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"

(FOR THE PERIOD 01/01/2012 – 31/03/2012)

REPORT NO. UKRAINE-VER/0494/2012

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BUREAU VERITAS CERTIFICATION

Date of first issue:	Organizational unit:
04/06/2012	Bureau Veritas Certification Holding
Client:	Client ref.:
Institute for Environment and Energy Conservation	Vasyl Vovchak

Summary:

Bureau Veritas Certification has made the sixth 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 595 676 tonnes of CO_2 equivalent for the monitoring period (01/01/2012 - 31/03/2012).

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/0494/2012	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 Vera Skitina – Team member, Lead Verifier Iuliia Pylnova – Team member, Lead Verifier			
Work reviewed by:			
Ivan Sokolov - Internal Technical Reviewer Igor Alekseenko – 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:		
06/06/2012	02 / 51	☐	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

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

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

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

Igor Alekseenko
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 23/05/2012 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 10 Corrective Action Requests, 10 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 was FAR 01 (from previous verifications) concerning preparation of more improved and clearer list of monitoring equipment by revising and updating present one.

The FAR was transformed into CAR 03 and closed during the present verification.

3.2 Project approval by Parties involved (90-91)

Written project approval by the Netherlands (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) has been issued by the DFP of that Party when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest.

The abovementioned written approval is unconditional.

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 fourth quarter of 2012 at BF # 3 and in the third 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 is expected to be completed during the second quarter of 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. For the present time new lime kilns # 5 and #6 are operating in starting-up mode. Commissioning of this measure is expected in the second 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 to CAR 04, CAR 05, and CL 04).

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 (1 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_2e emission reductions that were generated during the period of 01/01/2012 – 31/03/2012 due to component three (3) of mentioned above JI project were attributed to the leakages of GHG's.

Project line emissions are 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 01/01/2012 – 31/03/2012 by CO_2e 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 01/01/2012 – 31/03/2012. 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 the reporting period.

Leakages during the first quarter of 2012 are equal to 29 704 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 are provided to the verifier in order 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 first quarter of 2012 and emission reduction estimated in the registered PDD is caused by 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 CAR 01, CAR 02, CL 03, CAR 03, CAR 06, CAR 07, CAR 08, CL 10, CAR 09, and CAR 10).

3.5 Revision of monitoring plan (99-100)

Not applicable.

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.

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 engineer of AISW № 021/160 dated 10/05/2012 on staff professional training (during the first 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.

Thus during this monitoring period, (namely on 26/01/2012, 09/02/2012, 14/03/2012 and 26/03/2012) planned internal audits on compliance to the standard of ISO 9001:2000 Quality Management System were conducted at different departments of AISW. Reports on conducted internal audits № 1, № 15 and № 5 dated 14/02/2012, 30/03/2012 and 15/03/2012 were provided to the verification team. Report on the last conducted internal audit № 10 is not completed, but may be provided upon the verification team request after it will be completed.

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 standards. 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 environmental management standard ISO 14001 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.

Thus, during the period from 30/01/2012 till 02/02/2012, internal audit on compliance to the standard of ISO 14001:2004 Environmental Management Systems was conducted. The report on deviations/remarks dated 02/02/2012 was provided to the verification team.

Also, the Occupational Health and Safety Management Systems BS OHSAS 18001:2007 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.

Thus, internal audit on compliance to the standard of BS OHSAS 18001:2007 Occupational Health and Safety Management Systems was conducted during 30/01/2012 – 02/02/2012. The report on deviations/remarks dated 02/02/2012 was provided to the verification team.

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 monitoring parameter 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 this monitoring period some types of monitoring devices were changed in comparison with the types for the same monitoring devices indicated in the previous monitoring period. This was caused by the fact that electricity supply meters of the type СА3У have several

modifications, which characterize their constructional differences. In the same time, physical configuration, functions and technical characteristics of these electricity supply meters are identical. Such changes do not influence the quality and accuracy of measurements.

Also, during the first quarter of 2012 electricity supply meters in the electric substation # 31 were replaced and that was confirmed by the record in the aggregate journal for substation #31.

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 CL 01, CL 02, CL 07, CL 08, and CL 09).

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the sixth 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 01/01/2012 to 31/03/2012

Baseline emissions	: 2 918 421	tonnes CO_2 equivalent.
Project emissions	: 2 293 041	tonnes CO_2 equivalent.
Leakages	: 29 704	tonnes CO_2 equivalent.
Emission Reductions	: 595 676	tonnes CO_2 equivalent.

For the monitoring period (01/01/2012 – 31/03/2012), total amount of emission reductions is 595 676 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 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" (1st quarter 2012), version 1 dated 08/05/2012
/4/ Monitoring Report "Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works" (1st quarter 2012), version 2 dated 30/05/2012
/5/ Excel-file "ER-Revamping of sintering and blast-furnace production at OJSC "Alchevsk Iron and Steel Works"
/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/or 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/ Report on internal audit # 10 conducted 26/03/2012
/5/ Audit plan on quality management system conformity dated 05/03/2012
/6/ Nonconformity protocol # 1 dated 26/03/2012
/7/ Nonconformity protocol # 2 dated 26/03/2012
/8/ Nonconformity protocol # 3 dated 26/03/2012
/9/ Nonconformity protocol # 4 dated 26/03/2012
/10/ Nonconformity protocol # 5 dated 26/03/2012
/11/ Nonconformity protocol # 6 dated 26/03/2012
/12/ Pie chart on natural gas consumption, BF # 5 dated 10/02/2012
/13/ Pie chart on natural gas consumption, BF # 5 dated 26/03/2012
/14/ Pie chart on natural gas consumption, BF # 5 dated 05/01/2012
/15/ Electricity balance sheet (networks and substations department) for February 2012
/16/ Technical report for January 2012. Alchevsk Coke Plant
/17/ Technical report for March 2012. Alchevsk Coke Plant
/18/ Technical report for February 2012. Alchevsk Coke Plant
/19/ Coke quality certificate dated 07/01/2012
/20/ Coke quality certificate dated 16/01/2012
/21/ Coke quality certificate dated 28/02/2012
/22/ Coke quality certificate dated 09/03/2012
/23/ Coke quality certificate dated 20/03/2012
/24/ Form 2-ТП (air). Report on air protection for the 1st quarter 2012
/25/ Pie charts of natural gas consumption for 1st quarter 2012
/26/ Coke gas balance sheet of PJSC "Alchevsk Iron and Steel Mill" for January, February, March 2012
/27/ Actual calculation for January, February, March 2012 (sinter plant)
/28/ Report on internal audit # 5 dated 15/03/2012 (crimping shop). Audit plan. Audit protocols # 1, 2 dated 09/02/2012
/29/ Information note # 021/160 dated 10/05/2012 on training of personnel of Sinter Plant, Blast-Furnace Shop and Oxygen-converter Shop in the 1st quarter 2012
/30/ Report on internal audit # 1 dated 14/02/2012 (Chief power-engineering specialist department). Audit plan dated 19/01/2012.

Audit protocol # 1 dated 26/01/2012

/31/ Report on internal audit # 15 dated 30/03/2012 (Electrical and technical laboratory). Audit plan dated 06/03/2012. Audit protocols # 1-6 dated 14/03/2012

/32/ Passport on strain gauge scales, fabrication # 61. Last calibration date–13/09/2011

/33/ Passport on strain gauge scales, fabrication # 15. Last calibration date–13/09/2011

/34/ Passport on strain gauge scales, fabrication # 213. Last calibration date–12/12/2011

/35/ Passport on measuring channel, fabrication # 02320193 (BF1, natural gas consumption). Last calibration date–05/09/2011

/36/ Passport on registration device, fabrication # 51458 (BF3, natural gas consumption). Last calibration date–22/02/2012

/37/ Passport on pressure transducer (gaseous unit), fabrication # 01522624. Last calibration date–22/02/2012

/38/ Passport on pressure transducer, fabrication # 05900228 (BF4, natural gas consumption). Last calibration date–13/01/2012

/39/ Passport on registration device, fabrication # 22526 (BF4, natural gas consumption). Last calibration date–13/01/2012

/40/ Passport on registration device, fabrication # 10334 (BF5, natural gas consumption). Last calibration date–05/08/2011

/41/ Passport on pressure transducer, fabrication # 000225 (BF5, natural gas consumption). Last calibration date–23/08/2010

/42/ Passport on pressure transducer, fabrication # 295315 (CHP, natural gas consumption). Last calibration date–07/06/2011

/43/ Passport on pressure transducer, fabrication # 495684 (BF1, natural gas consumption). Last calibration date–10/04/2012

/44/ Passport on multiple channel device, fabrication # 300-0502 (BF1)

/45/ Statement dated 30/06/2010 on measuring device conservation, fabrication # 331200 0220 (BF3)

/46/ Passport on power meter, fabrication # 023867. Last calibration date–12/07/2010

/47/ Passport on power meter, fabrication # 208209. Last calibration date–10/01/2012

/48/ Passport on power meter, fabrication # 115623. Last calibration date–12/11/2010

/49/ Passport on power meter, fabrication # 084840. Last calibration date–11/10/2010

/50/ Aggregate logbook of substation # 31 (record on replacement of device, fabrication # 669248, by device, fabrication # 085323, record on replacement of device, fabrication # 845858, by device, fabrication # 821109)

/51/ Passport on power meter, fabrication # 730277. Last calibration date–10/02/2012

/52/ Passport on power meter, fabrication # 085327. Last calibration date–10/02/2012

/53/ Passport on power meter, fabrication # 112022. Last calibration date–10/01/2012
/54/ Passport on power meter, fabrication # 908676. Last calibration date–10/01/2012
/55/ Passport on power meter, fabrication # 862947. Last calibration date–10/04/2012
/56/ Passport on power meter, fabrication # 043426. Last calibration date–10/04/2012
/57/ Passport on power meter, fabrication # 686790. Last calibration date–30/03/2012
/58/ Passport on power meter, fabrication # 954652. Last calibration date–17/01/2012
/59/ Passport on power meter, fabrication # 716010. Last calibration date–17/08/2010
/60/ Passport on power meter, fabrication # 890182. Last calibration date–03/04/2012
/61/ Passport on power meter, fabrication # 222604. Last calibration date–01/02/2012
/62/ Passport on power meter, fabrication # 005428005. Last calibration date–09/09/2011
/63/ Passport on power meter, fabrication # 006458905. Last calibration date–05/01/2011
/64/ Passport on power meter, fabrication # 821109. Last calibration date–20/01/2012
/65/ Passport on power meter, fabrication # 085323. Last calibration date–13/01/2011
/66/ Statement # 1-38 of special commission on acceptance of units mounting and finished by construction objects “Expansion of limestone burning district” of converter plant complex 2nd stage
/67/ Concealed works acceptance act (insulation of activating air pipelines to furnace # 6 injector) dated January 2012
/68/ Concealed works acceptance act (insulation of 219 mm exhaust air pipelines to furnace # 6 upper burner) dated January 2012
/69/ Concealed works acceptance act (insulation of 711 mm activating air pipelines to furnace # 6 air duct) dated January 2012
/70/ Concealed works acceptance act (insulation furnace # 6 K-11 process vent) dated January 2012
/71/ Quality certificate # 1901 dated 29/02/2012 galvanized sheet steel
/72/ Certificate # 126 dated 02/02/2012 of dust and gas handling units operator (Maryna Liashenko)
/73/ Certificate # 258 dated 15/02/2012 of dust and gas handling units operator (Svitlana Sokolenko)
/74/ Certificate # 257 dated 17/02/2012 of dust and gas handling units operator (Halyna Batur)
/75/ Certificate # 139 dated 02/02/2012 of dust and gas handling units operator (Viktoriia Prykhodko)

/76/ Certificate # 133 dated 01/02/2012 of dust and gas handling units operator (Nataliia Yakymenko)
/77/ Report on deviation/comment # 1 dated 02/02/2012, issued by TÜV Thüringen e. V.
/78/ Report on deviation/comment # 2 dated 02/02/2012, issued by TÜV Thüringen e. V.
/79/ Report on deviation/comment # 3 dated 02/02/2012, issued by TÜV Thüringen e. V.
/80/ Report on deviation/comment # 4 dated 02/02/2012, issued by TÜV Thüringen e. V.
/81/ Report on deviation/comment # 5 dated 02/02/2012, issued by TÜV Thüringen e. V.
/82/ Report on deviation/comment # 6 dated 02/02/2012, issued by TÜV Thüringen e. V.
/83/ Report on deviation/comment # 7 dated 02/02/2012, issued by TÜV Thüringen e. V.
/84/ Report on deviation/comment # 8 dated 02/02/2012, issued by TÜV Thüringen e. V.
/85/ Report on deviation/comment # 9 dated 02/02/2012, issued by TÜV Thüringen e. V.
/86/ Blast-furnace gas balance sheet of PJSC “Alchevsk Iron and Steel Mill” for February 2012
/87/ Blast-furnace gas balance sheet of PJSC “Alchevsk Iron and Steel Mill” for March 2012
/88/ Electricity balance sheet (networks and substations department) for January 2012
/89/ Electricity balance sheet (networks and substations department) for March 2012
/90/ Summarized data for the period from 01/01/2012 to 31/03/2012 (sinter plant)
/91/ Summarized data for the period from 01/01/2012 to 31/03/2012 (blast-furnace shop)
/92/ Summarized data for the period from 01/01/2012 to 31/03/2012 (oxygen-converter shop)
/93/ Protocol # 201 dated 07/03/2012 on qualification commission session of sinter plant

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/ R. Zaporozhets – metrology engineer of control measurement equipments and apparatus shop at PJSC “AISW”
/2/ P. Sydorov – chief metrologist, head of control measurement equipments and apparatus shop at PJSC “AISW”
/3/ O. Tymoshenko – deputy head of the shop of weighted economy and technologies
/4/ L. Iaroshenko – engineer on metrology of central weighting economy
/5/ O. Adamchuk – engineer of central quality laboratory
/6/ S. Sbitniev – deputy head of technical department at PJSC “AISW”
/7/ A. Skliar – deputy head of sinter laboratory
/8/ M. Krasnonos – head of environmental protection department
/9/ S. Bondar – deputy chief power engineer
/10/ V. Komarov – head of electrical and technical laboratory
/11/ S. Medkova – head of training department
/12/ T. Goncharenko – lead specialist of planned-economic department
/13/ G. Bremze – deputy chief engineer at PJSC “AISW”
/14/ Y. Babych – specialist of 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 unconditional?	All the written project approvals by Parties involved are unconditional.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 04.** Please, correct the third item of the MR section 3 by specifying the date of completion of measures implementation at BF#3 and BF#4. **CL 04.** Please, pay attention to the fifth item of the MR section 3 and clarify whether nitrogen injection is implemented at BF #5 or not. In case of yes, please, provide documentary evidence of this.	CAR 04 CL 04	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CL 05. Please, revise the item # 11 of the MR section 3 as new lime kilns # 5 and # 6 are operating in starting-up and adjustment mode (these kilns also were operating in the same mode during the first quarter of 2012), and there is no documentary evidence of setting in operation of the kilns. Please, add necessary explanation to the MR (section 3).	CL 05	OK
		CAR 05. Please, correct the last word of the fourth paragraph of the MR section 4 (by putting a hyphen between the words "well" and "being").	CAR 05	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the	The monitoring occurs in accordance with the revised monitoring plan determined within the verification for the first half-year of 2011.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	UNFCCC JI website?			
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, reliable and transparent?	Data sources used for calculating emission reductions are identified in the Monitoring Report. **CAR 07.** Please, add detailed explanation of the leakages calculation (including information related to the data from Alchevsk Coke Plant) to the MR section 7.	CAR 07	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CAR 03. Please, prepare more improved and clearer list of monitoring equipment by revising and updating present one.	CAR 03	OK
		CAR 09. Please, explain (in the MR section 9) why types and serial numbers of some units of the measuring equipment indicated in the MR for this monitoring period differs from the types and numbers of the same measuring equipment indicated in the MR for the previous monitoring period. If necessary, please, describe and justify (in the MR section 9) the fact of the meters replacement; or describe why the previous types and numbers included mistakes or misprints.	CAR 09	OK
		CL 10. Please, add one more column to the table of the MR Annex 1; and, please, put information on the last calibration dates of monitoring equipment in the column mentioned above.	CL 10	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Emission factors are selected by carefully balancing accuracy and reasonableness. **CL 03.** 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. **CAR 06.** Please, pay attention to the fact that emission factor for coke can not be default as each time this factor is calculated by the formula indicated in the MR section 5. Also, please, revise the reference related to the coke emission factor (please, see tables of the MR section 6 and tables in the Excel-file).	CL 03 CAR 06	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CAR 10. Please, make correction in the Excel file with emission reduction calculations, because in the third spreadsheet of this file once carbon content of blast-furnace coke is indicated incorrectly.	CAR 10	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	The calculation of emission reductions is based on conservative assumptions. **CAR 01.** Please, explain the difference between amount of emission reductions calculated at the PJSC "AISW" (the Excel-file provided by deputy chief engineer of PJSC "AISW" on the site-visit) and amount of Emission Reductions stated in the Monitoring Report provided. **CAR 02.** Please, give more detailed clarification (specifically, in the view of AISW) concerning the difference between amount of emission reductions provided in the PDD and in the Monitoring Report.	CAR 01 CAR 02	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Please, make necessary amendments in the MR section 8. **CAR 08.** Please, correct the information in the table of the MR section 8 because baseline emission and project emissions are not put in corresponding lines of the table.	CAR 08	OK
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/A	N/A	N/A
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/A	N/A	N/A
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance	**CL 01.** Please, correct/specify information concerning the internal audit # 10 on compliance to the standard ISO 9001.	CL 01	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	procedures?	**CL 07.** Please, add information on the audit on compliance to the standard ISO 14001 conducted in the first quarter of 2012 (indicating the presence of the report on internal audit) to the MR section 9.	CL 07	OK
		CL 08. It is advisable to add (to the MR section 9) information on OHSAS implemented at AISW. If any audits on compliance to this standard were conducted during the first quarter of 2012, please, mention such information in the section 9.	CL 08	OK
		CL 09. Please, justify the error level (it is stated, in the MR section 9, that the error level is less than 2 %) for all parameters. Also, please, include the justification in the MR section 9.	CL 09	OK
		CL 02. Please, provide protocols on trainings/seminars which were organized to successfully operate new lime kilns # 5	CL 02	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		and # 6.		
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	Please, see CAR 03, CAR 09, and CL 10 abovementioned in this protocol.	See CAR 03, CAR 09, CL 10	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
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	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	be verified?			
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 findings in writing?	N/A	N/A	N/A
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that:	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final 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 reductions are being verified;			

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	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 reasonable explanation	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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
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, explain the difference between amount of emission reductions calculated at the PJSC "AISW" (the Excel-file provided by deputy chief engineer of PJSC "AISW" on the site-visit) and amount of Emission Reductions stated in the Monitoring Report provided.	95 (d)	The difference between amount of emission reductions (ER) calculated in the Excel-file provided by deputy chief engineer of PJSC "AISW" during the site-visit and amount of ER stated in the MR was caused by the difference in baseline emissions. The reason for such difference is that Excel-file presented by PJSC "AISW" contained outdated emission factors for baseline emissions calculation. Despite that fact, specific volumes of FER consumption fully correlate between these two files. This proves correctness of calculations which are provided in the MR.	Based on the explanation received, the issue is closed.

CAR 02. Please, give more detailed clarification (specifically, in the view of AISW) concerning the difference between amount of emission reductions provided in the PDD and in the Monitoring Report. Please, make necessary amendments in the MR section 8.	95 (d)	The difference between the value of emission reductions that were actually generated during the first quarter of 2012 and emission reduction estimated in the registered PDD is caused by 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 necessary amendments are made in the modified MR.	The issue is closed, due to the clarification provided.

CL 01. Please, correct/specify information concerning the internal audit # 10 on compliance to the standard ISO 9001.	101 (a)	Necessary corrections are now made. Please see modified MR.	CL 01 is closed based on the amendments made.
CL 02. Please, provide protocols on trainings/seminars which were organized to successfully operate new lime kilns # 5 and # 6.	101 (a)	The protocol on training which was organized to successfully operate new lime kilns # 5 and # 6 in the first quarter of 2012 is now provided to the verification team.	Due to the documentation provided, the issue is closed.
CAR 03. Please, prepare more improved and clearer list of monitoring equipment by revising and updating present one.	95 (b)	More improved and clearer list of monitoring equipment is now provided in the modified MR.	CAR 03 is closed based on the corrections made.
CL 03. 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	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	The issue is closed due to the clarification received.

value of anthracite taken from IPCC 2006.		officially approved by the national designating entity. As soon as they are approved, the corresponding changes will be 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.	
CAR 04. Please, correct the third item of the MR section 3 by specifying the date of completion of measures implementation at BF#3	93	Necessary corrections are now made in modified MR.	Based on the amendments made, the issue is closed.

and BF#4.			
CL 04. Please, pay attention to the fifth item of the MR section 3 and clarify whether nitrogen injection is implemented at BF #5 or not. In case of yes, please, provide documentary evidence of this.	93	Implementation of nitrogen injection technology together with renewal and reconstruction of BF # 5 is expected to be implemented during the second quarter of 2012).	CL 04 is closed due to the modification made in the MR.
CL 05. Please, revise the item #11 of the MR section 3 as new lime kilns #5 and #6 are operating in starting-up and adjustment mode (these kilns also were operating in the same mode during the first quarter of 2012), and there is no documentary evidence of setting in operation of the kilns. Please, add necessary explanation to the MR (section 3).	93	Necessary explanation is now included in the modified MR.	The issue is closed based on the explanation provided.
CAR 05. Please, correct the last word of the fourth paragraph of the MR section 4 (by putting a hyphen between the words “well” and ”being”).	93	Necessary corrections are now made in modified MR.	Due to the correction made in the MR, CAR 05 is closed.
CAR 06. Please, pay attention to the fact that emission factor for	95 (c)	Necessary corrections are now made in the monitoring report	CAR 06 is closed based on the modification made

coke can not be default as each time this factor is calculated by the formula indicated in the MR section 5. Also, please, revise the reference related to the coke emission factor (please, see tables of the MR section 6 and tables in the Excel-file).		and in the Excel-file. Please see modified monitoring report and Excel-file. Together with this, the project developer leaves the reference related to coke emission factor unchanged because the reference states that the emission factor for coke consumption is based on actual carbon content of coke and the data source that is provided, just gives information regarding emission factor for coke production, which is in accordance with IPCC 2006 data.	in the MR.
CAR 07. Please, add detailed explanation of the leakages calculation (including information related to the data from Alchevsk Coke Plant) to the MR section 7.	95 (b)	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_2e emission	Detailed explanation of the leakages calculation is now included in the MR of final version. The issue is closed.

		reductions that were generated during the period of 01/01/2012 – 31/03/2012 due to component three (3) of mentioned above JI project were attributed to the leakages of GHG's. Project line emissions are 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 01/01/2012 – 31/03/2012 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 (M10, M25, M80) for wet-quenched and dry-quenched blast-furnace coke during the period of 01/01/2012 – 31/03/2012. 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 the reporting period. Leakages during the first quarter of 2012 are equal to 29 704 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 verify the	

		mentioned above amount of leakages generated under this project. Such information is now included in the modified monitoring report.	
CAR 08. Please, correct the information in the table of the MR section 8 because baseline emission and project emissions are not put in corresponding lines of the table.	95 (d)	Necessary corrections are now made. Please see the modified MR.	The issue is closed as the required correction has been made.
CL 07. Please, add information on the audit on compliance to the standard ISO 14001 conducted in the first quarter of 2012 (indicating the presence of the report on internal audit) to the MR section 9.	101 (a)	Necessary information regarding conducted audit on compliance to the standard ISO 14001 in the first quarter of 2012 is now included in the modified MR.	Due to the information added to the MR, the issue is closed.
CL 08. It is very advisable to add (to the MR section 9) information on OHSAS implemented at AISW. If any audits on compliance to this standard were conducted during the first quarter of 2012, please, mention such information in the	101 (a)	The information on OHSAS implemented at AISW is now included in the modified MR.	The issue is closed based on information provided.

section 9.			
CL 09. Please, justify the error level (it is stated, in the MR section 9, that the error level is less than 2 %) for all parameters. Also, please, include the justification in the MR section 9.	101 (a)	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	CL 09 is closed due to the amendments made In the MR.

		technologies, used in the production process, and was taken into the account when the data were taken from devices. Such information is now included in the modified monitoring report.	
CL 10. Please, add one more column to the table of the MR Annex 1; and, please, put information on the last calibration dates of monitoring equipment in the column mentioned above.	101 (a)	The column with the information on the last calibration dates of monitoring equipment is now included in the table of the modified MR Annex 1.	Based on the modification made in the MR, the issue is closed.
CAR 09. Please, explain (in the MR section 9) why types and serial numbers of some units of the measuring equipment indicated in the MR for this monitoring period differs from the types and numbers of the same measuring equipment indicated in the MR for the previous monitoring period. If necessary, please, describe and justify (in the MR section 9) the fact of the meters replacement; or describe why the previous types and numbers included mistakes or misprints.	95 (b)	The difference between the types of some units of the measuring equipment indicated in the MR for this monitoring period and the types of the same measuring equipment indicated in the MR for the previous monitoring period was caused by the fact that the electricity supply meters of type СА3У have several modifications, which characterize their constructional differences. In	CAR 09 is closed based on the explanation provided.

		the same time, physical configuration, functions and technical characteristics of these electricity supply meters are identical. These are the reasons why mistakes were made in the previous list of monitoring equipment and they do not influence on the quality and accuracy of measurements. During this monitoring period electricity supply meters in the electric substation 31 were replaced. This fact was confirmed by the record in the aggregate journal for substation 31 which is now provided to the verification team.	
CAR 10. Please, make correction in the Excel file with emission reduction calculations, because in the third spreadsheet of this file once carbon content of blast-furnace coke is indicated incorrectly.	95 (c)	Necessary corrections are now made in the modified Excel-file with emission reduction calculations.	Due to the correction made in the Excel-file with emission reduction calculations, CAR 10 is closed.