



**BUREAU  
VERITAS**

# VERIFICATION REPORT LLC “KRAMATORSK TEPLOENERGO”

## VERIFICATION OF THE “RECONSTRUCTION OF KRAMATORSK HEAT AND POWER PLANT”

(THIRD PERIODIC FOR THE PERIOD 01/01/2010 – 31/12/2010)

REPORT No. UKRAINE-VER/0216/2011

REVISION No. 02

BUREAU VERITAS CERTIFICATION



VERIFICATION REPORT

Date of first issue: 11/04/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: LLC "Kramatorskteploenergo"	Client ref.: Igor Kudriavtsev

**Summary:**  
Bureau Veritas Certification has made the 3<sup>rd</sup> periodic verification of the "Reconstruction of Kramatorsk Heat and Power Plant", JI Registration Reference Number UA1000156, project of LLC "Kramatorskteploenergo" located in Kramatorsk, Donetsk Region, Ukraine, and applying the JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope 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 planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 23620 tons of CO<sub>2</sub>eq for the monitoring period.

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/0216/2011	Subject Group: JI
Project title: Reconstruction of Kramatorsk Heat and Power Plant	
Work carried out by: Oleg Skoblyk – Team Leader, Lead Verifier Vyacheslav Yeriomin – Team Member, Verifier Trainee	
Work reviewed by: Ivan Sokolov – Internal Technical Reviewer	
Work approved by: Flavio Gomes – Operational Manager	
Date of this revision: 15/06/2011	Rev. No.: 03
Number of pages: 32	

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## 1 INTRODUCTION

LLC “Kramatorskteploenergo” has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project Reconstruction of Kramatorsk Heat and Power Plant (hereafter called “the project”) at Kramatorsk city, Donetsk Region.

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:

Oleg Skoblyk

Bureau Veritas Certification Team Leader, Climate Change Verifier

Vyacheslav Yeriomin

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 Green Stream Network GmbH 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. In order to close all the CARs and CLs raised during verification process GreenStream Network GmbH issued new version of Monitoring Report as of 04 dated 03.06.2011.

The verification findings presented in this report relate to the Monitoring Report version(s) 04 and project as described in the determined PDD (version 2.2).

### 2.2 Follow-up Interviews

On 12/04/2011 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 LLC "Kramatorskteploenergo" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

**Table 1 Interview topics**

Interviewed organization	Interview topics
LLC "Kramatorskteploenergo"	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 Training of personnel Quality management procedures and technology Internal audits and check-ups
Consultant: GreenStream Network GmbH	Monitoring plan Monitoring report Deviations from PDD ERUs calculation model

### 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 3 Corrective Action Requests and 1 Clarification Request.

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

#### 3.1 Project approval by Parties involved (90-91)

The Project was approved by Host Party (Ukraine) and the Sponsor Party (German). Letter of approval by Host Party have been issued National Environmental Investment Agency of Ukraine (1469/23/7 dated 04.12.2009). The Letter of Approval from investor country Germany dated 25.03.2010 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 main goal of Joint implementation project “Reconstruction of Kramatorsk heat and power plant” is implementation of measures which will improve fuel consumption efficiency and will reduce own consumption of electric power by the plant, therefore resulting in GHG emissions reduction to the atmosphere.

The project foresees large-scale reconstruction of existing equipment of Kramatorsk HPP. The program of reconstruction of Kramatorsk HPP within Joint implementation includes the following measures:

- Reconstruction of boilers № 7, 9;
- Reconstruction of turbines № 3, 4;
- Reconstruction of cooling tower № 1;
- Frequency controllers' installation;
- Feeding pump replacement №5;
- Hydraulic ash removal modernization;

In addition to this, rehabilitation of district heating system in Kramatorsk is foreseen within JI project. It includes:



- Replacement of old heat pipelines which supply consumers with heat power generated at HPP by new pre-insulated pipes in polyurethane foam cover and pipes with lagging from mineral cotton;
- Replacement of 200 capacitive heat exchangers by plate heat exchangers at substations of the town;
- Major rehabilitation of boiler-rooms with replacement of pipes and valves.

As the result of reconstruction the efficiency of Kramatorsk HPP equipment will increase from 56% of gross efficiency (combined heat and electric capacity with the use of natural gas) to approximately 78% of efficiency with the use of natural gas and 65% of efficiency – with the use of coal. The increase of the equipment efficiency will lead to reduction of the level of fuel consumption. As far as natural gas is more expensive compared to coal, it is considered that fuel savings are to be completely savings of natural gas. This is conservative assumption. Besides, the reduction of own electric power consumption will allow increasing supply of electricity into the grid therefore contributing to additional emission reductions.

There was no replacement of capacitive heat exchangers by lamellar ones in 2010.

### **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, key factors, influencing the baseline emissions 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.

Data sources used for calculating emission reductions or enhancements of net removals 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)**

“Not applicable”.





### 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 monitoring plan, including the quality control and quality assurance procedures.

The general project management is done by the General Director of Kramatorsk HPP and the First Deputy Director. The Director manages and coordinates activity of all departments. Every parameter is monitored by the respective department headed by the Head of the department.

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

For this project the following electrical measurements are necessary: total generated power, power consumption for the own needs of HPP, power supplied to the consumers.

There are 3 commercial electricity meters at the HPP which measure the electricity generated by turbines.

Generated power and power supplied to the consumers is present in the reports on generation and supply to the grid and in the extracts from registration journal of the HPP as well as in the reports on power distribution.

The HPP is equipped with heat measurement devices, which allow determining the amount of heat supplied to the consumers. The amount of heat generated at the HPP is also present in the journal of heat supplied to the consumers.

Determination of heat economy from heating system reconstruction is executed on the basis of calculation of decrease in thermal energy consumption through restored thermal insulation and reduction of network water consumption. Data on heat supply to the consumers from boiler-rooms is saved in the journal of accounting of heat supplied to the consumers (boiler-rooms' data).

To determine the amount of heat generated by boilers №№ 7, 9 the data on generated steam by these boilers is used. The HPP is equipped by special flow-meters which measure the amount of generated steam by boilers №№ 7, 9.

The volume of consumed gas is measured by means of "Universal-02" gas flow meter. The meter's software is intended for transformation of the incoming signals from the gas flow meters, vortex converters of consumption, transformation and measuring of incoming signals from converters of measured pressure and gas temperature, calculation and reduction with accordance to conditions set in GOST 2939-63 (standard conditions) of its volume and volume consumption.

Data on quality of natural gas (physical and chemical indicators) are put into the program "Universal-02" manually according to a quality passport



or a telephone message (in case of indicators changes) given by Kramatorsk Department of gasification and gas supply.

The supply reports of natural gas, diagrams of fuel and journals of fuel accounting are used for cross-checking the amount of consumed natural gas.

In 2010 the arrival of coal had been controlled by two scales. The RS-150C13V, which was leased from Novokramatorsk machine building plant (NKMB) controls the compliance of coal arrival with accompanying forms before beginning the unloading. The conveyer scales KNV-2D-2R is used to control the coal consumption.

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

With the purpose of operation of modernized equipment of Kramatorsk HPP the studying of 6 people of operational personnel of “Kramatorskteploenergo”, Ltd. was done at the boiler equipment of the type BKZ-220 of Chernihiv HPP.

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

A system of technical tools ‘KTS Energiya’ is used at Kramatorsk HPP as the main internal control instrument. The system is managed by the department of information technologies and communication. The data is collected with the minimum range of 5 minutes for each technological parameter. The system archives the information collected and keeps the archived data for at least one year. The data is collected by the accounting group of the production department

### **3.6 Verification regarding programmes of activities (102-110)**

“Not applicable”.

## **4 VERIFICATION OPINION**

Bureau Veritas Certification has performed the 3<sup>rd</sup> periodic verification of the “Reconstruction of Kramatorsk Heat and Power Plant” Project in Ukraine, which applies the JI Specific Approach. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of LLC “Kramatorskteploenergo” is responsible for the preparation of the GHG emissions data and the reported GHG emissions



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reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 2.2 dated 28.08.2009. 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 04 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is 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	: 376642	t CO <sub>2</sub> equivalents.
Project emissions	: 353022	t CO <sub>2</sub> equivalents.
Emission Reductions	: 23620	t CO <sub>2</sub> equivalents.



## 5 REFERENCES

### Category 1 Documents:

Documents provided by LLC “Kramatorskteploenergo” that relate directly to the GHG components of the project.

- /1/ Project Design Document “Reconstruction of Kramatorsk Heat and Power Plant” version 2.2, dated 28.08.09
- /2/ Monitoring Report “Reconstruction of Kramatorsk Heat and Power Plant” version 01 dated 04.02.11
- /3/ Monitoring Report “Reconstruction of Kramatorsk Heat and Power Plant” version 02 dated 20.04.11
- /4/ Monitoring Report “Reconstruction of Kramatorsk Heat and Power Plant” version 03 dated 03.05.11
- /5/ Monitoring Report “Reconstruction of Kramatorsk Heat and Power Plant” version 04 dated 03.06.11
- /6/ ERUs calculation model Exel file “ERUs\_2010 4feb11.xls”
- /7/ ERUs calculation model Exel file “ERUs\_2010 18\_apr\_11.xls”
- /8/ ERUs calculation model Exel file “ERUs\_2010 03\_may\_11.xls”
- /9/ Determination and verification manual, version 01
- /10/ Letter of approval issued National Environmental Agency of Ukraine # 1469/23/7 dated 04.12.2009
- /11/ Letter of Approval from investor country Germany dated 25.03.2010

### Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- /1/ Report dated 13/01/2011 on air protection for 2010, Kramatorsk Heat and Power Plant
- /2/ State statistic survey. Report dated 14/01/2011 on results of fuel, heat and power energy consumption for 2010
- /3/ State statistic survey dated 14/01/2011. Actual fuel consumption on production of certain goods and operations for 2010
- /4/ Attestation certificate #БЛ-614/2010 dated 20/12/2010, valid till 20/12/2013 of Kramatorsk Heat and Power Plant LLC Chemical Analysis Laboratory, issued by Donetskstandartmetrologia State Enterprise
- /5/ Annex to the attestation certificate #БЛ-614/2010 dated 20/12/2010. Kramatorsk Heat and Power Plant LLC Chemical Analysis Laboratory Attestation Scope
- /6/ Attestation certificate #БЛ-040/2011 dated 04/03/2011, valid till 04/03/2014 of Kramatorsk Heat and Power Plant LLC Chemical Analysis Laboratory, issued by Donetskstandartmetrologia State Enterprise
- /7/ Annex to the attestation certificate #БЛ-040/2011 dated 04/03/2011. Kramatorsk Heat and Power Plant LLC Chemical Analysis Laboratory Attestation Scope
- /8/ Logbook started 16/09/2010 on solid fuel quality control at the time of



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- measuring laboratory fuel group delivery
- /9/ Logbook started 22/12/2010 on solid fuel quality control at the time of measuring laboratory fuel group delivery
  - /10/ Logbook TT-21 started 01/01/2008 on fuel consumption
  - /11/ Certificate on natural gas net calorific value for May 2010
  - /12/ Certificate on natural gas net calorific value dated 06/05/2010
  - /13/ Passport on natural gas physical and chemical parameters supplied by Donetskoblhas OJSC, data for April 2010
  - /14/ Passport on natural gas physical and chemical parameters supplied by Donetskoblhas OJSC, data for May 2010
  - /15/ Passport on natural gas physical and chemical parameters supplied by Donetskoblhas OJSC, data for February 2010
  - /16/ Passport on natural gas physical and chemical parameters supplied by Donetskoblhas OJSC, data for January 2010
  - /17/ Certificate #1686 dated 04.12.2010 on coal quality
  - /18/ Certificate #1688 dated 05.12.2010 on coal quality
  - /19/ Certificate #1689 dated 05.12.2010 on coal quality
  - /20/ Certificate #1634 dated 03.12.2010 on coal quality
  - /21/ Certificate #1685 dated 03.12.2010 on coal quality
  - /22/ Certificate #1625 dated 03.11.2010 on coal quality
  - /23/ Certificate #1626 dated 04.11.2010 on coal quality
  - /24/ Certificate #1628 dated 06.11.2010 on coal quality
  - /25/ Certificate #1627 dated 05.11.2010 on coal quality
  - /26/ Certificate #1631 dated 08.11.2010 on coal quality
  - /27/ Certificate #1575 dated 06.10.2010 on coal quality
  - /28/ Certificate #1576 dated 07.10.2010 on coal quality
  - /29/ Certificate #1578 dated 08.10.2010 on coal quality
  - /30/ Certificate #1584 dated 10.10.2010 on coal quality
  - /31/ Certificate #1532 dated 02.09.2010 on coal quality
  - /32/ Certificate #1531 dated 01.09.2010 on coal quality
  - /33/ Certificate #1533 dated 02.09.2010 on coal quality
  - /34/ Certificate #1483 dated 01.08.2010 on coal quality
  - /35/ Certificate #1484 dated 02.08.2010 on coal quality
  - /36/ Certificate #1485 dated 03.08.2010 on coal quality
  - /37/ Certificate #1406 dated 11.06.2010 on coal quality
  - /38/ Certificate #1410 dated 14.06.2010 on coal quality
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  - /40/ Certificate #1300 dated 29.04.2010 on coal quality
  - /41/ Certificate #1301 dated 29.04.2010 on coal quality
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  - /45/ Certificate #1167 dated 20.03.2010 on coal quality
  - /46/ Certificate #1170 dated 22.03.2010 on coal quality
  - /47/ Certificate #1066 dated 30.01.2010 on coal quality
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- /136/ Photo – Cooling tower
- /137/ Photo – Boiler unit-6
- /138/ Photo – Heat water meter SVTU-10V, serial #11757
- /139/ Photo – Boiler unit-5
- /140/ Photo – Heat water meter SVTU-10V, serial #14135
- /141/ Photo – Heat water meter SVTU-10V, serial #14262
- /142/ Photo – Flow meter UVR-011, serial #1080
- /143/ Photo – Boiler unit-4

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- /144/ Photo – Heat water meter SVTU-10V, serial #11815
- /145/ Photo – Conveyer weight controller
- /146/ Multifunctional measuring transmitter
- /147/ Certificate on Enerhiia power calculation and control automated system measuring channels calibration #E443M2 #10390, E443M2 #101709
- /148/ Certificate on Enerhiia power calculation and control automated system measuring channels calibration #E443M2 #101681
- /149/ Passport on conveyer weighting machine KHB2Д23-M
- /150/ State metrological attestation certificate #240-37 on Universal-02 gas flow meter, serial #5672
- /151/ Passport and calibration certificate on boiler #9 steam flow meter
- /152/ Passport and calibration certificate on boiler #7 steam flow meter
- /153/ Passport and calibration certificate on Istok-TM multifunctional measuring transmitter, serial #AMCK.426485.090 ПС
- /154/ Calibration certificate on heat water meter SVTU-10M (M1), serial #11911
- /155/ Calibration certificate on heat water meter SVTU-10M (M1), serial #11757
- /156/ Calibration certificate on heat water meter SVTU-10M (M1), serial #14390
- /157/ Calibration certificate on heat water meter SVTU-10M (M1), serial #14135
- /158/ Calibration certificate on heat water meter SVTU-10M (M1), serial #14262
- /159/ Calibration certificate on heat water meter SVTU-10M (M1), serial #14357
- /160/ Calibration certificate on heat water meter SVTU-10M (M1), serial #12018
- /161/ Calibration certificate on heat water meter SVTU-10M (M1), serial #14295
- /162/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125819
- /163/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125820
- /164/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125814
- /165/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125816
- /166/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125812
- /167/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125813
- /168/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125816
- /169/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125816
- /170/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125827
- /171/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125826
- /172/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125804
- /173/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125803
- /174/ Calibration and acceptance certificate on power meter SL761BO71SL7000



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- Smart, serial #36125815
- /175/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36125828
- /176/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36125802
- /177/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36125811
- /178/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118496
- /179/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118536
- /180/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118545
- /181/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118545
- /182/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118553
- /183/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118545
- /184/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118555
- /185/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118544
- /186/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118561
- /187/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118491
- /188/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118533
- /189/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118486
- /190/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118541
- /191/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118534
- /192/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118506
- /193/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118481
- /194/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118501
- /195/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118521
- /196/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118476
- /197/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118551



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- /198/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118531
- /199/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118511
- /200/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36132285
- /201/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36132303
- /202/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36132292
- /203/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36132317
- /204/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36130058
- /205/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36132295
- /206/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36130059
- /207/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36132304
- /208/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36125819
- /209/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36132321
- /210/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118823
- /211/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118775
- /212/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118842
- /213/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118851
- /214/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118811
- /215/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118841
- /216/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118803
- /217/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118791
- /218/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118853
- /219/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118802
- /220/ Calibration and acceptance certificate on power meter SL761BO71SL7000 Smart, serial #36118793
- /221/ Calibration and acceptance certificate on power meter SL761BO71SL7000



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- Smart, serial #36118792
- /222/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118781
- /223/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118863
- /224/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118771
- /225/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118813
- /226/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118852
- /227/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118812
- /228/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118832
- /229/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #53026298
- /230/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #53026384
- /231/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118861
- /232/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118862
- /233/ Calibration and acceptance certificate on power meter SL761BO71SL7000  
Smart, serial #36118833
- /234/ Calibration and acceptance certificate on power meter ACE3000, serial  
#4848599
- /235/ Calibration and acceptance certificate on power meter ACE3000, serial  
#4848597
- /236/ Calibration and acceptance certificate on power meter ACE3000, serial  
#4848601
- /237/ Calibration and acceptance certificate on Enerhiia-9 power meter, serial  
#31771
- /238/ Attestation certificate #БЛ-682/08 dated 14/02/2008, valid till 13/02/2011 of  
Kramatorsk Heat and Power Plant LLC Chemical Analysis Laboratory, issued  
by Donetskstandartmetrologia State Enterprise
- /239/ Annex to the attestation certificate #БЛ-682/2008 dated 14/02/2008.  
Kramatorsk Heat and Power Plant LLC Chemical Analysis Laboratory  
Attestation Scope
- /240/ Order #81 dated 12/04/2011 on monitoring information archivation
- /241/ Report on Kramatorsk Heat Power Plant work for 2010

**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/ Igor Kudriavtsev – vice-director of Kramatorskaya HPP
- /2/ Andriy Husev – Head of Producing Department
- /3/ Olga Volkova – Head Bookkeeper
- /4/ Oleksandr Paliy – Head of Electric Equipment Operation Department
- /5/ Oksana Pryhodko – Head of Chemical Laboratory





## VERIFICATION REPORT

## APPENDIX A: COMPANY PROJECT VERIFICATION PROTOCOL

## VERIFICATION PROTOCOL

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
<b>Project approvals by Parties involved</b>				
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 JI project "Reconstruction of Kramatorsk HPP" has received the Letter of Approval from Ukraine, reference 1469/23/7 dated 04.12.2009. The Letter of Approval from the investor country Germany dated 25.03.2010	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	The written project approvals are unconditional.	OK	OK
<b>Project implementation</b>				
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?	CAR #01 Please compare and check the length of the monitoring period, indicated in the Monitoring Report and in ERU's calculation model. CAR #02	CAR #01  CAR #02	OK  OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Please provide in the Monitoring Report the only correct name of the Company. CL#01 Please clarify in the Monitoring Report, why the capacity heat exchangers were not replaced by lamellar exchangers.	CL#01	OK
93	What is the status of operation of the project during the monitoring period?	The project was in operation during the monitoring period. Mounted in 2008-2009 years project equipment was in work during monitoring period.	OK	OK
<b>Compliance with monitoring plan</b>				
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 monitoring plan included in the PDD.	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	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



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	well as risks associated with the project taken into account, as appropriate?			
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	Yes, data sources used for calculating emission reductions are clearly identified, reliable and transparent.	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?	CAR #03 Please, provide calculations of ERUs, taking into account new emission factor for Ukraine (see Order NEIA #43 dated 23/03/11)	CAR #03	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
<b>Applicable to JI SSC projects only</b>				
96	Is the relevant threshold to be classified as JI SSC project not	Not applicable	Not applicabl	Not applicabl



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>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?</p>		e	e
<b>Applicable to bundled JI SSC projects only</b>				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	Not applicable	Not applicable	Not applicable
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	Not applicable	Not applicable	Not applicable
98	<p>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</p>	Not applicable	Not applicable	Not applicable



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<b>DVM Paragraph</b>	<b>Check Item</b>	<b>Initial finding</b>	<b>Draft Conclusion</b>	<b>Final Conclusion</b>
	overlap with those for which verifications were already deemed final in the past?			
<b>Revision of monitoring plan</b>				
<b>Applicable only if monitoring plan is revised by project participant</b>				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	Not applicable	Not applicable	Not applicable
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?	Not applicable	Not applicable	Not applicable
<b>Data management</b>				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	The data collection procedures are in accordance with the monitoring plan. Quality control and cross-checking procedures were found satisfactory.	OK	OK
101 (b)	Is the function of the monitoring	The function of the monitoring equipment	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	equipment, including its calibration status, is in order?	is in order. Monitoring equipment is in calibration interval. Calibration certificates of electric power meters and heat meters were provided to verification team.		
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	The evidence and records used for monitoring are maintained in a traceable manner.	OK	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The data collection procedures and management system for the project are in accordance with the monitoring plan.	OK	OK
<b>Verification regarding programs of activities (additional elements for assessment)</b>				
102	Is any JPA that has not been added to the JI PoA not verified?	Not applicable	Not applicable	Not applicable
103	Is the verification based on the monitoring reports of all JPAs to be verified?	Not applicable	Not applicable	Not applicable
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	Not applicable	Not applicable	Not applicable
104	Does the monitoring period not overlap with previous monitoring	Not applicable	Not applicable	Not applicable





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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	periods?		e	e
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	Not applicable	Not applicable	Not applicable
<b>Applicable to sample-based approach only</b>				
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	Not applicable	Not applicable	Not applicable



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	Not applicable	Not applicable	Not applicable
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	Not applicable	Not applicable	Not applicable



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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)	Not applicable	Not applicable	Not applicable
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?	Not applicable	Not applicable	Not applicable

**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 conclusion	team



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<p>CAR #01 Please compare and check the length of the monitoring period, indicated in the Monitoring Report and in ERU's calculation model.</p>	92	<p>Section A.1. of the monitoring report and ERUs calculation model were amended accordingly.</p>	<p>Monitoring Report is checked. The issue is closed</p>
<p>CAR #02 Please provide in the Monitoring Report the only correct name of the Company.</p>	92	<p>The Company name was amended (see Section D2.2.)</p>	<p>Monitoring Report is checked. The issue is closed</p>
<p>CAR #03 Please, provide calculations of ERUs, taking into account new emission factor for Ukraine (see Order NEIA #43 dated 23/03/11)</p>	95(c)	<p>The ERUs calculation model was updated for the new emission factor for Ukrainian grid (see the file ERUs_2010_18_apr_11.xlsx).</p>	<p>The issue is closed.</p>
<p>CL#01 Please clarify in the Monitoring Report, why the capacity heat exchangers were not replaced by lamellar exchangers.</p>	92	<p>The replacement of capacity heat exchangers by lamellar ones did not take place in 2010 due to lack of finances. Section B.1. was amended accordingly</p>	<p>The issue is closed.</p>



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**APPENDIX B: VERIFIERS CV'S**

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**Work carried out by:****Oleg Skoblyk, Specialist (Power Management)**

Climate Change Lead Verifier

Bureau Veritas Ukraine HSE Department project manager.

Oleg Skoblyk has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University' with specialty Power Management. He has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems and Quality Management Systems. Oleg Skoblyk has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the determination/verification of 52 JI projects.

**Vyacheslav Yeriomin, Specialist (Electromechanic)**

Climate Change Verifier Trainee

Bureau Veritas Ukraine HSE Department project manager

Vyacheslav Yeriomin has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University' with specialty Electromechanic. He has experience related to working in a professional position (engineering) involved with the exercises in heavy machinery, electric drive, metallurgy at JSC "Inzhenernyi Dom". Vyacheslav Yeriomin has successfully completed IRCA registered Internal Auditor Training Course for Environment Management Systems and Quality Management Systems as well as IRCA registered Lead Auditor Training Course for Quality Management Systems.

Vyacheslav Yeriomin is involved in the determination/verification of 7 JI projects.

**The verification report was reviewed by:****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 Ukraine

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



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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