VERIFICATION REPORT
GLOBAL CARBON B.V.

VERIFICATION OF THE
SLAG USAGE AND SWITCH FROM WET TO DRY PROCESS AT YUGCEMENT, UKRAINE

INITIAL AND FIRST PERIODIC
(01/01/2009 – 31/03/2011)

REPORT NO. UKRAINE-VER/0310/2011
REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0310/2011

VERIFICATION REPORT

Date of first issue: 09/09/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Global Carbon B.V.	Client ref.: Lennard de Klerk

Summary:
Bureau Veritas Certification has made the initial and first periodic verification of the project "Slag usage and switch from wet to dry process at Yugcement, Ukraine", JI Registration Reference Number 0188, project of company Global Carbon B.V. located at Olshanskoye village, Mykolayiv region in the south of 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 Independent 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 Clarifications, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR), presented in Appendix A.
FAR01 remains open and should be taken into account during next verification. FAR01 is based on the finding that no an official instruction which prescribes the procedure of calibration evidences storage is available for JI project measurement equipment.
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 18 123 tons of CO_2 equivalent for the monitoring period (01/01/2009 – 31/03/2011). the ERUs distributed as follows: 15 316 tons of CO_2 equivalent in 2009, 787 tons of CO_2 equivalent in 2010, and 2 020 tons of CO_2 equivalent in the first quarter 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/0310/2011	Subject Group: JI
Project title: Slag usage and switch from wet to dry process at Yugcement, Ukraine	
Work carried out by: Ivan Sokolov – Team Leader, Lead Verifier H. B. Muralidhar – Team Member, Lead Verifier Olena Manziuk – Team Member, Verifier	
Work reviewed by: Daniil Ukhanov – Internal Technical Reviewer Nikolay Ivanov – ITR Specialist	
Work approved by: Flavio Gomes – Operational Manager	

Date of this revision: 20/09/2011	Rev. No.: 02	Number of pages: 46

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Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon Dioxide
DVM	Determination and Verification Manual
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MP	Monitoring Plan
MR	Monitoring Report
DFP	Designated Focal Point
QA/QC	Quality Assurance/Quality Control
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

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1 INTRODUCTION

Global Carbon B.V. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” (hereafter called “the project”) at Olshanskoye village, Mykolayiv region in the south of Ukraine.

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 submitted monitoring report and the determined project design document including 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, 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:

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

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

Olena Manziuk
Bureau Veritas Certification Team Member, Climate Change Verifier

This verification report was reviewed by:

Daniil Ukhanov
Bureau Veritas Certification Internal Technical Reviewer

Nikolay Ivanov
Bureau Veritas Certification ITR 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 B.V. and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Approved CDM methodology (if applicable) and/or 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 version 1.0 dated 25/07/2011, MR version 2.0 dated 30/08/2011, MR version 3.0 dated 07/09/2011, MR version 4.0 dated 20/09/2011,and project as described in the determined PDD.

2.2 Follow-up Interviews

On 28/07/2011 during site visit Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of PJSC "Yugcement" and Global Carbon B.V. were interviewed (see section 5 References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC "Yugcement"	➢ 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 ➢ Monitoring procedure
Global Carbon B.V.	➢ Baseline methodology ➢ Monitoring plan ➢ Monitoring report ➢ Deviations from PDD ➢ Emission reduction calculation

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 eighteen Corrective Action Requests, one Clarification Requests, and one Forward 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

No remaining FARs are issued from previous verification process. Thus, this section is not applicable.

3.2 Project approval by Parties involved (90-91)

Host Party (Ukraine) provided the Letter of Approval of the project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” (i.e., LoA #1399/23/7 dated 16/09/2010) that was issued by National Environment Investment Agency of Ukraine.

Also, written project approvals by Germany and the Netherland that are involved in the JI project have been issued by the DFP of that Party when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest. That is German Emission Trading Authority (Federal Environmental Agency) issued the Letter of Approval dated 22/07/ 2010; and Ministry of Economic

Affairs and its implementing Agency SenterNovem issued The Letter of Approval of the JI project at Yugcement (i.e., LoA #2009JI14 dated 07/01/2010).

The abovementioned written approval is unconditional.

3.3 Project implementation (92-93)

According to the project design document, the JI project "Slag usage and switch from wet to dry process at Yugcement, Ukraine" aims to significantly decrease emissions from fossil fuel combustion and calcination process at Yugcement factory. The project foresees introduction of alternative raw materials, namely blast furnace slag (BFS), as a decarbonized raw material in the raw meal supplied to the kilns.

Based on the approved Monitoring Plan, JI specific approach was developed for this project in line with the JI Guidance on Criteria for Baseline Setting and Monitoring (version 02).

As it was planned, the starting date of the project implementation is 01/01/2009. As a result of the project activities realization, the actual achieved share of slag addition in the raw meal is as following: 0.74% in 2009, 0.1% in 2010, and 0.52% in 2011.

Actually, during regarding monitoring period special slag feeding facility has been installed and commissioned at Yugcement in order to adopt the slag addition technology. However, slag addition causes increase of saturation coefficient in the kiln making clinker production more complicated. Since the start of the project implementation and during first year the facility has been working in a test mode varying volume of slag addition for adjusting the technology of clinker production. In 2010 there were difficulties with equipment and slag procurement; therefore, share of slag addition was 0.1%.

Thus, during the JI Project implementation the slag has been added in lesser volume than foreseen in the project design document. That's why this fact caused lesser amount of emission reductions achieved in the monitoring period 01/01/2009 – 31/03/2011.

According to the provided documents, 18 123 t CO_2 equivalent is the total amount of emission reduction for the monitoring period 01/01/2009 – 31/03/2011; at the same time, in the PDD (version 5.0) the estimated amount of the emission reduction for the same period is 47 562 t CO_2 equivalent. The reason of the difference between the amount of the emission reductions calculated in the Monitoring Report and the amount of the emission reductions stated in the approved PDD described above in this section of the Verification Report.

Within the period 2011 owner of the plant (Dyckerhoff AG) has planned that Yugcement plant must achieve 2% slag addition level by the end of the year. For the future PPs foresee to install slag grinding facility that will allow increasing of slag addition up to 15%, but this activity is postponed due to the lack of financing that caused by financial crisis in Ukraine.

The identified areas of concern as to project implementation, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR01).

3.4 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: http://ji.unfccc.int/UserManagement/FileStorage/K7QMC18S2AFEGXPRBH0W6JOUVYT4ZN. According to the PDD, selection of monitoring approach was made in compliance with "Guidance on criteria for baseline setting and monitoring". The project developer used JI specific approach for establishing the monitoring. Collection of all key parameters required to calculate greenhouse gas emissions is undertaken in compliance with the established practice of PJSC Yugcement to meter fuel, electricity, raw materials, and environmental impact assessment.

For calculating the emission reductions key factors, such as CO_2 emission factor for electricity consumed from the grid, CO_2 emission factor of the NG combustion process, CO_2 emission factor of the coal combustion process, content of non-carbonated CaO and MgO in the materials, amount of the clinker production, amount of raw material consumption, amount of the fuel consumption, amount of heat consumption, amount of electricity consumption, net calorific values of fuels that were used in production process, etc., 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 calibrated measurement equipment, the study of standardized emission factors for the Ukrainian electricity grid, IPCC guidelines are clearly identified, reliable and transparent. On site responsible persons register data from the measurement equipments and fixed monitoring data to logbooks. Moreover, there is electronic database of monitoring data. Further a major part of all necessary data are collected in financial department and technology department of the plant. All roles and responsibilities connected with JI project at PJSC Yugcement are established in

accordance with procedure described in section D “Monitoring plan” of the PDD version 5.0 dated 20/09/2010.

Emission factors, including default emission factors, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice. For instance, there are used several emission factors for emission reduction calculation, such as CO_2 emission factor of the NG combustion process, CO_2 emission factor of the coal combustion process, and CO_2 emission factor for electricity consumed from the grid.

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

The identified areas of concern as to compliance of the monitoring plan with the monitoring methodology, project participants response and BV Certification’s conclusion are described in Appendix A (refer to CAR02, CAR03, CAR04, CAR05, CAR06, CAR07, CAR08, CAR09, CAR10, CAR11, CAR12, CL01).

3.5 Revision of monitoring plan (99-100)

In the course of the monitoring period (01/01/2009 – 31/03/2011) the original monitoring plan described in the registered project design document version 5.0 dated 20/09/2010 was modified by the project participants. The project participants provided an appropriate justification for the proposed revisions caused by a set of reasons that described below. The changes are as follows:

1. Change of data variables type of the parameter baseline electricity consumption for kiln operation and raw material preparation

According to the monitoring plan approved in the PDD, this parameter (i.e., EL_{BSL} - Specific electricity consumption of equipment for raw meal preparation and wet kilns operation in the Baseline scenario) is to be fixed ex-ante. As per revised monitoring plan, the parameter is to be monitored yearly and appears in the Monitoring plan as parameter EL_y (EL_y stands for Specific electricity consumption of equipment for raw meal preparation and wet kilns operation in the year y). As for parameter EL_{BSL} that stated in the approved Monitoring plan, in practice it is influenced not only by the project activity but also by a number of different factors, such as conditions at the raw materials excavation site, production level, etc. Therefore, it can be hard to isolate project activity impact on this parameter from other influences. In order to provide clear calculation of greenhouse gas emissions and decrease uncertainty level, PPs decided to use actual monitoring data for baseline electricity consumption for kiln operation and raw material preparation. Thus, the fact that $BE_{EL} = PE_{EL}$ making emission reduction due to electricity consumption for kiln

operation and raw material preparation equal to 0. Based on provided justification BVC verification team can conclude that the revision improves accuracy of emission reduction calculation.

2. Change/clarification of the source of data for parameter $EF_{el,y}$

As a fact, in the accepted Monitoring plan it is stated that the source of data for $EF_{el,y}$ are plant records. Actually, the source of data is the study "Standardized emission factors for the Ukrainian electricity grid" performed by Global-Carbon and verified by TUV SUD dated 17/08/2007. Thus, in the corrected Monitoring plan is stated that the source of data for parameter is assessment study in order to improve the accuracy and applicability of information.

3. Change/clarification of the data source for parameter $EF_{fuel\_i,y}$

In the Monitoring Plan that approved in the registered PDD, it is stated that the source of data for $EF_{fuel\_i,y}$ are plant records. As a matter of fact, the source of data for emissions factors of fuel (coal and natural gas) used during the project activity is the IPCC study "Guidelines for National Greenhouse Gas Inventories" issued in 2006. Therefore, in the revised Monitoring plan is provided direct source of data for parameter $EF_{fuel\_i,y}$ (the emission factor for the fuels that used in the production process) as a more clear and reliable data source.

4. Change/clarification of the parameter units

According to the JI project documents, the fuels used during the monitoring period were natural gas and coal. For the proper identification of monitoring parameters, units $EF_{fuel\_i,y}$ [tCO_2/GJ], $FF_{fuel\_i,y}$ [t] and $NCV_{fuel\_i,y}$ [GJ/t] indicated in the Monitoring plan of registered PDD have been replaced in the revised Monitoring Plan by the units $EF_{fuel\_NG,y}$ [tCO_2/GJ], $FF_{fuel\_NG,y}$ [$1000m^3$] and $NCV_{fuel\_NG,y}$ [$GJ/1000m^3$] when natural gas was used as a fuel, and $EF_{fuel\_Coal,y}$ [tCO_2/GJ], $FF_{fuel\_Coal,y}$ [t] and $NCV_{fuel\_Coal,y}$ [GJ/t] when coal was used as a fuel correspondingly. As a result, this revision leads to more transparent calculation of project emissions as well as emission reductions.

All revisions to the monitoring plan were made in accordance with the paragraph D of the „Guidance on criteria for baseline setting and monitoring" (version 02) to improve accuracy of the monitoring of emission reductions and applicability of information collected.

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.

Based on above mentioned, BVC verification team can conclude that the proposed revision of the monitoring plan of the project is complete,

effective and reliable. All relevant emission sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently. All parameters were monitored and determined as prescribed. The collected data are stored in electronic and paper formats. The monitoring methodologies and supporting records were sufficient to enable verification of emission reductions. As a result the verification process, no significant lacks of evidence were detected.

3.6 Data management (101)

As a result of site visit, documents revision, and verification process at all there is concluded that the data and their sources, provided in monitoring report, are clearly identified, reliable and transparent.

The implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures. These procedures are described in details in the registered project design document.

Based on the documents on measurement equipments and calibration certificates, the function of the monitoring equipment, including its calibration status, is in order.

During site visit the documents where initial data are fixed were revised, and electronic database was checked, and the last ones were discovered as reliable and functional. Thus, the evidence and records used for the monitoring are maintained in a traceable manner.

In conclusion, the data collection and management system for the JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” is in accordance with the revised monitoring plan.

The identified areas of concern as to data management, project participants response and BV Certification’s conclusion are described in Appendix A (refer to CAR13, CAR14, CAR15, CAR16, CAR17, CAR18, FAR01).

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the initial and first periodic verification of the JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” that realized in Ukraine (Olshanskoye village, Mykolayiv region in the south of Ukraine), which applies the 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 B.V. 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 project design document version 5.0 dated 20/09/2010. 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 4.0 dated 20/09/2011 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.

As a result of verification process, FAR01 remains open and should be taken into account during next verification. FAR01 is based on the finding that no an official instruction which prescribes the procedure of calibration evidences storage is available for JI project measurement equipments.

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 01/01/2009 to 31/12/2009

Baseline emissions	:	446193	t CO_2 equivalents.
Project emissions	:	430877	t CO_2 equivalents.
Emission Reductions (Year 2009)	:	15316	t CO_2 equivalents.

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

Baseline emissions	:	546083	t CO_2 equivalents.
Project emissions	:	545296	t CO_2 equivalents.
Emission Reductions (Year 2010)	:	787	t CO_2 equivalents.

Reporting period: From 01/01/2011 to 31/03/2011

Baseline emissions	:	133729	t CO_2 equivalents.
Project emissions	:	131709	t CO_2 equivalents.
Emission Reductions (1^{st} quarter 2011)	:	2020	t CO_2 equivalents.

For the whole monitoring period (i.e., from 01/01/2009 to 31/03/2011), total amount of emission reductions is 18 123 t CO_2 equivalent.

5 REFERENCES

Category 1 Documents:
Documents provided by Global Carbon B.V. that relate directly to the GHG components of the project.

/1/ PDD of JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” version 5.0 dated 20/09/2010
/2/ Monitoring Report of JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” version 1.0 dated 25/07/2011
/3/ Monitoring Report of JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” version 2.0 dated 30/08/2011
/4/ Monitoring Report of JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” version 3.0 dated 07/09/2011
/5/ Monitoring Report of JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” version 4.0 dated 20/09/2011
/6/ Letter of Approval #1399/23/7 issued by National Environmental Investment Agency of Ukraine dated 16/09/2010
/7/ Letter of Approval was issued by Federal Environment Agency (German Emission Trading Authority) dated 22/07/2010
/8/ Letter of Approval #2009JI14 issued by Ministry of Economic Affairs of the Netherlands dated 07/01/2010

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

/1/ Results of periodic calibration of slurry flow meter of rotary kilns #1 and #2 (type Yakogawa AXF150 ser. #S5E607296526, Yakogawa AXF150 ser. #S5GB01610743) dated 08/11/2010
/2/ Results of periodic calibration of slurry flow meter of rotary kilns #1 and #2 (type Yakogawa AXF150 ser. #S5E607296526, Yakogawa AXF150 ser. #S5GB01610743) dated 07/11/2008
/3/ Schedule of periodic calibration of gas flow recorder type OE-22ДМ IZ, ser. #0550 for 2008. Calibration dated 10/12/2008
/4/ Passport of weigh feeder type 1020. Results of periodic calibration of slag weigh feeder type MTD 1020 ser. #V038534.B01 dated 09/02/2009, dated 08/02/2010, dated 08/02/2011
/5/ Passport of weigh feeder type MTD1860, ser. #08012. Results of periodic calibration of coal weight feeder type MTD1860, ser. #08012 dated 05/07/2010, dated 05/07/2011
/6/ Passport of weigh feeder type MTD1860, ser. #08011. Results of periodic calibration of coal weight feeder type MTD1860, ser. #08011 dated 05/07/2010, dated 05/07/2011
/7/ Schedule of periodic calibration of power meters for 2008

/8/ Schedule of periodic calibration of gas meters for 2010
/9/ Schedule of periodic calibration of gas meters for 2009
/10/ Schedule of periodic calibration of gas meters for 2008
/11/ Information letter of serviceableness of devises (i.e., Siemens s7-416 and Actaris D-76161) dated 07/09/2011
/12/ Photo –Differential pressure sensor of NG Sitrans, ser. #N1-T711-9519102
/13/ Photo - Absolute pressure sensor of NG Sitrans, #N1-T711-9519094
/14/ Photo - Absolute pressure sensor of NG type MIDA-DA-13P-01
/15/ Attestation certificate #PH-0032/2010 dated 08/04/2010 of the laboratory, valid till 25/12/2012
/16/ Attestation certificate #PH-0116 dated 26/12/2006 of the laboratory, valid till 26/12/2009
/17/ Logbook on average monthly chemical analysis of raw materials and admixture
/18/ Logbook on average monthly chemical analysis of slurry and clinker for 2009-2011
/19/ DSTU Б В.2.7-202:2009 Construction materials. Cement and cement production materials. Chemical analysis methods.
/20/ Refinement ending point digital photoelectric indicator type ЦФЭИКТТ-1. Description and manual, serial #7345385.
/21/ Certificate #58 dated 29/04/2011 of state metrological attestation, electric power metering automatic control system АСКОЕ. Valid till April 2015.
/22/ Certificate #С8.015-2008 МВВ dated 09/06/2008 on state attestation of metering methodology by electric power metering automatic control system АСКОЕ at Yugcement OJSC.
/23/ Protocol #01-63 dated 09/06/2011 on commission session on labour safety knowledge testing of group #63.
/24/ Protocol #119 dated 07/07/2011 on commission session on labour safety knowledge testing.
/25/ Extract from the protocol #46 dated 15/06/2011 on state commission session of Scientific Center state enterprise of NETTs OJSC on labour safety knowledge testing.
/26/ Extract from the protocol #81 dated 18/05/2010 of state commission session on knowledge testing, issued by Regional Scientific Center OJSC.
/27/ Extract from the protocol #138 dated 18/05/2010 of state commission session on knowledge testing, issued by Regional Scientific Center OJSC.
/28/ Protocol #12 dated 01/04/2010 on state commission session.
/29/ Protocol #81 dated 27/10/2009 on state commission session.
/30/ Fact sheet on coal production for January, March 2011.
/31/ Passport on natural gas physical and chemical parameters for the period 01/02/2011-28/02/2011.
/32/ Passport on natural gas physical and chemical parameters for the

period 01/03/2011-31/03/2011.
/33/ Passport on natural gas physical and chemical parameters for the period 01/06/2010-30/06/2010.
/34/ Passport on natural gas physical and chemical parameters for the period 01/08/2010-31/08/2010.
/35/ Passport on natural gas physical and chemical parameters for the period 01/12/2010-31/12/2010.
/36/ Passport on natural gas physical and chemical parameters for the period 01/04/2010-30/04/2010.
/37/ Passport on natural gas physical and chemical parameters for the period 01/11/2010-30/11/2010.
/38/ Passport on natural gas physical and chemical parameters for the period 01/09/2010-30/09/2010.
/39/ Passport on natural gas physical and chemical parameters for the period 01/07/2010-31/07/2010.
/40/ Passport on natural gas physical and chemical parameters for the period 01/05/2010-31/05/2010.
/41/ Passport on natural gas physical and chemical parameters for the period 01/12/2009-31/12/2009.
/42/ Passport on natural gas physical and chemical parameters for the period 01/11/2009-30/11/2009.
/43/ Passport on natural gas physical and chemical parameters for the period 01/10/2009-31/10/2009.
/44/ Passport on natural gas physical and chemical parameters for the period 01/09/2009-30/09/2009.
/45/ Passport on natural gas physical and chemical parameters for the period 01/07/2009-31/07/2009.
/46/ Passport on natural gas physical and chemical parameters for the period 01/06/2009-30/06/2009.
/47/ Passport on natural gas physical and chemical parameters for the period 01/03/2009-31/03/2009.
/48/ Passport on natural gas physical and chemical parameters for the period 01/02/2009-28/02/2009.
/49/ Passport on natural gas physical and chemical parameters for the period 01/12/2009-31/12/2009.
/50/ Measuring equipment calibration certificate #24-1-1/1025 dated 08/11/2010, flow-meter AXF 150G, serial #S5E607296 526, DN150. Valid till November 2012.
/51/ Measuring equipment calibration certificate #24-1-1/1026 dated 08/11/2010, flow-meter AXF 150G, serial #S5GB01610 743, DN150. Valid till November 2012.
/52/ Certificate #538 dated 16/03/2010 on state metrological attestation, measurement complex on the basis of ОЕ-22ДМ IZ computer, serial #0550 (2 years).
/53/ Daily report on clinker production for January, March, April, May, June, July, August, September, October, November, December 2010 (Furnace #1, Furnace #2).

/54/ Daily report on clinker production for January, February, March, 2011 (Furnace #1, Furnace #2).
/55/ Natural gas distribution in January, February, March 2011.
/56/ Power consumption for cement for 2010.
/57/ Power consumption for cement for 2009.
/58/ Power consumption for cement for January, February, March 2011.
/59/ Calculation of power specific norm per 1 t of cement in 2011, for production of 750 000 t of cement.
/60/ Calculation of power specific norm per 1 t of cement in 2010, for production of 625 000 t of cement.
/61/ Calculation of power specific norm per 1 t of cement in 2009, for production of 1150 000 t of cement.
/62/ Photo – Schenck slag meter-feeder
/63/ Photo – slurry meter, YOKOGAWA, serial #AXF1500
/64/ Working project. Natural gas consumption technical recording system. Yugcement OJSC. Volume 1.
/65/ Weighted average analytical report #NI 1120-0060 (coal) dated 03/02/2011. PJSC “Yugcement”
/66/ Weighted average analytical report #NI 1020-2490 (coal) dated 12/01/2011
/67/ Weighted average analytical report #NI 1020-0493 (coal) dated 02/04/2010
/68/ Protocol #18 dated 25/02/2010 on general meeting of stakeholders of Yugcement Open Joint Stock Company.
/69/ Yugcement Open Joint Stock Company Statute. Approved of 25/02/2010.

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/ Zoia Sokhatska – Deputy chief of laboratory and department of technical control at PJSC “Yugcement”
/2/ Tetiana Dyshlenko – lead engineer of chief power engineer department at PJSC “Yugcement”
/3/ Oleksii Chornyi – lead power engineer at PJSC “Yugcement”
/4/ Alla Tkachuk – head of planning and economic department at PJSC “Yugcement”
/5/ Iuliia Holovchuk – chief ecologist at PJSC “Yugcement”
/6/ Viktor Bulah – chief technologist at PJSC “Yugcement”
/7/ Oleksandr Tykhyi – operator of rotary kiln at PJSC “Yugcement”
/8/ Iryna Tsybko – lead technologist at PJSC “Yugcement”
/9/ Iurii Petruk – Junior JI consultant of the company Global Carbon

APPENDIX A: COMPANY PROJECT VERIFICATION PROTOCOL

Table 1 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?	All Parties involved in the JI project issued written project approvals. Namely, Letter of Approval (LoA) #1399/23/7 dated 16/09/2010 from host Party (Ukraine) was issued by National Environmental Investment Agency of Ukraine; and the LoA dated 22/07/2010 from Germany was issued by Federal Environment Agency (i.e. German Emission Trading Authority); moreover, the LoA #2009JI14 dated 07/01/2010 from the Netherlands was issued by Ministry of Economic Affairs.	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	All Letters of approval of the JI project “Slag usage and switch from wet to dry process at Yugcement, Ukraine” 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?	On the whole, regarded JI project is implemented in accordance with the PDD which has been deemed final and was uploaded on the UNFCCC JI website. As described in the PDD, the slag addition process		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		was planned to be implemented in two steps. Under the first step about 4% of unground BFS will be added. The second step should follow when all technical issues related to slag adoption are to be solved. It provides for introduction of slag milling facility and gradual increase of slag proportion to about 15%. According to the provided information, the project implementation started on the 1st of January 2009. Currently, the actual achieved share of slag addition in the raw meal is as follows: 0.74 for 2009, 0.1 for 2010, and 0.52 for 1st quarter of 2011. For 2011, owner of the plant, Dyckerhoff AG has planned that Yugcement plant must achieve 2% slag addition level by the end of the year. In the future it is foreseen to install slag grinding facility that will allow increasing of slag addition up to 15%, but this activity is postponed due to the lack of financing caused by financial crisis in Ukraine. Thus, during the Project implementation the slag has been added in lesser volume than that of foreseen in PDD, which, in its turn, caused lesser amount of emission reductions achieved in the monitoring period. In the MR version 1.0 stated that the achieved		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		amount of emission reduction for the monitoring period 01/01/2009 – 31/03/2011 is 18 122 t CO2 equivalent. Corrective Action Request 01 (CAR01). Comparison of the ER values for the period 2011 provided in the table 2 of the Monitoring report is inappropriate. Respective periods should be compared. Please, make correction in table 2 of the section A.7 of the Monitoring report.	CAR01	OK
93	What is the status of operation of the project during the monitoring period?	Monitoring report indicated the current status of the project activity implementation. Based on provided materials, there is known that all project equipments were operational in the reporting period and generating emission reductions. Also, see section 92 above.	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?	The monitoring procedure is not strictly following the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website. At the moment of Monitoring report version 001, there is justified one deviation from the Monitoring plan approved in the PDD. This deviation connected with the decision to use actual monitoring data for baseline electricity consumption for kiln operation and raw material preparation.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	For calculating the emission reductions, a list of key factors as well as risks associated with the project were taken into account, such as emission factors for natural gas and for coal combustion, CO_2 emission factor for electricity consumption from the national grid, contents of non-carbonated CaO and MgO in the raw meal and in the clinker, specific electricity consumption needed for production process, volume of annual clinker production, annual raw material consumption, annual fuel consumption, net calorific value of coal and net calorific value of natural gas, etc.	OK	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	Data sources used for calculating emission reductions are clearly identified, reliable and transparent. On site responsible persons register data from the measurement equipments and fixed monitoring data to logbooks then data are transferred to the financial department where they are processed, except the parameters of contents of non-carbonated CaO and MgO in the raw meal and in the clinker. Parameters of CaO and MgO contents are transferred to the technology department where they are stored and archived. Furthermore, obtained monitoring data are processed using software “1C-Electricity” and the data are stored in electronic and paper form.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	According to the monitoring plan approved in the registered project design document, there are several parameters that was considered as default values that used for calculation of emission reductions, such as CO_2 emission factor for electricity consumed from Ukrainian grid by the project activity (0.896 t CO_2 eq./MWh), emission factor of the natural gas combustion during the project activity (0.0561 t CO_2 eq./GJ), and emission factor of the coal combustion (0.0983 t CO_2 eq./GJ).	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?	The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner as was approved in the PDD. Namely, JI specific approach are used regarding monitoring and emission reduction assessment that has been developed in accordance with the Guidance on criteria for baseline setting and monitoring is based on selected elements of the approved CDM methodology ACM0015. As a result of documents revision, all data connected with estimation of emission reduction are consistent through the last version of Monitoring report and excel spreadsheets with calculation.		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Corrective Action Request 02 (CAR02). Based on the approved Monitoring plan, parameter $EF_{fuel\_i,y}$ (also indicated as parameter P14 and B12) are to be used for calculation of emission reduction. Parameters EF_{NG} and EF_{Coal} are figured in the Monitoring report instead of parameter $EF_{fuel\_i,y}$. Please, make the information in compliance with the registered Monitoring plan.	CAR02	OK
		Corrective Action Request 03 (CAR03). Plant records are indicated in the MP as a data source for default parameter of emission factor for the fuel combustion process ($EF_{fuel\_i,y}$). As a matter of fact, IPCC Guidelines for National Greenhouse Gas Inventories is the source of the values of this parameter. Please, provide the relevant explanation and justification in the Monitoring report in order to improve accuracy of the monitoring plan.	CAR03	OK
		Corrective Action Request 04 (CAR04). In the approved MP the parameter of baseline kiln efficiency is marked as BKE_{BSL} (also indicated as parameter B11), and in MR this parameter is marked as KE_{BSL}. Please, correct.	CAR04	OK
		Corrective Action Request 05 (CAR05). According to the Monitoring plan, percentage is the data unit of parameters of CaO and MgO contents in	CAR05	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		materials that used in production process. Please, do appropriate amendments in the Monitoring report.		
		Corrective Action Request 06 (CAR06). Based on the approved Monitoring plan, parameter $FC_{fuel,i}$ (also indicated as parameter P22) are to be used for calculation of emission reduction. Parameters $FC_{NG,y}$ and $FC_{Coal,y}$ are figured in the Monitoring report instead of parameter $FC_{fuel,i}$. Please, make the information in compliance with the registered Monitoring plan.	CAR06	OK
		Corrective Action Request 07 (CAR07). Please, make the data units of parameters such as $FC_{NG,y}$, $FC_{heat\_gen,y}$, $NCV_{NG,y}$, EL_y stated in the Monitoring report in compliance with corresponding data units in the PDD.	CAR07	OK
		Corrective Action Request 08 (CAR08). According to the approved Monitoring plan, parameter $NCV_{fuel,i}$ (also indicated as parameter P15) are to be used for calculation of emission reduction. Parameters $NCV_{NG,y}$ and $NCV_{Coal,y}$ are figured in the Monitoring report instead of parameter $NCV_{fuel,i}$. Please, make the information in compliance with the registered Monitoring plan.	CAR08	OK
		Corrective Action Request 09 (CAR09). Please, describe the parameter $EL_{Coalmill,y}$ in the table 11 of	CAR09	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		the Monitoring report. Corrective Action Request 10 (CAR10). Please, represent all values in the MR in one way. Corrective Action Request 11 (CAR11). The values of power consumption for clinker production including raw meal preparation and fuel preparation for the period 2010 and first quarter 2011 from the MR is not corresponded with these values from the Excel spreadsheet. Please, make data in consistency with each other. Corrective Action Request 12 (CAR12). Please, revise the values of baseline and project emissions for coal preparation and bring it in conformity with Excel spreadsheet. Clarification request 01 (CL01). Please, clarify the source of data from the table 13 in the section B.2.4 of the Monitoring report.	CAR10 CAR11 CAR12 CL01	OK OK OK OK
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	Not applicable	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	period determined?			
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?	Not applicable	OK	OK
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	Not applicable	OK	OK
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?	Not applicable	OK	OK
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?	At the moment of Monitoring report version 001, there is described and justified one deviation to the registered monitoring plan, i.e. usage actual monitoring data for baseline electricity consumption for kiln operation and raw material preparation instead of fixed ex-ante parameter of	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		baseline electricity consumption for kiln operation and raw material preparation. This revision to the MP improves the accuracy of emission reduction calculation and is based on conservative way without changing conformity with the relevant rules and regulations for the establishment of monitoring plan in the PDD. All information connected with monitoring plan revision provided in section A.8 of the Monitoring report.		
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?	Refer to section 99 (a) above.	-	-
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?	Procedures of data collection are implemented in compliance with the revised monitoring plan. A list of measurement equipments (for instance, gas meters, coal weight feeders, power meters, slag weight feeder, flow meters of slurry, etc.) are used for monitoring of JI project parameters. The quality control and quality assurance procedures are realised in compliance with description stated in the PDD version 5.0 dated 20/09/2010.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	All project equipments were operating within the considered monitoring period. During site visit verification team received and reviewed passports and/or certificates on calibration of all measurement equipments. Corrective Action Request 13 (CAR13). In the provided document on the measurement complex OE-22DM IZ (i.e. Certificate of the state calibration #538) is indicated that last calibration was performed 16/03/2010 and calibration frequency of this device is 2 year. Please, revise information of regarded device in table 4 of the Monitoring report and make amendments. Corrective Action Request 14 (CAR14). Please, provide documented evidence that gas measurement complex OE-22DM IZ (ser. #0550) and slurry flow meters (ser. #S5E607296526, ser. #S5GB01610743) were calibrated for the period 2009. Corrective Action Request 15 (CAR15). Please, provide document on slag weight feeder and documented evidence of its calibration for the period 2009-20011. Corrective Action Request 16 (CAR16). The major part of the documents on measurement equipments which were collected during site visit	CAR13 CAR14 CAR15 CAR16	OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		do not comply with the information on measurement equipments provided in the Monitoring report. Please, adjust the information and correct it in the Monitoring report. Corrective Action Request 17 (CAR17). Please, provide document of coal measurement device and documented evidence of it calibration for the period 2009-2011. Corrective Action Request 18 (CAR18). According to the provided documents on measurement equipment (i.e. gas measurement complex and power meters), there is fixed calibration interval for each type of equipments. Please, make appropriate corrections in section B.1.3 of the Monitoring report. Forward Action Request 01 (FAR01). The evidences (e.g., calibration certificates) of the due calibration status of all measurement devices used in the project monitoring during the whole monitoring period (including those which were replaced in course of the monitoring period) must be kept and made available upon request; the records confirming the measurement devices replacement, if applicable, are to be maintained as well.	CAR17 CAR18 FAR01	OK OK OK
101 (c)	Are the evidence and records used for	Monitoring records are used for the emissions	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the monitoring maintained in a traceable manner?	calculation and emission reduction estimation maintained in a traceable and transparent manner.		
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The data collection and management system for the project is in accordance with the revised monitoring plan. Implementation of monitoring system was checked through the site visit, and verification team can conclude that monitoring system is completely in accordance with the revised monitoring plan and monitoring procedure. This fact is also confirmed by the provided documents.	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?	Not applicable	OK	OK
103	Is the verification based on the monitoring reports of all JPAs to be verified?	Not applicable	OK	OK
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	Not applicable	OK	OK
104	Does the monitoring period not overlap with previous monitoring periods?	Not applicable	OK	OK
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	Not applicable	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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;	Not applicable	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	Not applicable	OK	OK
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?	Not applicable	OK	OK
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	Not applicable	OK	OK
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	Not applicable	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	writing?			

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
Corrective Action Request 01 (CAR01). Comparison of the ER values for the period 2011 provided in the table 2 of the Monitoring report is inappropriate. Respective periods should be compared. Please, make correction in table 2 of the section A.7 of the Monitoring report.	Table 1, 92	The value in Table 2 Section A.7. was corrected. The data for 2011 are for the period of 3 months. Appropriate figures from PDD where adjusted by dividing by 12 and multiplying by 3. Please refer to the MR ver. 2.0 30/08/2011.	Based on provided amendments, issue is closed.

Corrective Action Request 02 (CAR02). Based on the approved Monitoring plan, parameter $EF_{fuel\_i,y}$ (also indicated as parameter P14 and B12) are to be used for calculation of emission reduction. Parameters EF_{NG} and EF_{Coal} are figured in the Monitoring report instead of parameter $EF_{fuel\_i,y}$. Please, make the information in compliance with the registered Monitoring plan.	Table 1, 95 (d)	The explanation has been added to Table 9 and Section A.8. The fuels used during the monitoring period were natural gas and coal. For the proper identification of monitoring parameters, the symbols $EF_{fuel\_i,y}$, $FF_{fuel\_i,y}$ and $NCV_{fuel\_i,y}$ have been replaced by the names $EF_{fuel\_NG,y}$, $FF_{fuel\_NG,y}$ and $NCV_{fuel\_NG,y}$ when natural gas was used as a fuel, and $EF_{fuel\_Coal,y}$, $FF_{fuel\_Coal,y}$ and $NCV_{fuel\_Coal,y}$ when coal was used as a fuel correspondingly. Please refer to the MR ver. 2.0 30/08/2011.	According to the additional corrections provided in the Monitoring Report, issue is closed.

Corrective Action Request 03 (CAR03). Plant records are indicated in the MP as a data source for default parameter of emission factor for the fuel combustion process ($EF_{fuel\_i,y}$). As a matter of fact, IPCC Guidelines for National Greenhouse Gas Inventories is the source of the values of this parameter. Please, provide the relevant explanation and justification in the Monitoring report in order to improve accuracy of the monitoring plan.	Table 1, 95 (d)	The explanation has been added to Section A.8. 2) In the accepted Monitoring Plan, it is stated that the source of data for $EF_{el,y}$ are plant records. Actually, the source of data is the study "Standardized emission factors for the Ukrainian electricity grid" performed by Global-Carbon and verified by TUV SUD on 17/08/2007; 3) In the accepted Monitoring Plan, it is stated that the source of data for $EF_{fuel\_i,y}$ are plant records. Actually, the source of data for emissions factors of fuel used during the project activity is the IPCC study "Guidelines for National Greenhouse Gas Inventories" issued in 2006. Please refer to the MR ver. 2.0 30/08/2011.	Issue is closed due to explanation that were stated in the MR.
Corrective Action Request 04 (CAR04). In the approved MP the parameter of baseline kiln efficiency is marked as BKE_{BSL} (also indicated as parameter B11), and in MR this parameter is marked as KE_{BSL}. Please, correct.	Table 1, 95 (d)	The parameter KE_{BSL} has been changed into BKE_{BSL} throughout the monitoring report according to the name used in the PDD. Please refer to the MR ver. 2.0 30/08/2011.	The considered parameter is used in one way through the Monitoring Report. Thus, issue is closed.

Corrective Action Request 05 (CAR05). According to the Monitoring plan, percentage is the data unit of parameters of CaO and MgO contents in materials that used in production process. Please, do appropriate amendments in the Monitoring report.	Table 1, 95 (d)	The units used for CaO and MgO contents in materials have been corrected according to the Monitoring Plan. Please refer to the MR ver. 2.0 30/08/2011.	The information was corrected according to the Monitoring Plan which approved in the PDD. That's why issue is closed.
Corrective Action Request 06 (CAR06). Based on the approved Monitoring plan, parameter $FC_{fuel,i}$ (also indicated as parameter P22) are to be used for calculation of emission reduction. Parameters $FC_{NG,y}$ and $FC_{Coal,y}$ are figured in the Monitoring report instead of parameter $FC_{fuel,i}$. Please, make the information in compliance with the registered Monitoring plan.	Table 1, 95 (d)	The explanation has been added to Table 9 and Section A.8. The fuels used during the monitoring period were natural gas and coal. For the proper identification of monitoring parameters, the symbols $EF_{fuel\_i,y}$, $FF_{fuel\_i,y}$ and $NCV_{fuel\_i,y}$ have been replaced by the names $EF_{fuel\_NG,y}$, $FF_{fuel\_NG,y}$ and $NCV_{fuel\_NG,y}$ when natural gas was used as a fuel, and $EF_{fuel\_Coal,y}$, $FF_{fuel\_Coal,y}$ and $NCV_{fuel\_Coal,y}$ when coal was used as a fuel correspondingly. Please refer to the MR ver. 2.0 30/08/2011.	Issue is closed due to amendments that were made in the MR.

Corrective Action Request 07 (CAR07). Please, make the data units of parameters such as $FC_{NG,y}$, $FC_{heat\_gen,y}$, $NCV_{NG,y}$, EL_y stated in the Monitoring report in compliance with corresponding data units in the PDD.	Table 1, 95 (d)	Response 1. The explanation has been added to Table 9 and Section A.8. The fuels used during the monitoring period were natural gas and coal. For the proper identification of monitoring parameters, the symbols $EF_{fuel\_i,y}$, $FF_{fuel\_i,y}$ and $NCV_{fuel\_i,y}$ have been replaced by the names $EF_{fuel\_NG,y}$, $FF_{fuel\_NG,y}$ and $NCV_{fuel\_NG,y}$ when natural gas was used as a fuel, and $EF_{fuel\_Coal,y}$, $FF_{fuel\_Coal,y}$ and $NCV_{fuel\_Coal,y}$ when coal was used as a fuel correspondingly. Other parameters are in compliance with corresponding data units in the PDD. Please refer to the MR ver. 2.0 30/08/2011. Response 2. The values in Table 11 were revised and corrected. Please refer to the MR ver. 3.0 07/09/2011.	Conclusion 1. Please, provide corrections in table 11 for indicated parameters. Final conclusion. Based on the information that is provided in the MR version 3.0, issue is closed.

Corrective Action Request 08 (CAR08). According to the approved Monitoring plan, parameter $NCV_{fuel,i}$ (also indicated as parameter P15) are to be used for calculation of emission reduction. Parameters $NCV_{NG,y}$ and $NCV_{Coal,y}$ are figured in the Monitoring report instead of parameter $NCV_{fuel,i}$. Please, make the information in compliance with the registered Monitoring plan.	Table 1, 95 (d)	The explanation has been added to Table 9 Section A.8. The fuels used during the monitoring period were natural gas and coal. For the proper identification of monitoring parameters, the symbols $EF_{fuel\_i,y}$, $FF_{fuel\_i,y}$ and $NCV_{fuel\_i,y}$ have been replaced by the names $EF_{fuel\_NG,y}$, $FF_{fuel\_NG,y}$ and $NCV_{fuel\_NG,y}$ when natural gas was used as a fuel, and $EF_{fuel\_Coal,y}$, $FF_{fuel\_Coal,y}$ and $NCV_{fuel\_Coal,y}$ when coal was used as a fuel correspondingly. Please refer to the MR ver. 2.0 30/08/2011.	Appropriate description was described in the document. Issue is closed.
Corrective Action Request 09 (CAR09). Please, describe the parameter $EL_{Coalmill,y}$ in the table 11 of the Monitoring report.	Table 1, 95 (d)	The parameter $EL_{Coalmill,y}$ has been described in Table 11 of the Monitoring report. Please refer to the MR ver. 2.0 30/08/2011.	The requested information was added to the Monitoring report. Issue is closed.

Corrective Action Request 10 (CAR10). Please, represent all values in the MR in one way.	Table 1, 95 (d)	The MR has been amended to represent all values in one way. The tables throughout the MR have been revised and corrected. The data throughout the MR has been revised and corrected. Please refer to the MR ver. 2.0 30/08/2011.	Issue is closed.
Corrective Action Request 11 (CAR11). The values of power consumption for clinker production including raw meal preparation and fuel preparation for the period 2010 and first quarter 2011 from the MR is not corresponded with these values from the Excel spreadsheet. Please, make data in consistency with each other.	Table 1, 95 (d)	The Excel spreadsheet has been amended. The data were brought into conformity. Please refer to the MR ver. 2.0 30/08/2011.	According to the corrections, issue is closed.
Corrective Action Request 12 (CAR12). Please, revise the values of baseline and project emissions for coal preparation and bring it in conformity with Excel spreadsheet.	Table 1, 95 (d)	Tables 17, 18 and 19 have been amended. Please refer to the MR ver. 2.0 30/08/2011.	The data were corrected in accordance to the excel spreadsheet. Issue is closed.

Corrective Action Request 13 (CAR13). In the provided document on the measurement complex OE-22DM IZ (i.e. Certificate of the state calibration #538) is indicated that last calibration was performed 16/03/2010 and calibration frequency of this device is 2 year. Please, revise information of regarded device in table 4 of the Monitoring report and make amendments.	Table 1, 101 (b)	Table 4 of the Monitoring report has been amended according to the meters used for gas flow monitoring. Please refer to the MR ver. 2.0 30/08/2011.	Issue is closed.
Corrective Action Request 14 (CAR14). Please, provide documented evidence that gas measurement complex OE-22DM IZ (ser. #0550) and slurry flow meters (ser. #S5E607296526, ser. #S5GB01610743) were calibrated for the period 2009.	Table 1, 101 (b)	The documents on calibration of the devices were provided in Supporting document “SD1_slurry_OE.rar”. Please refer to the MR ver. 2.0 30/08/2011.	Documented evidence was provided. Based on the document, it is confirmed that the device was calibrated for the period 2009. Issue is closed.
Corrective Action Request 15 (CAR15). Please, provide document on slag weight feeder and documented evidence of its calibration for the period 2009-20011.	Table 1, 101 (b)	The documents on slag weight feeder were provided in Supporting document “SD2_slag_weight_feeder.rar”. Please refer to the MR ver. 2.0 30/08/2011.	Issue is closed based on provided documents.

Corrective Action Request 16 (CAR16). The major part of the documents on measurement equipments which were collected during site visit do not comply with the information on measurement equipments provided in the Monitoring report. Please, adjust the information and correct it in the Monitoring report.	Table 1, 101 (b)	The Monitoring Report was adjusted to the meters applied for monitoring of the data used during the monitoring period. Tables consisting data on natural gas flow meters, coal weight feeders and power meters etc. were amended. The necessary data on measurement devices were provided in Supporting document "SD4_Measurement_devices.rar". Please refer to the MR ver. 2.0 30/08/2011.	The documented evidences on measurement equipments were provided. Issue is closed.
Corrective Action Request 17 (CAR17). Please, provide document of coal measurement device and documented evidence of it calibration for the period 2009-2011.	Table 1, 101 (b)	The documents on coal weight feeders were provided in Supporting document "SD3_coal_weight_feeders.rar". Please refer to the MR ver. 2.0 30/08/2011.	The required documents were provided. Thus, issue is closed.

Corrective Action Request 18 (CAR18). According to the provided documents on measurement equipment (i.e. gas measurement complex and power meters), there is fixed calibration interval for each type of equipments. Please, make appropriate corrections in section B.1.3 of the Monitoring report.	Table 1, 101 (b)	Response 1. Section B.1.3. has been corrected according to the calibrated intervals of the meters used for monitoring. Please refer to the MR ver. 2.0 30/08/2011. Response 2. The descriptions of natural gas flow recorders and sensors has been added to Table 4 of the MR. Please refer to the MR ver. 3.0 07/09/2011.	Conclusion 1. Please, provide detailed description of gas meters in section B.1.2 of the Monitoring report. Final conclusion. According to the provided information, issue is closed.

Clarification request 01 (CL01). Please, clarify the source of data from the table 13 in the section B.2.4 of the Monitoring report.	Table 1, 95 (d)	Response 1. The source of values for $CaO_{CLNK,Bsl,}$ $MgO_{CLNK,Bsl,}$ BKE_{BSL} and $ELSP_{coalmill,\ y}$ is Annex 2 to PDD ver. 5.0 from 20 September 2010. The calculation of $FSP_{heat\_gen,i,2010}$ and $FSP_{heat\_gen,i,2011}$ is presented in EXCEL spreadsheet, list "Input Variables". The calculation is based on data from the plant during the considered monitoring period. Response 2. The column "Comments" with explanations has been added to Table 13 in Section B.2.4. Please refer to the MR ver. 3.0 07/09/2011.	Conclusion 1. Please, indicate the explanation in the Monitoring Report. Final conclusion. Additional information was stated in the Monitoring report version 3.0; thus, issue is closed.
Forward Action Request 01 (FAR01). The evidences (e.g., calibration certificates) of the due calibration status of all measurement devices used in the project monitoring during the whole monitoring period (including those which were replaced in course of the monitoring period) must be kept and made available upon request; the records confirming the measurement devices replacement, if applicable, are to be maintained as well.	Table 1, 101 (b)	An official instruction which prescribes the procedure of evidences storage will be provided for the next verification.	This issue should be checked by AIE during next periodic verification.