VERIFICATION REPORT
INSTITUTE FOR ENVIRONMENT AND ENERGY CONSERVATION

VERIFICATION OF THE REVAMPING OF SINTERING AND BLAST-FURNACE PRODUCTION AT OJSC "ALCHEVSK IRON AND STEEL WORKS"

REPORT NO. UKRAINE-VER/0719/2012
REVISION NO. 02
(FOR THE PERIOD 01/07/2012 – 30/09/2012)

BUREAU VERITAS CERTIFICATION

Date of first issue:	Organizational unit:
23/11/2012	Bureau Veritas Certification Holding SAS

Client:	Client ref.:
Institute for Environment and Energy Conservation	Vasyl Vovchak

Summary:

Bureau Veritas Certification has made the seventh periodic verification of the "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works", UA1000262, project of Institute for Environment and Energy Conservation located in Alchevsk, Lugansk oblast, Ukraine, and applying JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Accredited Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the monitoring report against project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 639 855 tonnes of CO_2 equivalent for the monitoring period (01/07/2012 - 30/09/2012).

Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents.

Report No.:	Subject Group:		
UKRAINE-ver/0719/2012	JI		
Project title:			
"Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works"			
Work carried out by:			
Oleg Skoblyk – Team Leader, Lead Verifier Iuliia Pylnova – Team member, Lead Verifier Igor Alekseenko – Technical Specialist			
Work reviewed by:			
Ivan Sokolov - Internal Technical Reviewer Vyacheslav Yeriomin – Technical Specialist		☒	No distribution without permission from the Client or responsible organizational unit
Work approved by:			
Ivan Sokolov - Operational Manager		☐	Limited distribution
Date of this revision:	Rev. No.: / Number of pages:		
26/11/2012	02 / 39	☐	Unrestricted distribution

Bureau Veritas Certification Holding SAS

Abbreviations

AIE	Accredited Independent Entity
BFG	Blast Furnace Gas
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CHP	Combined Heat and Power
CL	Clarification Request
CO_2	Carbon Dioxide
COG	Coke Oven Gas
AISW	PJSC “Alchevsk Iron and Steel Works”
DFP	Designated Focal Point
DVM	Determination and Verification Manual
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
GHG	Green House Gas(es)
GWP	Global Warming Potential
I	Interview
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MP	Monitoring Plan
MoV	Means of Verification
NGO	Non Government Organization
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

Table of Contents *Page*

1 INTRODUCTION

Institute for Environment and Energy Conservation has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project “Revamping of sintering and blast-furnace production at OJSC “Alchevsk Iron and Steel Works” (hereafter called “the project”) at Alchevsk, Lugansk oblast, Ukraine.

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

1.1 Objective

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

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

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

1.2 Scope

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

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

1.3 Verification Team

The verification team consists of the following personnel:

Oleg Skoblyk
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Iuliia Pylnova
Bureau Veritas Certification Team Member, Climate Change Lead Verifier

Igor Alekseenko
Bureau Veritas Certification, Technical specialist

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

Vyacheslav Yeriomin
Bureau Veritas Certification, Technical specialist

2 METHODOLOGY

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

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

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

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

2.1 Review of Documents

The Monitoring Report (MR) submitted by Institute for Environment and Energy Conservation and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

The verification findings presented in this report relate to the Monitoring Report versions 1, 2, and project as described in the determined PDD of the final version.

2.2 Follow-up Interviews

On 06/11/2012 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of PJSC “Alchevsk Iron and Steel Works” (according to the documentation checked, 16/05/2011 PJSC “Alchevsk Iron and Steel Works” was established by changing the name of juridical person OJSC “Alchevsk Iron and Steel Works” to PJSC “Alchevsk Iron and Steel Works”) and Institute for Environment and Energy Conservation were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC "Alchevsk Iron and Steel Works"	Organizational structure Responsibilities and authorities Roles and responsibilities for data collection and processing Installation of equipment Data logging, archiving and reporting Metering equipment control Metering record keeping system, database IT management Training of personnel Quality management procedures and technology Internal audits and check-ups
Institute for Environment and Energy Conservation	Baseline methodology Monitoring plan Monitoring report

2.3 Resolution of Clarification, Corrective and Forward Action Requests

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

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

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

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

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

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

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

3 VERIFICATION CONCLUSIONS

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

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

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 02 Corrective Action Requests, 02 Clarification Requests, and 0 Forward Action Request.

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

3.1 Remaining issues and FARs from previous verifications

There were no remaining issues and FARs from the previous verification.

3.2 Project approval by Parties involved (90-91)

Written project approval was received from the Netherlands DFP (Declaration of Approval 2011JI14 on the JI project “Revamping of sintering and blast-furnace production at OJSC “Alchevsk Iron and Steel Works” issued by Ministry of Economic Affairs, Agriculture and Innovation dated 10/05/2011).

The abovementioned written approval is unconditional.

Also, Letter of Approval (LoA #1155/23/7 dated 11/05/2011) on the JI project "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" was issued by National Environmental Investment Agency of Ukraine that is National Focal Point of host Party (Ukraine).

3.3 Project implementation (92-93)

The implementation status of the project:

- installation of pulverized coal injection (PCI) facility at BF # 1 (implementation of this measure was started in October 2006 and was completed in May 2009);
- installation of PCI facility at BF # 5 (implementation of this measure was started in October 2006 and was completed in August 2009);
- installation of PCI facilities at BFs # 3 and # 4 (implementation of this measure was started in October 2006, and will be completed in the first quarter of 2014 at BF # 3 and in the fourth quarter of 2012 at BF # 4);
- renewal and reconstruction of BF # 1 (implementation of this measure was started in the first half of 2004 and BF#1 was commissioned on 16th of May 2007);
- renewal and reconstruction of BF # 5 (implementation of this measure was started in 2006 and such measure was implemented during the first quarter of 2012. Majority of renewal and reconstruction measures at BF # 5 were connected to ensuring the PCI facility to work at full capacity and installation of system that injects nitrogen into the interbell space of BF instead of steam. The nitrogen injection system was implemented in March 2012 in compliance with the statement dated 25/09/2012;
- reconstruction of the oxygen unit # 4 (implementation of this measure was started in 2004 and was completed in December 2005);
- installation of oxygen units # 7 (implementation of this measure was started in 2007 and was completed in 2008);
- installation of oxygen units # 8 (implementation of this measure was started in 2007 and was completed in 2009);
- construction of BF # 2 (implementation of this measure was started in 2007 and was not completed during the monitoring period. For the present time construction of BF # 2 is delayed because of adverse market situation and lack of financing. Construction of BF # 2 will be continued after improvement of market situation and availability of funding. According to the project implementation schedule stated in the Project

Design Document (PDD), commissioning of the measure is expected in the year 2015);

- construction of new sinter plant (implementation of this measure was started in 2006 and was not completed during the monitoring period. According to the project implementation schedule in the PDD, commissioning of the sinter plant is expected in the year 2016);
- construction of new lime kilns #5 and #6 (implementation of this measure was started in 2005. New lime kiln #5 was operating in starting-up mode from December 2011 till February 2012 and was commissioned in February 2012 in compliance with the statement dated 29/02/2012. New lime kiln #6 is operating in starting-up mode from May 2012 and will be commissioned during the fourth quarter of 2012).

The identified areas of concern as to Project implementation, project participants response and BV Certification's conclusion are described in Appendix A (refer CAR 01).

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

The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website and in accordance with the revisions to the monitoring plan determined during the verification of the first half-year of 2011.

For calculating the emission reductions, key indicators, constants and variables such as total pig iron output, quantity of each fuel used in making pig iron, emission factor for fuel consumption, electricity consumed in producing pig iron, emission factor for electricity consumption, quantity of fuel used in sintering process, electricity consumed in sintering process, quantity of reducing agents, emission factor of each reducing agent, quantity of each other input in pig iron production, emission factor of each other input, quantity of fuel used for balance of process needs, and electricity consumed for balance of process needs, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating emission reductions are clearly identified, reliable and transparent.

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

Monitoring report for the project (3 quarter of 2012) is already using specific values of carbon dioxide emission factors for fuel based on specific carbon content or calorific value of fuel. Emission factors from consumption of coal (anthracite), limestone and dolomite and for production of coke and iron pellets are based on IPCC data due to the fact that national data are not officially approved by the national designating entity. As soon as they are approved, the corresponding changes will be incorporated into the monitoring reports.

Taking into account that the project boundary of the JI project “Installation of a new waste heat recovery system at Alchevsk Coke Plant, Ukraine” (UA1000130 - registered under Track 1) includes blast-furnaces of AISW with respect to particular volumes of consumed dry blast-furnace coke, the CO_2 emission reductions that were generated during the period of 01/07/2012 – 30/09/2012 due to component three (3) of mentioned above JI project were attributed to the leakages of GHG’s.

Project line emissions were calculated as the result of multiplying the total volume of dry blast-furnace coke consumed in the blast-furnaces of AISW during the period of 01/07/2012 – 30/09/2012 by CO_2 emission factor for coke.

Baseline emissions due to component three (3) were calculated based on such initial data as: volumes of consumed dry blast-furnace coke in the blast-furnaces of AISW and coke quality indicators (M_{10}, M_{25}, M_{80}) for wet-quenched and dry-quenched blast-furnace coke during the period of 01/07/2012 – 30/09/2012. JI specific approach, which is applied for calculation of baseline emissions due to component three (3), is demonstrated in the PDD of JI project “Installation of a new waste heat recovery system at Alchevsk Coke Plant, Ukraine”.

Leakages of GHG emissions were calculated by subtracting total project line emissions generated by the JI project “Installation of a new waste heat recovery system at Alchevsk Coke Plant, Ukraine” from the baseline emissions that were generated by the component three (3) of the mentioned above project during this reporting period.

Together with this, in order to ensure accuracy of leakages calculation and also to ensure full correlation between leakages under this project and emission reductions generated by the JI project “Installation of a new waste heat recovery system at Alchevsk Coke Plant, Ukraine” (because weighted average indicators are used), the project developer, at the first stage, calculated leakages for the period of 01/01/2012 – 30/09/2012 and then, at the second stage, subtracted leakages that were generated during the period of 01/01/2012 – 30/06/2012 from the total volume of leakages generated during the period of 01/01/2012 – 30/09/2012. As the result, leakages of GHG emissions for the period of 01/07/2012 – 30/09/2012 were accurately calculated.

After that, leakages of GHG emissions were subtracted from the total volume of emission reductions associated with this project during this monitoring period.

Leakages during the third quarter of 2012 are equal 27 484 tonnes CO_2e.

Mentioned above volume of leakages is based on actual data which can be proved by initial data from AISW and Alchevsk Coke Plant. The Excel-file with calculation of leakages, together with initial data from AISW and Alchevsk Coke Plant, will be provided to the verifier in order to verify the mentioned above amount of leakages generated under this project.

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

The difference between the value of emission reductions that were actually generated during the third quarter of 2012 and emission reduction estimated in the registered PDD is caused by the following reasons: the better improvement of raw materials quality that are used in pig iron production process, in particular, of its fraction content, hardness, abrasion, ash content, sulphur content as well as the level of impurities, iron content etc. and better technological improvements of pig iron production (melting) process than it was previously expected in the registered PDD; market influence on the replacement of coke by coal; implementation of energy efficiency measures which are described in registered PDD and ascribed to project boundaries etc.

The identified areas of concern as to Compliance of the monitoring plan with the monitoring methodology, project participants response and BV

Certification's conclusion are described in Appendix A (refer to CL 01 and CL 02).

3.5 Revision of monitoring plan (99-100)

Revisions to the monitoring plan were finally determined during the verification of the first half-year of 2011.

No additional revisions have occurred through the current monitoring period.

3.6 Data management (101)

The data and their sources, provided in monitoring report, are clearly identified, reliable and transparent.

The implementation of data collection procedures is in accordance with the PDD and revised monitoring plan, including the quality control and quality assurance procedures. These procedures are mentioned in the section "References" of this report.

The monitoring of JI project indicators at AISW was realized on regular basis where the system of data collection on FER consumption was being used. The data needed for the monitoring of the project were collected during the process of normal equipment use. The production facilities of the plant were equipped with the measuring devices such as scales, meters and gas, water, steam, electricity consumption meters. The monitoring of the project formed an organic part of routine monitoring of manufacturing process. This allowed receiving data regarding the project continuously.

The Chief Metrological Specialist of the AISW was in charge for maintenance of the facilities and monitoring equipment as well as for their accuracy required by Regulation PP 229-Э-056-863/02-2005 of "Metrological services of the metallurgical mills" and by "Guiding Metrological Instructions". In case of defect, discovered in the monitoring equipment, the actions of the staff were determined in Guiding Metrological Instructions. The measurements were conducted constantly in automatic regime.

The data required to be monitored under the proposed JI project was routinely collected within the normal operations of the AISW. Together with this data collection was an integral part of routine monitoring. Data was compiled in (i) day-to-day records, (ii) quarterly records, and (iii) annual records. Data were collected in the electronic database of AISW and in printed documents. All records where finally stored in Planning Department.

According to the order # 95 dated 01/02/2012 on appointment of responsible persons for the monitoring of JI Projects under the Kyoto Protocol and also on the period of monitoring data storage at the plant, the data that are required to be monitored are kept during whole crediting period and for two years after the last transfer of emission reduction units (ERUs) under the project.

The revised monitoring plan that was finally determined in the verification report for the first half-year of 2011 was implemented by different specialists of the AISW under supervision of Chief Energy Specialist and managed by Director General of the Plant.

The measurement results were being used by the Chief power-engineering specialist department, by the services and technical staff of the Steel Mill. They were reflected in the technological instructions of production processes regime and also in the “Guiding Metrological Instructions” revised versions. The monitoring data reports and calculations were under the competence of the Chief power-engineering specialist assistant in accordance to the interior orders of the Steel Mill.

All main production shops and specialists of the plant were involved in preparation of monitoring report under coordination of Chief Energy Specialist.

With the project equipment introduction the workers of AISW have the opportunity to update their working skills, stimulated by the theoretical and practical trainings and studies to operate the project equipment that is implemented under the project at the Steel Mill. Thus during this monitoring period, the direction of AISW has organized staff professional training at sinter plant and blast-furnace shop under the programs of AISW staff professional training. The information note for chief power engineer of AISW №021/452 dated 03/10/2012 on staff professional training (during the third quarter of 2012) was provided to the verification team.

AISW used the accredited system of quality regulation according to the requirements of the ISO 9001 standard. In order to ensure the appropriate quality management system implementation the internal audits are conducted at the plant on monthly basis based on the AISW order # 864 of 27/12/2010. The department of quality management is responsible for the internal audit implementation at the plant and for the storage of the Reports on the results of the audits.

Internal audits on compliance to the standard of ISO 9001:2008 Quality Management Systems were not conducted under the project during this monitoring period.

The Guiding Metrological Instructions were developed in accordance with ISO 9001. They secured required level of accuracy by using monitoring equipment and by the possibility to crosscheck the data adequacy.

Monitoring equipment met the regulatory requirements of Ukraine regarding accuracy and measurement error. All the equipment used for monitoring purposes, were in line with national legislative requirements and standards and also with ISO 9001 standard. The accuracy of devices was guaranteed by the manufacturers; the error was calculated and confirmed by device certificates. All monitoring equipment was covered by the detailed verification (calibration) plan. The verification process was under strict control. All measuring equipment was included in the verification schedule and verified with established periodicity. According to the schedule of verification, all devices were in satisfactory condition. The documented instructions to operate the facilities were stored at the working places.

The standard ISO 14001 Environmental management systems has been implemented and certified at AISW. The standard determines the procedures related to collection and archiving of data on environmental impacts within activity of the plant and, accordingly, the proposed project activity.

Also, the standard BS OHSAS 18001:2007 Occupational Health and Safety Management Systems was implemented at AISW in the scope of production of cast iron, steel, cast and rolled slabs, steel plate and bar section. The standard helps the plant to manage and control its occupational health and safety risks and to improve its occupational health and safety performance.

During this monitoring period, internal audits on compliance to the standard of ISO 14001:2004 Environmental Management Systems and on compliance to the standard of BS OHSAS 18001:2007 Occupational Health and Safety Management Systems were not conducted. These internal audits are conducted on the annual basis.

The monitoring procedures were quite comprehensible, because they had already been used at AISW for measuring input and output production parameters, and also for receiving data on level of FER and raw-materials consumption. The most effective accessible methods were used for the error minimization. Generally the error level was low for all parameters (varied between 0,5% and 2%) that were subjected to the monitoring. The uncertainty level for each parameter monitored is demonstrated in Section D.2. “Quality control (QC) and quality assurance (QA) procedures undertaken for data monitored” of the PDD and can be confirmed by the relevant passports for each monitoring equipment. Thus, the measurements uncertainty level corresponded with technologies, used in the production process, and was taken into the account when the data were taken from devices.

During the third quarter of 2012 (namely on 17/09/2012), in connection with the schedule electricity supply meters serial №64832, №64811, №64839 and №64812 in the electric substation Kislorodnaya 1 were replaced by electricity supply meters serial №64869, №64840, №66698 and №72174. Such replacements are confirmed by the records in the aggregate journal of substation Kislorodnaya 1.

Also, during this monitoring period (namely on 07/08/2012) natural gas consumption meter serial №295315 was replaced by natural gas consumption meter serial №162527 and that was confirmed by the record in the journal «The CHP device list».

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 PDD and the revision of the monitoring plan determined during the verification of first half-year of 2011.

The identified areas of concern as to Data management, project participants response and BV Certification’s conclusion are described in Appendix A (refer to CAR 02).

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the seventh periodic verification of the "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" Project in Ukraine, which applies JI specific approach. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of PJSC "Alchevsk Iron and Steel Works" 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 revised Monitoring Plan determined during the verification of first half-year of 2011. 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 2 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as per determined changes. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is accurately calculated and is free of material errors, omissions, or misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on

the information we have seen and evaluated, we confirm, with a reasonable level of assurance, the following statement:

Reporting period: From 01/07/2012 to 30/09/2012

Baseline emissions	: 2 701 807	tonnes CO_2 equivalent.
Project emissions	: 2 034 468	tonnes CO_2 equivalent.
Leakages	: 27 484	tonnes CO_2 equivalent.
Emission Reductions	: 639 855	tonnes CO_2 equivalent.

For the monitoring period (01/07/2012 – 30/09/2012), total amount of emission reductions is 639 855 tonnes CO_2 equivalent.

Project emissions and baseline emissions which are stated above are rounded by monitoring report developers to the whole figure and are based on calculations which are demonstrated in excel file attached to the monitoring report.

5 REFERENCES

Category 1 Documents:
Documents provided by the Institute for Environment and Energy Conservation that relate directly to the GHG components of the project.

/1/ PDD "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works", version 4 dated 14/04/2011
/2/ Decree of Cabinet of Ministers of Ukraine # 206, dated 22/02/2006
/3/ Monitoring Report "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" (3rd quarter 2012), version 1 dated 20/10/2012
/4/ Monitoring Report "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" (3rd quarter 2012), version 2 dated 12/11/2012
/5/ Excel-file "ER calculation_RS&BFP_3_2012"
/6/ Verification Report "Revamping of sintering and blast-furnace production of OJSC "Alchevsk Iron and Steel Works" (01/01/2011 – 30/06/2011), version 03 of 25/09/2011
/7/ Monitoring Report "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" (01/01/2011-30/06/2011), version 2 of 14/09/2011 (with the revised monitoring plan included in the monitoring plan)
/8/ Letter of Endorsement № 1806/23/7 on the JI project "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" dated November, 09, 2010 issued by National Environmental Investment Agency of Ukraine
/9/ Declaration of Approval 2011JI14 on the JI project "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" issued by Ministry of Economic Affairs, Agriculture and Innovation dated 10/05/2011
/10/ Letter of Approval # 1155/23/7 on the JI project "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" issued by National Environmental Investment Agency of Ukraine dated 11/05/2011

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

/1/ Glossary of JI terms, version 03, JISC.
/2/ Guidance on Criteria for Baseline Setting and Monitoring, version 03, JISC.
/3/ JISC "Clarification regarding the public availability of documents under the verification procedure under the Joint Implementation Supervisory Committee", version 03.
/4/ The journal "CHP device list" with recording replacement of natural gas consumption meter.
/5/ Passport for natural gas consumption meter Метран ser. #00025, last calibration date: 14/08/2012.
/6/ Passport for natural gas consumption meter Диск-250 ser. #10334, last calibration date: 14/08/2012.
/7/ Passport for natural gas consumption meter Диск-250 ser. #52206, last calibration date: 28/08/2012.
/8/ Passport for natural gas consumption meter Метран ser. #162527, last calibration date: 07/08/2012.
/9/ Passport for natural gas consumption meter Метран ser. #295315, last calibration date: 11/06/2012.
/10/ Passport for natural gas consumption meter Сафир ser. #09942204, last calibration date: 29/08/2012.
/11/ Passport for scales for weighting coke, coal, limestone and pellets 2315ВВ-150Э/2СД, #15. Last calibration date: 12/09/2012.
/12/ Passport for scales for weighting coke, coal, limestone and pellets 2361ВВ-80Э/1Д, #61. Last calibration date: 12/09/2012.
/13/ Coke quality indicators for July 2012.
/14/ Coke quality indicators for August 2012.
/15/ Coke quality indicators for September 2012.
/16/ Acceptance report for pipelines operation. Nitrogen pipe for nitrogen injection into interbell space of BF#5 of 25/09/2012.
/17/ Aggregate journal of substation Kislorodnaya 1 with recording replacement of electricity supply meters.
/18/ Electricity supply meter LZQM #64840. Last calibration date: 23/08/2012.
/19/ Electricity supply meter LZQM #64869. Last calibration date: 23/08/2012.
/20/ Electricity supply meter LZQM #66698. Last calibration date: 01/08/2012.
/21/ Electricity supply meter LZQM #72174. Last calibration date:

13/08/2012.
/22/ Technical report (blast-furnace shop) for August 2012.
/23/ Technical report (blast-furnace shop) for July 2012.
/24/ Technical report (blast-furnace shop) for September 2012.
/25/ Actual consumption of boiler-furnace fuel for the third quarter of 2012.
/26/ Electric energy balance of networks and substations department for August 2012.
/27/ Electric energy balance of networks and substations department for July 2012.
/28/ Electric energy balance of networks and substations department for September 2012.
/29/ Report on protection of atmospheric air for the third quarter of 2012.
/30/ Actual calculation (sintering shop) for August 2012.
/31/ Actual calculation (sintering shop) for July 2012.
/32/ Actual calculation (sintering shop) for September 2012.
/33/ Information letter #021/452 of 03/10/2012 for chief engineer of PJSC "AISW" concerning professional training for PJSC "AISW" staff.

Persons interviewed:

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

/1/ A. Bondarenko - deputy chief of Sinter plant at PJSC “AISW”;
/2/ N. Krasnonis – chief of environmental protection department at PJSC “AISW”;
/3/ T. Zaporozhets – metrology engineer of control measurement equipments and apparatus shop at PJSC “AISW”;
/4/ S. Sbitniev - deputy chief of the technical department at PJSC “AISW”;
/5/ V. Pavlonikov - chief of the technical department at PJSC “AISW”;
/6/ O. Stepanenko - chief of staff training department at PJSC “AISW”;
/7/ L. Iaroshenko – engineer on metrology of central weighting economy at PJSC “AISW”;
/8/ A. Tymoshenko - deputy chief of the central weighting economy at PJSC “AISW”;
/9/ O. Kaiuda – chief of team of electricity and technical laboratory at PJSC “AISW”;

/10/ G. Bremze - contractor of PJSC “AISW”;

/11/ V. Ivliev - deputy chief power engineer at PJSC “AISW”;

/12/ A. Yermolayeva – specialist of the Institute for Environment and Energy Conservation Ltd.

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	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	The DFP of Netherlands has issued a written project approval for the project (Ministry of Economic Affairs, reference: 2011JI14 of 10/05/2011).	OK	OK
91	Are all the written project approvals by Parties involved	All the written project approvals by Parties involved are unconditional.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	unconditional?			
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The project has been implemented in accordance with the PDD of the final version listed on the UNFCCC JI website and according to the revised monitoring plan determined within the verification for half-year of 2011.	OK	OK
93	What is the status of operation of the project during the monitoring period?	The Monitoring Report provides the list of project activities including their implementation status. **CAR 01.** Please, update (in the MR section 3) information on planned data of installation of PCI facilities at BF #3 and BF#4.	CAR 01	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD	The monitoring occurs in accordance with the revised monitoring plan determined within the verification for the	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	first half-year of 2011.		
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	For calculating the emission reductions, key factors were taken into account.	OK	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified,	Data sources used for calculating emission reductions are identified in the Monitoring Report.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	reliable and transparent?			
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?	Emission factors are selected by carefully balancing accuracy and reasonableness. **CL 01.** Please, clarify the use of emission factors from IPCC while the latest values of national emission factors (in accordance with National Inventory of Greenhouse Gases) are available. Specifically, pay attention to the carbon emission factor for coal as just the value of this factor is stated in the National Inventory while the project developer has used emission factor based on calorific value of anthracite taken from IPCC 2006.	CL 01	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on	The calculation of emission reductions is based on conservative assumptions.		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	conservative assumptions and the most plausible scenarios in a transparent manner?	**CL 02.** Please, clarify whether calculation of leakages within the project (for this monitoring period) are based on the already verified emission reductions of the project implemented at Alchevsk Coke Plant (http://ji.unfccc.int/JIITLProject/DB/1D4N29Y8OQJEF2BPYY0WSRW4WWDWGT/details) or not. If the verification (for the 3rd quarter of 2012) of the last-mentioned project is finished, please, refer to it.	CL 02	OK
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/A	N/A	N/A
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	N/A	N/A	N/A
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	Please, see section 9 of the monitoring report of final version.	OK	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	**CAR 02.** Please, correct the calibration date for the electricity meters in the electric substation Kislorodnaya 1 (pg.14 of the MR).	CAR 02	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	The evidence and records used for the monitoring are maintained in a traceable manner.	OK	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The data collection and management system for the project in accordance with the revised monitoring plan.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/A	N/A	N/A
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/A	N/A	N/A
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/A	N/A	N/A
104	Does the monitoring period not overlap with previous monitoring periods?	N/A	N/A	N/A
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	findings in writing?			
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: − The types of JPAs; − The complexity of the applicable technologies	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	and/or measures used; − The geographical location of each JPA; − The amounts of expected emission reductions of the JPAs being verified; − The number of JPAs for which emission reductions are being verified; − The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?	N/A	N/A	N/A
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	N/A	N/A	N/A

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR 01. Please, update (in the MR section 3) information on planned data of installation of PCI facilities at BF#3 and BF#4.	93	Such information is now updated in the modified MR.	CAR 01 is closed based on the modification made.
CL 01. Please, clarify the use of emission factors from IPCC while the latest values of national emission factors (in accordance with National Inventory of Greenhouse Gases) are available. Specifically, pay attention to the carbon emission factor for coal as just the value of this factor is stated in the National Inventory while the project developer has used emission factor based on calorific value of anthracite taken from IPCC 2006.	95 (c)	Monitoring report is already using specific values of carbon dioxide emission factors for fuel based on specific carbon content or calorific value of fuel. Emission factors from consumption of coal (anthracite), limestone and dolomite and for production of coke and iron pellets are based on IPCC data due to the fact that national data are not officially approved by the national designating entity. As soon as they are approved, the corresponding changes will be	Due to the explanation provided, the issue is closed.

		incorporated into the monitoring reports. Together with this, taking into account that most of coal, that was consumed, had common quality characteristics and calorific value to anthracite and also because National GHG Inventory doesn't provide information regarding the net calorific value of anthracite, the project developer calculated carbon emission factor for coal based on carbon content of anthracite, which is in accordance with IPCC 1996 data and on the net calorific value of anthracite, which in accordance with IPCC 2006 data.	
CL 02. Please, clarify whether calculation of leakages within the project (for this monitoring period) are based on the already verified emission reductions of the project implemented at Alchevsk Coke Plant (http://ji.unfccc.int/JIITLProject/DB/	95 (d)	**Response #1.** The calculation of leakages within the project for this monitoring period is based on real data from JI project implemented at Alchevsk Coke Plant in the same monitoring period, which is on the final	**Conclusion on response #1.** The response to CL 02 should also state that If the verification of the project at Alchevsk Coke plant is finished

1D4N29Y8OQJEF2BPYY0WSRW4WWDWGT/details) or not. If the verification (for the 3rd quarter of 2012) of the last-mentioned project is finished, please, refer to it.		verification stage but not yet verified. In case if verified emission reductions are to be different from proposed ones, the relevant data will be corrected. **Response#2.** The calculation of leakages within the project for this monitoring period is based on real data from JI project implemented at Alchevsk Coke Plant in the same monitoring period, which is on the final verification stage but not yet verified. If the verification of the project at Alchevsk Coke Plant is finished sooner than verification of the project at AISW, the	(sooner than verification of the project at AISW), the calculation of leakages of the project at AISW will be based exactly (only) on the *verified* ERUs of Alchevsk Coke Plant project (*with all the necessary references to the last-mentioned project*). **Conclusion on response #2.** Based on the sufficient explanation provided, the issue is closed.

		calculation of leakages of the project at AISW will be based exactly on the verified emission reductions of JI project implemented at Alchevsk Coke Plant. In case if verified emission reductions are to be different from proposed ones, the relevant data will be corrected.	
CAR 02. Please, correct the calibration date for the electricity meters in the electric substation Kislorodnaya 1 (pg.14 of the MR).	101 (b)	Necessary correction is now made in the modified MR.	CAR 02 is closed due to the correction made.