VERIFICATION REPORT

INSTITUTE FOR ENVIRONMENT AND ENERGY CONSERVATION LTD

VERIFICATION OF THE INSTALLATION OF A NEW WASTE HEAT RECOVERY SYSTEM IN ALCHEVSK COKE PLANT, UKRAINE

SECOND PERIODIC FOR 2010

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BUREAU VERITAS CERTIFICATION

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

Summary:

Bureau Veritas Certification has made the 2nd periodic verification of the project "Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine" project of Institute for Environment and Energy Conservation, located in town Alchevsk, Lugansk region, Ukraine, and applying the methodology ACM0012 version 03.1, 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 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 (CR, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as per determined changes. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements, and the ERUs issued totalize 163792 tons of CO_2eq for the monitoring period of 01.01.2010 to 31.12.2010.

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

Report No.:	Subject Group:
UKRAINE-ver/0225/2011	JI
Project title:	
"Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine"	
Work carried out by:	
Rostislav Topchiy – Team Leader, Verifier Vera Skitina – Team Member, Lead Verifier Vitaliy Minyaylo – Team Member, Verifier trainee	
Work reviewed by:	
Ivan Sokolov – Internal Technical Reviewer	
Work approved by:	
Flavio Gomes – Operational Manger	

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1 INTRODUCTION

Institute for Environment and Energy Conservation has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine" (hereafter called “the project”) at town Alchevsk, Lugansk region, Ukraine.

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

1.1 Objective

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

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

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

1.2 Scope

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

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

1.3 Verification Team

The verification team consists of the following personnel:

Topchiy Rostislav
Bureau Veritas Certification Team Leader, Climate Change Verifier

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

Minyaylo Vitaliy

Bureau Veritas Certification, Team Member, Climate Change Verifier trainee

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01 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), Approved CDM methodology (if applicable) and/or Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed. Answering the AIE’s CARs and CLs project participant has issued new version of the Monitoring Report – version 2.

The verification findings presented in this report relate to the Monitoring Report version(s) 2.0 and project as described in the determined PDD.

2.2 Follow-up Interviews

On 22/03/2011 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 "Institute for Environment and Energy Conservation" and OJSC "Alchevsk Coke Plant" were interviewed during site visit (see References for the list of interviewed persons). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
OJSC "Alchevsk Coke Plant"	➢ Organizational structure. ➢ Responsibilities and authorities. ➢ Training of personnel. ➢ Quality management procedures and technology. ➢ Implementation of equipment (records). ➢ Metering equipment control. ➢ Metering record keeping system, database.
Institute for Environment and Energy Conservation	➢ Baseline methodology. ➢ Monitoring plan. ➢ Monitoring report. ➢ Deviations from PDD.

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 AIE to assess compliance with the monitoring plan;

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

To guarantee 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 04 Corrective Action Requests, 01 Clarification Requests, and 01 Forward Action Requests.

The number between brackets at the end of each section corresponds to the DVM paragraph (see references).

3.1 Project approval by Parties involved (90-91)

Written project approval by Japan and Ukraine 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.

3.2 Project implementation (92-93)

The JI project at OJSC “Alchevsk Coke Plant” (Alchevskkoks) Lugansk Region, Ukraine envisaged implementation of a new waste heat recovery system based on installation of Coke Dry Quenching facility (CDQ facility), 75 t/h highly-efficient boiler firing coke-oven gas (COG) and blast-furnace gas (BFG) and also installation of 9,13 MWe captive electricity generator together with steam turbine.

Before the project implementation Alchevskkoks was using conventional Coke Wet Quenching (CWQ) technology at batteries 5, 6, 7, 8 and 9-bis for coke quenching. In 2006 the coke battery 10-bis was launched in order to increase manufacturing capacity of the Plant. Additional coke battery 10-bis required installation of other quenching facility. In order to upgrade

coke production technology to produce high quality coke the management of Alchevskkoks decided to install the CDQ facility. CDQ facility was set up to quench coke from battery 10-bis and partly from 9-bis. In comparison with CWQ technology, the CDQ technology has such major advantages: it is environmentally capable and more energy efficient.

Project implementation leads to greenhouse gas (GHG) emission reductions.

Emission reductions are achieved due to (1) displacement of natural gas consumption that would have been burnt at the steam generators according to the baseline of the project, (2) displacement of grid electricity consumption by installation of captive electricity generator for own electricity production and (3) reduction of coke input per unit of pig iron production at the blast furnaces of Alchevsk Iron and Steel Works (AISW), by producing high-quality coke at CDQ facility.

In summary, the project activity comprises three components of GHG emissions reductions as follows:

1. GHG emissions reductions due to dismissing natural gas that would have been burnt at the baseline boilers for steam generation by installing CDQ waste heat recovery technology together with high-efficient boiler.
2. GHG emissions reductions due to replacing grid electricity by installing the power generator with CDQ waste heat recovery technology together with high-efficient boiler by improving the efficient use of COG and BFG.
3. GHG emissions reductions due to reducing coke input per unit of pig iron production at the blast furnace by installing CDQ waste heat recovery technology.

Other than GHG emissions the project activity entails significant environmental co-benefits. While CDQ enables Alchevskkoks to utilize waste heat and promote energy conservation, it also reduces emissions of air pollutants such as nitrogen oxides (NOx) and particulates from CWQ, boilers, and grid-connected power plants by replacing natural gas burning and grid electricity. In addition, the reduction of coke consumption at the blast furnace contributes to resource conservation.

According to the Project Design Document (PDD) version 7 from 22/12/2009, the project envisaged the following basic stages of project implementation:
- Stage 1: Installation of CDQ facility (35 t/h of dry coke output x 3 boilers);

- Stage 2: Installation of steam generator firing BFG and COG (75 t/h of steam output);
- Stage F: Installation of 9,13 MWe captive electricity generator.

Stage 1 was completed on 30 th of September 2007.

Steam generator firing BFG and COG (Stage 2) is at the final phase of balancing and commissioning. It is expected that steam generator firing BFG and COG will be commissioned during the second quarter of 2011.

Stage F is expected to be completed during first half-year of 2011.

The delay in project implementation plan was caused by financial and other factors such as construction delay etc. Thereby, because the project was not fully implemented it caused change in configuration of the baseline and projectline.

Delay of stage F completion caused some insignificant deviations in comparison with monitoring plan in PDD. Basically, delay of stage F increased the level of baseline emissions.

Together with this deviation occurred regarding steam transportation method to the grid of the plant. In PDD it was envisaged that the total volumes of steam will be transported to the grid of the plant with high pressure of 40 atm, enthalpy = 790 kcal/kg, but actually in 2010 some portions of steam was transported with low pressure of 6 atm, enthalpy = 685 kcal/kg.

Also the level emission reductions from dry coke consumption at the blast furnaces of AISW was calculated (in PDD) based on estimated volumes of dry coke consumption and coke quality indicators. So when emission reductions from dry coke consumption were calculated (in the monitoring report) in accordance with actual data, a decrease of actual emission reductions from dry coke consumption was observed.

Such mentioned above deviations caused decrease of actual emission reductions in comparison with the level of emission reductions that are stated in the PDD.

The project leads to increase of energy efficiency, which reduces consumption of fuel and energy resources per output unit, and improvement of the environment due to introduction of state-of-art equipment with environmentally friendly technologies.

In conventional CWQ technology, the sensible heat of the hot coke from the coke-making process is emitted into the atmosphere in the form of

steam during quenching. Also CWQ is a source of dust pollution to the surroundings. Hence, CDQ facility reduces noxious emissions of air poll utants such as nitrogen oxides (NOx), carbon monoxides (CO), sulfur dioxides (SO_2). CDQ technology also leads to a decrease of sewage waters, and therefore of dust, carbon oxides, ammonia, hydrogen sulfide, phenol, cyanic hydrogen emissions which would have been emitted during CWQ facility operation. In addition, the reduction of coke consumption at the blast furnaces contributes to reduction of harmful substances.

3.3 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.

For calculating the emission reductions or enhancements of net removals, key factors, such as Fraction of total heat generated by the project activity using waste energy, Total amount of electricity generated in the project activity, Amount of electricity self-consumed by CDQ, Average amount of electricity generated in the most recent three years prior to the project activity, CDQ system operation hours, Average operating hours of existing captive power generators in the most recent three years prior to the project activity, The CO_2 emission factor for the electricity source, national electricity grid, displaced due to the project activity, Output/intermediate energy that can be theoretically produced, to be determined on the basis of maximum recoverable energy from the Waste Energy Carrying Medium (WECM), which would have been released (or WECM would have been flared or energy content of WECM would have been wasted) in the absence of JI project activity, Amount of steam generated in CDQ boiler in the project activity, Specific enthalpy of steam generated in CDQ boiler in the project activity, Specific enthalpy of feed water in CDQ boiler in the project activity, Specific enthalpy of feed water in CDQ boiler in the project activity, The CO_2 emission factor per unit of energy of natural gas in the baseline used in the existing boiler used by Alchevskkoks in absence of the project activity, Efficiency of the existing boiler that would have supplied heat to Alchevskkoks in the absence of the project activity, Fraction of total heat that is used by Alchevskkoks in the project that in absence of the project activity would have been supplied by the existing boiler, Increased pig iron production due to dry coke input in a blast furnace, Decreased coke consumption due to dry coke input in a blast furnace, Index for coke hardness of coke produced in the baseline activity, Index for reduced coke abrasion for coke produced in the baseline activity, Index for reduced coke faction content over 80mm for coke produced the baseline activity, Total volume of coke consumed at blast furnaces, Index for coke hardness of coke produced in the project activity, Index for reduced coke abrasion for coke produced in the project

activity, Index for reduced coke fraction content over 80mm for coke produced in the project activity, 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 were taken into account, as appropriate.

The monitoring equipment used for baseline and project emission calculation is present in the Annex 2 of Monitoring Report.

The Management and Operational System supporting GHG emission monitoring is a part of the company's Quality Management System certified to ДСТУ ISO 9001:2009 (ISO 9001:2008).

The procedures of receiving data for monitoring and responsibility for its realization at Alchevskkoks are regulated by the normative documents of Alchevskkoks and by the "Guiding Meteorological Instructions" which are developed in accordance with ДСТУ ISO 9001:2009 (ISO 9001:2008).

Data are collected and stored in electronic database and in paper format. The data is reported in the monthly report of Alchevskkoks which are compiled into an annual monitoring report for verification process.

The Chief Metrological Specialists of Alchevskkoks is in charge of maintenance of the facility and monitoring equipment as well as of their accuracy. In case of defect, discovered in the monitoring equipment, the actions of the staff are determined in Guiding Metrological Instructions. The measurements are conducted constantly in accordance with national standards.

All measuring equipment is included in the verification schedule and verified with established periodicity. According to the schedule of verification, all devices are in satisfactory condition.

The measurement results are being used by the Chief power-engineering specialist department, by the following services and technical staff of the Plant. They are reflected in the technological instructions of production processes regime and also in the "Guiding Metrological Instructions" revised versions. The monitoring data and calculations are under the competence of the Chief power-engineering specialist assistants in accordance to the interior order of Alchevskkoks.

The documented instructions to operate the facilities are stored at the working places.

Monitoring Report provide sufficient information about the elements of the system related to assigning roles, responsibilities and authorities for implementation and maintenance of monitoring procedures including control of data. The verification team confirms effectiveness of this management system. The personnel responsible for monitoring are trained in an appropriate manner.

Data sources used for calculating emission reductions or enhancements of net removals, such as (plant records, Statistics of Alchevsk Coke Plant, “Ukraine – Assessment of new calculation of CEF” Annex 2 “Standardized emissions factors for the Ukrainian electricity grid, Management Directive, USSR Ministry of Ferrous Metallurgy, 1996 IPCC Guidelines for National Greenhouse Inventories) 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.

3.4 Revision of monitoring plan (99-100)

Not applicable.

3.5 Data management (101)

The monitoring at Alchevskkoks and AISW is conducted on monthly basis according to monitoring plan.

Two operational managers are in charge for monitoring of GHG emissions and ERUs and preparation of annual monitoring reports.
The data required to monitor the project are routinely collected within the normal operation of the Companies and therefore monitoring is also an integral part of routine monitoring. All data are collected into electronic database of the Companies. Data are complied in day-to-day records, monthly records and annual records.

The appropriate data for GHG monitoring are fed into the Monitoring Database.

The Project Developers are also supervise the implementation of the Monitoring Plan for the project at regular intervals.

The management of Alchevskkoks has organized appropriate staff training to operate the project equipment. Quality assurance and quality control training was conducted as well. Practical training programs will continue on-the-job during project operation.

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

The implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures.

The function of the monitoring equipment, including its calibration status, is in order.

The evidence and records used for the monitoring are maintained in a traceable manner.

The data collection and management system for the project is in accordance with the monitoring plan.

3.6 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 2nd periodic verification of the project "Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine" Project in Ukraine, which applies the methodology ACM0012 version 03.1. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of Institute for Environment and Energy Conservation 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 final PDD version 07 and revised monitoring plan. 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 2.0 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 calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

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

Baseline emissions	:	2127679	t CO_2 equivalents.
Project emissions	:	1963887	t CO_2 equivalents.
Emission Reductions	:	163792	t CO_2 equivalents.

5 REFERENCES

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

/1/ Monitoring Report, version 01, 28 January 2011

/2/ Monitoring Report, version 02, 01 April 2011

/3/ Project Design Document, version 07, dated 22 December 2009

/4/ Letter of Approval from National Environmental Investment Agency of Ukraine № 1588/23/7 dated 29.12.2009

/5/ Approval of a JI project and authorization of participation under the Kyoto Protocol by the Government of Japan dated 07 September 2009

/6/ Excel spreadsheet of the emission reductions calculation

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

№	Name of the document
1.	Photo Electricity automated accounting system (ARM Energodispetcher v.5.1)
2.	Photo Note electricity generation from 01.12.2010 to 31.12.2010
3.	Photo Note electricity generation from 01.01.2010 to 31.01.2010
4.	Photo Information material "Working Papers “Energy consumption" in 2010
5.	Photo Block diagram ASUE Alchevsk Coke Plant
6.	Photo Report of electricity consumption for December 2010
7.	Photo Electronic logbook of the electricity consumption for December 2010
8.	Photo Electronic logbook of the account the parameters of CDQ for December 2010
9.	Photo Electronic logbook of the electricity consumption for January 2010
10.	Photo Electronic logbook of the account the parameters of CDQ for January 2010
11.	Photo Repair plan for 2010
12.	Photo Note about carrying out maintenance of smoke exhausts YAK-15TA № 1, № 3 of 07.11.2010
13.	Photo of the Plan-to-work order fro repair shop in November 2010

14.	Photo Passport Scale RP-20SHVM №14134
15.	Photo Information about scales calibration №14134 of 24/09/2011
16.	Photo List of measuring devices, which are in operation and require verification in 2011, agreed with the SE «Luganskstandartmetrologiya»
17.	Photo Work procedure RP 7.6-02-03 “Management of measuring instruments"
18.	Photo Report about the use of water № 2TP-vodkhoz in 4 quarter 2010
19.	Photo Work procedure RP 4.4.3.01-01 "Organization of informing the internal and external interested parties"
20.	Photo Production instruction PI-3K-26-09 for the mechanic-repairman coke plant № 3
21.	Photo Production instruction PI-3K-31-07 for the CDQ operator
22.	Production photo instruction PI-3K-34-07 for the CDQ boilers machinist
23.	Production photo instruction PI-3K-35-07 for the CDQ mechanic
24.	Photo TI 51229-CH-17-08 Technological instruction of CDQ
25.	Photo Information on qualifications and grade of coke shop № 3 (training)
26.	Photo Theme plan and program for the CDQ operator coke plant № 3
27.	Photo Theme plan and program for the CDQ boilers machinist coke plant № 3
28.	Photo Theme plan and program for the CDQ mechanic coke plant № 3
29.	Photo Protocol № 115 committee meeting to verify the knowledge
30.	Photo Personal logbook of training and instruction on health and safety Samolchuk V.M.
31.	Photo Electronic form "Logbook of Accounting electricity CDQ for 2010."
32.	Photos Automated control system of operation mode of CDQ Coke Batter № 10-bis
33.	Photo Unitize copper resistance thermometer TSMU - 0198 serial number 0706021
34.	Photo Pressure transducer "Metran 100 DI 1160" serial number 272545
35.	Photo Unitize temperature transducer of chrome-aluminum serial number 0706100
36.	Photo Pressure transducer "Metran 100 DD 1442" serial number 279874 marked - "reserve"
37.	Photo Certificate of qualification number 06544-5-3-98-VL for quality control department valid to 15 June 2013
38.	Photo Industry Standard GSTU 322-12-2-94
39.	Photo TU 322-00190443-076-96 Coke. Specifications.
40.	Photo Certificate № 2.2008 attestation of Cylindrical steel drum needed to determine the mechanical strength of coke.
41.	Photo Certificate № 4.2008 attestation of rotor sieve grading samples of coke.
42.	Photos of the Act periodic testing and certification Cylindrical steel drum needed to determine the mechanical strength of coke.14.05.2008
43.	Photo DSTU 2206-93
44.	Photo Controller report KC-3 in December 2010

45.	Photo Multiple-tariff meter of active and reactive power LZQM 321.02.534 serial number 648848
46.	Photo Multiple-tariff meter of active and reactive power LZQM 411.02-534 serial number 64865
47.	Photo Passport № 06-884 Metran 100 CI 1160 serial number 272545
48.	Photo Passport № 06-840 Metran 100 CI 1160 serial number 272546
49.	Photo Passport № 06-893 Metran 100 HV DE 1161 serial number 369048
50.	Photo Passport Metran-100-E-DD serial number 279874
51.	Photo Passport № 06-860 Metran DD-100-1442 serial number 279562
52.	Photo Passport № 06-1124 Metran DD-100-1450 serial number 273636
53.	Photo Passport № 06-1073 TSP-1088 works number 1133
54.	Photo Passport № 06-1106 TSP-1088 works number 1130
55.	Photo Passport № 06-916 MTM-400AD works number 1490
56.	Photo Passport № 06-1004 TSMU-0198 serial number 0706022
57.	Photo Passport № 06-1008 SCI-1088 factory workshop № 024-88
58.	Photo Passport № 06-1102 MTM-201D serial number 2705
59.	Photo Passport № 06-993 TSMU-0198 serial number 0706021
60.	Photo Passport № 06-1003 MTM-400AD works number 2096
61.	Photo Passport THAU 0198 serial number 1011033
62.	Photo Passport MTM-400AD works number 2098
63.	Photo Passport № 190 weight feeder for weighing coke DP № 3 serial number 1217
64.	Photo Passport № 191 weight feeder for weighing coke DP № 3 serial number 1218
65.	Photo Passport № 192 weight feeder for weighing coke factory DP № 4 № 1221
66.	Photo Passport № 193 weight feeder for weighing coke DP № 4 serial number 1220
67.	Photo Passport № 194 weight feeder for weighing coke factory DP № 5 № 1219
68.	Photo Passport № 195 weight feeder for weighing coke DP № 5 serial number 1224
69.	Photo Passport № 196 weight feeder for weighing coke DP number 1 serial number 1222
70.	Photo Passport № 197 weight feeder for weighing coke DP number 1 serial number 1223
71.	Permission to air emissions from stationary sources number 4411200000-177 for Alchevsk Coke Plant valid to 30/04/2015
72.	Form number 2 TP (vodhosp). Report on water use for the IV quarter 2010
73.	Form number 2-TP (vozduh). Report on Air Protection in 2010
74.	The act of checking the installation of gas purification number 352
75.	The act of comparing emissions to 2009-2010
76.	Electricity production graphics for period September, October, November, December 2010
77.	Electronic form of electricity consumption for October 2010

78.	Form of electronic records the operating parameters of the process equipment for October 2010
79.	Note “Number of working hours for blocs 1-3” for October 2010
80.	Note “Number of working hours for CDQ” 2010
81.	Information about assessment quality of coke for October and December 2010 year
82.	A report on the functioning in OJSC "Alchevskkoks" of environmental management system based on requirements of ISO 14001:2004 standard for the period from 01.01.2010 to 31.12.2010
83.	Passport AU-24 serial number 3211 / 2

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/	Kovkin K.A. - Member of Alchevsk City Council
/2/	Soloviev M. A. - Acting Chief Engineer of Alchevsk Coke Plant
/3/	Yevtushenko K.Yu. - Processing engineer of production and technical department of Alchevsk Coke Plant
/4/	Zhuchenko V.A. - Head of environment protection department of Alchevsk Coke Plant
/5/	Skorik I.I. - Acting Chief of Quality control department of Alchevsk Coke Plant
/6/	Skoryh I.M. - Chief power engineer of Alchevsk Coke Plant
/7/	Vatulin F.V. - Head of control measurement device shop of Alchevsk Coke Plant
/8/	Boychuk V.M. - Head of energy-saving bureau of Alchevsk Coke Plant
/9/	Zelentsovskiy D.L. - Head of coke shop #3 of Alchevsk Coke Plant
/10/	Khakimzyanov Shamil – Consultant of “Institute for Environment and Energy Conservation ”

APPENDIX A: "INSTALLATION OF A NEW WASTE HEAT RECOVERY SYSTEM IN ALCHEVSK COKE PLANT, UKRAINE" VERIFICATION PROTOCOL

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?	DFPs of both Parties (Ukraine, Japan) have issued written project approvals (LoAs) when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines.	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	According to the Project Design Document (PDD) version 7 from 22/12/2009, the project envisaged the following basic stages of project implementation: - Stage 1: Installation of CDQ facility (35 t/h of dry coke output 3 boilers); - Stage 2: Installation of steam generator firing BFG and COG (75 t/h of steam output); - Stage F: Installation of 9,13 MWe captive electricity generator. Stage 1 was completed on 30 th of September 2007. Steam generator firing BFG and COG (Stage 2) is at the final phase of balancing and commissioning. It is expected that steam generator firing BFG and COG will be commissioned during the second quarter of 2011. Stage F is expected to be completed during first half - year of 2011. The delay in project implementation plan was caused by financial and other factors such as construction delay etc. Thereby, because the project was not fully implemented it caused change in configuration of the baseline and project	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		line (see in principal schemes below). Delay of stage F completion caused some insignificant deviations in comparison with monitoring plan in PDD.		
93	What is the status of operation of the project during the monitoring period?	On the whole project has been implemented as defined in the PDD and the implementation is evidenced by statements of work completion (see list of verified documents).	OK	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	Yes, monitoring occurs in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and verified changes and is so listed on the UNFCCC JI website.	OK	OK
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?	All key factors 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 were taken into account, as appropriate for calculating the emission reductions or enhancements of net removals.	OK	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	The monitoring at Alchevskkoks and AISW is conducted on monthly basis according to monitoring pla. Two operational managers at each plants are in charge for monitoring of GHG emissions and ERUs and preparation of annual monitoring reports. The data required to monitor the project are routinely collected within the normal operation of the Companies and therefore monitoring is also an integral part of routine monitoring. All data are collected into electronic database of the Companies. Data are complied in day-to-day records, monthly records and annual records. The appropriate data	CAR 01	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		for GHG monitoring are fed into the Monitoring Database. The Project Developers are also supervise the implementation of the Monitoring Plan for the project at regular intervals. CAR 01. In MR Annex 1 the exact reference to the data source Management Directive, USSR Ministry of Ferrous Metallurgy must be indicated.		
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, including default emission factors are presented in Section B.2.1 and Annex 1 of the MR. FAR 01. In order to meet the JISC requirements on data saving and archiving, an Order on archiving of all project related documentation for two years after the last ERU transmission should be developed and included to the Emission Monitoring Manual. All persons responsible for data collection and monitoring should be aware of the provisions of this Order. CL 01. Please, explain why there are two data sources of the information about conversion factor for ton-coke to CO2. In the PDD data taken from 2006 IPCC, but in MR the data source is 1996 IPCC.	FAR 01 CL 01	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?	Yes, the calculation of emission reductions or enhancements of net removals are based on conservative assumptions and the most plausible scenarios in a transparent manner.	OK	OK
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?			
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/a	N/a	N/a
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
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?	During this verification monitoring plan has not been revised.	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				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	All data necessary for the CO2 emission reductions calculation is collected. Training logbook and Results of operator training were presented to the verification team during the site visit. Position and roles of person in the GHG data management process are defined in the monitoring report and are implemented on-site.	OK	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	Calibration is conducted by State Center of Metrology and Standardization. The documents that confirmed calibration were provided for the verification team. CAR 02. In the monitoring report Annex 2 Technical accounting device (multiple-tariff meter of active and reactive power LZQM 321.02.534 serial number 64865. is not specified. CAR 03. In the monitoring report are not specified measured equipments, installed on a replacement at the time of verification.	CAR 02 CAR 03	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Data collection are clearly defined in the monitoring report and are implemented on-site.	OK	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	All data necessary for the CO2 emission reductions calculation is collected. The scheme of data flow is introduced in Monitoring report. CAR 04. MR should contain the detailed description of process of collecting monitoring data .	CAR 04	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 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: (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	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	reductions are being verified; − The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/A	N/A	N/A
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
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 validation team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR 01. In MR Annex 1 the exact reference to the data source Management Directive, USSR Ministry of Ferrous Metallurgy must be indicated.	95 (b)	The exact reference to the data source Management Directive issued by the USSR Ministry of Ferrous Metallurgy is now included in the text of the monitoring report. Please see modified monitoring report version 2 dated 1st of April 2011.	CAR01 is closed based on due corrections made to the MR.
FAR 01. In order to meet the JISC requirements on data saving and archiving, an Order on archiving of all project related documentation for two years after the last ERU transmission should be developed and included to the Emission Monitoring Manual. All persons responsible for data collection and monitoring should be aware of the provisions of this Order.	95 (c)	The relevant Order on archiving of all project related documentation for two years after the last ERU transmission will be developed during the next monitoring periods and will be included to the Emission Monitoring Manual.	FAR01 remains open till the next periodic verification.
CL 01. Please, explain why there are two data sources of the information about conversion factor for ton-coke to CO2. In the PDD data taken from 2006 IPCC, but in MR the data source is 1996 IPCC.	95 (c)	The data source to the carbon emission factor for coke consumption was changed and now is in accordance with 1996 IPCC data. Such modification was made as the result of additional requirement from NEIA regarding necessity of using 1996 IPCC data (the requirement was addressed to the verifiers of Bureau Veritas).	CL 01 is closed based on the explanation provided.
CAR 02. In the monitoring report Annex 2 Technical accounting device (multiple-tariff meter of active and reactive power LZQM 321.02.534 serial number 64865. is not specified.	101 (b)	Information regarding additional multiple-tariff meter of active and reactive power LZQM 321.02.534 serial number 64865 is now included in the Annex 2 of the monitoring report. Please see modified monitoring report version 2 dated 1st of April 2011.	CAR02 is closed based on due corrections made to the MR.

CAR 03. In the monitoring report are not specified measured equipments, installed on a replacement at the time of verification.	101 (b)	Information regarding additional monitoring equipment (which were used under the project boundaries during year 2010 but were not included in the monitoring report) is now included in the revised monitoring report. Please see modified monitoring report version 2 dated 1st of April 2011.	CAR03 is closed based on due corrections made to the MR.
CAR 04. MR should contain the detailed description of process of collecting monitoring data .	101(d)	The exact reference to the detailed description of process regarding data collection (mentioned in PDD) is now included in the text of the monitoring report. Please see modified monitoring report version 2 dated 1st of April 2011.	CAR04 is closed based on due corrections made to the MR.

APPENDIX B: VERIFICATION TEAM

Rostislav Topchiy (chemical and ecological engineering)
Team Leader, Climate Change Verifier
Bureau Veritas Ukraine Health, Safety and Environment Project Manager

He is a Lead auditor of Bureau Veritas Certification for Environment Management System, Quality Management System, Occupational Health and Safety Management System. He performed over 180 audits since 2004. He has successfully completed Climate Change Verifier Training Course and he participated as verifier in the verification of 10 JI projects.

Vitaliy Minyaylo (chemical and ecological engineering)
Team member, Climate Change Verifier trainee
Bureau Veritas Ukraine,
Health, Safety and Environment Department Project Manager

He has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems, Quality Management Systems, Occupational Health and Safety Management System.

Vera Skitina, PhD (metallurgy)
Climate Change Lead Verifier
Bureau Veritas Certification Rus Technical Director - Lead Auditor, Lead Tutor, Lead Verifier

She has over 15 years of experience in powder metallurgy, aluminium metallurgy, plastic metal working, physical-chemistry processes, gas production at power plant, environmental science. She worked in Irkutsk Aluminium Plant, SUAL powder metallurgy plant, Nadvoitzky aluminium plant, Central Scientific Institute of Metals. She is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA

registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). She performed over 200 audits since 2004. Also she is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered ISO 9001 Lead Auditor Training Course. She is an Assuror of Social Reports. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in determination and verification of over 15 JI projects.

Ivan G. Sokolov, Dr. Sci. (biology, microbiology)

Internal Technical Reviewer, Climate Change Lead Verifier, Bureau Veritas Certification Holding SAS Local Climate Change Product Manager for Ukraine

Acting CEO Bureau Veritas Black Sea District

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He is Lead Tutor of the Clean Development Mechanism /Joint Implementation Lead Verifier Training Course and he was involved in the determination/verification over 60 JI/CDM projects.