TÜV Rheinland (China) Ltd. (TÜV Rheinland)

VERIFICATION REPORT

Verification of the
Joint Implementation Project

Switch from wet-to-dry process at Podilsky Cement, Ukraine

ITL Project ID: UA2000001

Second periodic verification:
01/01/2012 – 31/12/2012

Report No. 01 998 9105074827 –VR2
Revision No. 03

Customer: PJSC Podilsky Cement

VERIFICATION REPORT

Date of first issue: 20/05/2013	Project No: 01 998 9105074827 ITL Project ID: UA2000001
Executor: TÜV Rheinland (China) Ltd. (TÜV Rheinland)	Organizational unit: TÜV Rheinland Ukraine Ltd. Technical Competence Center
Customer: PJSC Podilsky Cement	Client ref.: Barnes Murphy

Summary:

TÜV Rheinland (China) Ltd. (TÜV Rheinland) has performed the second periodic verification of emission reductions generated by the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" (ITL Project ID UA2000001) for the period from 01/01/2012 till 31/12/2012.

The purpose of verification is to assess the reductions in anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks generated by a JI project and reported by the project participants through the monitoring report in accordance with paragraph 37 of the JI guidelines.

In our opinion, the emission reductions reported through the monitoring report, version 3.0 dated 11/06/2013 are fairly stated and are accurate and free of material errors, omissions, or misstatements.

During the monitoring period the project has been implemented in accordance with the project design document version 2.1 dated 02/02/2007 and the revised monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

The emission reductions were calculated correctly on the basis of the revised monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

TÜV Rheinland (China) Ltd. (TÜV Rheinland) is able to verify that the emission reductions generated by the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" during the period from 01/01/2012 till 31/12/2012 amount to 396 040 tonnes of CO_2 equivalent.

Report No.: 01 998 9105074827 – VR2	Subject Group: JI	
Project title: Switch from wet-to-dry process at Podilsky Cement, Ukraine		
Work carried out by: Dr. Valery Yakubovsky - Team Leader, Technical Competence Center Director Ms. Irina Nikoloieva – Auditor Ms. Inna Buhay - Technical Expert		
Work verified by: Dr. Lixin Li – Technical Reviewer Mr. Ramesh Kumar Suri – TR Technical Expert		
Verification Report approved by: Mr. Henri Phan – AIE manager		
Date of this revision: 09/08/2013	Revision No.: 03	Number of pages: **32**

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Abbreviations

CO_2	Carbon Dioxide
AIE	Accredited Independent Entity
BE	Baseline Emission
CAR	Corrective Action Request
CL	Clarification Request
DR	Document Review
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Greenhouse Gas
I	Interview
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
LoA	Letter of Approval
LoE	Letter of Endorsement
MoV	Means of Verification
MP	Monitoring Plan
PDD	Project Design Document
PE	Project Emissions
SD	Supporting documentation
t	tonne
UNFCCC	United Nations Framework Convention on Climate Change

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1. VERIFICATION OPINION

TÜV Rheinland (China) Ltd. (TÜV Rheinland) has performed the second periodic verification of the emission reductions generated by the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" (ITL Project ID UA2000001) for the period from 01/01/2012 till 31/12/2012.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of emission reductions generated by the project.

It is responsibility of TÜV Rheinland (China) Ltd. (TÜV Rheinland) to express an independent verification opinion - conclusion on the verified amount of emission reductions generated by the project and reported by the project participants through the monitoring report, version 3.0 dated 11/06/2013.

TÜV Rheinland (China) Ltd. (TÜV Rheinland) has assessed the monitoring report on the basis of the project design document version 2.1 dated 02/02/2007 and the revised monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

The verification included the assessment of:

- project implementation in accordance with the project design document (PDD);
- compliance with the monitoring plan;
- calculation of emission reductions and expression of a conclusion with a reasonable level of assurance about whether the reported emission reductions data are accurate and free of material errors, omissions, or misstatements;
- quality and management of data and verification that reported emission reductions data is sufficiently supported by evidence.

TÜV Rheinland (China) Ltd. (TÜV Rheinland) verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. TÜV Rheinland (China) Ltd. (TÜV Rheinland) planned and performed the verification by obtaining evidence information and explanations that TÜV Rheinland (China) Ltd. (TÜV Rheinland) considers necessary to give reasonable assurance that reported emission reductions are fairly stated, accurate and free of material errors, omissions, or misstatements.

In TÜV Rheinland's/TÜV Rheinland's Ukraine opinion the emission reductions generated by the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" (ITL Project ID UA2000001) for the period from 01/01/2012 till 31/12/2012 are fairly stated, accurate and free of material errors, omissions, or misstatements in the monitoring report, version 3.0 dated 11/06/2013.

The GHG emission reductions were calculated correctly on the basis of the revised monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

TÜV Rheinland (China) Ltd. (TÜV Rheinland) is able to verify that the emission reductions generated by the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" (ITL Project ID UA2000001) for the period from 01/01/2012 till 31/12/2012 amount 396 040 tonnes of CO_2 equivalent.

2. INTRODUCTION

PJSC Podilsky Cement has commissioned TÜV Rheinland (China) Ltd. (TÜV Rheinland) to carry out the verification of the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" (hereinafter "project") for the period from 01/01/2012 till 31/12/2012. This report contains the findings from the verification and conclusion on the verified amount of emission reductions.

2.1 Objective

The verification is the periodic independent review and ex post verification by an Accreditation Independent Entity (AIE) of the monitored reductions in GHG emissions that have occurred as a result of a Joint Implementation (JI) project activity during a defined verification period.

The purpose of the verification is to assess the reductions in anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks generated by a JI project and reported by the project participants through the monitoring report in accordance with paragraph 37 of the JI guidelines.
The objective of this verification was to verify emission reductions generated by the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" for the period from 01/01/2012 till 31/12/2012.

TÜV Rheinland (China) Ltd. (TÜV Rheinland) is an Accredited Independent Entity by the Joint Implementation Supervisory Committee.

2.2 Scope

The scope of this verification is the assessment of:

- project implementation in accordance with the project design document (PDD);
- compliance with the monitoring plan, including the revision of the monitoring plan;
- calculation of emission reductions and expression of a conclusion with a reasonable level of assurance about whether the reported emission reduction data are accurate and free of material errors, omissions, or misstatements;
- quality and management of data and verification that reported emission reduction data is sufficiently supported by evidence.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions, forward action requests may provide input for corrective actions in order to provide for more accurate future monitoring and

reporting.

2.3 JI Project Description

The brief information regarding the project activity is provided in table 1.

Table 1 - JI project brief information

Project Parties involved:	1. Ukraine (host Party). 2. Ireland
Title of the project:	Switch from wet-to-dry process at Podilsky Cement, Ukraine
Type of JI activity:	Large-scale
ITL Project ID:	UA2000001
Baseline and monitoring methodology:	JI specific approach
Project entity participant:	CRH Finance Limited
Other project participants:	JI specific approach
Location of the project:	Kamyanets-Podilsky, Khmelnitsky region, Ukraine
Crediting period of the project:	01/01/2009-31/12/2009
Length of the period after crediting period:	01/01/2013-31/12/2038
Period verified in this report:	01/01/2012-31/12/2012
Period verified in previous verification report:	01/10/2011-31/12/2011

Cement production is a highly energy intensive process that generates significant emissions of greenhouse gases, in particular CO2. There are two main sources of CO2 emissions in the cement production process. The first source is fossil fuel combustion and the second source is the chemical decomposition of the limestone into calcium oxide and carbon dioxide. The project aims to significantly decrease the emissions of the first source (fossil fuel combustion) at Podilsky Cement factory in Ukraine.

The Podilsky Cement factory was constructed in the 1970s and was originally equipped with six kilns producing cement using a wet production process. Currently four out of six kilns are in operation, a fifth kiln is moth-balled and the sixth kiln is decommissioned. The project will decrease the emissions of fossil fuel combustion by changing the technology of cement production from a wet production process to a dry production process.

Wet cement production technology is the conventional technology of cement production in Ukraine with a very limited number of dry and semi-dry technology examples. During raw material preparation stage limestone, clay and additives are crushed and mixed in the raw mill. In the case of wet cement technology water is added to the raw mill together with the raw materials in order to produce slurry. The slurry is further homogenized and fed to the rotary kiln. At the point of the kiln inlet, at the drying zone, water is evaporated from the slurry, and raw materials are moved further into the kiln to be calcined and burnt into clinker. Evaporation of the wet slurry consumes significant amounts of energy. At present the average energy consumption at Podilsky Cement over the years 2003, 2004, and 2005 is 6,771 MJ per tonne of clinker produced (1618 kcal/kg).

In case of conventional dry cement production technology, the raw materials required are of low moisture content. Water is not added in the preparation of the mixture of raw materials (being called the raw meal in case of dry production scheme). Therefore water evaporation from the raw meal is not required. This significantly reduces the level of energy consumption of a dry cement kiln compared to a wet one, and therefore reduces the CO2 emissions from fuel combustion. The expected energy consumption of the dry cement production system at Podilsky Cement was approximately 3,180 MJ per tonne of clinker produced (760 kcal/kg). This constitutes a reduction of 53% in energy consumption.

The proposed JI investment included the following activities:
- Preparation of the site, including removal of obsolete installations;
- Installation of equipment for milling and homogenisation of the raw material;
- Installation of a precalciner and preheater tower;
- A new kiln for dry cement production;
- Mothballing of the wet kilns.

The 140 million Euro project, which constitutes the largest single investment in the Ukrainian cement industry since independence in 1991, has the following environmental benefits:
- Fighting climate change by reducing the emissions of GHG gasses;
- Reducing the environmental impact of Podilsky Cement by reducing the emissions of dust;
- Implementing Best Available Techniques standards for the emissions of non-GHG gases;

The project has the following social and economic benefits:
- Reinforcing the competitive position of one of the largest employers in the region;

- Securing the future for the employees of Podilsky Cement and it's suppliers and contractors;
- Additional employment of 300 construction workers (average) for the 24 month construction period;
- Transfer of modern cement making technology to Ukraine.

The project has been registered under international procedure as Track 2 JI project with the PDD version 2.1 dated 02/02/2007. The documentation on the project including the PDD, approval by the host Party, Determination report is available at:

http://ji.unfccc.int/JIITLProject/DB/GVN6ZKYWJZ902AC9AHNQ60ZELB1YIA/details

3. METHODOLOGY

The verification process has been carried out using internal procedures of TÜV Rheinland (China) Ltd. (TÜV Rheinland). In order to ensure transparency, a Verification protocol (Annex A to Verification report) was customized for the project, according to the Annex to "Joint Implementation Determination and Verification Manual", version 01. The Verification protocol shows, in a transparent manner, criteria (requirements) and results of verification.

The verification consists of the following three phases:

I) a desk review of the monitoring report including analysis of the compliance of the monitoring plan with the monitoring methodology;

II) follow-up interviews with project stakeholders including on site visit;

III) the resolution of outstanding issues and the issuance of the final verification report and opinion.

The following subsections outline each step in more detail.

3.1 Desk review

Project participants provided TÜV Rheinland (China) Ltd. (TÜV Rheinland) all the necessary documents for document review. The monitoring report version 1.0 dated 12/03/2013 was assessed as part of the verification. In addition, the project's first Monitoring Report version 2.2. dated 24/07/2012, first Verification report # UKRAINE-VER/0465/2012 (Revision 02) dated 10/09/2012, Project Design Document version 2.1 dated 02/02/2007 and project's Determination Report # 852369 (Revision 02) dated 25/01.2007 were also reviewed. Supporting documents, such as, fuel and electricity consumption reports, passports and calibration evidences of monitoring equipment etc. were available during on site visit.

The information and formulae provided in the monitoring report was compared with PDD and stated data sources.

To address TÜV Rheinland (China) Ltd. (TÜV Rheinland) corrective action and clarification requests, project participants revised the monitoring report and resubmitted it as version 3.0 dated 11/06/2013.

The verification findings presented in this report relate to the monitoring report version 3.0 dated 11/06/2013 and project as described in the PDD version 2.1 dated 02/02/2007.

The following tables outline the documentation reviewed during the verification. Documents provided by PJSC Podilsky Cement that relate directly to the components of the project are indicated in table 2. Background documents related to the monitoring and/or methodologies employed in the monitoring or other reference documents are provided in table 3.

Table 2 - Category 1 Documents

No.	Title of the document
/1/	PDD "Switch from wet-to-dry process at Podilsky Cement, Ukraine", version 2.1 dated 02/02/2007.
/2/	Monitoring report version 1.0 dated 12/03/2013.
/3/	Monitoring report version 3.0 dated 11/06/2013.
/4/	Monitoring report version 2.2 dated 24/07/2012 (first monitoring report).
/5/	Verification report # UKRAINE-VER/0465/2012 (Revision 02) dated 10/09/2012.
/6/	Determination report # 852369 (Revision 02) dated 25/01/2007.
/7/	Emission reduction calculation spreadsheet.
/8/	"Joint implementation determination and verification manual", version 01, JISC.
/9/	JI Guidelines
/10/	Letter of Approval for JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" from the Ministry of Environmental Protection of Ukraine #11672/10/3-10 dated 27th of December 2006.
/11/	Letter of Approval for JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" from the Environmental Protection Agency of Ireland #FP-IE-07-001a dated 19th of January 2007.

Table 3 - Category 2 Documents

No.	Title of the document
/1/	Photo – Electricity meter Actaris ACE 6000 SN #50065369
/2/	Photo – Electricity meter Actaris ACE 6000 SN #50065379
/3/	Photo – Electricity meter Actaris ACE 6000 SN #50065516
/4/	Photo – Electricity meter Actaris ACE 6000 SN #50065507
/5/	Photo – Electricity meter Actaris ACE 6000 SN #50065525
/6/	Photo – Electricity meter Actaris ACE 6000 SN #50065506
/7/	Photo – Electricity meter Actaris ACE 6000 SN #50065509
/8/	Photo – Electricity meter Actaris ACE 6000 SN #50065429
/9/	Photo – Electricity meter Actaris ACE 6000 SN #50065369
/10/	Photo – Raw meal weight feeder Hasler SN # AD0561.51
/11/	Calibration certificate FlouTek-TM SN #1-1722 dated 06/04/2012
/12/	Calibration certificate FlouTek-TM SN #1-1721 dated 06/04/2012
/13/	Photo – Natural gas measurement complex FlouTek-TM SN #1-1722
/14/	Photo – Natural gas measurement complex FlouTek-TM SN #1-1721

No.	Title of the document
/15/	Photo – Coal weight feeder Hasler SN #5D0371.51
/16/	Photo – Coal weight feeder Hasler SN #5D0371.52
/17/	Photo – Natural gas supply scheme of PJSC Podilsky Cement
/18/	Photo – Natural gas measurement complex FlouTek-TM SN #1-891
/19/	Calibration certificate FlouTek-TM-1-3 SN #1-891 dated 02/09/2011
/20/	Calibration protocol FlouTek-TM-1-3 SN #1-891 dated 02/09/2011
/21/	Report on natural gas and coal consumption in 2012
/22/	Report on specific electricity consumption of the plant departments in January 2012
/23/	Report on specific electricity consumption of the plant departments in February 2012
/24/	Report on specific electricity consumption of the plant departments in March 2012
/25/	Report on specific electricity consumption of the plant departments in April 2012
/26/	Report on specific electricity consumption of the plant departments in May 2012
/27/	Report on specific electricity consumption of the plant departments in June 2012
/28/	Report on specific electricity consumption of the plant departments in July 2012
/29/	Report on specific electricity consumption of the plant departments in August 2012
/30/	Report on specific electricity consumption of the plant departments in September 2012
/31/	Report on specific electricity consumption of the plant departments in October 2012
/32/	Report on specific electricity consumption of the plant departments in November 2012
/33/	Report on specific electricity consumption of the plant departments in December 2012
/34/	Report on hourly consumption of electricity by the plant in September 2012
/35/	Report on manufacturing volume in February 2012
/36/	Report on manufacturing volume in April 2012
/37/	Report on manufacturing volume in June 2012
/38/	Report on manufacturing volume in September 2012
/39/	Report on manufacturing volume in November 2012
/40/	Protocol on quality on natural gas of Krasyliv LVUMG dated 16 July 2012
/41/	Protocol on quality on natural gas of Krasyliv LVUMG dated 8 October 2012
/42/	Protocol on quality on natural gas of Krasyliv LVUMG dated 29 October 2012

No.	Title of the document
/43/	Protocol on quality on natural gas of Krasyliv LVUMG dated 12 November 2012
/44/	Protocol on quality on natural gas of Krasyliv LVUMG dated 19 November 2012
/45/	Protocol on quality on natural gas of Krasyliv LVUMG dated 26 November 2012
/46/	Protocol on quality on natural gas of Krasyliv LVUMG dated 10 December 2012
/47/	Protocol on quality on natural gas of Krasyliv LVUMG dated 17 December 2012
/48/	Protocol on quality on natural gas of Krasyliv LVUMG dated 24 December 2012
/49/	Report on coal moist content in September 2012
/50/	Report on coal moist content in October 2012
/51/	Report on coal moist content in November 2012
/52/	Results of coal dust monitoring in August 2012
/53/	Results of coal dust monitoring in September 2012
/54/	Results of coal dust monitoring in October 2012
/55/	Results of coal dust monitoring in November 2012
/56/	Calibration certificate natural gas meter TERZ 94 SN #600787 dated 03/10/2011
/57/	Hasler Maintenance manual. Weigh belt feeders controlled by SCM with KSU console
/58/	Passport of electricity meter ACE 6000 SN #50065369
/59/	Passport of electricity meter ACE 6000 SN #50065379
/60/	Passport of electricity meter ACE 6000 SN #50065516
/61/	Passport of electricity meter ACE 6000 SN #50065507
/62/	Passport of electricity meter ACE 6000 SN #50065525
/63/	Passport of electricity meter ACE 6000 SN #50065506
/64/	Passport of electricity meter ACE 6000 SN #50065509
/65/	Passport of electricity meter ACE 6000 SN #50065511
/66/	Passport of electricity meter ACE 6000 SN #50065426
/67/	Passport of electricity meter ACE 6000 SN #50065429
/68/	Order for data storage at Podilsky cement plant
/69/	Acceptance certificates on natural gas measurement complexes dated 13/04/2012
/70/	Acceptance certificate on dry cement line dated 30/09/2011

3.2 Interviews with project stakeholders

TÜV Rheinland (China) Ltd. (TÜV Rheinland) performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Interviewed representatives of PJSC Podilsky Cement and Global Carbon B.V. are summarized in Table 4. The main topics of the interviews are summarized in Table 5.

Table 4 - Persons interviewed

No.	Name	Organization	Position
/1/	Lavreniuk O.I.	PJSC Podilsky Cement	Head of automation department
/2/	Logozinsky V.I.	PJSC Podilsky Cement	Metrologist
/3/	Makovska I.P.	PJSC Podilsky Cement	Head of plant laboratory
/4/	Paliychuk V.I.	PJSC Podilsky Cement	Energy engineer
/5/	Murphy B.	PJSC Podilsky Cement	Project manager
/6/	Prusakov D.V.	Global Carbon B.V.	Senior JI Consultant

Table 5 - Interview topics

No.	Date	Interviewed organization	Interview topics
/1/	29/04/2013	PJSC Podilsky Cement	➢ QA/QC of the project ➢ Data sources ➢ Project management ➢ Project implementation ➢ Operational reporting ➢ Monitoring equipment ➢ Environmental licenses ➢ Data processing, reporting ➢ Monitoring activity ➢ Personnel training
/2/	29/04/2013	Global Carbon B.V.	➢ Reporting and calculation of emission reductions ➢ QA/QC of the project ➢ Monitoring equipment ➢ Project implementation ➢ Data processing

3.3 Resolution of Clarification, Corrective and Forward Action Requests

Where TÜV Rheinland (China) Ltd. (TÜV Rheinland), 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:

- Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;
- Clarification request (CL), requesting the project participants to provide additional information for the AIE to assess compliance with the monitoring plan;
- 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 of the project resulted in 15 Corrective action requests and 1 Clarification request. There were no unresolved Forward action requests from the previous verification.

TÜV Rheinland (China) Ltd. (TÜV Rheinland) made an objective assessment as to whether the actions taken by the project participants and presented in the Table 1 (Annex A to Verification report) satisfactorily resolve the raised issues and concluded its findings of the verification.

3.4 Internal Technical Review

The verification report including the verification findings underwent a technical review before requesting the publication according to paragraph 37 of the JI guidelines. The technical review was performed by an internal technical reviewer qualified in accordance with TÜV Rheinland (China) Ltd. (TÜV Rheinland) qualification scheme for JI project determination and verification.

3.5 Verification team

The verification team consists of the following personnel indicated in Table 6 below.

Table 6 - Verification team

Name	Role
Mr. Henri Phan	AIE manager
Dr. Lixin Li	Technical Reviewer
Dr. Valery Yakubovsky	Team Leader
Ms. Irina Nikolaieva	Auditor
Ms. Inna Buhay	Technical Expert
Mr. Ramesh Kumar Suri	TR Technical Expert

4. VERIFICATION FINDINGS

This section summarizes the findings from the verification of the emission reductions generated by the JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine" (ITL Project ID UA2000001) for the period from 01/01/2012 till 31/12/2012.

4.1 Project approval by Parties involved

In accordance with paragraphs 90 - 91 of the DVM the assessment of this area focuses on whether at least one written project approval by a Party involved in the JI project, other than the host Party(ies), has been issued by the DFP of that Party. It also should be assessed whether the written project approvals are unconditional.

Letters of Approval were issued by both Parties involved mentioned in the PDD:
Letter of Approval from the Ministry of Environmental Protection of Ukraine #11672/10/3-10 dated 27th of December 2006.
Letter of Approval from the Environmental Protection Agency of Ireland #FP-IE-07-001a dated 19th of January 2007.
Written project approvals are available at:
http://ji.unfccc.int/JI_Projects/DB/BPTY5S44EIX1J50RM66G4QOACHEV2G/Determination/TUEV-SUED1169913262.47/viewDeterminationReport.html

The written project approvals mentioned above are unconditional.

4.2 Project implementation

In accordance with paragraphs 92 - 93 of the DVM the assessment of this area focuses on whether the project has been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website. The status of operation of the project during the monitoring period also should be assessed.

This JI project is registered as Track 2 project. The description of this project is available in section 2.3. of this Verification report.
The project has been implemented in accordance with the PDD version 2.1 dated 02/02/2007 regarding which the determination has been deemed final and the revised monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012. However the project implementation occurred later than expected in the PDD due to delay in mounting and commissioning of the new dry cement kiln. According to the initial plan it should have happened in 2009. Due to the slowdown in the second half 2008 and following significant recession in construction industry in Ukraine in 2009 and 2010 the construction of the kiln was

slowed down so that the commissioning has been postponed until late 2011.

The emission reductions generated by the JI project reported for the period from 01/01/2012 till 31/12/2012 amount to 396 040 tCO_2e.

The verification team of TÜV Rheinland (China) Ltd. (TÜV Rheinland) can confirm, through the on-site visit that all physical features of the proposed JI project activity including data collecting and storage systems have been implemented, the project is completely operational and has been implemented as described in the registered PDD version 2.1 dated 02/02/2007 and the revised monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

Identified problem areas for project implementation, project participants' answers and conclusions of TÜV Rheinland (China) Ltd. (TÜV Rheinland) are described in Annex A to the Verification Report (refer to CARs 01, 02, 04, 13, 14 and CL 01).

4.3 Compliance with monitoring plan

In accordance with paragraphs 94 - 98 of the DVM the assessment of this area focuses on whether 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.

The monitoring of the JI project occurred in accordance with the monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

For calculating the emission reductions key factors influencing the baseline emissions as well as risks associated with the project were taken into account, as appropriate. For more detailed information, please, refer to the monitoring plan contained in the Annex 2 to the first monitoring report version 2.2 dated 24/07/2012.

All data sources used for calculating emission reductions are indicated in Section B of the Monitoring Report version 3.0 dated 11/06/2013.

The emission factors used to calculate emission reductions are selected in accordance with monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012. The choice of this emission factor is appropriately justified in the Annex 2 to the first monitoring report version 2.2 dated 24/07/2012 and in general accuracy and reasonableness are carefully balanced.

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

approach in accordance with the monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

The calculation of emission reductions is done by subtracting the project emissions from the baseline emissions.
The detailed calculation of GHG emission reductions for chosen monitoring period (01/01/2012 – 31/12/2012) is provided in supporting documentation.

Identified problem areas for compliance with monitoring plan, project participants' answers and conclusions of TÜV Rheinland (China) Ltd. (TÜV Rheinland) are described in Annex A to the Verification Report, Table 1 (refer to CAR 03).

4.4 Revision of monitoring plan

If the project participants submitted to the AIE a revised monitoring plan, in accordance with paragraphs 99 - 100 of the DVM the assessment of this area focuses on whether the correct and complete justification for the proposed revision is provided, and whether the 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.

The project participants revised the monitoring plan during the initial and first monitoring of JI project "Switch from wet-to-dry process at Podilsky Cement, Ukraine". The revised monitoring plan contained in Annex 2 to the first monitoring report version 2.2 dated 24/07/2012 was determined during the verification of the initial and first Monitoring Report of the project, final verification report is available through: http://ji.unfccc.int/UserManagement/FileStorage/X48W6OD7FYSI20MP1CHJ9RBQVGELAT

There was no revision to the monitoring plan during this monitoring period. The monitoring of the JI project for chosen monitoring period (01/01/2012 – 31/12/2012) occurred in accordance with the monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

4.5 Data Management

In accordance with paragraph 101 of the DVM the assessment of this area focuses on the quality of the information using standard auditing techniques provided in the monitoring report by assessing whether the data and their sources are clearly identified, reliable and transparent.

Data collection procedure is carried out in accordance with the monitoring plan, including the quality control and quality assurance procedures and has been checked by the verification team on site visit.

The monitoring plan is presented in the Annex 2 to the first monitoring report version 2.2 dated 24/07/2012. The data and their sources, provided in monitoring report, are clearly identified, reliable and transparent.

The evidence and records used for the monitoring are maintained in a traceable manner. Verification team got an access to all necessary data on monitoring system and emission reductions and received necessary evidence on site visit.

The data collection and management system for the project is in accordance with the monitoring plan as described in the first monitoring report version 2.2 dated 24/07/2012.

Identified problem areas for data management, project participants' answers and conclusions of TÜV Rheinland (China) Ltd. (TÜV Rheinland) are described in Annex A to the Verification Report (refer to CARs 05, 06, 07, 08, 12, 15).

4.6 Assessment of data and calculation of greenhouse gas emission reductions

The verification team of TÜV Rheinland (China) Ltd. (TÜV Rheinland) verified that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the pre-defined formulae presented in the revised monitoring plan contained in the first monitoring report version 2.2 dated 24/07/2012.

According to the Monitoring Report, version 3.0 dated 11/06/2013 and GHG emission reductions calculation spreadsheet in Excel format the emissions for the project scenario, emissions for the baseline scenario and emission reductions for chosen monitoring period (01/01/2012 – 31/12/2012) are provided in table 7 below.

Table 7 - Results for Emission Reductions for Monitoring Period

Monitoring Period:	**01/01/2012 – 31/12/2012**
Emissions for the project scenario:	634 571 tCO_2e
Emissions for the baseline scenario:	1 030 611 tCO_2e
Emission reductions:	396 040 tCO_2e

Identified problem areas for data management, project participants' answers and conclusions of TÜV Rheinland (China) Ltd. (TÜV Rheinland) are described in Annex A to the Verification Report (refer to CARs 9, 10, 11).

4.7 Remaining issues, CARs, FARs from previous determination/verification

There were no pending issues remaining from the previous verification of the project.

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ANNEX A - VERIFICATION PROTOCOL

Table 1 - Requirements Checklist

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
1. Project approvals by Parties Involved				
1. 1. 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?	90	Letters of Approval were issued by both Parties involved mentioned in the PDD: Letter of Approval from the Ministry of Environmental Protection of Ukraine #11672/10/3-10 dated 27th of December 2006. Letter of Approval from the Environmental Protection Agency of Ireland #FP-IE-07-001a dated 19th of January 2007.	-	OK
1. 2. Are all the written project approvals by Parties involved unconditional?	91	All the written project approvals by Parties involved are unconditional.	-	OK
2. Project implementation				
2.1. 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?	92	The implementation of the project started in 2006 as it was mentioned in the PDD. The commissioning of the new kiln occurred later than expected in the PDD. According to the	**CAR 01.** Please correct the description of the project activity to reflect the present situation. Include the actual average energy consumption for clinker production.	OK

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
		initial plan it should have happened in 2009. Due to the slowdown in the second half 2008 and following significant recession in construction industry in Ukraine in 2009 and 2010 the commissioning of the kiln was postponed until late 2011. This and other deviations are reflected in Section A of the monitoring report.		
2.2. What is the status of operation of the project during the monitoring period?	93	During the monitoring period the project has been generating emission reductions as described in the MR. However, the evidences showed that two previously stopped wet kilns were operating during a certain period in 2012.	**CAR 02.** During the site visit it was revealed that the wet kilns #5 and 6 had been operating during a certain period in 2012. Please correct the necessary information in the MR.	OK
3. Compliance with monitoring plan				
3.1. Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final?	94	The monitoring occurred in accordance with the revised monitoring plan determined during the verification of the first	**CAR 03.** Please correct the references to the revised monitoring plan as it is not presented in Annex 2 of this monitoring report.	OK

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
		monitoring report. The monitoring plan had been revised to put into conformance the monitoring process with the actual measurement equipment and manufacturing process of the plant.	**CAR 04.** Please remove gaps in the text throughout the monitoring report.	
3.2. For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) of DVM, 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?	95 (a)	The 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 in the PDD version 2.1. dated 02/02/2007 regarding which the determination has been deemed final.	-	OK
3.3. Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	95 (b)	During the monitoring period next data sources were used for calculating emission reductions: • Reports containing the data obtained from specialized meters; • Certificates from fuel suppliers and	**CAR 05.** Please correct the description of the natural gas NCV monitoring in Section B (5) and B.3 (5) as the primary sources of data are certificates from supplier. **CAR 06.** Please revise information concerning electricity consumption	OK

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
		laboratory reports; • Orders issued by the DFP of Ukraine. All the data sources are clearly identified, reliable and transparent.	of the coal mill and amount of clinker produced, and remove the redundant information on electricity consumption by the kilns in Section B (7, 9). **CAR 07.** Please correct the inaccuracies in the data on natural gas meters and electricity meters in Section B.1.2. as per the data obtained during the site visit. **CAR 08.** Please correct the information on calculation method of coal NCV in Section B.2.3. table 5 as the site visit revealed that the NCV is analyzed by the plant laboratory. **CL 01.** Please add the clarification why the natural gas consumption by the heat generator varies significantly in different months.	
3.4. 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	95 (c)	Emission factors used for calculation of emission reductions were taken from IPCC 2006 and the relevant Ukraine DFP	-	OK

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
appropriately justified of the choice?		orders. The emission factors, including default emission factors, used for calculating the emission reductions are selected by carefully balancing accuracy and reasonableness, and the choice is appropriately justified in the PDD regarding which the determination has been deemed final and in the course of resolving issues during the first verification.		
3.5. Is the calculation of emission reductions or enhancements of net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent manner?	95 (d)	The calculation of emission reductions is calculated based on conservative assumptions and the most plausible scenarios in a transparent manner.	**CAR 09.** Please correct the information presented in the title page of the Excel spreadsheet. **CAR 10.** Please include the natural gas consumption by kilns 5 and 6 in the calculation of the project emissions and emission reductions. **CAR 11.** Please correct the inconsistency in calculation of the parameter EFmix in the Excel spreadsheet (list	OK

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
			"Baseline Emissions") and recalculate the baseline emissions and emission reductions correspondingly.	
4. Applicable to JI SSC projects only				
4.1.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?	96	N/A	-	OK
5. Revision of monitoring plan ***Applicable only if monitoring plan is revised by project participants***				
5.1.Did the project participants provide an appropriate justification for the proposed revision?	99 (a)	N/A	-	OK
5.2.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?	99 (b)	N/A	-	OK
6. Data management				

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
4.1. Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	101 (a)	The data collection procedures including the quality control and quality assurance procedures are in accordance with the revised monitoring plan contained in the Annex 2 to the Initial and First periodic Monitoring report version 2.2 dated 24 July 2012. The data collection procedures and quality control and quality assurance procedures are indicated in Section B and Section C of the monitoring report.	-	OK
4.2. Is the function of the monitoring equipment, including its calibration status, is in order?	101 (b)	The monitoring equipment and its calibration status have been checked during the site visit. The monitoring equipment functions properly, the calibration procedures for the monitoring equipment are performed according to the calibration schedule. The monitoring equipment	**CAR 12.** Please provide evidences of calibration of the electricity meters.	OK

CHECKLIST QUESTION	DVM* paragraph	Draft Conclusion	Action requested to project participants	Final Conclusion
		operating during the monitoring period is described in Section B.1.		
4.3. Are the evidence and records used for the monitoring maintained in a traceable manner?	101 (c)	The plant operates precise monitoring system to monitor and record the project parameters. The data are recorded in the different report enabling to perform cross-checks to ensure the accuracy.	-	OK
4.4. Is the data collection and management system for the project in accordance with the monitoring plan?	101 (d)	Data collection and management system of the project are performed in accordance with the monitoring plan as described in Section B.3. and Section C.1.1. of the Monitoring report.	**CAR 13.** In Section A.10 please correct the responsible person from Global Carbon B.V. **CAR 14.** Please correct title "Director" into "General director" in Section B.2.1 Figure 1. **CAR 15.** Please provide the evidence that the data will be stored for at least two years after the last transfer of ERU.	OK

DVM* - Joint Implementation Determination and Verification Manual, version 01

Table 2 - Resolution of CARs, CLs and FARs

No.	Type of request	Observation	Ref. to checklist question in table 1	Summary of project owner response	Verification team conclusion
1.	**CAR 01.**	Please correct the description of the project activity to reflect the present situation. Include the actual average energy consumption for clinker production.	2.1	Response 1: The description of the project activity was corrected in the MR version 2.0 as of 24 May 2013 to reflect the present situation.	Conclusion 1: The issue is closed on the basis of the corrections provided.
2.	**CAR 02.**	During the site visit it was revealed that the wet kilns #5 and 6 had been operating during a certain period in 2012. Please correct the necessary information in the MR.	2.2	Response 1: Information about kilns number 5 and 6 was added to page 3 of the MR version 2.0 as of 24 May 2013.	Conclusion 1: The issue is closed on the basis of the corrections provided.
3.	**CAR 03.**	Please correct the references to the revised monitoring plan as it is not presented in Annex 2 of this monitoring report.	3.1	Response 1: The reference to revised monitoring plan was corrected in the MR version 2.0 as of 24 May 2013.	Conclusion 1: The issue is closed on the basis of the corrections provided.
4.	**CAR 04.**	Please remove gaps in the text throughout the monitoring report.	3.1	Response 1: The gaps in the text were removed in the MR version 2.0 as of 24 May 2013	Conclusion 1: The issue is closed on the basis of the corrections provided.
5.	**CAR 05.**	Please correct the description of the natural gas NCV monitoring in Section B (5) and B.3 (5) as the primary sources of data are certificates from supplier.	3.3	Response 1: Description of the natural gas NCV was corrected in the MR version 2.0 as of 24 May 2013	Conclusion 1: The issue is closed on the basis of the corrections provided.
6.	**CAR 06.**	Please revise information concerning electricity consumption of the coal mill	3.3	Response 1: Information concerning electricity	Conclusion 1: The issue is closed on the

		and amount of clinker produced, and remove the redundant information on electricity consumption by the kilns in Section B (7, 9).		consumption of the coal mill and amount of clinker produced was revised in the MR version 2.0 as of 24 May 2013	basis of the corrections provided.
7.	**CAR 07.**	Please correct the inaccuracies in the data on natural gas meters and electricity meters in Section B.1.2. as per the data obtained during the site visit.	3.3	Response 1: The inaccuracies in the data on natural gas meters and electricity meters were corrected in the MR version 2.0 as of 24 May 2013	Conclusion 1: The issue is closed on the basis of the corrections provided.
8.	**CAR 08.**	Please correct the information on calculation method of coal NCV in Section B.2.3. table 5 as the site visit revealed that the NCV is analyzed by the plant laboratory.	3.3	Response 1: Calculation method of coal NCV was corrected in the MR version 2.0 as of 24 May 2013	Conclusion 1: The issue is closed on the basis of the corrections provided.
9.	**CAR 09.**	Please correct the information presented in the title page of the Excel spreadsheet.	3.5	Response 1: Information presented in the title page of the Excel spreadsheet was corrected	Conclusion 1: The issue is closed on the basis of the corrections provided.
10.	**CAR 10.**	Please include the natural gas consumption by kilns 5 and 6 in the calculation of the project emissions and emission reductions.	3.5	Response 1: Natural gas consumption of kilns number 5 and 6 was included in the ERU calculations see Excel calculation file version 2.0 as of 24 of May 2013.	Conclusion 1: The issue is closed on the basis of the corrections provided.
11.	**CAR 11.**	Please correct the inconsistency in calculation of the parameter EFmix in the Excel spreadsheet (list "Baseline Emissions") and recalculate the baseline emissions and emission reductions correspondingly.	3.5	Response 1: Emission reductions were recalculated. Please see Excel calculation file version 2.0 as of 24 of May 2013.	Conclusion 1: The issue is closed on the basis of the corrections provided.
12.	**CAR 12.**	Please provide evidences of calibration of the electricity meters.	6.2	Response 1: Evidences of calibration of the electricity meters were provided.	Conclusion 1: The issue is closed on the basis of the evidences

					provided.
13.	**CAR 13.**	In Section A.10 please correct the responsible person from Global Carbon B.V.	6.4	Response 1: Responsible person from Global Carbon B.V. was changed in the MR version 2.0 as of 24 May 2013	Conclusion 1: The issue is closed on the basis of the corrections provided.
14.	**CAR 14.**	Please correct title "Director" into "General director" in Section B.2.1 Figure 1.	6.4	Response 1: Title "Director" was changed to "General director" in the MR version 2.0 as of 24 May 2013	Conclusion 1: The issue is closed on the basis of the corrections provided.
15.	**CAR 15.**	Please provide the evidence that the data will be stored for at least two years after the last transfer of ERU.	6.4	Response 1: Order for data storage was provided.	Conclusion 1: The issue is closed on the basis of the evidences provided.
16.	**CL 01.**	Please add the clarification why the natural gas consumption by the heat generator varies significantly in different months.	3.3	Response 1: Mainly, the heat generator uses exhaust gases for coal drying. Natural gas consumption by the heat generator depends on seasonal and cement demand factors.	Conclusion 1: The issue is closed on the basis of the clarification provided.