VERIFICATION REPORT
GLOBAL CARBON BV

VERIFICATION OF THE USAGE OF ALTERNATIVE RAW MATERIALS AT KRYVYI RIH CEMENT, UKRAINE

(THIRD PERIODIC FOR 2010)

REPORT NO. UKRAINE-ver/0266/2011
REVISION NO. 03

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0266/2011

VERIFICATION REPORT

Date of first issue:	Organizational unit:
22/04/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon BV	Lennard de Klerk

Summary:
Bureau Veritas Certification has made the 3rd periodic verification of the "Usage of alternative raw materials at Kryvyi Rih Cement, Ukraine", JI Registration Reference Number 0194, project of Global Carbon BV located in Kryvyi Rih, Ukraine, and applying the JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.
The verification scope is defined as a periodic independent review and ex post determination by the Accredited Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.
The first output of the verification process is a list of Clarification and Corrective Actions Requests (CL, CAR), presented in Appendix A.
In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 77515 tons of CO_2eq for the monitoring period.
Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents.

Report No.:	Subject Group:
UKRAINE-ver/0266/2011	JI
Project title:	
«Usage of alternative raw materials at Kryvyi Rih Cement, Ukraine»	
Work carried out by:	
Ivan Sokolov – Team Leader, Climate Change Lead Verifier Kateryna Zinevych – Team Member, Climate Change Verifier H. B. Muralidhar – Team Member, Climate Change Lead Verifier Nikolay Ivanov – Team Member, Specialist	
Work reviewed by:	
Leonid Yaskin – Internal Technical Reviewer	
Work approved by:	
Flavio Gomes – Operational Manager	

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Abbreviations

AIE	Accredited Independent Entity
CAR	Corrective Action Request
CL	Clarification Request
CO_2	Carbon Dioxide
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
GDP	Gas Distribution Post
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MoV	Means of Verification
MP	Monitoring Plan
OJSC	Open Joint-Stock Company
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

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1 INTRODUCTION

Global Carbon BV has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Usage of alternative raw materials at Kryvyi Rih Cement, Ukraine" (hereafter called “the project”) at Kryvyi Rih, Ukraine, UNFCCC JI Reference Number 0194.

This report summarizes the findings of the verification of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

Verification is the periodic independent review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period.

The objective of verification can be divided in Initial Verification and Periodic Verification.

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

The verification scope is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 Verification Team

The verification team consists of the following personnel:

Ivan Sokolov
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Kateryna Zinevych
Bureau Veritas Certification Team Member, Climate Change Verifier

H. B. Muralidhar
Bureau Veritas Certification Team Member, Climate Change Lead Verifier

Nikolay Ivanov
Bureau Veritas Certification Team Member, Climate Change Specialist

This verification report was reviewed by:

Leonid Yaskin
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The completed verification protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Monitoring Report (MR) submitted by Global Carbon BV and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed. After procedure of closing CARs and CLs raised during verification new versions of the Monitoring Report were issued as of 02 dated 21.04.2011, 03 and 04 dated 26.04.2011.

The verification findings presented in this report relate to the Monitoring Report version(s) 01, 02, 03, 04 and project as described in the determined PDD version 2.0 dated 20.08.2010.

2.2 Follow-up Interviews

On 19/04/2011 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Global Carbon BV and PJSC "HeidelbergCement Ukraine" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC HeidelbergCement Ukraine	Organizational structure. Responsibilities and authorities. Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Metering equipment control. Metering record keeping system, database.
Consultant: Global Carbon BV	Baseline methodology. Monitoring plan. Monitoring report. Deviations from PDD.

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

If the Verification Team, in assessing the monitoring report and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;

(b) Clarification request (CL), requesting the project participants to provide additional information for the AIE to assess compliance with the monitoring plan;

(c) Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

3 VERIFICATION CONCLUSIONS

In the following sections, the conclusions of the verification are stated.

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 18 Corrective Action Requests and 2 Clarification Requests.

The number between brackets at the end of each section corresponds to the DVM paragraph.

The project is implemented as stated in the PDD version 2.0. dated 20th of August 2010, which was approved by both NFPs, determined by AIE and registered on JISC.

3.1 Project approval by Parties involved (90-91)

Written project approvals by the Netherlands and Germany have been issued by the NFPs of those Parties when submitting the determination report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest.

The abovementioned written approval is unconditional.

3.2 Project implementation (92-93)

The project was operational for the whole monitoring period as of 01/01/2010-31/12/2010.

The project is aimed at significant decrease of the emissions originating from calcination of raw materials in the clinker kiln at PJSC Heidelbergcement Ukraine (formerly Kryvyi Rih Cement plant). Emissions from calcination can be decreased by addition of alternative raw materials (AMC) which do not contain carbonates. Such alternative materials are

metallurgical slag of different types, ashes generated at power plants that use coal fuel.

Kryvyi Rih cement is the major cement producers in Central Ukraine. The plant is owned by HeidelbergCement, one of the world's leading producers of building materials. Kryvyi Rih Cement was built in 1952 and fully modernized in 1983. Since the modernization the plant uses dry production process – one rotary kiln with calciner and multistage cyclone system capable to produce approximately 1.0 to 1.1mln ton of clinker annually.

It was planned to increase step by step over 2 to 3 years the share of AMC in the raw material mix to approximately 20% by mass from the level of about 4% which was achieved before the project start in 2004. This level is taken for the baseline. To adopt such high proportion of AMC the composition of raw materials had been adjusted by increasing the number of components to keep the clinker chemical composition and quality within the required limits.

Conventional raw materials for clinker manufacturing are limestone and clay with addition of small amounts of correcting additives (ferrous oxide).

As stated in the plan, from 2004 blast furnace slag was being added into raw material mix, thus partially replacing the natural raw materials. The actual annual amount of slag added since the beginning of the project is presented in Table 1. The slag is being added into the raw mix, prior to raw mills, and mixed/milled together with other raw materials (limestone, clay, additives) prior to entering the clinker kiln. The slag being originated from blast furnace process had already passed the treatment at high temperature and does not contain calcium and magnesium carbonates. Therefore, during thermal processing in clinker kiln at high temperature it does not decarbonizes with emission of CO2 like natural raw materials do. The more slag in the raw meal, the less CO2 is emitted during burning of materials in the kiln (emission from calcinations).

The project implementation started within planned time schedule. The actually achieved proportion of slag addition is presented in a table below:

Year	Slag addition percentage achieved
2004	11.51
2005	18.03
2006	20.62
2007	16.67
2008	18.4

2009	20.4
2010	**21.7**

Table 1: Status of project implementation during 2004 -2010

Monitored amount of emissions reduction differs from the one expected in PDD for the respective period stated in A.4. as shown in a table 2 below:

Year	2010
ERs in MR002 in tons of CO_2 equiv.	77515
ERs in determined PDD in tons of CO_2 equiv.	123 199

Table 2: Monitored amount of ER and expected in PDD for 2010

The difference can be explained by i) increase of calculation accuracy by using of more accurate (e.g. weighted average instead of annual average) initial data collected for MR versus those at PDD stage and taking into account small emissions sources which at the stage of PDD calculations preparation were neglected as minor or not material ones; ii) changes in clinker production volume: actual ones versus estimates in PDD; iii) changes in the share of slags used in raw meal.

Outstanding issues related to project implementation are presented in Tables 1-2 below (See CL1).

3.3 Compliance of the monitoring plan with the monitoring methodology (94-98)

The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website.

For calculating the emission reductions or enhancements of net removals, key factors, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating emission reductions or enhancements of net removals, such as (plant records, IPCC, Annex 4 of PDD) are clearly identified, reliable and transparent.

Emission factors, including default emission factors, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The calculation of emission reductions or enhancements of net removals is based on conservative assumptions and the most plausible scenarios in a transparent manner.

Outstanding issues related to compliance of monitoring plan with monitoring methodology are presented in Tables 1-2 below (See CAR1, CAR2, CAR 3, CAR 4, CAR 13, CAR 14, CAR 15).

3.4 Revision of monitoring plan (99-100)

The Monitoring Plan was not revised and does not deviate from the one determined in the PDD version 2.0.

3.5 Data management (101)

Fuel consumption

Cement plant has 1 kiln, which is in operation for the whole year except for overhaul/maintenance shutdowns. The fuels during monitoring period stated in A.4. were natural gas (NG) and coal dust. Gas consumption is constantly monitored by the two gas flow meters – one for the kiln burner and the second one for calciner of the kiln. Coal dust consumption is constantly monitored by the two weighting devices.
Some of the materials added into the kiln require drying prior to be mixed and put into the kiln. Such materials are slags used to partially substitute the natural raw materials. The drying of them is conducted in drying drums using NG as fuel. Fuel consumption for drying of raw materials and AMC is measured by four identical gas meters. All the data collected, transferred to the monitoring system and stored. Responsible for data collection and storage is within the energy department.
The NCVs of NG and coal dust have been monitored by the fuel certificates issued by suppliers which have been regularly requested by cement plant on monthly basis.

Power consumption

Metering of power consumed for raw mill preparation and handling, operation of the kiln, including the auxiliaries is organized by 26 power meters (See table 3). All the data metered are transferred to the monitoring system and stored. Responsible for data collection and storage is within the energy department.

CaO and MgO contents

CaO and MgO contents in clinker are being periodically (daily) measured

by chemical test at plant laboratory as a part of quality assurance procedure. Data are stored and archived. Non-carbonated CaO and MgO contents in raw meal are calculated at chemical laboratory on monthly basis using the result of chemical tests of all AMC added during the period and amounts of each types of AMC.

Raw mill consumption

RM consumption is measured constantly by weight meters (see Table 4) and daily sum data are collected and stored by kiln department in daily reports. Based on daily data, monthly and annual reports are produced and stored.

Clinker production

Clinker production is calculated based on constant metering of raw mill volume and chemical composition of RM (moisture and chemical composition measured my on-line x-ray spectrometer). Daily sum of clinker produced volumes are included in kiln department daily reports. Based on daily data, monthly and annual reports are produced.

CKD volume

The annual volume of CKD leaving the kiln system is obtained by regular testing (4 times a year) of dust contents in kiln exhaust gases after the dedusting units. The data are collected and included in the state reporting form 2-TP “Air pollution”.

In the PDD version 2.0 the amount of emission reduction units in the period of 2010 is stated as 123 199 t CO_2e while in the Monitoring Report version 1.0 the amount of ERU’s for the period of 2010 is 77515 t CO_2e.

The audit team confirms that emission reduction calculations have been performed according to the Monitoring Plan.

According to the Article 10 paragraph 1 of the Ukrainian Law “On Metrology and Metrological Activity” measurement results can be used in case if appropriate characteristics of errors and uncertainty are known. Characteristics of errors are presented in the passports of the equipment. The level of uncertainty is considered as low which is why it can be neglected in the calculations.

Concerning verification the calculation of emission reductions is based on internal data. The origin of those data was explicitly checked. Further on, entering and processing of those data in the monitoring workbook Excel sheet was checked where predefined algorithms compute the annual value

of the emission reductions. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for key equipment was performed for all relevant meters.

Necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the various parameters on daily basis.

Roles and responsibilities
The general management of the monitoring team is implemented by the Deputy Technical Director for safety and environment through coordinating activities. On-site day-to-day (operational) management is implemented by the heads of corresponding units.

The data on fuel consumption by kiln and by RM drying drums, as well as the electricity consumption of RM and kiln are collected in the department of chief energy engineer and then transferred to the department of Deputy technical director for safety and environment.

The data of contents of CaO and MgO in clinker, AMC are collected in the plant laboratory that is certified for making analysis and supplied to the department of chief technologist. The data on raw meal consumption, clinker production, are collected in the department of chief technologist and together with the data from plant laboratory are supplied to the department of Deputy technical director for safety and environment.

Reporting procedures in place are approved by plant instructions which include, among others, daily collection and reporting of RM consumption, clinker and cement production, slag usage as raw material, fuels and power usage. Based on this a regular daily report is produced which includes, besides abovementioned, the calculated specific kiln fuel consumption, specific power consumption per ton of cement, chemical composition of RM, clinker and cement.

All data necessary for the CO_2 emission reductions calculation is collected in the department of Chief Engineer for environment. The calculation of emission reduction is made on a regular basis by Global-Carbon.

For this monitoring period the names of the personnel involved is as follows:

- Technical Director of the plant: Thomas Kolbe;
- Plant manager of Kryvyi Rih Cement: Olexiy Turyvnyi;
- Chief engineer for environment: Yevgeniya Shamatulska;

- Chief specialist for safety and environment: Lyudmila Rudneva;
- Chief Process engineer; Andriy Perekhrest;
- Chief energy officer: Valery Thorenko;
- Head of laboratory: Tatyana Khairbekova;
- Production manager: Vladimir Saraev;
- Head of maintenance: Vasily Tarelka;
- Head of mechanics: Igor Ucharov.

Internal audits and control measures:

The flows of materials (raw meal consumption, clinker production, cement production, slag consumption and other) are additionally audited by conducting of monthly inventarisation. This would allow for regular cross checking of values. All energy flows (electricity, coal dust and NG) are logged on the server at Energy department.

Internally, the CO2 emissions calculations are being performed regularly on the annual basis as a part of "CO2 Protocol", a commonly used reporting tool in world cement industry.

For the purpose of monitoring of emissions reductions in a JI project JI0194 a calculations are made in accordance with the Monitoring plan in PDD.

Troubleshooting procedures
In accordance with standard cement producer practice the department of chief technologist prepares a daily report which includes: cement production, clinker production, RM consumption, consumption of kiln and auxiliary fuels, consumption of electricity, specific consumption of fuel per ton of clinker (Kiln Efficiency), specific consumption of electricity per ton of cement produced, CaO and MgO contents and other data.

In case of a failure of any meter, the latter is being replaced by an operational one. The consumption during meter failure period will be calculated using cross checking method. Operating hours, capacity, working load of equipment, data from other meters will be analyzed and used for estimations.

Outstanding issues related to data management are presented in Tables 1-2 below (See CAR5, CAR6, CAR 7, CAR 8, CAR 9, CAR 10, CAR 11, CAR 12, CAR 16, CAR 17, CAR 18, CL 2).

3.6 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed 3rd periodic verification of the Usage of alternative raw materials at Kryvyi Rih Cement, Ukraine" Project in Ukraine, which applies JI Specific Approach. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of Global Carbon BV is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 2.0. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 04 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design document. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is accurately calculated and is free of material errors, omissions, or misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm, with a reasonable level of assurance, the following statement:

Reporting period: From 01/01/2010 to 31/12/2010

Baseline emissions	:	865403	t CO_2 equivalents.
Project emissions	:	787888	t CO_2 equivalents.
Emission Reductions	:	77515	t CO_2 equivalents.

5 REFERENCES

Category 1 Documents:
Documents provided by PJSC "HeidelbercementUkraine" and Global Carbon BV that relate directly to the GHG components of the project.

/1/ Project Design Document, version 2.0 dated 20th of August 2010
/2/ Monitoring Report version 1.0 dated 7th of April 2011
/3/ Monitoring Report version 2.0 dated 21st of April 2011
/4/ Monitoring Report version 3.0 dated 26th of April 2011
/5/ Monitoring Report version 4.0 dated 26th of April 2011
/6/ Verification Report by the Bureau Veritas Certification Holding SAS, dated 26 of October 2010
/7/ Letter of Approval from the Netherland 2009JI12 issued by SenterNovem 30.10.2010
/8/ Letter of Approval from Germany issued by Federal Environment Agency; German Emission Trading Authority 19. 01.2010
/9/ Letter of Approval from Ukraine 1106/23/7 issued by National Environmental Investment Agency of Ukraine 26.07.2010
/1/ Determination and Verification Manual, version 01

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/ Certificate #UA2.040.05704-11 dated 18/01/2011 on the ecological management system, valid till 18.01.2016
/2/ Certificate #UA2.040.03821-09 dated 29/09/2009 on the ecological management system, valid till 18/05/2014
/3/ Statement #3 dated 25/03/2010 on calculation of pollutants concentration in industry stationary contamination sources emissions
/4/ Statement #50 dated 03/08/2010 on gas purification unit operation efficiency
/5/ Summary table on stationary sources emissions at PJSC Heidelbergcement Ukraine for 2010
/6/ Form #2-ТП (air) for 2010
/7/ Permit #1211036400-420 dated 23/12/2009 on stationary sources air pollutant emissions, valid till 23/12/2014
/8/ Permit #1211036400-352 dated 30/12/2008 on stationary sources air pollutant emissions, valid till 30/12/2013
/9/ Passport on pressure transmitter type ABB265DS, serial #6600031172
/10/ Passport on pressure transmitter type Yokogava, serial #91K616641
/11/ Passport on pressure transmitter type ABB265DS, serial #6600031173
/12/ Passport on pressure transmitter type Yokogava, serial #91K616640
/13/ Passport on pressure transmitter type ABB2600T, serial #6404031065
/14/ Passport on pressure transmitter type ABB2600T, serial #6404031066
/15/ Passport on pressure transmitter type ABB2600T, serial #6404031063
/16/ Passport on pressure transmitter type ABB2600T, serial #6404031068

/17/ Calibration certificate #E042, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090900
/18/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090900
/19/ Calibration certificate #E045, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090931
/20/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090931
/21/ Calibration certificate #E047, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090912
/22/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090912
/23/ Calibration certificate #E046, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090929
/24/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090929
/25/ Calibration certificate #E085, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090965
/26/ Calibration results dated 11/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090965
/27/ Calibration certificate # E072, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090974
/28/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090974
/29/ Calibration certificate # E086, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090938
/30/ Calibration results dated 11/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090938
/31/ Calibration certificate # E084, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090930
/32/ Calibration results dated 11/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090930
/33/ Calibration certificate # E083, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090923
/34/ Calibration results dated 11/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090923
/35/ Calibration certificate # E086, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090963
/36/ Calibration results dated 11/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090963
/37/ Calibration certificate # E074, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090896
/38/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090896
/39/ Calibration certificate # E075, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090906
/40/ Calibration results dated 04/04/2011 on active and reactive power meter Euro

Alfa EA05RL-B-4, serial #01090906

/41/ Calibration certificate # E076, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090933

/42/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090933

/43/ Calibration certificate # E079, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090947

/44/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090947

/45/ Calibration certificate # E077, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090925

/46/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090925

/47/ Calibration certificate # E073, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090917

/48/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090917

/49/ Calibration certificate # E078, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090950

/50/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090950

/51/ Calibration certificate # E071, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090954

/52/ Calibration results dated 04/04/2011 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090954

/53/ Calibration certificate # E049, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090952

/54/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090952

/55/ Calibration certificate # E043, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090934

/56/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090934

/57/ Calibration certificate # E040, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090968

/58/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090968

/59/ Calibration certificate # E041, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090957

/60/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090957

/61/ Calibration certificate # E048, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090932

/62/ Calibration results dated 18/02/2010 on active and reactive power meter Euro Alfa EA05RL-B-4, serial #01090932

/63/ Acceptance and packaging certificate dated 07/07/2006 on Elster-Metronica power meter type EA05RAL-B-4, serial #01140832

/64/ Acceptance and packaging certificate dated 09/02/2007 on Elster-Metronica power meter type EA05RALX-B-4, serial #01150424
/65/ Acceptance certificate on RM weight meter ДСС-130-1, serial #HWFK/01038/1
/66/ Calibration certificate dated 25/02/2004 on RM weight meter ДСС-130-1, serial #HWFK/01038/1
/67/ Acceptance certificate RM weight feeder ДСС-130-2, serial #HWFK/01038/2
/68/ Statement dated 12/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090927, by power meter type EA05RL-B-4, serial #1090938 (SR8, cubicle14, smoke exhauster 1)
/69/ Statement dated 12/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090909, by power meter type EA05RL-B-4, serial #1090930 (SR8, cubicle15, smoke exhauster 2)
/70/ Statement dated 12/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090943, by power meter type EA05RL-B-4, serial #1090963 (SR8, cubicle27, TS17 TR#1)
/71/ Statement dated 12/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090893, by power meter type EA05RL-B-4, serial #1090923 (SR8, cubicle16, smoke exhauster 3)
/72/ Statement dated 07/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090976, by power meter type EA05RL-B-4, serial #1090923 (SR7, cubicle 25, TS14 TR#1)
/73/ Statement dated 07/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090920, by power meter type EA05RL-B-4, serial #1090950 (SR7, cubicle 26, TS13 TR#2)
/74/ Statement dated 07/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090962, by power meter type EA05RL-B-4, serial #1090925 (SR7, cubicle 23, TS13 TR#1)
/75/ Statement dated 07/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090962, by power meter type EA05RL-B-4, serial #1090925 (SR7, cubicle 28, TS14 TR#2)
/76/ Statement dated 08/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090965, by power meter type EA05RL-B-4, serial #1090874 (SR8, cubicle 20, TS16 TR#2)
/77/ Statement dated 08/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090930, by power meter type EA05RL-B-4, serial #1090896 (SR6, cubicle 12, TS11 TR#2)
/78/ Statement dated 08/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090930, by power meter type EA05RL-B-4, serial #1090896 (SR6, cubicle 12, TS11 TR#2)
/79/ Statement dated 08/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090923, by power meter type EA05RL-B-4, serial #1090933 (SR9, cubicle 9, ПЧВ -1)
/80/ Statement dated 08/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090938, by power meter type EA05RL-B-4, serial #1090906 (SR6, cubicle 7, TS11 TR#1)
/81/ Statement dated 08/04/2011 on substitution of power meter type EA05RL-B-4, serial #1090963, by power meter type EA05RL-B-4, serial #1090947 (SR9,

cubicle 2, КТП-400)

/82/ Statement dated 16/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090906, by power meter type EA05RL-B-4, serial #1090912 (SR6, cubicle 15, aspiration fan 81)

/83/ Statement dated 16/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090896, by power meter type EA05RL-B-4, serial #1090929 (SR6, cubicle 14, ТП ГП1)

/84/ Statement dated 16/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090954, by power meter type EA05RL-B-4, serial #1090952 (SR6, cubicle 5, ТП ГП2)

/85/ Statement dated 16/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090950, by power meter type EA05RL-B-4, serial #1090932 (SR7, cubicle 27, end fan)

/86/ Statement dated 16/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090974, by power meter type EA05RL-B-4, serial #1090934 (SR6, cubicle 24, aspiration smoke exhauster 80)

/87/ Statement dated 08/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090917, by power meter type EA05RL-B-4, serial #1090931 (SR7, cubicle 16, raw mill #2)

/88/ Statement dated 08/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090933, by power meter type EA05RL-B-4, serial #1090957 (SR7, cubicle 20, raw mill fan #2)

/89/ Statement dated 07/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090925, by power meter type EA05RL-B-4, serial #1090968 (SR7, cubicle 18, raw mill #1)

/90/ Statement dated 07/12/2010 on substitution of power meter type EA05RL-B-4, serial #1090947, by power meter type EA05RL-B-4, serial #1090900 (SR7, cubicle 17, raw mill fan #1)

/91/ Certificate of Liubov Lesko providing the right to control and calibrate thermotechnical measuring equipment (pressure, consumption, temperature), issued by Institute of Professional Training in the Sphere of Quality Control, Standardization, Conformity Assessment and Metrology

/92/ Certificate #K950 Liubov Lesko, issued by Institute of Professional Training in the Sphere of Quality Control, Standardization, Conformity Assessment and Metrology

/93/ Data sheet on rotor weigh feeder 472.2560.2000-DA-a, serial #77068.20

/94/ Data sheet on rotor weigh feeder 472.2560.3000-DA-a, serial #77068.30

/95/ Manual for coal kiln weigh feeder and decarbonator operator.

/96/ Order #321 dated 18/06/2010 on data storage

/97/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/02/2010

/98/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/03/2010

/99/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/04/2010

/100/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/05/2010

/101/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/06/2010
/102/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/07/2010
/103/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/08/2010
/104/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/09/2010
/105/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/10/2010
/106/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/11/2010
/107/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/12/2010
/108/ Statement (ЦМ-12 form) on finished products, semi-manufactured goods, raw materials, fuel of 01/01/2011
/109/ Average monthly CaO and MgO rates (2010)
/110/ Note on average CaO and MgO percentage concentration for 2010
/111/ Note on average annual coal and coal dust NCV for 2010
/112/ Fuel consumption amounts for December 2010
/113/ Fuel consumption for 2010
/114/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/01/2010 till 31/01/2010
/115/ Coal control on an input (CCI firm)
/116/ Logbook on summarized data of chemical analysis started 04/01/2010
/117/ Pre-installation manual on ARL 9800 XP/XP+
/118/ Annex to the Attestation certificate dated 24/11/2008 # ПЄ0061/2008
/119/ National Standard of Ukraine, building materials, cement and cement production materials, chemical analysis methods, ДСТУ Б В.2.7-202:2009, issued by Ministry of Regional Development and Building of Ukraine
/120/ Conformity certificate # ДП000890 dated 04/02/2011
/121/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/02/2010 till 26/02/2010
/122/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/03/2010 till 31/03/2010
/123/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/04/2010 till 30/04/2010
/124/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/05/2010 till 31/05/2010
/125/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/06/2010 till 30/06/2010
/126/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/07/2010 till 30/07/2010
/127/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/08/2010 till 31/08/2010
/128/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/09/2010 till 31/09/2010

/129/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/09/2010 till 29/10/2010
/130/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/11/2010 till 30/11/2010
/131/ Certificate on natural gas supply to PJSC Heidelbergcement Ukraine by Kharkivtransgas GMS for the period since 01/12/2010 till 31/12/2010
/132/ Logbook on daily energy consumption at Kryvyi Rih Cement OJSC for 2006
/133/ Statement #1 dated 02/01/2010 on object operation readiness
/134/ Note on produced coal dust NCV for December 2010
/135/ Note on produced coal dust NCV for November 2010
/136/ Note on produced coal dust NCV for October 2010
/137/ Note on produced coal dust NCV for September 2010
/138/ Note on produced coal dust NCV for August 2010
/139/ Note on produced coal dust NCV for July 2010
/140/ Note on produced coal dust NCV for June 2010
/141/ Note on produced coal dust NCV for June 2010
/142/ Note on produced coal dust NCV for May 2010
/143/ Note on produced coal dust NCV for April 2010
/144/ Note on produced coal dust NCV for March 2010
/145/ Note on produced coal dust NCV for February 2010
/146/ Note on produced coal dust NCV for January 2010
/147/ Logbook on natural gas specific norms dynamics (Gj) on different production stages and at other departments of PJSC Heidelbergcement Ukraine for the period since 01/01/2010 till 31/12/2010
/148/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090947
/149/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090933
/150/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090968
/151/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090931
/152/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090900
/153/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090957
/154/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090925
/155/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090954
/156/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090932
/157/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090926
/158/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090917
/159/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4,

serial #01090950
/160/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090952
/161/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090906
/162/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090896
/163/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090929
/164/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090929
/165/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090912
/166/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090934
/167/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090938
/168/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090930
/169/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090923
/170/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090965
/171/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090974
/172/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, serial #01090963
/173/ Photo - Elster-Metronica active and reactive power meter type EA05RAL-B-4, serial #01140832
/174/ Photo - Elster-Metronica active and reactive power meter type EA05RALX-P4B-4, serial #01150424
/175/ Photo – Gas meter, serial #6404031063
/176/ Photo – Pressure transmitter, serial #6404031066
/177/ Photo – Pressure transmitter, serial #6404031065
/178/ Photo – Pressure transmitter, serial #6404031068
/179/ Photo – Pressure transmitter type Yokogava, serial #91K616640
/180/ Photo – Pressure transmitter type Yokogava, serial #91K616641
/181/ Photo – Weigh feeder
/182/ Photo – Weigh feeder control system
/183/ Photo – Coal dust weigh feeder

Persons interviewed:

List persons interviewed during the verification or persons that contributed with other information that are not included in the documents listed above.

/1/ Vasyl Tarelko – Head Technical Engineer
/2/ Lyudmyla Rudneva – Deputy Chief Engineer in ecology

/3/ Nina Kravchenko – Head of the Laboratory
/4/ Margarita Isayeva – specialist in ISO: 9001,14001 implementation
/5/ Yevgeniya Shamatulska - Chief Engineer (Environment)
/6/ Gallina Turivna – Head of the Training Departement
/7/ Yuriy Fedichenko – Master of the Division
/8/ Alexander Fomin – Master of the Network and Substantion Division
/9/ Tatyana Glushchuk – Engineer of the Head Energetics Departement
/10/ Lyubov Lesko – Head Metrologist
/11/ Denis Rzhanov – JI Team Leader Global Carbon BV
/12/ Iurii Petruk – Junior JI Consultant Global Carbon BV

APPENDIX A: COMPANY PROJECT VERIFICATION PROTOCOL

Check list for verification, according to the JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	The project has been approved by both NFPs. The Letters of Approval were presented to the verification team. Letters of Approval by both Parties were submitted to the supervisory committee on the final determination stage.	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The project has been implemented in accordance with the PDD with no deviations. Implementation of usage of coal dust as a kiln fuel (alongside with natural gas) took place in December 2009. As the kiln was equipped with coal dust heating system, the dosing, supplying and measuring of coal had to be maintained. New supplying, dosing and weighting devices were put into operation. Therefore, coal dust supplied for the plant's purposes after the upgrade was used for clinker production needs. CL 1. Please clarify where the slag addition percentage achieved is taken from.	CL 1	OK
93	What is the status of operation of the project during the monitoring period?	Project has been operational for the whole monitoring period, which is 01.01.2010 – 31.12.2010.	OK	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	CAR 1. Please define what are the small emission sources, which influenced total amount of ERUs and how are they accounted. CAR 2. Please clarify where is the difference between two formulae in the section A.9 for baseline emissions from fuel	CAR 1, CAR 2	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		consumption.		
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	CAR 3. Please provide information whether key factors, e.g. those listed in 23 (b) (i)-(vii) of DVM: Sectoral reform policies and legislation; Economic situation/growth and socio-demographic factors in the relevant sector as well as resulting predicted demand.; Availability of capital; Local availability of technologies/techniques, skills and know-how and availability of best available technologies/techniques in the future; Fuel prices and availability; National and/or subnational expansion plans for the energy sector, as appropriate; National and/or subnational forestry or agricultural policies, as appropriate., influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project were taken into account, as appropriate for calculating the emission reductions.	CAR 3	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	Yes, data sources used for calculating emission reductions or enhancements of net removals are clearly identified, reliable and transparent.	OK	OK
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Yes, emission factors, including default emission factors, used for calculating the emission reductions, were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice	OK	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	CAR 4. Recalculated figures (by calculating machine) of all the parameters in the Excel spreadsheet showed the difference from almost all figures calculated by MR developer. The same were only: project emissions from bypass dust, project emissions from grid electricity consumption for clinker manufacture, baseline emissions from combustion fuels in the kiln, baseline emissions due to discarded dust from kiln exhaust gases de-dusting units,	CAR 4, CAR 13, CAR 14, CAR 15	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		baseline emissions from grid electricity consumption for clinker production. So according to MR version 1 total ERUs amount is 76965 tCO2e, while recalculation results showed 77573.18 t CO2 e. Please double check calculations in the excel file. CAR 13. According to MR version 1 section B NCV of NG and coal dust has been monitored by the fuel certificates issued by the suppliers which have been regularly requested by cement plant on monthly basis, while in the Excel file NCV is calculated by formula. Please clarify the situation. CAR 14. Project emission from combustion of fuel for drying of raw meal and fuel is supposed to be calculated by formula: $PE_{dry,y} = FC_{drums,y} \times NCV_{fd,y} \times EF_{CO2,i}$, while in the Excel file it is calculated $PE_{dry,y}$= $FC_{drying\ GJ}$ * $EF_{CO2,i}$. Please clarify and correct. CAR 15. For the previous periods in the Excel file $FC_{drying\ GJ}$ was calculated please clarify how it is calculated/measured/estimated for 2010.		
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	N/a	N/a	N/a
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/a	N/a	N/a
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	project participants submitted a common monitoring report?			
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	N/a	N/a	N/a
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	N/a		
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	N/a		
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	CAR 5. Please provide information on how monitoring of clinker quantity produced is performed. CAR 6. Please provide information on cross checking method used in case of meter failure.	CAR 5, CAR 6	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	CAR 7. Please provide in MR information considering coal dust weights location, installation dates etc. CAR 8. Table 3 of MR version 1 (p.9) indicates that calibration of Gas meters # 1 and #2 was performed within 1 year, while Section B.1.3 provides information that for such meters calibration interval is 2 years.	CAR 7, CAR 8, CAR 9, CAR 10, CAR 16, CAR 17, CAR 18	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CAR 9. Table 4 of MR version 1 (p.9) indicates that calibration of Coal dust weightfeeder # 1 and #2 was performed within 1 year, while Section B.1.3 provides information that for such meters calibration interval is 2 years. CAR 10. Please provide information on calibration of weight meters for raw meal as well as calibration interval in section B.1.3. CAR 16. Site visit reflected that 2 new electricity meters were installed, making total number of electricity meters 25 (instead of 23). Please correct. CAR 17. Site visit revealed that after the procedure of electricity meters calibration they were put to the different locations. At the same time some new meters replaced the old ones. Please update relevant table. CAR 18. Site visit reflected that gas meters ABB 265 DS #6600031172 and #6600031173 were replaced with Yokogawa meters. Please update MR.		
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	CAR 11. Please double check all the references since it is not always clear what is meant PDD or MR. CAR 12. Please adjust tables numbers throughout the document. CL 2. Please double check MR for misspellings, typos and inconsistencies.	CAR 11, CAR 12, CL 2	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	Yes, the data collection and management system for the project is in accordance with the monitoring plan. The data is stored in electronic and paper way and should be kept until 2014.	OK	OK
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/a	N/a	N/a
103	Is the verification based on the monitoring	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	reports of all JPAs to be verified?			
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/a	N/a	N/a
104	Does the monitoring period not overlap with previous monitoring periods?	N/a	N/a	N/a
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/a	N/a	N/a
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: − The types of JPAs; − The complexity of the applicable technologies and/or measures used; − The geographical location of each JPA; − The amounts of expected emission reductions of the JPAs being verified; − The number of JPAs for which emission reductions are being verified; − The length of monitoring periods of the JPAs being verified; and − The samples selected for prior	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/a	N/a	N/a
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?	N/a	N/a	N/a
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/a	N/a	N/a
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	N/a	N/a	N/a

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CL 1. Please clarify where the slag addition percentage achieved is taken from.	92	Slag addition calculations have been added to the main Excel calculation document, sheet “CLNK, RM, CaO,MgO”	Closed.
CAR 1. Please define what are the small emission sources, which influenced total amount of ERUs and how are they accounted.	94	Emissions due to calcinations of discarded cement kiln dust (CKD) were considered as a minor source of emissions in PDD and therefore were not used in calculation of emissions in the baseline and the project scenario. In the MR, however the emissions due to calcinations of CKD was assessed and included into the calculations of emissions, though they are small (<1%, see Tables 14 and 15 of MR) in order to increase the accuracy of calculations.	Closed.

CAR 2. Please clarify where is the difference between two formulae in the section A.9 for baseline emissions from fuel consumption.	94	The difference is in the indexes of the formulae. For previous MR was used simplified version of the formula that considered only NG as a fuel. In the current MR period coal dust was used as a fuel also, thus the formula that reflects as values was used. Clarification was added in MR002 ver2.0 dated 21 April 2010.	Closed.
CAR 3. Please provide information whether key factors, e.g. those listed in 23 (b) (i)-(vii) of DVM: Sectoral reform policies and legislation; Economic situation/growth and socio-demographic factors in the relevant sector as well as resulting predicted demand.; Availability of capital; Local availability of technologies/techniques, skills and know-how and availability of best available technologies/techniques in the future; Fuel prices and availability; National and/or subnational expansion plans for the energy sector, as appropriate; National and/or subnational forestry or agricultural policies, as appropriate., influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project were taken into account, as appropriate for calculating the emission reductions.	95 (a)	The emission reductions have been calculated in accordance with the approved monitoring plan contained in the Project Design Document Ver. 2.0 dated 20 August 2010 for which determination has been deemed final by the JISC. Necessary key factors that influence emission reductions have been carefully assessed during the baseline setting and establishing the monitoring plan. For more details refer to the Section B of the PDD ver. 2.0	Closed.

CAR 4. Recalculated figures (by calculating machine) of all the parameters in the Excel spreadsheet showed the difference from almost all figures calculated by MR developer. The same were only: project emissions from bypass dust, project emissions from grid electricity consumption for clinker manufacture, baseline emissions from combustion fuels in the kiln, baseline emissions due to discarded dust from kiln exhaust gases de-dusting units, baseline emissions from grid electricity consumption for clinker production. So according to MR version 1 total ERUs amount is 76965 tCO2e, while recalculation results showed 77573.18 t CO2 e. Please double check calculations in the excel file.	95 (d)	The calculation method of Excel is deeper than that of a calculator because it takes into account more digits making calculations more precise. That is why the result of data calculated by Excel and a calculator is slightly different. The values used in the calculation model are correct. Also, the identified difference between calculation with Excel and calculating machine (being 608,18 tCO2e) is less than materiality threshold for verification of emission reductions and should be ignored.	Closed.
CAR 13. According to MR version 1 section B NCV of NG and coal dust has been monitored by the fuel certificates issued by the suppliers which have been regularly requested by cement plant on monthly basis, while in the Excel file NCV is calculated by formula. Please clarify the situation.	95 (d)	The formulae were recalculated using NCV from certificates. Excel calculation model changed. ***KZ:*** NCV data from plant is 6.26910 Gcal/t, the one in Excel spreadsheet is 6,2822 Gcal/t. Please clarify and correct. ***IP:*** Corrected. Emission reductions decreased on ~0.4tCO2. ***KZ:*** NCV used is still 6,2910 instead of 6.26910 Gcal/t. Please correct! ***IP:*** Corrected. Calculation model changed. Results changed. MR amended.	Closed.

CAR 14. Project emission from combustion of fuel for drying of raw meal and fuel is supposed to be calculated by formula: $PE_{dry,y} = FC_{drums,y} \times NCV_{fd,y} \times EF_{CO2,i}$, while in the Excel file it is calculated $PE_{dry,y}$= $FC_{drying\ GJ}$ * $EF_{CO2,i}$. Please clarify and correct.	95 (d)	The result was recalculated using the proper formula. Excel calculation model changed. ***KZ:*** The calculation is still wrong – instead of NCV of natural gas the figure 4,187 is used. Clarify and correct. ***IP:*** As emission factor of NG is measured in tCO2/GJ, the NCV of NG measured in GCal/1000m3 must be transformed into GJ/1000m3 by use of 4,187 coefficient. Thus the formula used $PE_{dry,y} = FC_{drums,y} \times NCV_{fd,y} \times EF_{CO2,i}$ consists of consumption of NG (in thousands m3), NCV of NG (measured in GCal/m3), transformation coefficient from Gcal to GJ (4,187) and EF_{NG} (0,0561 tCO2/GJ). This clause was not corrected. The formula remains as it is was before.	Closed.
CAR 15. For the previous periods in the Excel file $FC_{drying\ GJ}$ was calculated please clarify how it is calculated/measured/estimated for 2010.	95 (d)	The formula for the $FC_{drying,\ GJ}$ was changed and recalculated as it had been in the previous MR. Excel calculation model changed.	Closed.

CAR 5. Please provide information on how monitoring of clinker quantity produced is performed.	101 (a)	Clinker production is calculated based on constant metering of raw meal volume and chemical composition of RM (moisture and chemical composition measured my on-line x-ray spectrometer). Quantity of clinker is obtained by multiplying special transition coefficient by weigh of raw meal supplied to the decarbonizer and the kiln. Daily sum of clinker produced volumes are included in kiln department daily reports. Based on daily data, monthly and annual reports are produced. Clarification was added into MR002 ver2.0 dated 21 April 2010. ***KZ:*** The explanation is not in the MR ver.02. p.6. ***IP:*** Answer improved. Clarification was added to the page 6 and 19	Closed.
CAR 6. Please provide information on cross checking method used in case of meter failure.	101 (a)	The consumption during meter failure period will be calculated using cross checking method. Operating hours, capacity, working load of equipment, data from other meters will be analyzed and used for estimations. Clarification was added into MR002 ver2.0 dated 21 April 2010..	Closed.

CAR 7. Please provide in MR information considering coal dust weights location, installation dates etc.	101 (b)	Clarification was added into table 5 and section B.1.3 MR002 ver2.0 dated 21 April 2010. ***KZ:*** I guess Table 7 is meant? ***IP:*** Answer improved.	Closed.
CAR 8. Table 3 of MR version 1 (p.9) indicates that calibration of Gas meters # 1 and #2 was performed within 1 year, while Section B.1.3 provides information that for such meters calibration interval is 2 years.	101 (b)	Calibration intervals for the gas meters were corrected according to the passports. Changed were added in section B.1.3 MR002 ver2.0 dated 21 April 2010	Closed.
CAR 9. Table 4 of MR version 1 (p.9) indicates that calibration of Coal dust weightfeeder # 1 and #2 was performed within 1 year, while Section B.1.3 provides information that for such meters calibration interval is 2 years.	101 (b)	Calibration intervals for the weigh feeders were corrected according to the passports. Changed were added in table 5 and section B.1.3 MR002 ver2.0 dated 21 April 2010	Closed.
CAR 10. Please provide information on calibration of weight meters for raw meal as well as calibration interval in section B.1.3.	101 (b)	Calibration intervals for the weigh feeders were added according to the passports. Changed were added in table 7 and section B.1.3 MR002 ver2.0 dated 21 April 2010	Closed.
CAR 16. Site visit reflected that 2 new electricity meters were installed, making total number of electricity meters 25 (instead of 23). Please correct.	101 (b)	Three electricity meters were added in the table 6 making total number 26 instead of 25. Information is provided in the table. Passports and calibration reports were provided for the verification. MR002 ver2.0 dated 21 April 2010 was amended.	

CAR 17. Site visit revealed that after the procedure of electricity meters calibration they were put to the different locations. At the same time some new meters replaced the old ones. Please update relevant table.	101 (b)	Table 7 MR002 ver2.0 dated 21 April 2010 was updated according to changes occurred.	Closed.
CAR 18. Site visit reflected that gas meters ABB 265 DS #6600031172 and #6600031173 were replaced with Yokogawa meters. Please update MR.	101 (b)	Table 5 MR002 ver2.0 dated 21 April 2010 was updated according to changes occurred.	Closed.
CAR 11. Please double check all the references since it is not always clear what is meant PDD or MR.	101 (c)	References in MR002 ver2.0 dated 21 April 2010 were checked.	Closed.
CAR 12. Please adjust tables numbers throughout the document.	101 (c)	Table numbers in MR002 ver2.0 dated 21 April 2010 were adjusted	Closed.
CL 2. Please double check MR for misspellings, typos and inconsistencies.	101 (c)	MR002 ver2.0 dated 21 April 2010 was checked for grammatical and stylistic mistakes.	Closed.