coal used as reductant in the submerged electric arc furnace is measured by weighing hoppers for each furnace having following serial numbers:</p> <p>Furnace 3: 1901253 ,1701022, 1606080, 1805235, 1605205, 141364, 1501620, 1906044, 1607247, 1607251, 1707160, 1607250</p> <p>Furnace 5: 1301537,1301532,1301531</p> <p>Furnace 7: 1501436,1501423,1501425,1501422</p> <p>The amount consumed is weighed per batch in each furnace and recorded daily and transferred to a digital control system where all data from the EAF is recorded enabling the operational personnel to manage, operate and control the SiMn production for each furnace.</p> <p>The weighing platforms have an accuracy of 2.5% and are calibrated against a test weight on weekly basis.</p> <p><i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.</p> <table border="1" data-bbox="1025 933 1830 1026"> <tr> <td><input checked="" type="checkbox"/></td> <td>In this context the following findings have been raised:</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>CAR 05 and CAR 06</td> </tr> </table>	<input checked="" type="checkbox"/>	In this context the following findings have been raised:	<input checked="" type="checkbox"/>	CAR 05 and CAR 06	CAR-05 and CAR-06	OK				
<input checked="" type="checkbox"/>	In this context the following findings have been raised:											
<input checked="" type="checkbox"/>	CAR 05 and CAR 06											
<p><b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b>  In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. Describe whether all applicable QA/QC procedures are</p>	/IM01/ /PDD/ /METH/  /XLS/  /EG/  /Meter/  /CC/	<table border="1"> <tr> <td><input type="checkbox"/></td> <td>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>For details regarding the accuracy and calibration details please refer to Appendix 6</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>No delayed calibration has occurred</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>As per the initial assessment the monitored value is deemed to be correct.</td> </tr> </table>	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	<input checked="" type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	<input checked="" type="checkbox"/>	No delayed calibration has occurred	<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.	Ok	OK
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<p><i>met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/ MR / / EF /	<div> <input checked="" type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period. </div> <div> <input checked="" type="checkbox"/> Based on calibration certificates checked a delay in calibration has been identified for the following period:  - </div> <div> <input type="checkbox"/> A delay in calibration has been identified, the PP applied related actions and therefore the DOE can confirm that the: <div> <input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration </div> <div> <input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument </div> <div> <input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument </div> <div> <input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals </div> <div> <input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration. </div> </div> <div> <input type="checkbox"/> In this context the following findings have been raised: <div> <input type="checkbox"/> </div> </div>		
<b>D. <math>Q_{\text{pcoke},y}</math></b>		Annual consumption of coke used as reductant in the submerged electric arc furnace		
<p><b>a) Measurement / Determination method (VVS, §§ 360-364)</b></p> <p><i>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)).</i></p>	/ IM01 / / PDD / / METH / / XLS / / CC /	<p><i>Description:</i> The annual consumption of coke used as reductant in the submerged electric arc furnace is measured by weighing hoppers for each furnace having following serial numbers:</p> <p>Furnace 3: 1901253 ,1701022, 1606080, 1805235, 1605205, 141364, 1501620, 1906044, 1607247, 1607251, 1707160, 1607250</p>	<del>CAR 05,</del> CAR-06	OK

<p>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</p> <p>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/MR/	<p>Furnace 5: 1301537,1301532,1301531</p> <p>Furnace 7: 1501436,1501423,1501425,1501422</p> <p>The amount consumed is weighed per batch in each furnace and recorded daily and transferred to a digital control system where all data from the EAF is recorded enabling the operational personnel to manage, operate and control the SiMn production for each furnace.</p> <p>The weighing platforms have an accuracy of 2.5% and are calibrated against a test weight on weekly basis.</p> <p><i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.</p> <table border="1" data-bbox="1028 715 1827 805"> <tr> <td><input checked="" type="checkbox"/></td> <td>In this context the following findings have been raised:</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>CAR 05, CAR 06</td> </tr> </table>	<input checked="" type="checkbox"/>	In this context the following findings have been raised:	<input checked="" type="checkbox"/>	CAR 05, CAR 06										
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<p><b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b></p> <p>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</p> <p>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</p> <p>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</p>	/IM01/ /PDD/ /METH/  /XLS/ /EG/ /Meter/  /CC/ /MR/ /EF/	<table border="1"> <tr> <td><input type="checkbox"/></td> <td>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</td> </tr> <tr> <td><input type="checkbox"/></td> <td>For details regarding the accuracy and calibration details please refer to Appendix 6</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>No delayed calibration has occurred</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>As per the initial assessment the monitored value is deemed to be correct.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Based on calibration certificates checked a delay in calibration has been identified for the following period: -</td> </tr> </table>	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6	<input checked="" type="checkbox"/>	No delayed calibration has occurred	<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.	<input checked="" type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.	<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: -	Ok	OK
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		<input type="checkbox"/> In this context the following findings have been raised: <input type="checkbox"/>		
<b>E. <math>Q_{ppaste,y}</math></b>		Annual consumption of electrode paste used as electrode in the submerged electric arc furnace		
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /PDD/ /METH/  /XLS/  /CC/  /MR/	<i>Description:</i> The annual consumption of paste used as electrode in the submerged electric arc furnace is measured by weighing bridge with serial number 1382 I/O.  The number of paste cylinders put into the electrode is logged each time a new cylinder is used. The average weight of each cylinder is calculated based on weighing paste trucks (arriving at the facility) on a weighbridge and dividing on a monthly basis the total weight by number of cylinders delivered to the facility.  The annual figure is obtained by summing the daily product of number of cylinders used and monthly average weight.  The weighing bridge has an accuracy of 0.2% and are calibrated as per manufacturer but at least every 2 years.  <i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and	CAR-05, CAR-06	OK

		production sales data.			
		Conclusion: The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.			
		<input checked="" type="checkbox"/>	In this context the following findings have been raised:		
		<input checked="" type="checkbox"/>	CAR 05, CAR 06		
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	/IM01/ /PDD/ /METH/  /XLS/ /EG/  /Meter/ /CC/ / MR/ /EF/	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan	Ok	OK
		<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan		
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		<input checked="" type="checkbox"/>	No delayed calibration has occurred		
		<input checked="" type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input checked="" type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
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			permissible error of the instrument		
		<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		
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		<input type="checkbox"/>	In this context the following findings have been raised:		
		<input type="checkbox"/>			
<b>F. EF<sub>pcoal,y</sub></b>			Emission factor applied for the coal consumed as reductant in year y.		
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/ /IPCC/	<input checked="" type="checkbox"/>	Description: The Emission factor applied for the coal consumed as reductant in year y is not monitored by any measurement equipment but obtained as a default value from the IPCC (2006) report Vol 3 Chapter 4 section 4.3.3.2 table 4.6 page 4.37.  Hence, it is to be observed during monitoring whether there is any revision of the IPCC report.  Verifier's action: By checking related MR, registered PDD, revised approved monitoring plan, methodology and IPCC report.  Conclusion: The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.	<del>CAR-05</del> and <del>CAR-06</del>	OK
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.	/IM01/ /PDD/ /METH/ /XLS/ /EG/ /Meter/ /CC/	<input checked="" type="checkbox"/>	Not applicable as there is no measurement equipment involved.	Ok	Ok



<p>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</p> <p>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</p>	/MR/ /EF/				
<b>G. EF<sub>pcoke,y</sub></b>			Emission factor applied for the coke consumed as reductant in year y		
<p><b>a) Measurement / Determination method (VVS, §§ 360-364)</b></p> <p>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</p> <p>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/ /IPCC/		<p><i>Description:</i> The Emission factor applied for the coke consumed as reductant in year y is monitored by lab analysis and calculated using equation 4.19, p. 4.33 of IPCC (2006).</p> <p>Coke samples are analysed by a lab for volatiles and fixed carbon content. Monthly averages are employed from monthly emission factors via:</p> <p>Total C-content in reducing agent I = fixC in I + content of volatiles in I x Cv</p> <p>Where:</p> <p>Cv = Carbon content in volatiles. Unless other information is available, Cv = 0.65 is used for coal and 0.80 for coke.</p> <p>From total C the emission factor can be obtained via stoichiometric C+O2 -&gt; CO2. Therefore, EFcoke = total x 3.664</p> <p>Hence, it is to be observed during monitoring whether there is any revision of the IPCC report.</p> <p><i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology and IPCC report.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.</p>	Ok	OK
<p><b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b></p> <p>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the</p>	/IM01/ /PDD/ /METH/ /XLS/	<input checked="" type="checkbox"/>	Not applicable as there is no measurement equipment involved.	N.a.	N.a.

<p>monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</p> <p>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</p> <p>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</p>	<p>/EG/ /Meter/ /CC/ /MR/ /EF/</p>				
<b>H. EF<sub>ppaste,y</sub></b>		Emission factor applied for the electrode paste consumed as electrode in year y .			
<p><b>a) Measurement / Determination method (VVS, §§ 360-364)</b></p> <p>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</p> <p>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	<p>/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/</p>	<p><i>Description:</i> The Emission factor applied for the paste consumed as reductant in year y is monitored by lab analysis and calculated using equation 4.19, p. 4.33 of IPCC (2006).</p> <p>Coke samples are analysed by a lab for volatiles and fixed carbon content. Monthly averages are employed from monthly emission factors via:</p> <p>Total C-content in reducing agent I = fixC in I + content of volatiles in I x Cv</p> <p>Where:</p> <p>Cv = Carbon content in volatiles. Unless other information is available, Cv = 0.65 is used for coal and 0.80 for coke.</p> <p>Fix carbon and volatiles content will be taken from the supplier. Carbon content in volatiles (Cv) will be taken from supplier if available; if not available, the same Cv as for coke will be taken (see justification in the table of EF<sub>bpaste</sub>).</p> <p>From total C the emission factor can be obtained via stoichiometric C+O2 -&gt; CO2. Therefore, EF<sub>coke</sub> = total x 3.664</p> <p>An analysis on the paste used will be carried out monthly hence this parameter will be updated monthly. In case a monthly analysis is not available the conservative value 3.67 tCO2/t will be used for that month.</p> <p>Hence, it is to be observed during monitoring whether there is any revision of the IPCC report.</p>	<p><del>CAR</del> 05, CAR-06</p>	OK	

		<p><i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology and IPCC report.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.</p>		
		<input checked="" type="checkbox"/> In this context the following findings have been raised:		
		<input checked="" type="checkbox"/> CAR 05 and CAR 06		
<p><b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b></p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/IM01/ /PDD/ /METH/ /XLS/ /EG/ /Meter/ /CC/ /MR/ /EF/	<input checked="" type="checkbox"/> Not applicable as there is no measurement equipment involved.	N.a.	N.a.
<b>I. Quality of coal<sub>p</sub></b>		Quality of coal based on elementary analysis and other relevant properties.		
<p><b>a) Measurement / Determination method (VVS, §§ 360-364)</b></p> <p><i>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p>	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/	<p><i>Description:</i> The quality of coal based on elementary analysis and other relevant properties are obtained by lab analysis of PPs own laboratory.</p> <p><i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.</p>	CAR 05, CAR 06	OK
		<input checked="" type="checkbox"/> In this context the following findings have been raised:		

Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.		<input checked="" type="checkbox"/>	CAR 05 and CAR 06		
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i> <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i> <i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i>	/IM01/ /PDD/ /METH/ /XLS/ /EG/ /Meter/ /CC/ /MR/ /EF/	<input checked="" type="checkbox"/>	No measurement equipment is involved as this parameter is provided by lab analysis provided by supplier.	n.a.	n.a.
		<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan		
		<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan		
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
		<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: -		
		<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument				
<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument				
<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals				
<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.				

		<input type="checkbox"/> In this context the following findings have been raised:		
		<input type="checkbox"/>		
<b>J. Quality of coke<sub>p</sub></b>		Quality of coke based on elementary analysis and other relevant properties.		
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /PDD/ /METH/  /XLS/ /CC/ / MR/	Description: The quality of coke based on elementary analysis and other relevant properties are obtained by lab analysis of PPs own laboratory.  Verifier's action: By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.  Conclusion: The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.	CAR-05 CAR-06	OK
		<input checked="" type="checkbox"/> In this context the following findings have been raised:		
		<input checked="" type="checkbox"/> CAR 05 and CAR 06		
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.	/IM01/ /PDD/ /METH/  /XLS/ /EG/ /Meter/ /CC/ / MR/ /EF/	<input checked="" type="checkbox"/> No measurement equipment is involved as this parameter is provided by lab analysis provided by supplier. <input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan <input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan <input type="checkbox"/> For details regarding the accuracy and calibration details please refer to Appendix 6 <input type="checkbox"/> No delayed calibration has occurred <input type="checkbox"/> As per the initial assessment the monitored value is deemed to be correct. <input type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for	n.a.	n.a.

		<input type="checkbox"/>	this entire monitoring period.		
			Based on calibration certificates checked a delay in calibration has been identified for the following period: -		
			<input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
			<input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
			<input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
			<input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		
			<input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
			<input type="checkbox"/> In this context the following findings have been raised:		
<b>K. Quality of electrode paste<sub>p</sub></b>			Quality of electrode paste based on elementary analysis and other relevant properties.		
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> <i>Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of</i>	/IM01/ /PDD/ /METH/  /XLS/  /CC/  /MR/		<i>Description:</i> The quality of paste based on elementary analysis and other relevant properties are obtained from supplier information at the time of purchase.  <i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.  <i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan, nonetheless, findings were raised.	CAR-05 CAR-06	OK

<p>measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>		<input checked="" type="checkbox"/>	<p>In this context the following findings have been raised:</p>		
		<input checked="" type="checkbox"/>	<p>CAR 05 and CAR 06</p>		
<p><b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</p>	<p>/PDD/ /MR/</p>	<input checked="" type="checkbox"/>	<p>No measurement equipment is involved as this parameter is provided by lab analysis provided by supplier.</p>	<p>N.A.</p>	<p>n.a.</p>
		<input type="checkbox"/>	<p>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</p>		
		<input type="checkbox"/>	<p>It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</p>		
		<input type="checkbox"/>	<p>For details regarding the accuracy and calibration details please refer to Appendix 6</p>		
		<input type="checkbox"/>	<p>No delayed calibration has occurred</p>		
		<input type="checkbox"/>	<p>As per the initial assessment the monitored value is deemed to be correct.</p>		
		<input type="checkbox"/>	<p>Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</p>		
		<input type="checkbox"/>	<p>Based on calibration certificates checked a delay in calibration has been identified for the following period: -</p>		
		<input type="checkbox"/>	<p>The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration</p>		
		<input type="checkbox"/>	<p>The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument</p>		
		<input type="checkbox"/>	<p>The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument</p>		
		<input type="checkbox"/>	<p>The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission</p>		

			reductions or net anthropogenic GHG removals												
		<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.												
		<input type="checkbox"/>	In this context the following findings have been raised:												
		<input type="checkbox"/>	-												
<b>L. EF<sub>y,offsite</sub></b>		Grid emission factor													
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/	Description: The Grid emission factor is taken as per registered PDD and therefore fixed for the entire crediting period. There is no related measurement equipment installed or used by the PP to monitor this parameter. <table border="1" data-bbox="1032 655 1628 852"> <thead> <tr> <th colspan="2">Grid Emission factor</th> </tr> <tr> <th>EF</th> <th>tCO<sub>2</sub>/MWh</th> </tr> </thead> <tbody> <tr> <td>OM</td> <td>1.195</td> </tr> <tr> <td>BM</td> <td>1.248</td> </tr> <tr> <td>CM</td> <td>1.221</td> </tr> </tbody> </table> Verifier's action: By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data. Conclusion: The monitoring of this parameter is in line with related monitoring plan.		Grid Emission factor		EF	tCO <sub>2</sub> /MWh	OM	1.195	BM	1.248	CM	1.221	Ok	OK
Grid Emission factor															
EF	tCO <sub>2</sub> /MWh														
OM	1.195														
BM	1.248														
CM	1.221														
		<input type="checkbox"/>	In this context the following findings have been raised:												
		<input type="checkbox"/>													
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for	/PDD/ /MR/	<input checked="" type="checkbox"/> No measurement equipment is involved as this parameter is provided given as per registered PDD. <input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan <input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the	N.A.	n.a.											



<p>calculating ERs. Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</p>		monitoring plan			
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
		<input type="checkbox"/>	No delayed calibration has occurred		
		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: -		
		<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
		<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
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		<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		
<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.				
<input type="checkbox"/>	In this context the following findings have been raised:				
<input type="checkbox"/>	-				
<b>M. Quality of SiMn<sub>p</sub></b>		Quality of SiMn .			

<p><b>a) Measurement / Determination method (VVS, §§ 360-364)</b>  Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/	<p><i>Description:</i> The quality of SiMn is calculated by the PP based on lab analysis. A sample is lab-analysed daily to ensure that the quality remains between pre-determined specifications for Mn, C, Si, P, and S.</p> <p>There is no related measurement equipment installed or used by the PP to monitor this parameter.</p> <p><i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan.</p> <div style="border: 1px solid black; padding: 2px;"> <input checked="" type="checkbox"/> In this context the following findings have been raised: <div style="border: 1px solid black; padding: 2px; margin-top: 2px;"> <input checked="" type="checkbox"/> CAR 05 and CAR 06 </div> </div>	CAR-05 CAR-06	OK
<p><b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b>  In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.  Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.  Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</p>	/PDD/ /MR/	<div style="border: 1px solid black; padding: 2px;"> <input checked="" type="checkbox"/> No measurement equipment involved as data by lab analysis. </div> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan </div> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan </div> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> For details regarding the accuracy and calibration details please refer to Appendix 6 </div> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> No delayed calibration has occurred </div> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> As per the initial assessment the monitored value is deemed to be correct. </div> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period. </div> <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> Based on calibration certificates checked a delay in calibration has been identified for the following period:  - </div>	N.A.	N.a.

		<input type="checkbox"/> The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration <input type="checkbox"/> The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument <input type="checkbox"/> The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument <input type="checkbox"/> The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals <input type="checkbox"/> The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/> In this context the following findings have been raised: <input type="checkbox"/> -		
<b>N. Quality of ore</b>		Quality of ore .		
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/	Description: The quality of ore is calculated by the PP based on lab analysis. A sample is lab analysed monthly to determine the composition of the ore (e.g. contents in Mn, Fe, SiO <sub>2</sub> , and CaO). There is no related measurement equipment installed or used by the PP to monitor this parameter. Verifier's action: By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data. Conclusion: The monitoring of this parameter is in line with related monitoring plan.	CAR-05 CAR-06	OK
		<input checked="" type="checkbox"/> In this context the following findings have been raised: <input checked="" type="checkbox"/> CAR 05 and CAR 06		
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b>	/PDD/	<input checked="" type="checkbox"/> No measurement equipment involved as data by lab analysis.	N.A.	N.a.

<p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p> <p><i>Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.</i></p>	/MR/	<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan		
		<input type="checkbox"/>	It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan		
		<input type="checkbox"/>	For details regarding the accuracy and calibration details please refer to Appendix 6		
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		<input type="checkbox"/>	As per the initial assessment the monitored value is deemed to be correct.		
		<input type="checkbox"/>	Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.		
		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: -		
		<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
		<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
		<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals				
<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.				
<input type="checkbox"/>	In this context the following findings have been raised:				

		<input type="checkbox"/>	-			
<b>O. Quality of fluxes</b>		Quality of fluxes .				
<b>a) Measurement / Determination method (VVS, §§ 360-364)</b> Describe how the monitoring parameter was measured / determined. Focus primarily on the original data level (ODL) but also describe the applied data aggregation trails (from ODL to data aggregation level zero (DAL0)). Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/IM01/ /PDD/ /METH/ /XLS/ /CC/ /MR/	<p><i>Description:</i> The quality of fluxes is calculated by the PP based on lab analysis. A sample is lab analysed monthly to determine the composition of the ore (e.g. contents in Mn, Fe, SiO<sub>2</sub>, and CaO).</p> <p>There is no related measurement equipment installed or used by the PP to monitor this parameter.</p> <p><i>Verifier's action:</i> By checking related MR, registered PDD, revised approved monitoring plan, methodology, check of raw data from DCS and crosscheck with monthly accounting ledger and production sales data.</p> <p><i>Conclusion:</i> The monitoring of this parameter is in line with related monitoring plan.</p> <p><input checked="" type="checkbox"/> In this context the following findings have been raised:</p> <p><input checked="" type="checkbox"/> CAR 05 and CAR 06</p>			CAR-05 CAR-06	OK
<b>b) Accuracy, correctness and QA/QC Procedure (VVS, §§ 365-371)</b> In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs. Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance. Include calibration dates and information in validity of the installed monitoring equipment in the table in Appendix 6.	/PDD/ /MR/	<p><input checked="" type="checkbox"/> No measurement equipment involved as data by lab analysis.</p> <p><input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</p> <p><input type="checkbox"/> It is confirmed that the accuracy of the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan</p> <p><input type="checkbox"/> For details regarding the accuracy and calibration details please refer to Appendix 6</p> <p><input type="checkbox"/> No delayed calibration has occurred</p> <p><input type="checkbox"/> As per the initial assessment the monitored value is deemed to be correct.</p> <p><input type="checkbox"/> Based on calibration certificates checked it can be confirmed that the monitoring equipment has been duly calibrated for this entire monitoring period.</p>			N.A.	N.a.

		<input type="checkbox"/>	Based on calibration certificates checked a delay in calibration has been identified for the following period: -			
			<input type="checkbox"/>	The maximum permissible error of the instrument has been applied to the values during the period between scheduled date of calibration and the actual date of calibration		
			<input type="checkbox"/>	The result of the delayed calibration did not identify an error beyond the maximum permissible error of the instrument		
			<input type="checkbox"/>	The error as identified during the delayed calibration has been applied as the error is beyond the maximum permissible error of the instrument		
			<input type="checkbox"/>	The error has been applied in a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed GHG emission reductions or net anthropogenic GHG removals		
			<input type="checkbox"/>	The error has been applied all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.		
		<input type="checkbox"/>	In this context the following findings have been raised:			
		<input type="checkbox"/>	-			

## Appendix 6. Calibration dates and validity of installed monitoring equipment

**Table A-6:** Periodic Verification Checklist – Calibration details

Monitoring equipment	Related monitoring parameter as per applicable registered MP	Serial number	Type	Accuracy or accuracy class	Previous calibration (last one before this monitoring period)	Calibration date(s) during this monitoring period	Validity of calibration(s)	Delay in calibration: yes/no	Period of delayed calibration
Elec. Meter Furnace 3	EC <sub>y</sub>	95679335	ZMD405C T44	0.5	23/10/2010	n.a.	n.a.	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
Elec. Meter Furnace 5		96756043		0.5	28/11/2010	n.a.	n.a.	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
Elec. Meter Furnace 7		96505392		0.5	19/09/2010	n.a.	n.a.	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
Weigh bridge	Q <sub>ppaste,y</sub>	1382 I/O	Load cell	0.2	30/07/2010	29/07/2012, 08/01/2013	29/07/2012, 28/07/2012, 07/01/2015	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	From: To:
Weighting platform 2	QP <sub>y,monitored</sub>	1004206	Load cell	±2.5%	-	Beside please refer to Table A-7 below	Please refer to Table A-7 below	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Please refer to Table A-7 below
Weighting platform 3		1009758			-			<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Please refer to Table A-7 below
Weigh hoppers Furnace 3	Q <sub>pcoal,y</sub> Q <sub>pcoke,y</sub>	1901253, 1701022, 1606080, 1805235, 1605205, 141364, 1501620, 1906044, 1607247, 1607251, 1707160, 1607250	Load cell	2.5%	Please refer to Table A-8 below	Please refer to Table A-8 below	Please refer to Table A-8 below	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Please refer to Table A-8 below
Weigh hoppers Furnace 5		1301537, 1301532, 1301531	Load cell	2.5%				<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Please refer to Table A-8 below
Weigh hoppers		1501436, 1501423,	Load cell	2.5%				<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Please refer to Table A-8 below

Furnace 7		1501425, 1501422							
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**Table A-7:** Periodic Verification Checklist – Calibration details for Weighting platforms

Weighting platform 2				Weighting platform 3			
Date of last calibration:	Validity of calibration(s)	Delay in calibration	Period of delayed calibration	Date of last calibration:	Validity of calibration(s)	Delay in calibration	Period of delayed calibration
05/07/2012	12/07/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/05/2011 To: 04/07/2012	05/09/2011	12/09/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/05/2011 To: 04/09/2011
23/08/2012	30/08/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 13/07/2012 To: 22/08/2012	02/05/2012	09/05/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 13/09/2011 To: 01/05/2012
30/08/2012	06/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		06/03/2013	13/03/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 10/05/2012 To: 05/03/2013
18/09/2012	25/09/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 07/09/2012 To: 17/09/2012	19/03/2013	26/03/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 14/03/2013 To: 18/03/2013
02/10/2012	09/10/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 26/09/2012 To: 01/10/2012	11/06/2013	18/06/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 27/03/2013 To: 10/06/2013
09/10/2012	16/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 19/06/2013 To: 30/09/2014
23/10/2012	30/10/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 17/10/2012 To: 22/10/2012	-	-	-	
01/11/2012	08/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
13/11/2012	20/11/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 09/11/2012 To: 12/11/2012	-	-	-	
20/11/2012	27/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
27/11/2012	04/12/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
05/06/2013	12/06/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 04/12/2012 To: 05/06/2013		-	-	
11/06/2013	18/06/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
18/06/2013	25/06/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
26/06/2013	03/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
03/07/2013	10/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
09/07/2013	16/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
16/07/2013	23/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
23/07/2013	30/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
01/08/2013	08/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
06/08/2013	13/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
13/08/2013	20/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
20/08/2013	27/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
27/08/2013	03/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
03/09/2013	10/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
10/09/2013	17/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	
17/09/2013	24/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		-	-	-	

Weighting platform 2				Weighting platform 3			
Date of last calibration:	Validity of calibration(s)	Delay in calibration	Period of delayed calibration	Date of last calibration:	Validity of calibration(s)	Delay in calibration	Period of delayed calibration
03/10/2013	10/10/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 24/09/2013 To: 02/10/2013	-	-	-	-
09/10/2013	16/10/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
15/10/2013	22/10/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
23/10/2013	30/10/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
29/10/2013	05/11/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
12/11/2013	19/11/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 06/11/2013 To: 11/11/2013	-	-	-	-
26/11/2013	03/12/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 20/11/2013 To: 25/11/2013	-	-	-	-
04/12/2013	11/12/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
24/12/2013	31/12/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 12/12/2013 To: 23/12/2013	-	-	-	-
02/01/2014	09/01/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/01/2013 To: 01/01/2013	-	-	-	-
08/01/2014	15/01/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
14/01/2014	21/01/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
21/01/2014	28/01/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
28/01/2014	04/02/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
18/02/2014	25/02/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 05/02/2014 To: 17/02/2014	-	-	-	-
25/02/2014	04/03/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
11/03/2014	18/03/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 05/03/2014 To: 10/03/2014	-	-	-	-
19/03/2014	26/03/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
25/03/2014	01/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
15/04/2014	22/04/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 02/04/2014 To: 14/04/2014	-	-	-	-
22/04/2014	29/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
30/04/2014	07/05/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
13/05/2014	20/05/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 08/05/2014 To: 12/08/2014	-	-	-	-
20/05/2014	27/05/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
03/06/2014	10/06/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 28/05/2014 To: 02/06/2014	-	-	-	-
17/06/2014	24/06/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 11/06/2014 To: 16/06/2014	-	-	-	-
25/06/2014	02/07/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-

Weighting platform 2				Weighting platform 3			
Date of last calibration:	Validity of calibration(s)	Delay in calibration	Period of delayed calibration	Date of last calibration:	Validity of calibration(s)	Delay in calibration	Period of delayed calibration
08/07/2014	15/07/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 20/11/2013 To: 25/11/2013	-	-	-	-
17/07/2014	24/07/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 16/07/2014 To: 16/07/2014	-	-	-	-
22/07/2014	29/07/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	--	-	-	-	-
06/08/2014	13/08/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 30/07/2014 To: 05/08/2014	-	-	-	-
12/08/2014	19/08/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
20/08/2014	27/08/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
26/08/2014	02/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
02/09/2014	09/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	-	-	-	-
-	-	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 10/09/2014 To: 30/09/2014	-	-	-	-

Table A-8: Periodic Verification Checklist – Calibration details for weigh hoppers

Furnace 3 Weigh Hoppers				Furnace 5 Weigh Hoppers				Furnace 7 Weigh Hoppers			
Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration
03/07/2011	10/07/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/05/2011 To: 02/07/2011	15/09/2011	22/09/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/05/2011 To: 14/09/2011	06/09/2011	13/09/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/05/2011 To: 05/09/2011
04/09/2011	11/09/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 10/07/2011 To: 03/09/2011	22/09/2011	29/09/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/09/2011	15/09/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
11/09/2011	18/09/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	13/10/2011	20/10/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/10/2011 To: 12/10/2011	15/09/2011	22/09/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
18/09/2011	25/09/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	31/10/2011	07/11/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 21/10/2011 To: 30/10/2011	22/09/2011	29/09/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
16/10/2011	23/10/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 26/09/2011 To: 15/10/2011	03/11/2011	10/11/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	29/09/2011	06/10/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
23/10/2011	30/10/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	10/11/2011	17/11/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	13/10/2011	20/10/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 07/10/2011 To: 12/10/2011
03/11/2011	10/11/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/11/2011 To: 02/11/2011	17/11/2011	24/11/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	21/10/2011	28/10/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
13/11/2011	20/11/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 11/11/2011 To: 12/11/2011	24/11/2011	01/12/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	31/10/2011	07/11/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 29/10/2011 To: 30/10/2011
17/11/2011	24/11/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/12/2011	15/12/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 02/12/2011 To: 07/12/2011	03/11/2011	10/11/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
01/12/2011	08/12/2011	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 25/11/2011 To: 30/11/2011	13/06/2012	20/06/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 16/12/2011 To: 12/06/2012	10/11/2011	17/11/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-

Furnace 3 Weigh Hoppers				Furnace 5 Weigh Hoppers				Furnace 7 Weigh Hoppers			
Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration
16/03/2012	23/03/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 09/12/2011 To: 15/03/2011	21/06/2012	28/06/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	17/11/2011	24/11/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
22/03/2012	29/03/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		28/06/2012	05/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	25/11/2011	02/12/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
05/04/2012	12/04/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 30/03/2012 To: 04/04/2012	05/07/2012	12/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	01/12/2011	08/12/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
19/04/2012	26/04/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 13/04/2012 To: 18/04/2012	12/07/2012	19/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/12/2011	15/12/2011	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
26/04/2012	03/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	19/07/2012	26/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	04/04/2012	11/04/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 16/12/2011 To: 03/04/2012
28/04/2012	05/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/08/2012	15/08/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 27/07/2012 To: 07/08/2012	12/04/2012	19/04/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
03/05/2012	10/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	16/08/2012	23/08/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	19/04/2012	26/04/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
10/05/2012	17/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	23/08/2012	30/08/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	26/04/2012	03/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
17/05/2012	24/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	30/08/2012	06/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	03/05/2012	10/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
24/05/2012	31/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	06/09/2012	13/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	10/05/2012	17/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
07/06/2012	14/06/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/06/2012 To: 06/06/2012	13/09/2012	20/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	17/05/2012	24/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
14/06/2012	21/06/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	27/09/2012	04/10/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 21/09/2012 To: 26/09/2012	24/05/2012	31/05/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
21/06/2012	28/06/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	04/10/2012	11/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	07/06/2012	14/06/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 01/06/2012 To: 06/06/2012
28/06/2012	05/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	11/10/2012	18/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	14/06/2012	21/06/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
05/07/2012	12/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	18/10/2012	25/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	28/06/2012	05/07/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 22/06/2012 To: 27/06/2012
12/07/2012	19/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	25/10/2012	01/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	05/07/2012	12/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
19/07/2012	26/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/11/2012	15/11/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 02/11/2012 To: 07/11/2012	12/07/2012	19/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
02/08/2012	09/08/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 27/07/2012 To: 01/08/2012	15/11/2012	22/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	19/07/2012	26/07/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
16/08/2012	23/08/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 10/08/2012 To: 15/08/2012	22/11/2012	29/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/08/2012	15/08/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 27/07/2012 To: 07/08/2012
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04/10/2012	11/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	13/12/2012	20/12/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	30/08/2012	06/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
11/10/2012	18/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	20/12/2012	27/12/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	06/09/2012	13/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
18/10/2012	25/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	27/12/2012	03/01/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	13/09/2012	20/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
25/10/2012	01/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	03/01/2013	10/01/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	20/09/2012	27/09/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-

Furnace 3 Weigh Hoppers				Furnace 5 Weigh Hoppers				Furnace 7 Weigh Hoppers			
Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration
01/11/2012	08/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	10/01/2013	17/01/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	27/09/2012	04/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
15/11/2012	22/11/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 09/11/2012 To: 14/11/2012	17/01/2013	24/01/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	04/10/2012	11/10/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
22/11/2012	29/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	24/01/2013	31/01/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	18/10/2012	25/10/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 12/10/2012 To: 17/10/2012
29/11/2012	06/12/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	31/01/2013	07/02/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	01/11/2012	08/11/2012	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 26/10/2012 To: 30/10/2012
02/06/2013	09/06/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 07/12/2012 To: 01/12/2013	07/02/2013	14/02/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/11/2012	15/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
13/06/2013	20/06/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 10/06/2013 To: 12/06/2013	14/02/2013	21/02/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	15/11/2012	22/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
20/06/2013	27/06/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	21/02/2013	28/02/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	22/11/2012	29/11/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
04/07/2013	11/07/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 28/06/2013 To: 03/07/2013	10/07/2013	17/07/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 29/02/2013 To: 09/07/2013	29/11/2012	06/12/2012	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
11/07/2013	18/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	18/07/2013	25/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	22/02/2013	01/03/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 07/12/2012 To: 21/02/2013
18/07/2013	25/07/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	25/07/2013	01/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	27/02/2013	06/03/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
08/08/2013	15/08/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 26/07/2013 To: 07/08/2013	22/08/2013	29/08/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 02/08/2013 To: 21/08/2013	07/03/2013	14/03/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
15/08/2013	22/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	29/08/2013	05/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	14/03/2013	21/03/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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29/08/2013	05/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	17/10/2013	24/10/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 13/09/2013 To: 16/10/2013	20/03/2013	27/03/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
05/09/2013	12/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	24/10/2013	31/10/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	28/03/2013	04/04/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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03/10/2013	10/10/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	16/01/2014	23/01/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 22/11/2013 To: 15/01/2014	06/06/2013	13/06/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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31/10/2013	07/11/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 18/10/2013 To: 30/10/2013	06/02/2014	13/02/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 30/01/2014 To: 05/02/2014	20/06/2013	27/06/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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12/12/2013	19/12/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	20/03/2014	27/03/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 14/03/2014 To: 19/03/2014	25/07/2013	01/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-

Furnace 3 Weigh Hoppers				Furnace 5 Weigh Hoppers				Furnace 7 Weigh Hoppers			
Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration
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23/01/2014	30/01/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	03/04/2014	10/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	08/08/2013	15/08/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
30/01/2014	06/02/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	10/04/2014	17/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	22/08/2013	29/08/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 16/08/2013 To: 21/08/2013
13/02/2014	20/02/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 07/02/2014 To: 12/02/2014	24/04/2014	01/05/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 18/04/2014 To: 23/04/2014	29/08/2013	05/09/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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03/04/2014	10/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	17/07/2014	24/07/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 11/07/2014 To: 16/07/2014	10/10/2013	17/10/2013	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
17/04/2014	24/04/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 11/04/2014 To: 16/04/2014	24/07/2014	31/07/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	19/12/2013	26/12/2013	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 18/10/2013 To: 18/10/2013
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08/05/2014	15/05/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 02/05/2014 To: 07/05/2014	07/08/2014	14/08/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	16/01/2014	23/01/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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29/05/2014	05/06/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	11/08/2014	18/08/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	06/03/2014	13/03/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 28/02/2014 To: 05/03/2014
12/06/2014	19/06/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 06/06/2014 To: 11/06/2014	13/08/2014	20/08/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	13/03/2014	20/03/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
19/06/2014	26/06/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	14/08/2014	21/08/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	20/03/2014	27/03/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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31/07/2014	07/08/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 11/07/2014 To: 30/07/2014	28/08/2014	04/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	03/04/2014	10/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
07/08/2014	14/08/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	29/08/2014	05/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	10/04/2014	17/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
21/08/2014	28/08/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 15/08/2014 To: 20/08/2014	30/08/2014	06/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	17/04/2014	24/04/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
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Furnace 3 Weigh Hoppers				Furnace 5 Weigh Hoppers				Furnace 7 Weigh Hoppers			
Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration	Date of last calibration:	Validity:	Delay in calibration?	Period of delayed calibration
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25/09/2014	02/10/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 12/09/2014 To: 24/09/2014	02/09/2014	09/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	22/05/2014	29/05/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 16/05/2014 To: 21/05/2014
-	-	-	-	04/09/2014	11/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	29/05/2014	05/06/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
-	-	-	-	11/09/2014	18/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	05/06/2014	12/06/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
-	-	-	-	18/09/2014	25/09/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	12/06/2014	19/06/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
-	-	-	-	25/09/2014	02/10/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-	26/06/2014	03/07/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 20/06/2014 To: 25/06/2014
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-	-	-	-	-	-	-	-	10/07/2014	17/07/2014	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	-
-	-	-	-	-	-	-	-	24/07/2014	31/07/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 18/07/2014 To: 23/07/2014
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-	-	-	-	-	-	-	-	21/08/2014	28/08/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 15/08/2014 To: 20/08/2014
-	-	-	-	-	-	-	-	04/09/2014	11/09/2014	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	From 29/08/2014 To: 03/09/2014
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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"><li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li><li>• Make structural and editorial improvements.</li></ul>
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: project activities, verifying and certifying		