VERIFICATION REPORT GLOBAL CARBON B.V.

VERIFICATION OF THE ENERGY EFFICIENCY MEASURES AT THE "PUBLIC JOINT STOCK COMPANY AZOVSTAL IRON & STEEL WORKS"

(Initial and for the period 01/01/2008 – 31/05/2010)

REPORT NO. UKRAINE/0160/2010

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06/12/2010	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon B.V.	Lennard de Klerk

Summary:

Bureau Veritas Certification has made the initial and 1st periodic verification of the «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works", JI Registration Reference Number JI 0228, project of Global Carbon B.V. located in the city of Mariupol, Donetsk region, 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 was 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 Clarification, Corrective Actions Requests, Forward Actions Requests (CLs, CARs and FARs), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions. The GHG emission reduction is calculated without material misstatements, and the ERUs issued totalize 2593557 tons of CO_2eq for the monitoring period from 01/01/2008 to 31/05/2010.
Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents.

Report No.:	Subject Group:
UKRAINE/0160/2010	JI
Project title:	
Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works"	
Work carried out by:	
Igor Kachan - Team Leader, Climate Change Lead Verifier Vera Skitina - Team Member, Climate Change Lead Verifier	
Work reviewed by:	
Ivan Sokolov - Internal Technical Reviewer	
Work approved by:	
Flavio Gomes – Operational Manager	

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Bureau Veritas Certification Holding SAS

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Abbreviations

AIE	Accredited Independent Entity
BF	Blast Furnace
BOF	Basic Oxygen Furnaces Workshop
BVCH	Bureau Veritas Certification Holding SAS
BFW	Blast Furnace Workshop
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEOD	Chief Energy Officer Department
CHP	Combined Heat and Power Plant
CL	Clarification Request
CO_2	Carbon Dioxide
ERU	Emission Reduction Unit
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Green House Gas(es)
JI	Joint Implementation
JISC	JI Supervisory Committee
MP	Monitoring Plan
MR	Monitoring Report
OHF	Open Hearth Furnaces Workshop
PDD	Project Design Document
SMEW	Control and Metering Equipment Workshop
UNFCCC	United Nations Framework Convention on 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 «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works" (hereafter called "the project") in the city of Mariupol, Donetsk region, Ukraine.

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

1.1 Objective

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

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

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

1.2 Scope

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

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

1.3 Verification Team

The verification team consists of the following personnel:

Igor Kachan
Bureau Veritas Certification, Team Leader, Climate Change Lead Verifier

Vera Skitina
Bureau Veritas Certification, Team Member, Climate Change Lead Verifier

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01.1 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19th meeting on 04 December 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) and Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

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

2.2 Follow-up Interviews

On 01/09/2010-02/09/2010 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Global Carbon B.V. and Public Joint Stock Company Azovstal Iron & Steel Works were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Public Joint Stock Company Azovstal Iron & Steel Works	➢ 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.
Global Carbon B.V.	➢ Baseline methodology ➢ Monitoring plan ➢ Monitoring report ➢ Deviations from the PDD

2.3 Resolution of Clarification, Corrective and Forward Action Requests

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

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

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

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

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

To guarantee 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 13 Corrective Action Requests, 7 Clarification Requests, and 1 Forward Action Request.

The number between brackets at the end of each section corresponds to the Determination and Verification Manual paragraph.

3.1 Project approval by Parties involved (90-91)

The project obtained approval by the Host party (Ukraine) on the 12/10/2010 (The Letter of Approval #1594/23/7 issued by the National Environmental Investment Agency of Ukraine) and was registered under Track 1.
Written project approval by the Netherlands (sponsor party) has been issued by the NFP of that Party when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines, at the latest. The above mentioned written approvals are unconditional.

3.2 Project implementation (92-93)

The project aims to reduce the amount of CHG emissions by reducing the specific coke consumption through an integrated energy efficiency program. The project consists of several components or measures.

Modernization and reconstruction of the BFs
Modernizations at the BFW mainly include:

1. Introduction of the brickwork of the furnace's stack and hearth made from composite refractory body (Si-SiC-Al_2O_3). This measure is directed to decrease of the heat losses from the hearth, adjustment of the heat balance of the furnace and coke savings as a consequence. In addition introduction of the new brickwork's materials will prolong lifetime of the furnace in comparison with regular materials used in Ukraine.

2. Introduction of the automatic control systems in order to control and manage:
- Tuyere failure;
- Natural gas flow distribution over the tuyeres;
- Temperature field over the surface of charging materials;
- Cooling of the furnace's stack;
- Heat load at heat exchangers at hearth;
- Charging process.

3. Reconstruction of the BF2. Reconstruction of BF2 was started at the end of 2003. It includes the following engineering solutions:
- Total dismantling of the existing BF2 including furnace's bed;
- Construction of the BF with the pay-load volume of 1719m^3;
- Dismantling of the existing cast house with the construction of the new one;
- Dismantling of the existing cowpers with the construction of the new ones;
- Construction of the new facilities such as:
  - Electrical equipment of the charging system;
  - Air cooling station of the hearth bottom;
  - Suction cleaning system of the cast house's emissions;
  - Gas-treating system of the charging unit emission.

Some of engineering solutions, such as ceramic package of the brickwork, control system of the gas flow is being used in Ukraine for the first time.

The schedule of the modernizations is shown in the table below.

	Start of activities	Commissioning date
Modernization of BF6	06/02/2003	11/06/2003
Reconstruction of BF2	12/12/2003	20/04/2006
Modernization of BF3	21/01/2008	10/04/2008

Increasing of iron content the in iron-ore materials

BFs at Azovstal are charged with sinter, pellets, and iron ore as iron-ore materials. The average iron content is about 54-55%. This means that in order to produce one ton of pig iron almost two tons of iron-ore material needs to be charged into BF and melted, using coke and natural gas as a fuel. The objective of this measure is to increase iron content up to 60%. This measure allows the same amount of pig iron to be produced by using less of the raw material, hence, reducing the consumption of coke per ton of iron. According to the "Pig Iron production. Technological Instruction", increasing of iron content in the iron bearing materials on every 1% gives from 1% up to 1.4% of coke savings.
Emission reductions of the proposed JI project calculating based on overall reduction of coke consumption, so this measure is not monitoring separately.

Decreasing the silicon content in the pig iron
Reduction of Si content in the pig iron leads to reduction of coke consumption. According to the "Pig Iron production. Technological Instruction", reduction of the silicon content on every 0.1% gives 1.2% of coke savings. Similar to the previous measure ERUs due to this particular measure is not monitored separately. This measure is gradually implemented in the period from 2003 to 2008.

Decreasing the BFs idle times
Blast Furnace's are in continuous operation, only interrupted for maintenance. Any idle time requires that the BF's hearth is kept at a high temperature, which is achieved by burning coke. Therefore, implementation of any measures focused on decreasing idle times reduces coke consumption.
Modernizations of BFs with the introduction of the modern automatic and control systems allow to prevent strong fails/bugs of equipment by detection of the deviation from the normal operational conditions and reducing the time fixing.
According to the "Pig Iron production. Technological Instruction", decreasing of the idle times on every 1% gives 0.5% of coke savings. The actual savings of coke due to this measure in compare to the base years could be evaluate by following formula:
Similar to the previous measure, ERUs due to this particular measure is not monitoring separately. This measure was gradually implemented in the period from 2003 to 2006.

Partial substitution of limestone by lime.
The reaction of limestone calcination in the BF requires heat. The same reaction takes place in the special kilns for the lime production using regular coal as a fuel. Therefore, charging lime in the BF saves coke that would be consumed for the calcination. According to the "Pig Iron production. Technological Instruction", decreasing of the limestone and lime on every 10kg/t gives 0.5% and 0.4% of coke savings

correspondingly**.** The measure was gradually implemented in the period from 2003 to 2008.

General schedule of subprojects implemented is presented below:

	Start of activities	Commissioning/Implementation date
Modernization and reconstruction of the BFs:		
Modernization of BF6	06/02/2003	11/06/2003
Reconstruction of BF2	12/12/2003	20/04/2006
Modernization of BF3	21/01/2008	10/04/2008
Increasing the iron content in the iron-ore materials.	2003	2006
Decreasing the silicon content in the pig iron	2003	2008
Decreasing the BFs idle times	2003	2006
Partial substitution of the limestone by lime	2003	2008

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

The monitoring is being occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed. According to the "Guidance on criteria for baseline setting and monitoring" the monitoring plan to the proposed project is established in accordance with the appendix B of the JI guidelines.

Key monitoring activities for each subproject are sufficiently described in the MR and no deviations from the monitoring algorithm were detected. The locations of monitoring points are clearly stated at the Figure 1 of the MR and completely correspond to the ones prospected in the determined PDD.
Pig iron production. Liquid pig iron from each BF is weighted on two scales. It is Basic Oxygen Furnaces Workshop (BOF) or Open Hearth Furnaces Workshop (OHF). Results of weighting are automatically submitted into the Automatic Control System of BFW. Based on the daily aggregated data WEB reports "Production of the Pig Iron" are generated. Those reports are checked and signed by a responsible persons. Reports are uploaded to the SAP system then by accountants. Data cross checking are made by responsible persons in the BFW, BOF and OHF.

Consumption of coke, pellets, sinter, lime and limestone. Information from the scale car after every charging session is automatically submitted into the Automatic Control System of BFW. Data is checked on the daily basis by stockyard's foreman. Based on the daily aggregated data WEB reports "Production of the Pig Iron" are generated. The reports are checked and signed by responsible persons. Reports are uploaded to the SAP system then by accountants.
Blast production is metered at each turbo compressor on the daily basis and checked by senior foreman of Control and Metering Equipment Workshop (SMEW). Based on the daily aggregated data WEB reports "Production of the Pig Iron" are generated. The reports are checked and signed by responsible persons. Reports are uploaded to the SAP system then by accountants. Monthly report is generated based on the daily data by economists of CHP1 and CHP2, and economist of Chief Energy Officer Department (CEOD).
Oxygen consumption at BFW is metered at each turbo compressor on the daily basis and checked by senior foreman of SMEW and by economist of Oxygen Workshop. Based on the daily aggregated data WEB reports "Production of the Pig Iron" are generated. The reports are checked and signed by responsible persons. Reports are uploaded to the SAP system then by accountants. Monthly report is generated based on the daily data by economist of Oxygen Workshop, and economist of CEOD.
Natural gas consumption at BFW is metered by especially dedicated software/hardware package "Saturn". Daily and monthly reports are generated automatically. Data correctness is checked by the foreman of SMEW. Based on the daily aggregated data WEB reports "Production of the Pig Iron" are generated. The reports are checked and signed by responsible persons. Reports are uploaded to the SAP system then by accountants.
Electricity consumption at BFW. Electricity consumption is metered by electricity meters installed at substations. Based on the daily aggregated data WEB reports "Production of the Pig Iron" are generated. The reports are checked and signed by responsible persons. Reports are uploaded to the SAP system then by accountants.
The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.

3.4 Revision of monitoring plan (99-100)

Not applicable.
The monitoring plan of the project was not revised.

3.5 Data management (101)

The monitoring approach in the monitoring plan requires monitoring and measurement of all the variables and parameters necessary to quantify

the baseline emissions and project emissions in a conservative and transparent way.
Internal and external data are obtained according to the determined PDD and the monitoring plan included in the MR. The data flow from the meters to ERU calculations is sufficiently described in the Figure 6 of the MR. Fixed default and baseline values are presented in the section B.2.1 of the MR.
The following items are monitored in order to determine and project baseline emissions in a conservative and transparent manner:

P_y^{coke} - Quantity of coke proceeds in the iron production process at BFW in the year y

P_{BFW}^{NG} - Quantity of natural gas proceeds in the iron production process at BFW in the year y

NCV_y^{NG} - Net calorific value of the natural gas in the year y

P_y^{blast} - Quantity of blast produced for the BFW in the year y

P_y^{oxygen} - Quantity of oxygen produced for the BFW in the year y

$P_y^{\lim estone}$ - Amount of limestone consumed at BFW in the year y

$P_y^{\lim e}$ - Amount of lime consumed at BFW in the year y

$P_y^{\sin ter}$ - Amount of sinter consumed at BFW in the year y

P_y^{pellet} - Amount of lime consumed at BFW in the year y

P_y^{elec} - Amount of electricity consumed at BFW in the year y

P_y^{iron} - Quantity of iron produced

All the internal operational data required for ERU calculation is collected by Azovstal as a part of routine operations. The data and their sources, provided in the 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. The function of the monitoring equipment, including its calibration status, is in order. At Azovstal the best available techniques are used in order to minimize uncertainties. Uncertainties are generally low. All monitoring equipment that used for monitoring purposes is in compliance with national legislative requirements and standards; this ensures that uncertainties are accounted in data collected.
The evidence and records used for the monitoring are maintained in a traceable manner. The data collection and management system for the project is in accordance with the monitoring plan. It is evidenced that the whole monitoring system was fully operational during the entire monitoring period. The verification team confirms that the emission reduction calculations have been performed according to the monitoring plan and to the calculation methodology reported in the final MR in accordance with the PDD. The verification team checked the transfer of monitored data,

correctness of the formulae versus the PDD as well as calculations of emission reductions. No inaccuracies in calculations were detected by the verifiers. Finally, our own calculations have shown the same results as given in the final Monitoring Report.
The verification team has detected that the amount of ERUs recorded in the monitoring period in 2010 differs significantly from the predicted amount (stated in the determined and registered PDD). The difference between the volume of expected ERUs and the actual ones was found to be about 534 582 tCO_2 eq. The explanation of this discrepancy was provided by the project participants.
The baseline emissions are based on the amount of iron produced and fixed ex-ante emission factor according to the registered PDD. At the same time the emissions under the project depend on the same amount of iron produced and variable emission factor in the project (ex-post calculated emission factor).
An actual production volume in the monitoring period (within 2010) was more than forecast in the PDD, as volume in the PDD was predicted during the crisis, which led to its underestimation. Actually an iron production increased by 32% in comparison with the expected value. Since emission reductions for the project are proportional to the volume of production, the amount of ERUs increased as well.
Due to the implementation of the project activity aimed at coke saving, the emission factor calculated ex-post for 2010 was found to have smaller value (2,320 tCO_2/t against 2,529 tCO_2/t as per PDD). Thus, the second reason for GHG emission reductions increasing in comparison with the forecast in the PDD is the decreasing of specific consumption of coke and decreasing of project emission factor as a result.
The information mentioned above point out inaccuracy of the forecast contained in the PDD. Given that additional ERUs are generated within the framework of the approved project the difference between the predicted and actual volumes can be considered reasonable.

3.6 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the initial and 1st periodic verification of the «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works" in the city of Mariupol, Donetsk region, 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 determined and registered PDD. 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 1.0, 2.0 and 3.0 for the reporting period from 01/01/2008 to 31/05/2010 as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design document. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material 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 the following statement:

Emission Reductions (from 01/01/2008 to 31/12/2008): 1021499 tCO_2 eq
Emission Reductions (from 01/01/2009 to 31/12/2009): 699 461 tCO_2 eq
Emission Reductions (from 01/01/2010 to 31/05/2010): 872 597 tCO_2 eq

Reporting period: From 01/01/2008 to 31/05/2010
Baseline emissions : 29 308 932 t CO2 equivalents.
Project emissions : 26 715 375 t CO2 equivalents.
Emission Reductions : 2 593 557 t CO_2 equivalents.

5 REFERENCES

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

/1/ Monitoring Report version 1.0, dated 16th of August 2010
/2/ Monitoring Report version 2.0, dated 29th of November 2010
/3/ Monitoring Report version 3.0, dated 10th of December 2010
/4/ Excel spreadsheet «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works", version 1.0, dated 16/08/2010
/5/ Excel spreadsheet «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works", version 2.0, dated 25/11/2010
/6/ Excel spreadsheet «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works", version 3.0, dated 10/12/2010
/7/ PDD «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works", version 2.5 dated 14/06/2010
/8/ Determination Report by Bureau Veritas Certification Holding SAS № UKRAINE/0112/2010 «Energy efficiency measures at the "Public Joint Stock Company Azovstal Iron & Steel Works", dated 21/06/2010
/9/ Letter of Approval issued by Ministry of Economic Affairs of the Netherlands 2010JI20 dated 24/06/2010
/10/ Letter of Approval №1594/23/7 issued by National Environmental Investment Agency of Ukraine dated 12.10.2010

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

/1/ Alteration #3 СТП 232-33-2003. Management system. Monitoring and metering instruments. Organization and performance of repair and calibration of measuring technical equipment.
/2/ Attestation certificate. Registration date: 22 May 2006. Reg. #06544-2-4-24-КЛ. Valid to 22 May 2009.
/3/ Calibration certificate for measuring technical equipment #219. Valid to 27.03.2010.
/4/ Calibration certificate for measuring technical equipment #1696. Valid to 03.12.2010.
/5/ Calibration certificate for measuring technical equipment #2494. Valid to 30.01.2010.
/6/ Calibration certificate for measuring technical equipment

#82001/1. Valid to 14.01.2011.

/7/ Calibration certificate for measuring technical equipment #971. Valid to 11.06.2011.

/8/ Calibration protocol #432. Device of type: Metran #69811. Calibration date: 14 October 2008.

/9/ Calibration protocol for planimeter ser. #006 dated 02.10.2009.

/10/ Calibration protocol. Device of type Sapfir #400878. Calibration date: 4.07.09.

/11/ Calibration protocol. Device of type Sapfir #400878. Calibration date: 4.07.10.

/12/ Calibration protocol. Device of type КСД-250. #71874. Calibration date: 4.08.09.

/13/ Calibration protocol. Device of type КСД-250. #71874. Calibration date: 4.08.10.

/14/ Calibration protocol. Device of type КСД-3. #277457. Calibration date: 19.08.04.

/15/ Calibration protocol. Device of type КСД-3. #277457. Calibration date: 19.08.04.

/16/ Calibration protocol. Device of type КСД-3. #71844. Calibration date: 3.08.05.

/17/ Calibration protocol. Device of type КСД-3. #71844. Calibration date: 11.08.06.

/18/ Calibration protocol. Device of type КСД-3. #71844. Calibration date: 11.08.07.

/19/ Calibration protocol. Device of type КСД-3. #71844. Calibration date: 3.08.05.

/20/ Calibration protocol. Device of type КСД-3. #71844. Calibration date: 11.08.06.

/21/ Calibration protocol. Device of type КСД-3. #71844. Calibration date: 11.08.07.

/22/ Calibration protocol. Device of type: Electronic railcar scales. Calibration date: 15.11.09.

/23/ Calibration protocol. Device of type: Modig 107. Calibration date: 14.09.09.

/24/ Calibration protocol. Device of type: Scales of coke funnel. Calibration date: 03.06.2010.

/25/ Calibration protocol. Device of type: Yokobawa #20457. calibration date: 27 May 2010.

/26/ Calibration protocol. Device of type: КСД-3. #179900. Calibration date 5.05.2010.

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/28/ Calibration protocol. Device of type-250, #122788. Calibration date: 4.07.07.

/29/ Calibration protocol. Information on the calibrated measuring equipment. Device of type: Disk-250, #01738. Calibration date: 15.01.2010.

/30/ Certificate on training at the Ukrainian Research and Training Centre of standardization, certification and quality, Ukraine, 2008.
/31/ Certificate #215 on training for blast furnace heater training dated 20.02.2010.
/32/ Certificate #3339 on training for profession of locksmith КИПиА ПТК dated 12.07.2005.
/33/ Certificate on calibrated measuring technical equipment. Sapfir #112097.
/34/ Certificate on qualification for calibration of technical equipment measuring weight, volume and area, 2008.
/35/ Certificate on qualification for calibration of technical equipment measuring electric values, 2009.
/36/ Certificate on qualification for calibration of technical equipment measuring electric and magnetic values.
/37/ Certificate on qualification for calibration of technical equipment measuring thermo-technical values (pressure, consumption and temperature), 2008.
/38/ Daily record for turbocompressor #1 dated 2 September 2010.
/39/ Daily report for turbocompressor #2 dated 1 August 2010.
/40/ Diagram of air flow.
/41/ Diagram of air pressure.
/42/ Diagram of oxygen flow.
/43/ Diagram of oxygen pressure.
/44/ Information on cast iron production.
/45/ Information on hourly flow, furnace #3.
/46/ Information on hourly flow, furnace #3.
/47/ Information on hourly flow, furnace #3.
/48/ Information on pig iron production.
/49/ Instruction #11 for the department of chief IT specialist dated 11.08.2010.
/50/ Instructions for backup and recovery of SAP systems, 2009.
/51/ Instructions for backup and recovery, OC Solaris, 2009.
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/53/ Job description for blast-furnace heater of the eighth-class blast furnace (#4) plant dated 25.05.2005.
/54/ List of measuring technical equipment (MTE) being in operation and subject to calibration in 2010.
/55/ Loading and distribution of burden materials by boot drive of blast furnace #4. Production and technical instruction, 1999.
/56/ Loading and distribution of burden materials by boot drive of blast furnace #4. Production and technical instruction, PTI 232-02-16-2007.
/57/ Log book, 2008.
/58/ Log book, 2009.
/59/ Log of blast furnace operation dated 6 April 2010.
/60/ Log of blast furnace operation dated 6 April 2010.

/61/ Operation and technical service of blast furnace. Production and technical instruction, PTI 232-02-06-2007.

/62/ Operation of blast furnace gas facilities. Production and technical instruction, PTI 232-02-5-2002.

/63/ Order № 143 on the introduction of the Regulations on access to the SAP system on 24.04.2008.

/64/ Passport for measuring technical device. Railcar

/65/ Passport on electro-mechanic railcar scales, 2004. Calibration date: 15.06.09.

/66/ Passport physical-chemical parameters of natural gas transferred to OJSC "Mariupolgas" at GDS Mariupol-1, Mariupol-2, Sahanka, Peremoha, Novoazovsk for February 2010.

/67/ Passport. Electric meter #667772. Verification date: 22.07.2009.

/68/ Photo. Meter Energiya-9. СТК3-10Q2T3M.

/69/ Pig iron production. Technological instruction TI 232-1-2007.

/70/ Programmes for preparation and skill upgrading of workers at the production department.

/71/ Report of gas distribution in gas plant of industrial complex "Azovstal" for July 2010.

/72/ Report of metrology manager at the meeting of chief engineer with chiefs of departments for occupational health and safety dated 22.07.2010.

/73/ Report on air protection, 2008.

/74/ Report on air protection, 2009.

/75/ Report on control of materials consumption for cast iron production dated 22.08.2010.

/76/ Report on control of receiving skip coke and its consumption due to cast iron production dated 22.08.2010.

/77/ Report on distribution in gas plant of the industrial complex "Azovstal" for December 2008.

/78/ Report on distribution in gas plant of the industrial complex "Azovstal" for April 2008.

/79/ Report on distribution in gas plant of the industrial complex "Azovstal" for November 2008.

/80/ Report on distribution in gas plant of the industrial complex "Azovstal" for October 2008.

/81/ Report on distribution in gas plant of the industrial complex "Azovstal" for September 2008.

/82/ Report on distribution in gas plant of the industrial complex "Azovstal" for August 2008.

/83/ Report on distribution in gas plant of the industrial complex "Azovstal" for July 2008.

/84/ Report on distribution in gas plant of the industrial complex "Azovstal" for June 2008.

/85/ Report on distribution in gas plant of the industrial complex "Azovstal" for May 2008.

/86/ Report on distribution in gas plant of the industrial complex

	"Azovstal" for March 2008.
/87/	Report on distribution in gas plant of the industrial complex "Azovstal" for February 2008.
/88/	Report on production, processing and disposal of waste of I-III hazard classes, 2008.
/89/	Report on production, processing and disposal of waste of I-III hazard classes, 2009.
/90/	Report on the actual loading of the furnace charge BA-2 for 22.08.2010. Shift 3, crew 3.
/91/	Results of testing the knowledge on fire safety.
/92/	Results of testing the knowledge on occupational safety and health.
/93/	Spreadsheet of consumed materials dated 01.01.2004 (calculation according to actual load) dated 01.09.2010.
/94/	Spreadsheet of consumed materials dated 01.01.2004 (calculation according to actual load) dated 01.09.2010.
/95/	Standard of basic configuration of the security of SAP systems, 2009.
/96/	Technical report for blast furnace plant, 2008.
/97/	Technical report for blast furnace plant, 2009.
/98/	Technical report for blast furnace plant, 2010.
/99/	Technical report on electricity distribution in networks and substations for July 2010. Electricity balance at the industrial complex.
/100/	Technical report on ПЭВС operation for July 2010.
/101/	Training plan for upgrading skills of workers.
/102/	Turbocompressor AKB-12-IV-K3250-41-2 st. #5. Production and technical instruction. PTI 232-40.
/103/	Turbocompressor unit TKA 4200/19 st. #3 ПЭВС. Production and technical instruction.

Persons interviewed:

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

/1/	S.V. Zaycev – Acting deputy chief engineer, acting head of department for optimization of production
/2/	A.P. Shylov – Deputy chief engineer for environmental protection
/3/	D.L. Burtsev – Director for technology and quality
/4/	I.A. Shulga – Deputy head of management of capital construction for economy
/5/	A.V. Ivanov – Chief power engineer
/6/	S.Y. Bozhko – Deputy chief power engineer
/7/	V.S. Strykov - Chief metrologist, head of metrology department
/8/	S.N. Babenko – Deputy head of blast furnace shop

/9/ V.S. Klochenko – Head of CHP

/10/ L.E. Budrevich – Head of laboratory group for water-air basin protection

/11/ R.S. Sydorchuk – Head of technical management regulation department

/12/ A.V. Goltvenko – Deputy director, deputy head of staff development department

/13/ A.V. Kindiakov – Head of department of staff development control

/14/ E.V. Kachanovskiy – Deputy head of oxygen plant

/15/ V.A. Bezmenov – Chief engineer of technical management

APPENDIX A: VERIFICATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

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

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	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?	There is no evidence of the project approval by both National Focal Points.	**CAR01** Please provide documented evidence of the project approval by the Parties involved.	Response to **CAR01**: Both Letters of Approval from Ukraine and from the Netherlands were issued. Please see attached files.	OK
91	Are all the written project approvals by Parties involved unconditional?	Pending a response to the CAR form the item above (DVM paragraph 91).	-	-	OK
Project implementation					
92	Has the project been implemented in accordance with the PDD regarding	The project is implemented in accordance with	**CAR02** The monitoring timeframe in the MR	Response to **CAR02**: The dates were corrected. Please revise corrected MR,	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	which the determination has been deemed final and is so listed on the UNFCCC JI website?	the determined PDD published on the UNFCCC website: http://ji.unfccc.int/UserManagement/FileStorage/D5APF0KE96LWRMOZNCUSXYIG1Q27VB	does not correspond to the information in the Excel calculation spreadsheet. Please make the dates consistent. **CL01** Please indicate sectoral scope for the project.	page 6, Section A4. Response to **CL01**: Sectoral scope: (9) Metal production. Necessary amendments were made in the MR, section A.1. Please revise corrected MR, page 2	
93	What is the status of operation of the project during the monitoring period?	The status of implementation of project's parts is sufficiently described in the MR. The subprojects prospected were implemented according to the time schedule included in the PDD. All the equipment	**CL02** Please clarify if the project activity demanded the installation of special measures for environmental impact monitoring (e.g. filtering systems or compensation areas) and whether such measures were implemented. Also	Response to **CL02**: It was described in the PDD that the project activity did not require any special measures. All needed measurements required by the Host Party legislation have to be carried out in any case, with or without project. Therefore, no special meters have to be installed in the result of project implementation.	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
		installed and confirmatory documentation were checked onsite.	please clarify if the metering systems for environmental impact monitoring, where necessary, had been installed and was functioning during monitoring period.		
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 algorithm for monitoring is in line with the monitoring plan included in the determined and registered PDD.	No actions are requested.	-	OK
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, influencing the baseline emissions or net removals and the activity level of the project and the	It was observed that OJSC MariupolGas is responsible for collection of data on physical parameters and	**CAR03** Please indicate in the section B.1.4 of the MR information concerning natural gas supplier.	Response to **CAR03**: OJSC MariupolGas was added to the section B.1.4 of the MR as a third party. Please revise corrected MR, page 14.	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	emissions or removals as well as risks associated with the project taken into account, as appropriate?	quantity of natural gas.			
95 (b)	Are data sources used for calculating of emission reductions or enhancements of net removals clearly identified, reliable and transparent?	No, some data sources used to calculate emission reductions should be specified. It was also observed on-site that some scales used for raw materials weighting were not indicated in the MR.	**CAR04** Please describe in the MR quality assurance procedures for collection and processing of external data. **CAR05** Date of installation of meters used for measuring project parameters in the MR does not correspond to the installation date indicated in the meters' passports reviewed by verifiers onsite.	Response to **CAR04**: Quality of any external data, like natural gas parameter or bulk raw material used is regularly checking with help of internal accredited laboratory. All procedures for this are common practice in the plant and were not developed for the project activity. Necessary amendments were made in the MR, section C.3 Please revise corrected MR, page 24 Response to **CAR05**: Measurement devices of PJSC "Iron and Steel Works Azovstal" are not assigned	OK

* http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=1765-15

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			CAR06 Please add the information about the scales used for raw materials weighting to the MR. **CAR07** Please indicate the serial numbers of each meter used in the MR. Conclusion on response #1: The response states that meters have no serial numbers. Nevertheless the numbers were indicated in the MR. Please clarify the origin of the indicated numbers. **CAR08** Please make consistent the	to a particular installation. In fact, depending on the situation, devices can be installed at various places. In this case, the date of initial installation is indicate in passports. It is worth mentioning that this does not contradict the Law of Ukraine "On metrology and metrological activity"*. In the monitoring report the date of installation on the specific location was used, which is the cause of controversy. Still all the units are regularly checked and calibrated, in accordance with enterprise standard "Measuring Equipment Facilities. Organization and Maintenance of Reparation, Examination and Calibration".	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			information about types of meters for blast production indicated in meters' passports and the MR. **CL03** Please clarify for each meter if the date of installation or date of meter's upgrading (if applicable) is indicated in the respective section on the tables 5 and 6.	Response to **CAR06**: Scales identical to SC8-SC12 with type 20116ASV are installed at the plant and are used as a reserve devise. Similar to all other measurement devices these scales are regularly checked. Necessary amendments were made in the MR. Please revise corrected MR, sections B.1.2 and B.2.2. Also please see the passport of the device attached. Response to **CAR07**: Response #1 Scales for metering coke consumption (type 96B5) historically had no serial number, because no sensors were used there, only mechanical (lever) construction. After	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				modernization (see answer on CL6) new strain-measuring pickups where installed instead of old once, but no serial number was assign. Nevertheless, these devices can be differentiated according to place of installation. Thus scales SC3-SC6 (type 96B5) are relevant to Blast Furnaces 3-6 correspondingly and Scales SC7 (type VK1056-NS) is relevant to BF2. Response #2 Relevant explanation were added to MR, section B.1.2 Response to **CAR08**: The information was corrected. Please revise corrected MR, pages 11-12, Section B.1.2. Response to **CL03**: The scales SC3 – SC6, type	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				96B5 (Table 5 of the MR) were upgraded. During this modernization, old level pickups (sensors) were changed on new strain-measuring pickups. Device VK1056-NS (SC7, table 5) is a completely new scale with strain-measuring pickup.	
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?	All the emission factors, including default emission factors are used in line with the registered PDD.	**CAR09** Please provide clear and traceable references for the following parameters indicated in the Excel calculation spreadsheet: default emission factor for the limestone calcinations, default emission factor for the pellets production, default	Response to **CAR09**: Excel calculations spreadsheet corrected. Please revise corrected spreadsheet. Response to **CAR10**: Correct references were provided in the MR for equations (4) and (5). Please revise corrected MR, page 27. Response to **CL04**: Emission factors for the blast production (EFblast) and the oxygen production	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			emission factor for the sinter production. **CAR10** In the section D.3.1 the references provided for the equations (4) and (5) are nor relevant. Please correct. **CL04** Please provide evidences of the validity of the emission factors for the blast production (EFblast) and the oxygen production (EFoxygen) during given monitoring period.	(EFoxygen) was determined as a "data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination regarding the PDD" (see Section D.1 of the PDD).	
Applicable to JI SSC projects only					
96	Is the relevant threshold to be classified as JI SSC project not exceeded during	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	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?				
Applicable to bundled JI SSC projects only					
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/A	N/A	N/A	N/A
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/A	N/A	N/A	N/A
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	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?				
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?	The monitoring is occurred according to the determined and registered monitoring plan. No deviations form the original monitoring plan was detected by the verification team during the site-visit.	No actions are requested.	-	OK
99 (b)	Does the proposed revision improve the accuracy and/or applicability of	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?				
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?	The detailed description of the data collection procedures is included in the MR. The data collection occurs in accordance with the monitoring plan from the determined PDD.	**CAR11** Please include in the MR the information on procedures for verification of emission reduction calculations provided by an independent person. **CL05** Please clarify what kind of special events are meant in section B.4 of the Monitoring Report	Response to **CAR11**: Quality control of the emission reductions calculated by Global Carbon JI Consultant is usually carried out by Global Carbon Team Leader. Necessary amendments were made in the MR, section C.3. Please revise corrected MR, page 24 Response to **CL05**: It was foreseen that all unexpected events relevant to the project and may influence ERUs amount	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			and their potential impact on the project. **CL06** During the site-visit its was observed that instead of lime the converter slag is used in blast furnace, however it was not accounted in the project emission calculation. Please clarify.	should be described in section B.4. As it was clearly stated in the section B.4, no such events have happened during the monitoring period. Response to **CL06**: Converter slag is a waste product of the steel making process in the Basic Oxygen Converter (BOF). Due to the specific requirements of that process, slag contains about 53% of lime (CaO). So, by slag adding in the BF, CaO production is going down, as well as emissions associated with lime production. Taking into account minor amount of slag additive, project developer decided to exclude it from the calculations. It is	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				conservative.	
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	The project entity regularly takes the readings of the meters for each parameter monitored. The procedure of meters calibration was found satisfactory. Each meter is been calibrated in accordance with the Ukrainian national standards. The documented evidences were checked onsite.	**CAR12** Please provide in the MR the information on meters' calibration and verification performed during respective monitoring periods.	Response to **CAR12**: Standard of the enterprise "Measuring Equipment Facilities. Organization and Maintenance of Reparation, Check and Calibration" has been applicable in the company since 2003. This standard governs all procedures involving the use of Measuring Equipment Facilities, as well as measurements quality assurance. It should be noted that the requirements of this standard is even stricter than the requirements of the Law of Ukraine "On metrology and metrological activity". Thus, in accordance with the enterprise standard (see 4.4), all measuring devices	The referred Standard of the enterprise (valid since 2003) was checked. The issue is closed.

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				are subject to mandatory check and calibration, while the Law enacts only the regular checking the equipment. For some decommissioned devices there are currently no passports and no check certificates. Nevertheless, taking into account that the enterprise standard "Measuring Equipment Facilities. Organization and Maintenance of Reparation, Check and Calibration" is still in force, as well as all current Measuring Equipment Facilities receive regular checking and calibration in accordance with this standard, it can be assumed that for decommissioned equipment calibration was performed regularly, demonstrating the	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				quality of measurements.	
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Well-defined protocols and routine procedures, with good, professional data entry, extraction and reporting procedures are established. Proper management processes and system records are kept by responsible persons and copies of such records are available to judge compliance with the required management systems.	**FAR01** Please submit any documented instruction which indicates that the data monitored and required for verification are to be kept for two years after the crediting period as per JI determination and verification manual, v. 01.*manual, v.01.*	Response to **FAR01**: These instructions will be available during the next verification.	This issue is to be checked during the next verification.

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The general management of the monitoring team is implemented by the Head of Investment Analysis Department of the Azovstal through coordinating activities of the workshops representatives: Deputy head of BFW, Deputy head of CEOD, Head of SMEW. On-site day-to-day (operational) management is implemented by the heads of corresponding shops. The technological	**CAR13** Please supplement the section B.3 of the MR with the information concerning cross checking of monitoring parameters (including indication of job title of the person responsible for cross checking) as during site-visit it was found that these procedures are different for each parameter. **CL07** Please clarify if the contents of coke and coke nut which is used in the pig iron production are the same.	Response to **CAR13**: Necessary amendments were made in the MR.Please see section B.3 of the MR. Response to **CL07**: Response #1: Coke for the pig iron production should have some characteristics including fraction size. Coke with the size less then suitable for the BF process, calling coke breeze and coke nut. So, carbon content, important for the emissions calculation is the same. Response #2 The fact that coke and coke nut are the same can be confirmed by GOST 8935-77 (http://www.complexdoc.ru/text/%D0%93%D0%9E%D0%	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
		process data is logged into the servers continuously and to the logbooks on the daily basis. All data necessary for the CO_2 emission reductions calculation is collected in the Investment Analysis Department. The general supervision of the monitoring system is executed by the Head of the Investment Analysis Department.	Conclusion on response #1: Please provide any documented evidence to confirm the statement about carbon content.	A1%D0%A2%208935-77). In this document it is stated that this is applicable for metallurgical coke with size 10-25 mm. This means that coke nut differs from coke by size only.	
Verification regarding programs of activities (additional elements for assessment)					
102	Is any JPA that has not	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	been added to the JI PoA not verified?				
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/A	N/A	N/A	N/A
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/A	N/A	N/A	N/A
104	Does the monitoring period not overlap with previous monitoring periods?	N/A	N/A	N/A	N/A
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/A	N/A	N/A	N/A
Applicable to sample-based approach only					
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that:	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	(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				

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	reductions are being verified; − 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?	N/A	N/A	N/A	N/A
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	reasonable explanation and justification?				
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/A	N/A	N/A	N/A
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	N/A	N/A	N/A	N/A

ANNEX B: VERIFIERS CV's

Work was carried out by:

Igor Kachan, PhD (chemistry)
Team Leader, Climate Change Lead Verifier
Bureau Veritas Ukraine, Health, Safety and Environment Department Project Manager
Igor Kachan has graduated from Kyiv National Taras Shevchenko University and took the Ph.D. degree in the analytical chemistry speciality. He has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems and Quality Management Systems. Igor Kachan has undergone a training course on Clean Development Mechanism/Joint Implementation and participated in determination/verification of more then 20 JI projects.

Vera Skitina, PhD (metallurgy)
Team Member, Climate Change Lead Verifier
Bureau Veritas Certification Rus Technical Director - Lead Auditor, Lead Tutor, Lead Verifier
Ms Skitina has over 15 years of experience in powder metallurgy, aluminium metallurgy, plastic metal working, physical-chemistry processes, gas production at power plant, environmental science. She worked in Irkutsk Aluminium Plant, SUAL powder metallurgy plant, Nadvoitzky aluminium plant, Central Scientific Institute of Metals. She is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). She performed over 200 audits since 2004. Also she is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered ISO 9001 Lead Auditor Training Course. She is an Assuror of Social Reports. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and was involved in determination and verification of over 15 JI projects.

The determination report was reviewed by:

Ivan G. Sokolov, Dr. Sci. (biology, microbiology)
Team Leader, Climate Change Lead Verifier
Internal Technical Reviewer, Bureau Veritas Certification Holding SAS Local Climate Change Product Manager for Ukraine
Bureau Veritas Black Sea District Health, Safety and Environment Department Manager
He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He is Lead Tutor of the Clean Development Mechanism /Joint Implementation Lead Verifier Training Cours and he was involved in the determination/verification over 50 JI/CDM projects.