VERIFICATION REPORT

JSC"NATIONAL CARBON SEQUESTRATION FOUNDATION" (NCSF)

VERIFICATION OF THE

EFFECTIVE UTILIZATION OF THE BLAST-FURNACE GAS AND WASTE HEAT AT THE JSC "ZAPORIZHSTAL", UKRAINE

REPORT NO. UKRAINE-VER/0204/2010

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0204/2010

VERIFICATION REPORT

Date of first issue: 23/02/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: CJSC "National Carbon Sequestration Foundation" (NCSF)	Client ref.: Yuriy Fedorov

Summary:
Bureau Veritas Certification has made the 2nd periodic verification of the "Effective Utilization of the Blast-Furnace Gas and Waste Heat at the JSC "Zaporizhstal" Ukraine", the project of CJSC "National Carbon Sequestration Foundation" located in city of Zaporizhzhya, Zaporizhzhya region, Ukraine, and applying the JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope 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 accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 26826 tons of CO_2eq for the monitoring period from 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.: UKRAINE-ver/0204/2010	Subject Group: JI	
Project title: Effective utilization of the blast-furnace gas and waste heat at the JSC "Zaporizhstal", Ukraine		
Work carried out by: Team Leader, Lead Verifier: Oleg Skoblyk Team Member, Lead Verifier: Igor Kachan Team Member, Verifier: Victoria Legka		
Work reviewed by: Ivan Sokolov – Internal Technical Reviewer		
Work approved by: Flavio Gomes – Operational Manager		
Date of this revision: 23/02/2011	Rev. No.: 1	Number of pages: 42

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Abbreviations

AIE	Accredited Independent Entity
BFG	Blast Furnace Gas
CAR	Corrective Action Request
CHPP	Combined Heat and Power Plant
CL	Clarification Request
CO_2	Carbon Dioxide
DVM	Determination and Verification Manual
ECS	Evaporation Cooling System
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
HU	Heating Unit
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
NCSF	CJSC “National Carbon Sequestration Foundation”
NCV	Net Calorific Value
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
WHB	Waste-heat boiler

1 INTRODUCTION

CJSC "National Carbon Sequestration Foundation" has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Effective Utilization of the Blast-Furnace Gas and Waste Heat at the JSC "Zaporizhstal" Ukraine" (hereafter called "the project") at the city of Zaporizhzhya, Zaporizhzhya 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.

The verification covers the period from the 1st January 2010 to 31st December 2010.

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 and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and the determined project design document including 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:

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

Igor Kachan
Bureau Veritas Certification Climate Change Lead Verifier

Victoria Legka
Bureau Veritas Certification Climate Change Verifier

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01 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 CJSC “National Carbon Sequestration Foundation” and additional background documents related to the project design, baseline, and monitoring plan, 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 version 01 of 12/01/2011 and version 02 dated 17/02/2011 and project as described in the determined PDD.

2.2 Follow-up Interviews

On 19/01/2011 Bureau Veritas Certification verification team conducted a visit to the project site (JSC "Zaporizhstal") and performed (on-site) interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of JSC "Zaporizhstal" and CJSC "National Carbon Sequestration Foundation" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
JSC "Zaporizhstal"	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
Consultant: CJSC "National Carbon Sequestration Foundation"	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 8 Corrective Action Requests, 2 Clarification Requests, and 1 Forward Action Requests.

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

3.1 Project approval by Parties involved (90-91)

Written project approval by Ukraine, Host party, (Letter of Approval of National Environmental Investment Agency of Ukraine No 2253/23/7,

issued on 27/12/2010) and Switzerland, sponsor party, (Letter of approval for a project under article 6 of the Kyoto Protocol (JI) of the Federal Office for the Environment (FOEN) of Switzerland No J294-0485, issued on 25/11/2010) have been issued by the NFP of those Parties 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 project which is being implemented at the JSC "Zaporizhstal" is aimed at effective utilization of the blast-furnace gas by means of construction of the steam boiler and the turbogenerator with the capacity of 35 MW and effective use of the waste heat due to the reconstruction of the heat networks supplying heat to the customers of Zaporizhzhya city.

To utilize the redundant blast furnace gas at the CHPP of JSC "Zaporizhstal" the following equipment was installed: the steam boiler E-120/150-3,2-390 DKGM with the capacity up to 150 t of steam per hour, cogeneration steam turbine ST-35-2,9/0,8/0,12 with two adjustable steam extractions, with the nominal capacity of 35 MW with the rotating frequency of 50 s-1 (3,000 rot/min) which is designed to directly drive the alternating-current generator of the type TA-35-2MU3.

To utilize the waste heat the reconstruction of the heat networks to supply the heat power to the consumers was performed.
The reconstruction of the heat networks included:
− dismantling of the existing pipeline 2Du700;
− setting up the unit to cut in the heat networks of the works;
− construction of two new in-plant piped routes of the heating pipeline (2Du600) 1,4 km long from the unit of cutting in the heat networks of the works to the thermal camera TC P9;
− heat insulation of the pipeline with the polyurethane polycylinders covered with the galvanized steel;
− setting up the unit to cut in the heat networks of the camera TC P9;
− setting up the unit of the commercial record of the supplied heat power.

The status of project implementation during monitoring period at hand (January – December 2010) fully complies with the implementation schedule provided in the PDD ver.04 of 01/03/2010. The main stages of project implementation are given below.

Subproject "Blast furnace gas utilization"
The decision to implement the project on installation of the steam boiler with the capacity of up to 150 t of steam per hour and the installation of the turbogenerator with the capacity of 35 MW to utilize the blast-furnace gas was taken in 2004. The project documentation was elaborated in

2004-2005 (Technical and economic assessment, state agency "Ukrgipromez" (DT 336456)). The business plan of the project on the installation of the turbogenerator in the CHPP of the JSC "Zaporizhstal" was elaborated by the state agency "Ukrgipromez" in 2007 (DT 348508). The construction took place during the period from 2005 to 2007. The commissioning took place in February 2008.

Subproject "Waste heat utilization"
The decision on starting the implementation of the project was taken in 2003. The elaboration of the project documentation was done in 2003. (The working project "Reconstruction of the heat networks from the heat and steam-air station to the thermal camera ТК П9", state agency "Giproprom", 2003. (DT 340020)). The construction took place during 2004-2005. The city of Zaporizhzhya began to receive the heat power from JSC "Zaporizhstal" starting from June 2005.

The project was fully operational during the monitoring period for the year 2010.

The starting date of the crediting period did not change and remains the 2nd of June 2005 which is the date when heat power supply to Zaporizhzhy city began.

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

The monitoring occurred in accordance with the PDD regarding which the determination has been deemed final and revised monitoring plan which was positively determined in course of the 1st verification under the project.

For calculating the emission reductions or enhancements of net removals, key factors, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating emission reductions or enhancements of net removals, such as appropriately calibrated measuring equipment, certificates of physical and chemical characteristics of natural gas received from gas supplier, the study of standardized emission factors for the Ukrainian electricity grid, reference materials, IPCC guidelines 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.

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

3.4 Revision of monitoring plan (99-100)

In course of the 1st verification under the project the project participants introduced the revision to the approved monitoring plan from the PDD which related to the inclusion of amount of blast furnace gas utilized in the calculation of GHG emission under the project and baseline. The description of the revision and its appropriate justification was provided in the Monitoring Report ver.04 for the period of 2008-2009; this is also provided in Monitoring Report ver.02 for the considered monitoring period of 2010. In accordance with the approach for GHG emissions monitoring described in the section D.1. of the determined PDD, combustion of blast furnace gas was excluded from the consideration, as the total volume of the produced blast furnace gas does not depend on the CHPP operation (i.e. does not depend on the project and baseline scenarios) and all the blast furnace gas is combusted by the consumers or flared. The volume of combusted blast furnace gas in project and baseline does not depend upon electricity generation in CHPP. This approach has no influence on the amount of emission reductions achieved by project implementation, but it does not reflect the actual emissions from the use of blast furnace gas for the project and baseline scenarios. In this regard, to ensure transparency and completeness and improve accuracy of GHG emissions data under the project and baseline scenario, blast furnace gas was included in the calculation of emissions. Blast furnace gas combusted for electricity production in own CHPP in the project scenario was included into project emission calculation, and formula for baseline emission calculation was supplemented with component representing CO_2 emissions from blast-furnace gas combustion in the absence of the project activity, which is determined with newly introduced formula (2.4) stated and described in the section B.1.4.2 of the Monitoring Report.

Description of the revision to the monitoring plan as well as appropriate justification is provided under the section A.8 of the Monitoring Report for 2010.

While not influencing the total amount of achieved emission reduction, the introduced revision improves transparency, completeness, and accuracy of the reported project and baseline emissions compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans. This revision does not affect conservativeness of the approach to the emission reductions calculations.

3.5 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. In monitoring of GHGs emission reductions under the project the following departments of JSC "Zaporizhstal" are involved:

- Laboratory of environment protection;
- Production and technology department of CHPP (PTD of CHPP);
- Bureau of industrial heat energy and fuel and energy recording (Bureau of IHE and FER);
- Control equipment and automatization of CHPP (CEA of CHPP);
- Control equipment and automatization of gaseous department (CEA of gaseous department);
- Electricity distribution plant of CHPP (EDP of CHPP);
- Fuel oil plant.

The Scheme of monitoring data collection, delivery and processing is presented in the section B.2 of the Monitoring Report. The description of functions, roles and responsible personnel per structural units involved in the GHG emissions monitoring is provided in sufficient details in the table B.2-1 of the Monitoring Report.

The quality assurance and quality control procedures are determined by the Standard of JSC "Zaporizhstal" STP 8.2-13-10 "Monitoring of GHG emission reductions" and other respective internal documents.

During the 1st periodic verification of the project the Forward Action Request was raised in respect of implementation of guidance on internal quality control (FAR 01: A formal procedure on project's internal quality control should be developed with guidance on when, where and how checks and reviews are to be carried out and what evidence needs to be documented. This should include regular internal audits (measurements, metering systems, data gathering, processing, responsibilities etc.), spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes). As s response to the FAR the special Decree on strengthening the control over implementation of internal standard STP 8.2-13-10 "Monitoring of GHG emission reductions" and internal quality control procedures was issued (Decree №349 of 01/09/2010 issued by Technical Director of JSC "Zaporizhstal" A.Putnoki). The protocols of internal audits conducted in 2010 were provided to verifiers. The issue is considered closed.

The function of the monitoring equipment, including its calibration status, is in order. The calibration and verification procedures are regulated by internal standards of JSC "Zaporizhstal", such as STP 7.6-01-03 "Measurement assurance. General provisions", STP 7.6-07-03 "Organization and order of meters calibration and verification", as well as Ukrainian laws.

The evidence and records used for the monitoring are maintained in a traceable manner. All necessary information for monitoring of GHGs emission reductions are stored in paper and electronic formats and will be saved till the end of the crediting period and for two years after the last operation with ERUs from the project. The procedures of monitoring data archiving and responsible person are determined by STP 8.2-13-10 "Monitoring of GHG emission reductions" and other internal documents of JSC "Zaporizhstal". The description of data processing and storage is described in the section B.2. of the Monitoring Report.

The data collection and management system for the project is in accordance with the PDD and revised monitoring plan. The management and operational system supporting GHG emission monitoring is a part of the company's Integrated Quality, Health Safety and Environmental Management System certified against the requirements of ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 international standards.

The Monitoring Report ver.2 provides sufficient information on the assigning roles, responsibilities and authorities for implementation and maintenance of monitoring procedures including control of data. The verification team confirms effectiveness of the existing management and operational systems and found them eligible for reliable project monitoring.

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 "Effective Utilization of the Blast-Furnace Gas and Waste Heat at the JSC "Zaporizhstal" Ukraine" 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 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 the CJSC "National Carbon Sequestration Foundation" (NCSF) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 04 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 02 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 01/01/2010 to 31/12/2010

Baseline emissions	: 435964	t CO_2 equivalents.
Project emissions	: 409138	t CO_2 equivalents.
Emission Reductions	: 26826	t CO_2 equivalents.

5 REFERENCES

Category 1 Documents:
Documents provided by the project participants that relate directly to the GHG components of the project.

/1/ Project Design Document of the project "Effective Utilization of the Blast-Furnace Gas and Waste Heat at the JSC "Zaporizhstal" Ukraine", version 04 dated 01/03/2010
/2/ Monitoring Report for the period from 01/01/2010 till 31/12/2010 version 1 dated 12/01/2011
/3/ Monitoring Report for the period from 01/01/2010 till 31/12/2010 version 2 dated 17/02/2011
/4/ Calculation of Emission Reductions – excel file "2011-01-12-MONITORING-WASTE_ENERGY-2010-ver_01", version 1 of 12/01/2011
/5/ Calculation of Emission Reductions – excel file "2011-02-07-MONITORING-WASTE_ENERGY-2010-ver_02.xls", version 2 of 17/02/2011
/6/ Verification Report by Bureau Veritas Certification Holding SAS No. UKRAINE/0134/2010 "Effective Utilization of the Blast-Furnace Gas and Waste Heat at the JSC "Zaporizhstal", Ukraine", rev.01 dated 28/12/2010
/7/ Letter of Approval from National Environmental Investment Agency of Ukraine ref.No 2253/23/7, issued on 27/12/2010
/8/ Letter of approval for a project under article 6 of the Kyoto Protocol (JI) of the Federal Office for the Environment (FOEN) of Switzerland ref.No J294-0485, issued on 25/11/2010

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

/1/ Certificate of physical and chemical characteristics of natural gas for the period from 01.12.2010 till 31.12.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)
/2/ Certificate of physical and chemical characteristics of natural gas for the period from 01.11.2010 till 30.11.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)
/3/ Certificate of physical and chemical characteristics of natural gas for the period from 01.10.2010 till 31.10.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/4/ Certificate of physical and chemical characteristics of natural gas for the period from 01.09.2010 till 30.09.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/5/ Certificate of physical and chemical characteristics of natural gas for the period from 01.08.2010 till 30.08.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/6/ Certificate of physical and chemical characteristics of natural gas for the period from 01.07.2010 till 31.07.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/7/ Certificate of physical and chemical characteristics of natural gas for the period from 01.06.2010 till 30.06.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/8/ Certificate of physical and chemical characteristics of natural gas for the period from 01.05.2010 till 31.05.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/9/ Certificate of physical and chemical characteristics of natural gas for the period from 01.04.2010 till 30.04.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/10/ Certificate of physical and chemical characteristics of natural gas for the period from 01.03.2010 till 31.03.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/11/ Certificate of physical and chemical characteristics of natural gas for the period from 01.02.2010 till 28.02.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/12/ Certificate of physical and chemical characteristics of natural gas for the period from 01.01.2010 till 31.01.2010, provided by gas supplier Zaporizhzhya linear production administration of major gas pipelines (Zaporizhzhya LVUMG)

/13/ Protocol № 244 of blast-furnace gas chemical analysis at Blast Furnace № 2, daily data for 01 – 20 October 2010

/14/ Protocol № 245 of blast-furnace gas chemical analysis at Blast Furnace № 2, daily data for 21 – 31 October 2010

/15/ Protocol № 246 of blast-furnace gas chemical analysis at Blast Furnace № 3, daily data for 01 – 20 October 2010

/16/ Protocol № 247 of blast-furnace gas chemical analysis at Blast Furnace № 3, daily data for 21 – 31 October 2010

/17/ Protocol № 248 of blast-furnace gas chemical analysis at Blast Furnace № 5, daily data for 01 – 20 October 2010

/18/ Protocol № 249 of blast-furnace gas chemical analysis at Blast

Furnace № 5, daily data for 21 – 31 October 2010
/19/ Protocol № 216 dated 02/08/2010 of blast-furnace gas chemical analysis at Blast Furnace № 2, daily data for 01 – 20 July 2010
/20/ Protocol № 217 dated 02/08/2010 of blast-furnace gas chemical analysis at Blast Furnace № 2, daily data for 21 – 31 July 2010
/21/ Protocol № 219 dated 02/08/2010 of blast-furnace gas chemical analysis at Blast Furnace № 3, daily data for 21 – 31 July 2010
/22/ Protocol № 220 dated 02/08/2010 of blast-furnace gas chemical analysis at Blast Furnace № 5, daily data for 01 – 20 July 2010
/23/ Protocol № 221 dated 02/08/2010 of blast-furnace gas chemical analysis at Blast Furnace № 5, daily data for 21 – 31 July 2010
/24/ Protocol № 171 dated 01/03/2010 of blast-furnace gas chemical analysis at Blast Furnace № 2, daily data for 01 – 20 February 2010
/25/ Protocol № 172 dated 01/03/2010 of blast-furnace gas chemical analysis at Blast Furnace № 2, daily data for 21 – 28 February 2010
/26/ Protocol № 173 dated 11/03/2010 of blast-furnace gas chemical analysis at Blast Furnace № 3, daily data for 01 – 20 February 2010
/27/ Protocol № 174 dated 01/03/2010 of blast-furnace gas chemical analysis at Blast Furnace № 3, daily data for 21 – 28 February 2010
/28/ Protocol № 175 dated 01/03/2010 of blast-furnace gas chemical analysis at Blast Furnace № 5, daily data for 01 – 20 February 2010
/29/ Protocol № 176 dated 01/03/2010 of blast-furnace gas chemical analysis at Blast Furnace № 5, daily data for 21 – 28 February 2010
/30/ Compiled data on net calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC “Zaporizhstal” for November 2010
/31/ Verification certificate of working measurement instrument №12/0712 м-10.Valid till 14.05.2011. Content gauge (Metroshtok) МША-3,3, №024
/32/ Verification certificate of working measurement instrument №12/0036 м-10.Valid till 15.04.2010. Content gauge МША-3,3, №18987
/33/ Passport on Content gauge Metroshtok-3,3, ser.number 18987, last calibration date 28/12/2009
/34/ Technical report on CHPP operation for December 2010
/35/ Technical report on CHPP operation for November 2010
/36/ Technical report on CHPP operation for October 2010
/37/ Technical report on CHPP operation for September 2010
/38/ Technical report on CHPP operation for August 2010
/39/ Technical report on CHPP operation for July 2010
/40/ Technical report on CHPP operation for June 2010

/41/ Technical report on CHPP operation for May 2010
/42/ Technical report on CHPP operation for April 2010
/43/ Technical report on CHPP operation for March 2010
/44/ Technical report on CHPP operation for February 2010
/45/ Technical report on CHPP operation for January 2010
/46/ Log-book for accounting of heat power consumption by concern ''City Heating Networks'', created in 2005
/47/ Decree №1000 on assignment for training of CHPP employees dated 17.11.2010 issues by Acting Head of CHPP
/48/ Table of workers attendance for December 2010
/49/ Calculation of electrical energy consumption for CHPP own needs for October 2006
/50/ Operation of CHPP auxiliary equipment, heating unit, for October 2010
/51/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for December 2010
/52/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - December 2010
/53/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for November 2010
/54/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - November 2010
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/56/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - October 2010
/57/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for September 2010
/58/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - September 2010
/59/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for august 2010
/60/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - August 2010
/61/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for july 2010
/62/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - July 2010
/63/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - June 2010

/64/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for June 2010
/65/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - may 2010
/66/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for May 2010
/67/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - April 2010
/68/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for april 2010
/69/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - March 2010
/70/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for March 2010
/71/ Form № 2. Fuel consumption for electric energy generation at CHPP of JSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhzhya. Reporting period - February 2010
/72/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for February 2010
/73/ Form № 2. Fuel consumption on electric energy generation at EPP OJSC ''Zaporizhstal'' and heat energy supply to consumers of Zaporizhia. Reporting period - January 2010
/74/ Form № 1. Electric energy generation at CHPP of JSC ''Zaporizhstal'' for January 2010
/75/ The standard of the enterprise STP 8.2-13-10 “Monitoring of green-house gases emission reductions”
/76/ Decree №98 of 05/03/2010 on approval and enactment of enterprise’s standard on monitoring of GHG emission reductions, issued by Technical Director A.Putnoki
/77/ Decree № 295 of 19/07/2010 on approval of the revision №1 to the enterprise’s standard on monitoring of GHG emission reductions, issued by Technical Director A.Putnoki
/78/ Card № 37398 of warehousing accounting of materials for fuel oil. Residues of fuel oil for each month of 2010.
/79/ Informational note on fuel (fuel oil) movement at CHPP for 23.12.2010
/80/ Informational note on fuel (fuel oil) movement at CHPP for 21.12.2010
/81/ Informational note on fuel (fuel oil) movement at CHPP for 19.12.2010
/82/ Informational note on fuel (fuel oil) movement at CHPP for 15.12.2010
/83/ Informational note on fuel (fuel oil) movement at CHPP for 14.12.2010

/84/ Informational note on fuel (fuel oil) movement at CHPP for 13.12.2010
/85/ Informational note on fuel (fuel oil) movement at CHPP for 11.12.2010
/86/ Informational note on fuel (fuel oil) movement at CHPP for 10.12.2010
/87/ Informational note on fuel (fuel oil) movement at CHPP for 03.12.2010
/88/ Informational note on fuel (fuel oil) movement at CHPP for 04.12.2010
/89/ Informational note on fuel (fuel oil) movement at CHPP for 26.11.2010
/90/ Informational note on fuel (fuel oil) movement at CHPP for 25.11.2010
/91/ Minutes of technical meeting on deviation of actual calorific value of fuel oil in CHPP warehouses from passport data, dated 01.10.2005
/92/ Steam diagram (primary data), 01/10/2009
/93/ Information on used measurement equipment in the JI project "Effective utilization of blast-furnace gas and waste heat at the JSC "Zaporizhstal", Ukraine". Reporting period - 2010.
/94/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC "Zaporizhstal" for January 2010
/95/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC "Zaporizhstal" for February 2010
/96/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC "Zaporizhstal" for March 2010
/97/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC "Zaporizhstal" for April 2010
/98/ Receipt of the coke oven gas, data on calorific value of coke oven gas for April 2010
/99/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC "Zaporizhstal" for May 2010
/100/ Receipt of the coke oven gas, data on calorific value of coke oven gas for May 2010
/101/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC "Zaporizhstal" for June 2010
/102/ Receipt of the coke oven gas, data on calorific value of coke oven gas for June 2010
/103/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and

used in CHPP of JSC “Zaporizhstal” for July 2010
/104/ Receipt of the coke oven gas, data on calorific value of coke oven gas for July 2010
/105/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC “Zaporizhstal” for August 2010
/106/ Receipt of the coke oven gas, data on calorific value of coke oven gas for August 2010
/107/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC “Zaporizhstal” for September 2010
/108/ Receipt of the coke oven gas, data on calorific value of coke oven gas for September 2010
/109/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC “Zaporizhstal” for October 2010
/110/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC “Zaporizhstal” for November 2010
/111/ Compiled data on calorific value of blast furnace gas produced by Blast Furnace № 2, Blast Furnace № 3, Blast Furnace № 5 and used in CHPP of JSC “Zaporizhstal” for December 2010
/112/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period December 2010.
/113/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period November 2010.
/114/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period October 2010.
/115/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period September 2010.
/116/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period August 2010.
/117/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period July 2010.
/118/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period June 2010.
/119/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period May 2010.
/120/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period April 2010.
/121/ Form № 3. Chemical composition of used natural gas at EPP OJSC ''Zaporizhstal''. Reporting period March 2010.
/122/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period February 2010.
/123/ Form № 3. Chemical composition of the natural gas used at CHPP of JSC “Zaporizhstal”. Reporting period January 2010.
/124/ Calculation of fuel and energy resources consumption by

consumers, dated 29.06.2010
/125/ Calculation of fuel and energy resources consumption by consumers, dated 31.12.2010
/126/ Balance of natural, blast-furnace and coke-oven gas consumption at JSC “Zaporizhstal”, dated 31/08/2010
/127/ User Guidelines on Automatic control system ''Energy recourses''. Accounting of fuel and energy recourses. 44.01.001-09, enactment of 20/11/2009
/128/ Calculation of fuel and energy resources consumption by consumers, dated 30.11.2010
/129/ Calculation of fuel and energy resources consumption by consumers, dated 31.08.2010
/130/ Emissions from stationary sources. Results of measurements of contaminants content. Since 2010.
/131/ Log-book for result of measurement of pollutant content, started in 2010
/132/ Protocol of measurement of gas and dust flow parameters for sources No.404, 403, 405, 406, 407, PK №3, 4, 5, 6, 7 dated 14/07/2010
/133/ Protocol of measurement of gas and dust flow parameters for sources No.401, PK No.1 dated 14/07/2010
/134/ Log-book of accounting of stationary sources of pollution and their characteristics “POD-1” for CHPP. Started in 2008
/135/ Protocol № 10-232 of 25/11/2010 of internal audit at CHPP.
/136/ Verification certificate of working measurement instrument № 82001/20.Valid till 18.03.2011.Gasanalyzer Delta 65 № 288783
/137/ Verification certificate of working measurement instrument № 82001/17.Valid till 18.03.2011.Gasanalyzer Delta 65 № 287963
/138/ Verification certificate of working measurement instrument № 82001/19.Valid till 18.03.2011.Gasanalyzer Delta 65 № 288782
/139/ Verification certificate of working measurement instrument № 82001/18.Valid till 18.03.2011.Gasanalyzer Delta 65 № 288781.
/140/ Passport of aspirator AM-5, ser. No. 193752, last verification date – 14/07/2010
/141/ Verification certificate of working measurement instrument № 12-01. Valid till 26.11.2010.Gasanalyzer Termit 5000 № 07084.
/142/ Statement of sampling of emission from stationary sources № 17-10 of 28.07.2010, prepared by the State ecological inspection in Zaporizhzhya region.
/143/ Ministry of environmental protection of Ukraine. Protocol № 23-10 of measurement of contaminant content in stationary sources emissions of 05.10.2010
/144/ Protocol № 23-10 of measurement of pollutant content in organized emissions from stationary sources of 05/10/2010, the State ecological inspection in Zaporizhzhya region.
/145/ Decree №349 of 01/09/2010 on strengthening the control over implementation of internal standard STP 8.2-13-10 “Monitoring of

GHG emission reductions" and internal quality control procedures issued by Technical Director of JSC "Zaporizhstal" A.Putnoki

/146/ Title list of overhaul repairs of main means, mechanical, electrical and energy equipment, buildings and constructions of OJSC ''Zaporizhstal'' in 2011

/147/ Daily data on steam consumption, pressure and temperature for December 2010, CHPP of JSC "Zaporizhstal"

/148/ Passport of content gauge Metrshtok МША-3,3 of 14.05.2010. Verification date 14/05/2010

/149/ Certificate on verification of working mean of measuring units № 12/0712 м-10. Valid till 14.05.2010. Content gauge Metrshtok МША-3,3 № 024

/150/ Certificate of unworthiness of working mean of measuring units № 12/0036 М-10 of 15.04.2010. Content gauge (Metroshtok) МША-3,3 № 18987

/151/ Passport of content gauge МШС-3,3 of 28.12.2009. Verification date 28/12/2009

/152/ Passport of content gauge-3,3 № 18987. Last verification date 23.12.08

/153/ Note of physical and chemical properties of coke oven gas, which is used by CHP OJSC ''Zaporizhstal'' in 2008-2009

/154/ Note of average monthly calorific values of natural, coke, coke oven gases, fule oil, which are used by CHPP JSC ''Zaporizhstal'' in 2010.

/155/ Note of heat supply to concern "City heating networks" for May 2010.

/156/ Annex 1 to the Contract on heat energy use between JSC "Zaporizhstal" and concern "City heating networks", Act № 150140 of acceptance and delivery of water dated 01.06.2010

/157/ Note of heat supply to concern "City heating networks" for June 2010.

/158/ Annex 1 to the Contract on heat energy use between JSC ''Zaporizhstal'' and concern "City heating networks", Act № 150151 of acceptance and delivery of water dated 01.07.2010

/159/ Note of heat supply to concern "City heating networks" for July 2010.

/160/ Act № 150170 of acceptance and delivery of heat energy in hot water dated 02.08.2010 under the Contract № 32121458/1/10/2 of 21.04.2010 (order № 241500-19)

/161/ Note of heat supply to concern "City heating networks" for August 2010.

/162/ Act № 150170 of acceptance and delivery of heat energy in hot water dated 01.09.2010 under the Contract № 32121458/1/10/2 of 21.04.2010 (order № 241500-19)

/163/ Note of heat supply to concern "City heating networks" for September 2010.

/164/ Act № 150202 of acceptance and delivery of heat energy in hot

water dated 01.10.2010 under the Contract № 32121458/1/10/2 of 21.04.2010 (order № 241500-19)

/165/ Note of heat supply to concern “City heating networks” for October 2010.

/166/ Act of acceptance and delivery of heat energy of 15.10.2010 under the Contract № 32121458/1/10/2 dated 21.04.2010 (order № 241500-19)

/167/ Attestation certificate ref.No. 06544-5-1-191-VL, registration date 18/12/2009 issued by Ministry for industrial policy of Ukraine for Central Chemical of Central Laboratory of JSC “Zaporizhstal”, valid until 18/12/2012

/168/ Annex №1 to the attestation certificate №06544-5-1-191-VL of 18/12/2009

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/ I. Kholina – Head of the environmental laboratory of JSC “Zaporizhstal”

/2/ V. Jarysh – Deputy head of chief power engineer department of JSC “Zaporizhstal”

/3/ A. Grabko – Head of automation and metrology department of JSC “Zaporizhstal”

/4/ V. Vlasov - Engineer of production and technical department of CHPP of JSC “Zaporizhstal”

/5/ S.Tur – Mechanic of Control equipment and automatization department of CHPP of JSC “Zaporizhstal”

/6/ R. Kazakov – Principal specialist of CJSC “National Carbon Sequestration Foundation”

APPENDIX A: PROJECT VERIFICATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

Table 1. 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 project has been approved by both Host Party (Ukraine) and sponsor party (Switzerland). The written project approvals were issued by NFPs of Parties involved: - Ukraine: Letter of Approval of National Environmental Investment Agency of Ukraine No 2253/23/7, issued on 27/12/2010, and - Switzerland: Letter of approval for a project under article 6 of the Kyoto Protocol (JI) of the Federal Office for the Environment (FOEN) of Switzerland No J294-0485, issued on 25/11/2010. These letters were provided to AIE which does not question its authenticity. However, the information regarding project approval indicated in the Monitoring Report ver.01 (hereafter referred MR) contradicts actual status of project	CAR 01	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		approval. **CAR 01**. The information about project approval in the MR ver.1 must be updated, as the project has already received written approvals by the Host party and sponsor party.		
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?	The project has been implemented in accordance with the PDD which was positively determined by BVC. The undertaken activities and equipment installed under the project comply with the registered PDD ver.04 of 01/03/2010. Under the subproject “Blast furnace gas utilization” the steam boiler E-120/150-3,2-390 DKGM with the capacity up to 150 t of steam per hour, cogeneration steam turbine ST-35-2,9/0,8/0,12 with two adjustable steam extractions, with the nominal capacity of 35 MW with the rotating frequency of 50 s-1 (3,000 rot/min) which is designed to directly drive the alternating-current generator of the type TA-35-2MU3 were installed. Under the subproject “Waste heat utilization” the heat networks were reconstructed to supply heat to customers of Zaporizhzhya city.	OK	OK
93	What is the status of operation of the project during the monitoring period?	The status of project implementation during monitoring period at hand (01 Jan. – 31 Dec. 2010) fully complies with the implementation schedule provided in the	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		registered PDD ver.04. The construction under the subproject "Waste heat utilization" took place during 2004-2005. The city of Zaporizhzhya began to receive the heat power from JSC "Zaporizhstal" starting from the 2nd of June 2005. As to the subproject "Blast furnace gas utilization" the construction works lasted from 2005 to 2007, and the commissioning took place in February 2008. The project was operational during the whole monitoring period for the year 2010. The starting date of the crediting period did not change and remains the 2nd of June 2005 which is the date when heat power supply to Zaporizhzhy city began.		
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The monitoring occurred in accordance with the PDD regarding which the determination has been deemed final and revised monitoring plan which was positively determined in course of the 1st verification under the project. The revision to the monitoring plan in the PDD are described and justified in the section A.8 of the MR. The monitoring system is in place and operational.	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	Key factors, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account for calculating the emission reductions, as appropriate. Relevant national policies and sectoral circumstances were considered when setting the baseline. Types of fuel available for project	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	project taken into account, as appropriate?	participants, electric power demand, demand of heat power supplied to the city etc. were taking for calculating the emission reductions.		
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	The data sources used for calculating emission reductions are clearly identified, reliable and transparent. They are listed and classified in the MR Sections B.1.1 – B.1.3 and B.3.1-1. Data sources include calibrated measuring equipment, certificates of physic and chemical characteristics of natural gas provided by gas suppliers, IPCC data, equipment technical passports, relevant sectoral studies etc. The scheme of monitoring points is presented of the figure B.1.3-1.	OK	OK
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 used for calculating the emission reduction by the project are CO_2 emission factor for fuel oil combustion (the value taken from IPCC 2006), CO_2 emission factor for coke oven gas combustion (IPCC 2006), CO_2 emission factor for blast furnace gas (calculated based on IPCC default emission factor and actual average net calorific value of the blast furnace gas), CO_2 emission factor during the electric power generation supplied by the power grid of Ukraine for the projects consuming electric power (the Study "Ukraine - Assessment of new calculation of CEF" prepared by Global Carbon B.V. in accordance with the CDM Methodological "Tool to calculate the emission factor for an electricity system") and CO_2 emission factor during the heat power production which would	CL 01 FAR 01	OK FAR 01 to be checked during next verification

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		have been produced in the absence of project activity which is actually an emission factor for natural gas combustion (estimated based on IPCC, 2006). **CL 01.** Considering the fact that default values of emission factors must be periodicity verified to ensure their ongoing appropriateness, please provide Net Calorific Values (NCV) of coke oven gas, blast furnace gas (BFG), natural gas and fuel oil consumed during monitoring period. Based on the project participants' response to CL 01 in order to improved accuracy of the reported GHG project and baseline emissions, as well as considering the fact that value of emission factor for BFG combustion for the most part does not influence the amount of achieved GHG emission reductions as the total volume of combusted BFG does not depend on electricity generation under the project and baseline scenarios, the FAR was raised to include into the project monitoring the actual NCV of utilized BFG and, consequently to change the status of emission factor for BFG combustion from fixed to periodically monitored. **FAR 01**. The value of emission factor for blast furnace gas combustion should be calculated for each monitoring period (monthly/annually) based on actual		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		monitored Net Calorific Value of the blast furnace gas utilized. These should be the parameters that are monitored throughout the crediting period instead of fixed values.		
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 performed calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner. Some minor discrepancies were found in the emission reduction calculation spreadsheets, therefore the CAR was raised. **CAR 02.** In the Excel spreadsheet, please, provide the consistent formatting (number of digits after comma) and rounding, where applicable, of all figures. It should be noted that rounding must be mostly applied only to the annual totals in order to ensure that emission reduction values are not overestimated.	CAR 02	OK
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	N/a	N/a	N/a
Applicable to bundled JI SSC projects only				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	In course of the 1st verification under the project the project participants introduced the revision to the approved monitoring plan from the PDD which related to the inclusion of amount of blast furnace gas utilized in the calculation of GHG emission under the project and baseline. The appropriate justification of the revision was provided: in accordance with the approach to GHG emissions monitoring provided in the section D.1. of the determined PDD, combustion of blast furnace gas was excluded from the consideration, as the total volume of the produced blast furnace gas	CAR 03	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		does not depend on the CHPP operation (i.e. does not depend on the project and baseline scenarios) and all the blast furnace gas is combusted by the consumers or flared. The volume of combusted gas does not depend upon electricity generation in CHPP. This approach does not affect volume of emission reductions achieved by project implementation, but does not reflect the actual emissions from the use of blast furnace gas for the project and baseline scenarios. In this regard, to ensure transparency, completeness and accuracy of data on GHG emissions under the project and baseline scenario, blast furnace gas is included in the calculation of emissions. Description of the revision to the monitoring plan as well as appropriate justification is provided under the section A.8 of the MR. **CAR 03.** In the section A.8, item 2, of the MR please clearly state what exactly has been changed in comparison with monitoring plan in the PDD concerning the CO_2 emission factors from fuel combustion.		
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	While not influencing the total amount of achieved emission reduction, the introduced revision improves transparency, completeness, and accuracy of the reported project and baseline emissions (see paragraph 99 (a) for further details) compared to the original monitoring plan without changing conformity	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	monitoring plans?	with the relevant rules and regulations for the establishment of monitoring plans. This revision does not affect conservativeness of the approach to the emission reductions calculations.		
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	The implementation of data collection procedures is in accordance with the determined monitoring plan. Most of that is integral part of the operational routine of the JSC "Zaporizhstal" including quality control and quality assurance procedures. A special corporate standard on GHG emission reduction monitoring STP 8.2-13-10 "Monitoring of GHG emission reductions" was elaborated incorporating existing data collection procedures for GHG emission monitoring and introducing some new requirements on reporting documentation (special reporting forms) and quality control. **CAR 04.** Please, clarify how the FAR 1 revealed during previous verification has been addressed and provide relevant evidences. The respective information on the actions undertaken needs to be stated in the MR as well. **CL 02.** During site-visit it was observed that the data collection procedure on heat supplied to the customers is not fully transparent. An interview with CHPP personnel revealed that the collecting and recording	CAR 04 CL 02	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		procedures of heat amount are not clearly defined; records on parameter's monitoring are not fully traceable (log-books with primary data were not provided). Please provide a detailed explanation of the existing procedure for monitoring of heat supplied to customers, which actually was applied during current monitoring period, as well as relevant supporting evidences.		
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	The monitoring equipment used for project monitoring is in order; its calibration status complies with the requirements. However, some requests for corrections in the MR regarding information on measuring equipment were raised. **CAR 05.** Please, indicate in the MR (table B.3.1-1) that measuring staff-3,3 ser.No.18987 was replaced by measuring staff-МША 3,3 ser.No.024 and when this replacement tool place in order to ensure that a functioning calibrated measuring equipment was used during the whole monitoring period, as it is not evident from the table. **CAR 06**. In the MR section B.3.2., table 3.2-1, the data indicated in the last column do not represent the meters' uncertainty but the calibration frequency of the measuring equipment. Please correct.	CAR 05 CAR 06	OK OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable	The evidences and records as to the project monitoring are maintained in a traceable manner. All necessary	CAR 07 CAR 08	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	manner?	information for monitoring of GHGs emission reductions are stored in paper and electronic formats and will be saved till the end of the crediting period and for two years after the last operation with ERUs from the project. The procedures for monitoring data keeping, archiving and responsible personnel are defined by STP 8.2-13-10 "Monitoring of GHG emission reductions" and other internal documents of JSC "Zaporizhstal". **CAR 07.** The amount of electricity generation in own CHPP by TG-1 for 24-12-2010, 30-11-2010 and 30-09-2010 and respective monthly values for December and September 2010 indicated in the ER calculation spreadsheet does not correspond to the actual values indicated in the primary log-books. Please re-check the values and make appropriate corrections. **CAR 08.** For better transparency and consistency of the presented and reported GHG emissions and emission reductions, please, consider providing the data sequentially month by month of each year together with total annual values in Annex 1 of the MR.		
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The operational and management structure that the project participants apply in implementing the monitoring plan is in accordance with the determined PDD and monitoring plan. Responsibilities and roles of	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		the personnel are explicitly indicated in the MR. The verification team confirms effectiveness of the existing management and operational systems and found them eligible for reliable project monitoring.		
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	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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; − 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	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	number, then does the AIE provide a reasonable explanation and justification?			
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/a	N/a	N/a
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	Determination team conclusion
CAR 01. The information about project approval in the MR ver.1 must be updated, as the project has already received written approvals by the Host party and sponsor party.	90	The project has a written approval from the Host party. The relevant information is provided in the section A.3. of the monitoring report.	The issue is closed based on the due corrections made to the MR.

CAR 02. In the Excel spreadsheet, please, provide the consistent formatting (number of digits after comma) and rounding, where applicable, of all figures. It should be noted that rounding must be mostly applied only to the annual totals in order to ensure that emission reduction values are not overestimated.	95 (d)	The Excel spreadsheets were revised and corrected in respect of formatting and rounding.	The Excel spreadsheets with emission reduction calculations were reviewed and found appropriate by the verifiers. The issue is closed.
CAR 03. In the section A.8, item 2, of the MR please clearly state what exactly has been changed in comparison with monitoring plan in the PDD concerning the CO_2 emission factors from fuel combustion.	99 (a)	The changes of monitoring plan stated in the section A.8, cl.2 of the monitoring report are clearly described. The fuel types combusted for electricity production in own CHPP in project scenario are specified: natural gas, coke oven gas, blast-furnace gas and fuel oil.	The MR ver.02 was reviewed; the amendment made to the section A.8 was found sufficient. The issue is closed.
CAR 04. Please, clarify how the FAR 1 revealed during previous verification has been addressed and provide relevant evidences. The respective information on the actions undertaken needs to be stated in the MR as well.	101 (a)	The clarification is provided in the section A.9. of the monitoring report.	The information and evidences provided as to the addressing of the FAR by project participants were reviewed and found appropriate. The FAR per se and CAR 04 are closed.

CAR 05. Please, indicate in the MR (table B.3.1-1) that measuring staff-3,3 ser.No.18987 was replaced by measuring staff-МША 3,3 ser.No.024 and when this replacement tool place in order to ensure that a functioning calibrated measuring equipment was used during the whole monitoring period, as it is not evident from the table.	101 (b)	The table B.3.1-1 is corrected. The clarification about using of verified meters during the whole monitoring period for measuring of fuel oil consumption in CHPP is provided in the comments to the table B.3.1-1.	The table B.3.1-1 in the corrected MR ver.02 was reviewed; amendments made were found satisfactory. The issue is closed.
CAR 06. In the MR section B.3.2., table 3.2-1, the data indicated in the last column do not represent the meters' uncertainty but the calibration frequency of the measuring equipment. Please correct.	101 (b)	The table B.3.2-1 of the monitoring report is corrected.	The issue is closed based on due correction made.
CAR 07. The amount of electricity generation in own CHPP by TG-1 for 24-12-2010, 30-11-2010 and 30-09-2010 and respective monthly values for December and September 2010 indicated in the ER calculation spreadsheet does not correspond to the actual values indicated in the primary log-books. Please re-check the values and make appropriate corrections.	101 (c)	The amount of electricity generation in September, November and December 2010 is corrected in accordance with the primary data source. The emission reductions calculation is corrected. The corresponding corrections are provided in the monitoring report.	The corrected emission reduction calculation spreadsheets were reviewed and the data regarding amount of electric power generated in mentioned months were found in accordance with the primary data source. The emission reductions were re-calculated accordingly. The issue is closed.

CAR 08. For better transparency and consistency of the presented and reported GHG emissions and emission reductions, please, consider providing the data sequentially month by month of each year together with total annual values in Annex 1 of the MR.	101 (c)	The data in the Annex 1 of the monitoring report are presented in the transparent form.	The information in Annex 1 of the MR ver.02 was reviewed and found to be more transparent and appropriate. The CAR is closed.

CL 01. Considering the fact that default values of emission factors must be periodicity verified to ensure their ongoing appropriateness, please provide Net Calorific Values (NCV) of coke oven gas, blast furnace gas (BFG), natural gas and fuel oil consumed during monitoring period.	95 (c)	The actual Net Calorific Values of coke oven gas, blast furnace gas, natural gas and fuel oil consumed during the monitoring period are attached to the monitoring report.	The data on NCV of the fuels used at CHPP under the project (coke oven, natural and blast furnace gases, and fuel oil) were checked. As to the actual NCV of BFG the deviations in its monthly values from fixed average value of 820 kcal/m^3 were observed which in some cases were considerable. Taking into account this fact and the fact that emissions due to BFG combustion does not affect the amount of achieved emission reduction, in order to improve accuracy of reported GHG project and baseline emissions the FAR 01 was raised (see description of FAR 01 below). As to the NCVs of other fuels, provided evidences prove ongoing appropriateness of the relevant applied emission factors.

CL 02. During site-visit it was observed that the data collection procedure on heat supplied to the customers is not fully transparent. An interview with CHPP personnel revealed that the collecting and recording procedures of heat amount are not clearly defined; records on parameter's monitoring are not fully traceable (log-books with primary data were not provided). Please provide a detailed explanation of the existing procedure for monitoring of heat supplied to customers, which actually was applied during current monitoring period, as well as relevant supporting evidences.	101 (a)	The data collection procedures of heat supplied to the customers are specified in the Table B.2-1 of the monitoring report. The procedures of monitoring parameters measuring, recording, processing, delivery and QA/QC procedures are in compliance with established monitoring plan. The quality of monitoring data is ensured by meters verification (table B.3.1-1.), recording of daily data in Certificates of the heat supply to the Concern "City heat networks" (Certificates are attached) and confirmation of monthly heat supply by consumer (Acts of confirmation are attached). The transparency of data collection procedure on heat supplied to the customers will be ensured by additional procedures of primary data recording in the following monitoring period.	The provided documentation was reviewed and found satisfactory. The additional primary data recording for heat supply to the city should be established. The clarification is accepted. The issue is closed.
FAR 01. The value of emission factor for blast furnace gas combustion should be calculated for each monitoring period (monthly/annually) based on actual monitored Net Calorific Value of the blast furnace gas utilized. These should be the parameters that are monitored throughout the crediting period instead of fixed values.	95 (c)	The monitoring plan will be revised in respect of the requested modifications, and appropriate information will be provided during the next verification under the project.	The implementation of the FAR to be checked in course of next periodic verification.