VERIFICATION REPORT
GLOBAL CARBON BV

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

(FOURTH PERIODIC FOR 01.01.2011-31.12.2011)

REPORT NO. UKRAINE-VER/0266/2011/1

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BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0266/2011/1

VERIFICATION REPORT

Date of first issue: 23/04/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Global Carbon BV	Client ref.: Lennard de Klerk

Summary:
Bureau Veritas Certification has made the 4th 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 monitoring report against 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 Corrective Actions Requests presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as per determined changes. 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 61852 tonnes of CO_2 equivalent for the monitoring period from 01/01/2011 to 31/12/2011.

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.: UKRAINE-ver/0266/2011/1	Subject Group: JI	
Project title: «Usage of alternative raw materials at Kryvyi Rih Cement, Ukraine»		
Work carried out by: Kateryna Zinevych – Team Leader, Climate Change Lead Verifier Vladimir Kulish – Team Member, Climate Change Verifier Sergey Dyeordiyev – Technical Specialist		
Work reviewed by: Ivan Sokolov – Internal Technical Reviewer Nikolay Ivanov - Technical Specialist		
Work approved by: Ivan Sokolov – Operational Manager		
Date of this revision: 25/05/2012	Rev. No.: 03	Number of pages: 39

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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, monitoring plan, monitoring report, 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, corrective and/or forward 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:

Kateryna Zinevych
Bureau Veritas Certification Team Leader, Climate Change Verifier

Vladimir Kulish
Bureau Veritas Certification, Climate Change Verifier

Sergey Dyeordiyev
Bureau Veritas Certification, Technical Specialist

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

Nikolay Ivanov
Bureau Veritas Certification, Technical Specialist

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.

The verification findings presented in this report relate to the Monitoring Report versions 1.0, 2.0, 3.0 and 3.1, and project as described in the determined PDD.

2.2 Follow-up Interviews

On 29/02/2012 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 Heidelberg Cement 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 Verification Team 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.

The Verification Team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the verification.

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.

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

3.1 Remaining issues and FARs from previous verifications

There were no FARs left from the previous verification.

3.2 Project approval by Parties involved (90-91)

Written project approvals by the Netherlands and Germany have been issued by the DFPs 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.

3.3 Project implementation (92-93)

The project was operational for the whole monitoring period as of 01/01/2011-31/12/2011.

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 producer in Central Ukraine. The plant is owned by HeidelbergCement, one of the world's leading producers of construction materials. Kryvyi Rih Cement was built in 1952 and fully modernized in 1983. Since the modernization the plant applies dry production process – one rotary kiln with calciner and multistage cyclone system capable of producing approximately 1.0 million tonnes 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 as 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 project design, 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 below. 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 decarbonize with emissions of CO_2 like natural raw materials do. The more slag in the raw meal, the less CO_2 is emitted during burning of materials in the kiln (emissions from calcination).

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
2011	**7.6**

Table 1: Status of project implementation during 2004 -2011

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	2011
ERs in MR003 in tons of CO_2 equiv.	61852
ERs in determined PDD in tons of CO_2 equiv.	123 199

Table 2: Monitored amount of ER and expected in PDD for 2011

The difference in the amount of Emission Reduction Units achieved in 2011 and stated in the determined PDD can be explained by several reasons. First of all changes in clinker production volume: actual ones is less then estimated one in PDD. Also changes in the share of AMC in raw meal composition must be taken into account: during the monitoring period high prices for AMC caused significant decrease in the share of blast furnace slag and fly ash addition. And finally actual kiln calorific consumption per tonne of clinker is higher than that estimated in PDD.

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

The monitoring occurred in accordance with the revised monitoring plan included in the Monirtoring Report version 3.1 regarding which the determination is being described in this Verification Report in the following section 3.5.

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

Data sources used for calculating emission reductions, 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 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 CAR 01, CAR 03, CAR 06, CAR 07, CAR 08, CAR 10).

3.5 Revision of monitoring plan (99-100)

The project participants provided an appropriate justification for the proposed revision, which are the following:

1) In order to improve transparency, fix inaccuracies and adjust the parameters and equations into accordance with one another, the description of some parameters in the determined monitoring plan has been amended. List of the parameters with the description of their sources and monitoring frequency, which were revised, is presented in the Monitoring Report version 3.0 Table 3.
2) In order to improve transparency, fix inaccuracies and adjust the parameters and equations into accordance with one another, the description of some formulae in the determined monitoring plan has been amended. List of the formulae which were revised is presented in the Monitoring Report version 3.0 Table 4. That revision of the formulae was caused the revision of the parameters names not the change in the monitoring and measuring algorithm.
3) The more recent country-specific emission factor of carbon dioxide for electricity consumed from the Ukrainian grid is available, thus the value and the method of monitoring have been revised. New emission factor, which is 1.09 tCO_2/MWh for the 1^{st} class consumers, is calculated by the Ukrainian DFP and provided in the Order #75 dated 12^{th} of May 2011. For the monitoring purposes new emission factors for electricity consumed from the grid will be taken from the corresponding DFP orders on an annual basis. If no new orders are issued, the latest emission factor will be applied for calculation of emissions in baseline and project scenario.
4) The CO_2 emission factors for fuel combustion have been revised in order to improve the accuracy of emission reduction calculations. List of the CO_2 emission factors with the description of their sources and monitoring frequency, which were revised, is presented in the Monitoring Report version 3.0 Table 6.

The proposed revision improves the accuracy and 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.

Outstanding issues related to revision of monitoring plan with monitoring methodology are presented in Tables 1-2 below (See CAR 02, CAR 05, CAR 09, CAR 11).

3.6 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 were natural gas (NG) and anthracite coal. 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 consumption is constantly monitored by the two Pfister weigh feeders.

Components of raw meal added into the kiln require drying prior to be mixed and put into the kiln. Such materials are lime, clay and slags used to partially substitute the natural raw materials. The drying of them is conducted in drying drums using NG as fuel. Gas consumption for drums is measured by gas meters.
Coal drying is performed using thermal energy of kiln flue gases, without additional combustion of natural gas or other fossil fuels.

Kiln and calciner natural gas consumption is measured by use of two gas meters; two coal weigh feeders are used for measuring the coal consumption of the kiln and the calciner.
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.
Coal drying is performed using thermal energy of kiln flue gases, without additional combustion of natural gas or other fossil fuels.

Power consumption

Metering of power consumed for raw meal preparation and handling, operation of the kiln, including the auxiliaries is organized by 26 power meters. 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

Monitoring of oxides content in clinker is made by conducting regular chemical analysis in the plant laboratory.
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.

Monitoring of non-carbonated content of these oxides in the raw meal is made by performing the chemical analysis of CaO and MgO content in alternative raw materials (AMC) added into raw meal, quantity of AMC added and further calculation to obtain the proportion of non-carbonated content of these oxides in the raw meal.
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 meal consumption

RM consumption is measured constantly by weight meters 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). Quantity of clinker is obtained by multiplying special transition coefficient by weight of raw meal supplied to the calciner 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.

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 2011 is stated as 123 199 t CO_2e while in the Monitoring Report version 3.1 the amount of ERU’s for the period of 2010 is 61852 t CO_2e. The explanation of the difference of the

ERUs is provided in this report section 3.3 and in the Monitoring Report version 3.1.

The audit team confirms that emission reduction calculations have been performed according to the revised 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 Chief Engineer 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, decarbonizer and by RM drying drums, as well as the electricity consumption of RM and kiln are collected in the department of chief power engineer and then transferred to the department of Chief engineer for environment.

The data on CaO and MgO contents in clinker and AMC are collected in the plant laboratory that is certified for performing the analyses. The data on raw meal consumption and clinker production are collected in the department of economic planning and analyses and then are supplied to the department of Chief engineer for 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 these data regular daily report is produced.

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

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 inventory reports. This would allow for regular cross checking of values. All energy flows (electricity, coal and NG) are logged on the server at Energy department.

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 tonne of clinker (Kiln efficiency), specific consumption of electricity per tonne 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 CAR 04, CAR12, CAR 13, CAR 14, CAR 15, CAR 16, CAR 17, CAR 18,).

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 4th 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 monitoring report against 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 Plan as per determined changes. 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 3.1 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as per determined changes. 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 01/01/2011 to 31/12/2011

Baseline emissions	:981396	tonnes	of	CO_2 equivalent.
Project emissions	:919544	tonnes	of	CO_2 equivalent.
Emission Reductions	: 61852	tonnes	of	CO_2 equivalent.

5 REFERENCES

Category 1 Documents:

Documents provided by 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 21st of February 2012
3. Monitoring Report version 2.0 dated 19th of March 2012
4. Monitoring Report version 3.0 dated 6th of April 2012
5. Monitoring Report version 3.1 dated 3rd of May 2012
6. Supporting Document 2 – Criteria on the definition of the electricity consumers' classes differentiated on the voltage level.
7. Supporting Document 2 – Information on the electricity tariffs from PJSC "Dniprooblenergo", March 2012.
8. Supporting Document 2 – Invoice #170.0005.000/03/2 from PJSC "Power supply company "Dniprooblenergo" dated 12th of March 2012
9. Supporting Document 3 – Agreement #151 M for the provision of metrological services between PJSC "Heidelbergcement" and SE "Kryvbassstandartmetrologiya" dated 05.04.2011
10. Supporting Document 5 – Manual on the Shenck raw mill feeders
11. Supporting Document 6 – Scheme of the electricity supply at PJSC "Heidelbergcement"
12. Supporting Document 6 – Information on the electricity tariffs from PJSC "Dniprooblenergo", February 2012.
13. Supporting Document 6 – Invoice #569 from PJSC "Power supply company "Dniprooblenergo" dated 29th of February 2012
14. Verification Report by the Bureau Veritas Certification Holding SAS, dated 10th of May 2011
15. Letter of Approval from the Netherland 2009JI12 issued by SenterNovem 30.10.2010
16. Letter of Approval from Germany issued by Federal Environment Agency; German Emission Trading Authority 19. 01.2010
17. Letter of Approval from Ukraine 1106/23/7 issued by National Environmental Investment Agency of Ukraine 26.07.2010
18. 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/ Calibration certificate # E 086, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090938 (last calibration date–11/04/2011)

/2/ Calibration certificate # E 084, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090930 (last calibration date–11/04/2011)

/3/ Calibration certificate # E 083, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090923 (last calibration date–11/04/2011)

/4/ Calibration certificate # E 085, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090965 (last calibration

date–11/04/2011)

/5/ Calibration certificate # E 086, valid till 11/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090963 (last calibration date–11/04/2011)

/6/ Calibration certificate # E 072, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090974 (last calibration date–04/04/2011)

/7/ Passport on multifunctional power meter Euro Alfa EA05RALX-P4B-4, fabrication # 01150424 (last calibration date–09/02/2007)

/8/ Passport on multifunctional power meter Euro Alfa EA05RL-B-4, fabrication # 01140832 (last calibration date–07/07/2006)

/9/ Calibration certificate # E 039, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090905 (last calibration date–18/02/2010)

/10/ Calibration certificate # E 040, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090968 (last calibration date–18/02/2010)

/11/ Calibration certificate # E 045, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090931 (last calibration date–18/02/2010)

/12/ Calibration certificate # E 041, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090957 (last calibration date–18/02/2010)

/13/ Calibration certificate # E 077, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090925 (last calibration date–04/04/2011)

/14/ Calibration certificate # E 078, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090950 (last calibration date–04/04/2011)

/15/ Calibration certificate # E 048, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090932 (last calibration date–18/02/2010)

/16/ Calibration certificate # E 071, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090954 (last calibration date–04/04/2011)

/17/ Calibration certificate # E 073, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090917 (last calibration date–04/04/2011)

/18/ Calibration certificate # E 046, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090929 (last calibration date–18/02/2010)

/19/ Calibration certificate # E 049, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090952 (last calibration date–18/02/2010)

/20/ Calibration certificate # E 047, valid till 18/02/2016, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090912 (last calibration date–18/02/2010)

/21/ Calibration certificate # E 043, valid till 18/02/2016, on active and reactive

power meter Euro Alfa EA05RL-B-4, fabrication # 01090934 (last calibration date–18/02/2010)

/22/ Calibration certificate # E 075, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090906 (last calibration date–04/04/2011)

/23/ Calibration certificate # E 074, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090896 (last calibration date–04/04/2011)

/24/ Calibration certificate # E 076, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090933 (last calibration date–04/04/2011)

/25/ Calibration certificate # E 079, valid till 04/04/2017, on active and reactive power meter Euro Alfa EA05RL-B-4, fabrication # 01090947 (last calibration date–04/04/2011)

/26/ List of power meters

/27/ Passport on pressure transmitter type Yokogawa, fabrication #91К616640 (last calibration date–02/02/2011)

/28/ Passport on pressure transmitter type Yokogawa, fabrication #91К616641 (last calibration date–02/02/2011)

/29/ Passport on pressure transmitter type ABB2600T, fabrication #6404031068 (last calibration date–01/02/2011)

/30/ Passport on pressure transmitter type ABB2600T, fabrication #6404031065 (last calibration date–01/02/2011)

/31/ Passport on pressure transmitter type ABB2600T, fabrication #6404031063 (last calibration date–01/02/2011)

/32/ Passport on pressure transmitter type ABB2600T, fabrication #6404031066 (last calibration date–01/02/2011)

/33/ Natural gas consumption at drying drums for February 2012

/34/ Natural gas consumption for shifts at PJSC Heidelbergcement Ukraine for February 2012

/35/ Natural gas consumption at drying drums for December 2011

/36/ Natural gas consumption for shifts at PJSC Heidelbergcement Ukraine for December 2011

/37/ Daily natural gas consumption within the production boarders and other departments of PJSC Heidelbergcement Ukraine for December 2011

/38/ Passport of natural gas physical and chemical characteristics for the period from 01/11/2011 till 30/11/2011

/39/ Passport of natural gas physical and chemical characteristics for the period from 03/10/2011 till 31/10/2011

/40/ Passport of natural gas physical and chemical characteristics for the period from 01/09/2011 till 30/09/2011

/41/ Passport of natural gas physical and chemical characteristics for the period from 01/08/2011 till 31/08/2011

/42/ Passport of natural gas physical and chemical characteristics for the period from 01/07/2011 till 31/07/2011

/43/ Passport of natural gas physical and chemical characteristics for the period from 01/06/2011 till 30/06/2011

/44/ Passport of natural gas physical and chemical characteristics for the period

from 01/05/2011 till 31/05/2011

/45/ Passport of natural gas physical and chemical characteristics for the period from 01/04/2011 till 30/04/2011

/46/ Passport of natural gas physical and chemical characteristics for the period from 01/03/2011 till 31/03/2011

/47/ Passport of natural gas physical and chemical characteristics for the period from 01/02/2011 till 28/02/2011

/48/ Passport of natural gas physical and chemical characteristics for the period from 01/01/2011 till 31/01/2011

/49/ Passport of natural gas physical and chemical characteristics for the period from 01/12/2011 till 30/12/2011

/50/ Information note on net calorific value of produced coal dust for December 2011

/51/ Information note on net calorific value of produced coal dust for November 2011

/52/ Information note on net calorific value of produced coal dust for October 2011

/53/ Information note on net calorific value of produced coal dust for September 2011

/54/ Information note on net calorific value of produced coal dust for August 2011

/55/ Information note on net calorific value of produced coal dust for July 2011

/56/ Information note on net calorific value of produced coal dust for June 2011

/57/ Information note on net calorific value of produced coal dust for May 2011

/58/ Information note on net calorific value of produced coal dust for April 2011

/59/ Information note on net calorific value of produced coal dust for March 2011

/60/ Information note on net calorific value of produced coal dust for February 2011

/61/ Information note on net calorific value of produced coal dust for January 2011

/62/ Logbook on electricity consumption by PJSC Heidelbergcement Ukraine, from 01/01/2011 till 31/12/2011 (term of storage – 10 years)

/63/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090933

/64/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090947

/65/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090968

/66/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090900

/67/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090931

/68/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090957

/69/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090925

/70/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090930

/71/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090932

/72/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090954

/73/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090917
/74/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090929
/75/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090952
/76/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090912
/77/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090934
/78/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090906
/79/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090896
/80/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090938
/81/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090930
/82/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090923
/83/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090965
/84/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090963
/85/ Photo - Elster-Metronica active and reactive power meter type EA05RL-B-4, fabrication #01090974
/86/ Photo - Elster-Metronica active and reactive power meter type EA05RALX-P4B-4, fabrication #01150424
/87/ Photo - Elster-Metronica active and reactive power meter type EA05RAL-B-4, fabrication #01140832
/88/ Photo - Elster-Metronica active and reactive power meter type EA05RAL-B-4, fabrication #01140832
/89/ Proficiency Testing Scheme Fuel Analysis 4/2011 – Round 4 (11/07/2011-11/11/2011)
/90/ List # 85 dated 30/12/2010 of measuring equipment in operation to be calibrated in 2011
/91/ Logbook on clinker laboratory analysis results
/92/ Photo – Pressure transmitter type Yokogawa, fabrication #91K616641
/93/ Photo – Pressure transmitter type Yokogawa, fabrication #91K616640
/94/ Photo – Pfister rotor weighfeeder type DRW 4.12, fabrication #77068.30
/95/ Photo – Pfister rotor weighfeeder type DRW 4.10, fabrication #77068.20
/96/ Photo – Schenck rotor weighfeeder type Multistream G 400 D, serial #V020919.B01
/97/ Photo – Schenck rotor weighfeeder type Multistream G 400 D, serial #V020912.B01
/98/ Combined table of emissions based on the stationary sources air pollution specific values, PJSC Heidelbergcement Ukraine, in 2011
/99/ Information note on laboratory study

/100/ Data sheet on Pfister rotor weighfeeder type DRW 4.12, fabrication #77068.30
/101/ Passport on weighfeeder type ДСС-130-1, fabrication #HWFK/01038/1
/102/ Passport on weighfeeder type ДСС-130-2, fabrication #HWFK/01038/2
/103/ Instruction on coal weighfeeders calibration
/104/ Information on coal weighfeeders calibration
/105/ Statements of prepared goods, semi-products, raw materials and fuel inventorization for 2011
/106/ Statements of prepared goods, semi-products, raw materials and fuel inventorization for January 2012
/107/ Information note on fuel consumption within the production site and other departments of PJSC Heidelbergcement Ukraine
/108/ Average monthly parameters of CaO and MgO for 2011
/109/ Average per cent content of CaO and MgO for 2011
/110/ Electricity consumption within the Heidelbergcement Ukraine

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/ Lyudmyla Rudnyeva – Chief Engineer for environment
/2/ Oleksandr Fomin – master of the networks and electric power substations facility
/3/ Yevgen Krasyukov – master of the automation facility
/4/ Tatyna Glushchuk – engineer of the Chief engineer department
/5/ Nadezhda Kobets – engineer of the Chief engineer department
/6/ Valentyna Nikonenko – attendant of the electric power substation
/7/ Galyna Tkach – attendant of the electric power substation
/8/ Mariya Galak – attendant of the electric power substation
/9/ Tatyana Khayrbekova – engineer of the laboratory
/10/ Olga Fefilatyeva – engineer of the analytical group
/11/ Tatyna Tataryna – economist on planning and analyses
/12/ Olena Kuznetsova – chief specialist on the environment
/13/ Iurii Petruk – Consultant, Global Carbon BV

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 DFPs. 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?	Overall project has been implemented in accordance to the PDD determined as final. Though in 2011 the economic situation in the region caused increase of the alternative components cost. This resulted in significant decrease of the share of AMC proportion in the raw meal. Also there is a difference between ERUs achieved in 2011 and the ones stated in the PDD, which is caused by: • Changes in clinker production volume: actual ones versus estimates in PDD; • Changes in the share of AMC in raw meal composition versus those estimated in PDD: during the monitoring period high prices for AMC caused significant decrease in the share of blast furnace slag and fly ash addition; • Changes in kiln calorific consumption per tonne of clinker: actual one is higher than that estimated in PDD.	OK	OK
93	What is the status of operation of the project	Project has been operational for the whole monitoring period,	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	during the monitoring period?	which is 01.01.2011 – 31.12.2011.		
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?	The monitoring occurs in accordance with the monitoring plan revised for this monitoring period. The revisions are listed below in the appropriate section.	OK	OK
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?	Yes, for calculating the emission reductions 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 as well as risks associated with the project were taken into account, as appropriate.	OK	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	**CAR 01.** Parameter CaO_{RM_Bsl} in the MR is 1.61 while in the excel spreadsheet its value is 1.60. Please explain and correct. **CAR 02.** Parameter CKD_{Bsl} is not presented in the PDD but is used in MR. Please provide an explanation and correct. **CAR 03.** Reference in Table 12 to the Annex 2 of the PDD is irrelevant. Please provide correct references. **CAR 04.** Please provide information for the source of NCV. **CAR 05.** Parameter $FC_{kiln,i,y}$ is mentioned in the PDD not as P24 nor as B14. please correct.	CAR 01, 02, 03, 04, 05	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?	**CAR 06.** Since emission factor for coal combustion is the one for anthracite please state so in the report. **CAR 07.** Please correct the reference to the emission factor for NG at IPCC.	CAR 06, 07	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on	**CAR 08.** Please double check calculations in the excel spreadsheet (cell settings) for the $PE_{calc,y}$ and $BE_{calc,}$ since	CAR 08	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	conservative assumptions and the most plausible scenarios in a transparent manner?	manual calculation of those values showed totally different result.		
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 project participants submitted a common monitoring report?	N/a	N/a	N/a
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?	**CAR 09.** Please add parameters stated in the Table 4 row 7 of the MR to the Table 3. **CAR 10.** Please provide the proof that KRC is the electricity consumer of the 1st class. **CAR 11.** Please add facts marked as changes since last	CAR 09, 10, 11	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		verification as changes to monitoring plan.		
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?	Yes, proposed revision improves 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	OK	OK
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?	Yes, implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures. **CAR 12.** Please provide the agreement with the third party State Metrological System of Ukraine.	CAR 12	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, in order?	**CAR 13.** Please provide technical passport for the Pfister DRW 4.12/2. **CAR 14.** Please provide an explanation of the frequency of the coal weigh feeders' calibration. **CAR 15.** Please correct serial numbers for the RM weigh feeders since they differ from the ones placed onsite. **CAR 16.** Site visit revealed that for the RM weigh feeders verification is performed on-site by nulling the wages while PDD states that these meters should be calibrated. Please clarify and correct if necessary. **CAR 17.** Laboratory that defines NCV of coal (according to the information obtained during the site-visit) is not certified. Please provide the proof of laboratory's certification.	CAR 13, 14, 15, 16, 17	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Yes, the evidence and records used for the monitoring maintained in a traceable manner. 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 Chief Engineer for	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		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 Chief Engineer for 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 tonne of cement, chemical composition of RM, clinker and cement. All data necessary for the CO2 emission reductions calculation is collected in the department of Chief Engineer for environment.		
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	**CAR 18.** Please correct organizational chart of the KRC.	CAR 18	OK
Verification regarding programmes 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 reports of all JPAs to be verified?	N/a	N/a	N/a
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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 verifications, if any?	N/a	N/a	N/a
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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 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 clarification and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR 01. Parameter CaO_{RM_Bsl} in the MR is 1.61 while in the excel spreadsheet its value is 1.60. Please explain and correct.	95 (b)	The value of parameter CaO_{RM_Bsl} in the Excel spreadsheet has been corrected into 1.61 Please see list "Baseline&default factors" of Excel spreadsheet version 2.0. from 19/03/2012	Issue is closed.

CAR 02. Parameter CKD_{Bsl} is not presented in the PDD but is used in MR. Please provide an explanation and correct.	95 (b)	Parameter CKD_{Bsl} is calculated as an annual average of amount of dust leaving kiln for 2001, 2002, 2003 (3 years preceding the project implementation). The explanation of derivation of the value of CKD_{Bsl} has been added to Table 12 of MR003 version 2.0. from 19/03/2012. The calculation of CKD_{Bsl} has been added to the list "Dust (CKD)" of Excel spreadsheet version 2.0. from 19/03/2012 ***KZ:*** Please present this as deviation to the Monitoring Plan and place to the relevant section. ***D:*** The parameter CKD_{Bsl} has been included in Table 3 containing deviations to the determined monitoring plan. Please see MR003 version 3.0. from 04.04.2012	Issue is closed.
CAR 03. Reference in Table 12 to the Annex 2 of the PDD is irrelevant. Please provide correct references.	95 (b)	The references in Table 12 have been amended. Please see MR version 2.0. from 19/03/2012	Issue is closed.
CAR 04. Please provide information for the source of NCV.	95 (b)	NCV of coal was monitored by the plant laboratory, which has been carried out analysis of NCV of coal supplied to the kiln. The necessary corrections have been made in Section B and Table 13 of MR003 version 2.0. from 19/03/2012.	Issue is closed.

CAR 05. Parameter $FC_{kiln,i,y}$ is mentioned in the PDD not as P24 nor as B14. Please correct.	95 (b)	The correction containing renaming of parameter $FC_{i,kiln,i,}$ into $FC_{kiln,i,y}$ has been added to Table 3 of MR003 version 2.0. from 19/03/2012.	Issue is closed.
CAR 06. Since emission factor for coal combustion is the one for anthracite please state so in the report.	95 (c)	The fuels during monitoring period stated in A.4. were natural gas (NG) and anthracite coal. The necessary correction has been made in Section B of MR003 version 2.0. from 19/03/2012.	Issue is closed.
CAR 07. Please correct the reference to the emission factor for NG at IPCC.	95 (c)	The number of page has been corrected from 1.23 into 1.24. The reference to the emission factor for NG has been corrected into: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2: Energy, Chapter 1: Introduction , Table 1.4, Page 1.24 Please see Tables 6 and 11 of MR003 version 2.0. from 19/03/2012.	Issue is closed.

CAR 08. Please double check calculations in the excel spreadsheet (cell settings) for the $PE_{calc,y}$ and $BE_{calc,}$ since manual calculation of those values showed totally different result.	95 (d)	The calculations of $PE_{calc,y}$ and $BE_{calc,y}$ has been double checked, the result was same to those showed in the Excel spreadsheet and the MR. The manual calculation of parameters $PE_{calc,y}$ and $BE_{calc,y}$ showed totally different result apparently because it was not taken into account that parameters CaO_{RM_Bsl} MgO_{RM_Bsl} CaO_{CLNK_Bsl} MgO_{CLNK_Bsl} $CaO_{CLNK,y}$ $MgO_{CLNK,y}$ $CaO_{RM,y}$ $MgO_{RM,y}$ are shares (%), which means that for the purpose of calculations their values should be divided by 100 to represent quantitative number. ***KZ:*** Excel spreadsheet calculates the numbers not the shares so the explanation is irrelevant. If the values should have been divided by 100 final results would have been two signs less not totally different. Please correct the calculations. ***D:*** The inaccuracy in Table 15 which caused a mistake in calculation has been fixed. Additionally, to increase transparency, the data units of parameters CaO_{RM_Bsl} MgO_{RM_Bsl} CaO_{CLNK_Bsl} MgO_{CLNK_Bsl} $CaO_{CLNK,y}$ $MgO_{CLNK,y}$ $CaO_{RM,y}$ $MgO_{RM,y}$ have been converted from shares (%) into (t CaO/t clinker; t MgO/t clinker; t CaO/t raw meal; t MgO/t raw meal).	The inconsistency between the calculations was caused by the different expressing in round. The calculation provided by the developer is considered more accurate. Issue is closed.

		Please see MR003 version 3.0. and Excel spreadsheet from 04/04/2012. ***KZ:*** Calculation of $PE_{calc,y}$ is correct but as for the $BE_{calc,y}$ calculation still differs (the one in excel file is 508018 t CO_2 while result of AIE's calculation is 506319 t CO_2), which influences total amount of ERUs (makes it less). Please double check the calculation of $BE_{calc,y}$.	

CAR 09. Please add parameters stated in the Table 4 row 7 of the MR to the Table 3.	99 (a)	The parameters $BE_{Calc,y}\, BE_{FC,y}\, BE_{dust,y}\, BE_{dry,y}\, BE_{EL\_grid,y}$ are represented appropriately in Table D.1.1.3. of PDD ver. 2.0 dated 20th of August 2010. The inaccuracy occurred only while representing following Equations 7, 8, 9, 10, 11, 12: these parameters were represented without indexes "*y*". Thus the current Monitoring Report is intended to fix the equation inaccuracy occurred in the PDD. Since the parameters $BE_{Calc,y}\, BE_{FC,y}\, BE_{dust,y}\, BE_{dry,y}\, BE_{EL\_grid,y}$ are represented appropriately in Table D.1.1.3. of PDD ver. 2.0 dated 20th of August 2010, there is no need to revise them in the Monitoring Report. Thus the parameters have not been added to the Table 3 of MR003 version 2.0. from 19/03/2012.	Issue is closed.

CAR 10. Please provide the proof that KRC is the electricity consumer of the 1st class.	99 (a)	The proof that KRC is the electricity consumer of the 1st class has been sent to the AIE as a Supporting document "SD2_1class_voltage". ***KZ:*** Please provide the data of average monthly electricity consumption for the technological needs and the data of voltage rate at the point of energy sale for KRC. ***D:*** The relevant documents have been provided in Supporting document "SD6_1st_class_consumption".	Issue is closed.
CAR 11. Please add facts marked as changes since last verification as changes to monitoring plan.	99 (a)	The facts marked as changes since last verification have been transferred from Section A.9. to Section A.8. Please see MR003 version 2.0. from 19/03/2012.	Issue is closed.
CAR 12. Please provide the agreement with the third party State Metrological System of Ukraine.	101 (a)	The agreement with the regional representative of State Metrological System of Ukraine has been sent to the AIE as a Supporting document "SD3_Agreement_metrology".	Issue is closed.
CAR 13. Please provide technical passport for the Pfister DRW 4.12/2.	101 (b)	The technical passport of the weigh feeder Pfister DRW 4.12/2 has been sent to the AIE as a Supporting document "SD1_Weigh_feeders".	Issue is closed.

CAR 14. Please provide an explanation of the frequency of the coal weigh feeders' calibration.	101 (b)	Calibration of coal and raw meal weigh feeders is usually performed once per shift (12 hours). Calibration of coal weigh feeders is performed automatically after start up of the relevant program by the operator. Calibration of raw meal weigh feeders is performed by the operator in a semi-automatic way following the calibration instruction. ***KZ:*** Please insert this information to the MR. ***D:*** The relevant information has been presented in Section B of the MR. Please see MR003 version 3.0. from 04/04/2012.	Issue is closed.

CAR 15. Please correct serial numbers for the RM weigh feeders since they differ from the ones placed onsite.	101 (b)	RM weigh feeder is a complex device which compounds numerous blocks and units and many of them have individual serial numbers. The serial numbers observed during the site visit were the serial numbers of the flow meters of the RM weigh feeders. At the same time, the serial numbers which have been indicated in the MR003 are correct and they are the serial numbers of the RM weigh feeders in whole. The evidence has been sent to the AIE as a Supporting document "SD1_Weigh_feeders" ***KZ:*** Please add information on serial numbers of the flow meters of the RM weigh feeders to the MR table 10. The relevant information has been presented in Table 10 Section B.1.2. of the MR. Please see MR003 version 3.0. from 04/04/2012.	Issue is closed.

CAR 16. Site visit revealed that for the RM weigh feeders verification is performed on-site by nulling the wages while PDD states that these meters should be calibrated. Please clarify and correct if necessary.	101 (b)	The RM weigh feeders are calibrated (not verified) usually at least once per 12 hours. The calibration procedure of RM weigh feeders includes such main steps: 1) filling the constant weight bunker 2) nulling the flow meter 3) releasing a known amount of RM 4) comparing the actual value of the supplied RM weight with the measured one. 5) Calculating the correcting coefficient to adjust the meter 6) Introducing the correcting coefficient. ***KZ:*** Please provide the reference for such procedure as well as the procedure itself. ***D:*** The explanation on coal and raw meal weigh feeders calibration has been added to Sections B.1.2. and B.1.3. of the MR The document containing the calibration procedure for RM weigh feeders has been provided in Supporting document "SD5_RM_calibration"	Issue is closed.

CAR 17. Laboratory that defines NCV of coal (according to the information obtained during the site-visit) is not certified. Please provide the proof of laboratory's certification.	101 (b)	Although the plant laboratory has no certification for performing NCV analysis, the laboratory possesses all necessary testing equipment and regularly undergoes quality inspections performed by Heidelberg Group experts. The results of inspections are positive and coal NCV analyses by the plant laboratory are recognized as accurate and consistent. Thus it is assumed that the plant laboratory is the appropriate source of coal NCV, and the quality of the provided data is high. Evidence of positive inspections of the plant laboratory and the relevant reference have been sent to the AIE as a Supporting document "SD4_Laboratory_Coal_NCV".	Issue is closed.
CAR 18. Please correct organizational chart of the KRC.	101 (d)	The organizational chart of the KRC has been corrected. Please see Figure 3 of MR003 version 2.0. from 19/03/2012.	Issue is closed.