VERIFICATION REPORT
GLOBAL CARBON BV

VERIFICATION OF THE
IMPROVEMENT OF THE ENERGY EFFICIENCY AT ENERGOMASHSPETSSTAL (EMSS), KRAMATORSK, UKRAINE

NINETH PERIODIC FOR THE FIRST QUARTER OF 2011
(01.04.2011-30.06.2011)

REPORT NO. UKRAINE-VER/0351/2011
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26/08/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon BV	Lennard de Klerk

Summary:

Bureau Veritas Certification has made the 9th periodic verification of the "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine", JI Registration Reference Number 0104, project of Global Carbon BV located in Kramatorsk, 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 Corrective Actions Requests (CAR) and Clarification Request (CL) presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as per determined changes. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements, and the ERUs issued totalize 88229 tons of CO_2eq for the monitoring period from 01.04.2011 to 30.06.2011.

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

Report No.:	Subject Group:	
UKRAINE-ver/0351/2011	JI	
Project title: "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine"		
Work carried out by: Team Leader : Ivan Sokolov; Team Member : Kateryna Zinevych; Team Member : Oleg Skoblyk		
Work reviewed by: Leonid Yaskin – Internal Technical Reviewer		
Work approved by: Flavio Gomes – Climate Change Operational Manager		
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1 INTRODUCTION

Global Carbon BV has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" (hereafter called “the project”) at Kramatorsk, Ukraine, UNFCCC JI Reference Number 0104.

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:

Ivan Sokolov
Bureau Veritas Certification Team Leader, Climate Change Verifier

Kateryna Zinevych
Bureau Veritas Certification Climate Change Verifier

Oleg Skoblyk
Bureau Veritas Certification Climate Change Verifier

This verification report was reviewed by:

Leonid Yaskin
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 Global Carbon BV and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

The verification findings presented in this report relate to the Monitoring Report version(s) 1.0 dated 18th of July 2011, Monitoring Report version(s) 2.0 dated 11th of August 2011 and project as described in the determined PDD.

2.2 Follow-up Interviews

On 21/07/2011 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 EMSS and Global Carbon BV were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Energomashspetsstal (EMSS)	Organizational structure. Responsibilities and authorities. Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Metering equipment control. Metering record keeping system, database.
Consultant: Global Carbon BV	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 and Corrective 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.

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

3.1 Remaining issues and FARs from previous verifications

No FARs were raised during previous verification.

3.2 Project approval by Parties involved (90-91)

Written project approvals by the Netherlands and Ukraine have been issued by the NFPs 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.

3.3 Project implementation (92-93)

The project activity consists of the energy efficiency measures at the premises of EMSS by the implementation of four subprojects:

Subproject 1. Reconstruction of thermal and heating furnaces – there are 35 thermal and heating furnaces in operation in different shops at the premises of EMSS. The main goal of this subproject is the reduction of the natural gas (NG) consumption on 26 of these furnaces by commissioning of new automated NG burners (this enables to maintain the required temperature inside of the furnace) and by implementation of new thermal insulation for the walls, front doors and roofs of the furnaces.

Subproject 2. Installation of a new vacuum system – Installation of a new vacuum system for the vacuumed steel production. The old vacuum system used heat and electricity. The reconstructed vacuum system uses only electricity.

Subproject 3. Installation of an arc ladle furnace – New arc ladle furnace is installed for the steel production. This means that the part of the process of the steel preparation doing in the ladle from which the

steel will be cast into the forms. As a result there is reduction of the electricity consumption.

Subproject 4. Modernization of press equipment – Replacing the old pump system, serving the 15,000 ton press, with a new one, more effective pump system. There are 24 old pumps (with 500 kW installed capacity each), which will be replaced by 11 new pumps (with 800 kW installed capacity each).

Project implementation schedule has faced some delays caused by the global financial crisis. The proposed JI project consists of four interventions to the production cycle. Equipment for the proposed interventions was installed and commissioned in the following order:

- SP1: From 01 January 2008 to 01 November 2009 – 19 furnaces were commissioned (besides 7 furnaces commissioned in 2007);
- SP2: May 2007;
- SP3: April 2007;
- SP4: December 2007;

Therefore the starting date of the project is April 2007.

Project was operational for the whole monitoring period, which is 01.04.2011-30.06.2011.

The project improved efficiency of use of natural gas, electricity and heat at the enterprise and thus leaded to decrease of harmful emissions. This project by reducing GHG emissions contributes towards a better environment and hence works towards social well-being for all. Project implementation will lead to improvement of ecological climate of the region, increase of payments to the budgets of all levels for social needs, prevention of reduction of working places and better working conditions at EMSS.

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

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

The monitoring occurred in accordance with the monitoring plan previously revised and determined in "Determination of the Monitoring Plan revision 1.1 of the project "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" of 31/12/2009.

For calculating the emission reductions or enhancements of net removals, 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.

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.

3.5 Revision of monitoring plan/Determination of the changes from the determined PDD (99-100)

There is no revision of monitoring plan/determination of the changes from the determined PDD during this particular monitoring period (01.04.2011-30.06.2011) but previous revisions are still described below for the bigger transparency.

Revision of the monitoring plan

The monitoring approach in the Monitoring Plan of the PDD version 3.9 requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way. The same approach is applied in the revised Monitoring Plan revision 1.1 developed for the monitoring period that is not one year.
The parameters that are determined to quantify the baseline and project emissions are presented in the monitoring report.

It should be mentioned that in order to get normalized volume of natural gas combusted at workshop, temperature and pressure data has been used. The temperature and pressure measuring devices were installed after MP was developed as a part of natural gas measuring equipment. The formula for calculation used in MR is specific for vortex flow meter and it is not applicable for other type of gas meter (i.e. orifice flow meter). Decision on the type of flow meter was optional and therefore it was not included into the PDD. For year 2008 calculation was performed manually using formula given in the monitoring report for 2008. Fore year 2009 the calculation was performed for one furnace automatically using similar

devices yielding figures of NG quantity directly in Nm3 and since second or third quarter of 2010 it is planned to equip all furnaces with such devices and figures will be obtained in Nm3.

The list of monitoring equipment, which is used in all the sub-projects is present in the Monitoring Report version 3.0 Tables 2-7. All the monitoring equipment is to be checked and calibrated according calibration plans.

According to the determined monitoring plan project and baseline emissions and emission reductions are calculating on the annual basis for every subproject. In order to make monitoring process for the nine months possible formulas for the calculations has been updated. Updates with compare to determined monitoring plan are presented in the MR version 2.0.

The other deviation from the determined monitoring plan is reprogramming 5 electricity meters to show electricity consumption data directly from the display. After reprogramming, calculation of project variables ELVD, electricity consumed by the new vacuum system (VD), and ELEAF50, electricity consumption by EAF50 is performed automatically with transformation coefficients embedded in the program. Reprogramming influenced neither the accuracy of data collection nor the data itself, and was done for the convenience of the project owners. Description of the calculation method is provided in the Table 12 of the Monitoring Report 008 version 3.0.

Determination of the changes from the determined PDD

The project participants provided an appropriate justification for the proposed changes from the determined PDD, which is inclusion of one more furnace into the project which was not in the list of reconstructed project in the determined PDD version 3.9. The change during the project implementation constitutes modifying the order of furnaces reconstruction resulting in inclusion of furnaces not mentioned in the determined PDD into the energy efficiency program and postponing reconstruction of those furnaces from the list which have not been modernized yet. In the determined PDD ver.3.9 there are 26 furnaces that were supposed to be commissioned according to Subproject 1. Due to a severe recession and the worsening of the steel market the reconstruction of the furnaces was delayed. As of June 2010 only 21 of them were reconstructed. Also during the course of reconstruction the order of furnaces modernization was changed to meet the Enterprise's need to have efficient furnaces of a specific size available in order to serve the orders for EMSS products. Finally, in 2010 it was decided to channel the investment to reconstruction of the furnaces which were not originally included in the determined PDD while postponing the reconstruction of some of the furnaces that were

listed in the determined PDD. The changes from the determined PDD do not lead to the change of project location, emissions source, the baseline scenario, changes correspond to a JI specific approach, according to which project has been determined.

The proposed change during the project implementation does not require any principal changes to procedures and calculation formulae used for baseline setting and monitoring for the project, therefore it is consistent with the JI specific approach applied in the determined PDD.

Changes that have been implemented do not affect conservativeness of the approach to the emission reductions calculations and procedures of the data collection and archiving.

AIE determined that the proposed revisions improve the accuracy and 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.

The identified areas of concern as to project revised monitoring plan, project participants response and BV Certification's conclusion are described in Appendix A to this report (CAR 02).

3.6 Data management (101)

Subproject 1. Reconstruction of thermal and heating furnaces. Each reconstructed furnace has a natural gas flow meter with pressure and temperature sensors in order to calculate normal cubic meters of natural gas burned in the furnace. Information from flow meters, pressure and temperature sensors are transmitting to the control and monitoring computer system where recalculation to the normal cubic meters taking place according to the approved standard.

All information about technological process is saved continuously. The archiving period for the log files is at least one year. Information that corresponds to the natural gas consumption in the monitoring period has been burned on CDs. These CDs are stored till the end of the crediting period plus two years.

Every half-finished product that processes through the furnaces has own unique certificate. This certificate reflects all operations performed on the product and the weight on the exit of every workshop. So, the weight of half-finished products that proceed through each furnace could be easily monitored. Information from the certificates is saved in the log books in order to simplify the monitoring process.

A report including natural gas consumption and weight of half finished products is generating on a monthly basis. The report is signing by Head

of Energy Saving Department, Head of corresponding workshop and approved by Chief Engineer.

The natural gas meters (flow, pressure, temperature) are used in furnaces' control process. That is why any deviation/failure of the meters would be recognized immediately by disturbance of the heating process and reported to the workshop's head. As a result of disturbance furnace should be shut down fore the checking procedure.

Subproject 2. Installation of a new vacuum system. Electricity that is consumed during the vacuum process is metered using dedicated meters for this system. Information from meters is passed to the control and monitoring computer system of the vacuumizator. A computer system records information about every vacuumization session, including melt passport, time and electricity consumption. The archiving period for the log files is at least one year. Information that corresponds to the electricity consumption in the monitoring period has been burned on CDs. These CDs are stored till the end of the crediting period plus two years.

The steel to the vacuum degasser (VD) coming either from ladle furnace (LF) or from the electric arc furnace (EAF) in special ladle. Each ladle with liquid steel has unique certificate of melt.

Subproject 3. Installation of an arc ladle furnace. LF is a comprehensive solution for high quality steel melting has been installed in the Steel Making Workshop (SMW). The main electricity consumers of the SMW are powered by the following scheme.

Close Distribution Unit (CDU) #1, 2 are electricity powering points for the EAFs (EAF50 #1, EAF100 #3, EAF100 #5 and EAF12) and LF. CDUs are powered by Transformers (T1, and T2) and Autotransformers (AT1 and AT2). EAFs and LF could be powered from any of the Transformers or Autotransformers. Commercial electricity meters are installed on each of the Transformers and Autotransformer.

The data from electricity meters concerning electricity consumption is transmitted to the control and monitoring computer system continuously. The computer system records information about each melt process, including melt certificate. This certificate includes information about the number of EAF where steel was melted, steel content, amount of electricity consumed during melting and weight of steel. The archiving period for the log files is at least one year. All melt certificates for the monitoring period have been burned to CDs. These CDs are stored until the end of the crediting period plus two years.

Subproject 4. Modernization of press equipment.

Serving motors of the press pump station are powered from the 6kV line. Substation 110/6 kV has two transformers. Each transformer has a

commercial electricity meter. There are some addition consumers on the 6kV line. All data concerning electricity consumption is transmitted to the control and monitoring computer system. The press has a special registry log book, where working time of press is logged, among other data.

In the revised monitoring plan the formulae for calculation of variables are adjusted for the period 1 month instead of period of 1 year that was in the initial monitoring plan determined in the PDD. This allowed to calculated figures for the second 3 months of 2011.

The reporting procedures reflect the revised monitoring plan completely. It is confirmed that the monitoring report does comply with the monitoring methodology described in the PDD and Monitoring Plan revision 1.1.

All parameters were determined as prescribed. The complete data is stored electronically and documented. The necessary procedures have been defined in internal procedures.

The audit team confirms that emission reduction calculations have been performed according to the Monitoring Plan.

According to the Article 10 paragraph 1 of the Ukrainian Law “On Metrology and Metrological Activity” measurement results can be used in case if appropriate characteristics of errors and uncertainty are known. Characteristics of errors are presented in the passports of the equipment. The level of uncertainty is considered as low which is why it can be neglected in the calculations.

Project consists of the 105 monitoring parameters. Some of the parameters that are used in the calculation of the baseline and project emissions are measured directly with the use of special equipment while others are estimated with the use of appropriate coefficients.

Concerning verification the calculation of emission reductions is based on internal data. The origin of those data was explicitly checked. Further on, entering and processing of those data in the monitoring workbook Excel sheet was checked where predefined algorithms compute the annual value of the emission reductions. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for key equipment was performed for all relevant meters.

Necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the various parameters on daily basis.

The general management of the monitoring team is implemented by the Deputy Chief Engineer of the EMSS through supervising and coordinating activities of his subordinates, such as the head of Energy Saving Department, the head of Steel Making Shop, Press-Forging Shop and Thermal Shop. On-site day-to-day (operational) management is implemented by the heads of corresponding shops. The technological process data is logged into the PCs continuously. The PCs at reconstructed furnaces, LF, VD, etc., have not only monitoring but control functions as well. Keeping the PCs in a working condition is a responsibility of the Department of the automated control systems.

All data necessary for the CO_2 emission reductions calculation is collected in the Energy Saving Department. The head of the Energy Saving Department is making calculations on a monthly basis. The general supervision of the monitoring system is executed by the Deputy Chief Engineer.

For this monitoring period the names of the personnel involved is as follows:

- Deputy Chief Engineer: A. Masyuk
- Head of Energy Saving Department: V. Timoshenko
- Head of the Steel Making Shop: A. Gorkusha
- Head of the Press-Forging Shop: N. Bondar
- Head of the Thermal Shop: V. Stankov

All contracts for the equipment supplying include chapter describing personnel training. Training is providing by equipment producers.
CO_2 emission reductions calculations are performing on the monthly basis by the head of the Energy Saving Department. All energy sources flows (such as electricity and natural gas) are logged on the server in the Energy Saving Department. Hence the head of Department checks the correctness of measurements by the indirect calculations.

The identified areas of concern as to data management, project participants response and BV Certification's conclusion are described in Appendix A to this report (CAR 03).

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed 9th periodic verification of the "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, 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 Global Carbon BV 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 Plan indicated in the final PDD version 3.9. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 2.0 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as per determined changes. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01/04/2011 to 30/06/2011

Baseline emissions	: 123357	t CO_2 equivalents.
Project emissions	: 35128	t CO_2 equivalents.
Emission Reductions	: 88229	t CO_2 equivalents.

5 REFERENCES

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

/1/ Monitoring Report version 1.0, dated 18th of July 2011

/2/ Monitoring Report version 2.0 dated 11th of August 2011

/3/ Verification Report by Bureau Veritas Certification Holding SAS dated 16th of November 2009

/4/ Verification Report by Bureau Veritas Certification Holding SAS dated 31st of December 2009

/5/ Verification Report by Bureau Veritas Certification Holding SAS dated 30th of March 2010

/6/ Verification Report by Bureau Veritas Certification Holding SAS dated 29th of June 2010

/7/ Verification Report by Bureau Veritas Certification Holding SAS dated 27th of September 2010

/8/ Verification Report by Bureau Veritas Certification Holding SAS dated 28th of January 2011

/9/ Verification Report by Bureau Veritas Certification Holding SAS dated 11th of April 2011

/10/ Verification Report by Bureau Veritas Certification Holding SAS dated 3rd of June 2011

/11/ Project Design Document, version 3.9 dated 31 of August 2008

/12/ Letter of Approval of National Ecological Investment Agency of Ukraine, № 48/23/7 from 23.01.2009

/13/ Approval of Voluntary participation in a Joint Implementation project of Ministry of Economical Affairs in Netherlands №2009JI01, dated 3 of March 2009

/14/ Emission reductions Calculation Excel Spreadsheet version 1.0 dated 9th of November 2010

/15/ Determiantion and Verififcation Manual, version 01

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

/1/ License #1412900000-51 dated 26/12/2008 issued by the Ministry of Environmental protection of Ukraine

/2/ License on special water usage and project oa standards on permissible emission with reverse waters pollution by Energomashspetsstal JSC (EMSS)

/3/ License #УКР-ДОН-4630 dated 29/12/2010 on special water usage at Energomashspetsstal JSC, issued by Donetsk Region Environmental Protection

State Office
/4/ Instructions on SEM 72/3.7
/5/ Letter #72/46 dated 01/02/11
/6/ Letter #10-4463 dated 30/06/10
/7/ License #2217 dated 30/06/2010 on wastes allocations in 2011, valid from 01/01/2011 till 31/12/2011
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/65/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #18 FPW)
/66/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #19 FPW)
/67/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #20 FPW)
/68/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #30 FPW)
/69/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #31 FPW)
/70/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #32 FPW)
/71/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #33 FPW)
/72/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #34 FPW)
/73/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #35 FPW)
/74/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #36 FPW)
/75/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #37 FPW)
/76/ Gas consumption from 01/02/2011 till 01/03/2011 (Thermal furnace #38 FPW)
/77/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #1 FPW)
/78/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #7 FPW)
/79/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #8 FPW)
/80/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #9 FPW)
/81/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #10 FPW)
/82/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #18 FPW)
/83/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #19 FPW)
/84/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #20 FPW)
/85/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #30 FPW)
/86/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #31 FPW)
/87/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #32 FPW)
/88/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #33 FPW)
/89/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #34 FPW)
/90/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #35 FPW)
/91/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #36 FPW)
/92/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #37 FPW)

/93/ Gas consumption from 01/01/2011 till 01/02/2011 (Thermal furnace #38 FPW)
/94/ Gas consumption from 01/03/2011 till 01/04/2011 (thermal furnace #1 TW)
/95/ Gas consumption from 01/03/2011 till 01/04/2011 (thermal furnace #2 TW)
/96/ Gas consumption from 01/03/2011 till 01/04/2011 (thermal furnace #4 TW)
/97/ Gas consumption from 01/03/2011 till 01/04/2011 (thermal furnace #9 TW)
/98/ Gas consumption from 01/03/2011 till 01/04/2011 (thermal furnace #10 TW)
/99/ Gas consumption from 01/03/2011 till 01/04/2011 (thermal furnace #17 TW)
/100/ Gas consumption from 01/03/2011 till 01/04/2011 (thermal furnace #18 TW)
/101/ Gas consumption from 01/02/2011 till 01/03/2011 (thermal furnace #1 TW)
/102/ Gas consumption from 01/02/2011 till 01/03/2011 (thermal furnace #2 TW)
/103/ Gas consumption from 01/02/2011 till 01/03/2011 (thermal furnace #4 TW)
/104/ Gas consumption from 01/02/2011 till 01/03/2011 (thermal furnace #9 TW)
/105/ Gas consumption from 01/02/2011 till 01/03/2011 (thermal furnace #10 TW)
/106/ Gas consumption from 01/02/2011 till 01/03/2011 (thermal furnace #17 TW)
/107/ Gas consumption from 01/02/2011 till 01/03/2011 (thermal furnace #18 TW)
/108/ Gas consumption from 01/01/2011 till 01/02/2011 (thermal furnace #1 TW)
/109/ Gas consumption from 01/01/2011 till 01/02/2011 (thermal furnace #2 TW)
/110/ Gas consumption from 01/01/2011 till 01/02/2011 (thermal furnace #4 TW)
/111/ Gas consumption from 01/01/2011 till 01/02/2011 (thermal furnace #9 TW)
/112/ Gas consumption from 01/01/2011 till 01/02/2011 (thermal furnace #10 TW)
/113/ VS operational logbook from 01/03/2011 till 01/04/2011, daily data
/114/ VS operational logbook from 01/02/2011 till 01/03/2011, daily data
/115/ VS operational logbook from 01/01/2011 till 01/02/2011, daily data
/116/ LF operational logbook from 01/03/2011 till 01/04/2011, daily data
/117/ LF operational logbook from 01/02/2011 till 01/03/2011, daily data
/118/ LF operational logbook from 01/01/2011 till 01/02/2011, daily data
/119/ Statement on TW thermal furnace #17 dated 01/01/2011
/120/ Statement on TW thermal furnace #18 dated 01/01/2011
/121/ Acceptance statement dated 14/09/2010 on gas supply system (TW furnace #17)
/122/ Acceptance statement dated 14/09/2010 on gas supply system (TW furnace #18)
/123/ Report on workshops operation at EMSS JSC in March 2011 on GHG reduction
/124/ Report on NAS-15000t.s. operation in March 2011
/125/ Report on thermal workshop furnace #1 operation in March 2011
/126/ Report on thermal workshop furnace #2 operation in March 2011
/127/ Report on thermal workshop furnace #4 operation in March 2011
/128/ Report on thermal workshop furnace #9 operation in March 2011
/129/ Report on thermal workshop furnace #10 operation in March 2011
/130/ Report on thermal workshop furnace #17 operation in March 2011
/131/ Report on thermal workshop furnace #18 operation in March 2011
/132/ Report on EAF-LF in March 2011
/133/ Report on VS in March 2011 (EAF-50 #1)
/134/ Report on VS in March 2011 (EAF-50 #5)
/135/ Report on thermal furnaces operation in March 2011
/136/ Photo – Natural gas consumption meter IRVIS – PC4, serial #13346 (furnace #18)

/137/ Calibration passport dated 30/01/2009 on crane weighting machine, serial #VK0115086
/138/ Calibration passport dated 15/02/2011 on flow transmitter Irvis K-300, serial #5480 (furnace #8)
/139/ Calibration passport dated 15/02/2011 on flow transmitter Irvis K-300, serial #5482 (furnace #9)
/140/ Calibration passport dated 15/02/2011 on flow transmitter Irvis K-300, serial #5483 (furnace #10)
/141/ Calibration passport dated 04/03/2010 on flow-meter Irvis K-300, serial #13345 (furnace #17)
/142/ Calibration passport dated 04/03/2010 on flow-meter Irvis K-300, serial #13346 (furnace #18)
/143/ Calibration certificate #03-02-01 dated 03/02/2011, valid till 03/02/2012 on flow-meter Metran, serial #000087 (furnace #10)
/144/ Calibration certificate #03-02 dated 11/03/2011, valid till 11/03/2012 on flow-meter Metran, serial #000088 (furnace #9)
/145/ Calibration certificate dated 10/01/2011 on flow-meter Metran, serial #340571 (furnace #4)
/146/ Calibration certificate #02-21 dated 16/02/2011, valid till 16/02/2012 on flow-meter Metran, serial #376707 (furnace #9)
/147/ Calibration certificate #10-02 dated 10/02/2011, valid till 10/02/2012 on flow-meter Metran, serial #387352 (furnace #30)
/148/ Calibration certificate #03-18 dated 28/03/2011, valid till 28/03/2012 on flow-meter Metran, serial #459415 (furnace #35)
/149/ Calibration passport dated 09/02/2011 on resistance thermometer TCMT – 103, serial #195.443 (furnace #35)
/150/ Calibration passport dated 09/02/2011 on resistance thermometer TCMT – 103, serial #195.447 (furnace #36)
/151/ Calibration passport dated 24/02/2011 on resistance thermometer TCMT – 103, serial #195.435 (furnace #38)
/152/ Calibration passport dated 07/04/2011 on measuring device Ergomera-126, serial #195.447 (furnace #37)
/153/ Report on workshops operation at EMSS JSC in February 2011 on GHG reduction
/154/ Report on NAS-15000t.s. operation in February 2011
/155/ Report on thermal furnaces operation in February 2011
/156/ Report on EAF-LF in February 2011
/157/ Report on VS in February 2011 (EAF-50 #1)
/158/ Report on VS in February 2011 (EAF-50 #5)
/159/ Report on thermal workshop furnace #1 operation in February 2011
/160/ Report on thermal workshop furnace #2 operation in February 2011
/161/ Report on thermal workshop furnace #4 operation in February 2011
/162/ Report on thermal workshop furnace #9 operation in February 2011
/163/ Report on thermal workshop furnace #10 operation in February 2011
/164/ Report on thermal workshop furnace #17 operation in February 2011
/165/ Report on thermal workshop furnace #18 operation in February 2011
/166/ Report on workshops operation at EMSS JSC in January 2011 on GHG

reduction
/167/ Report on thermal furnaces operation in January 2011
/168/ Report on NAS-15000t.s. operation in January 2011
/169/ Report on VS in January 2011 (EAF-50 #1)
/170/ Report on VS in January 2011 (EAF-50 #5)
/171/ Report on EAF-LF in January 2011
/172/ Report on thermal workshop furnace #1 operation in January 2011
/173/ Report on thermal workshop furnace #2 operation in January 2011
/174/ Report on thermal workshop furnace #4 operation in January 2011
/175/ Report on thermal workshop furnace #9 operation in January 2011
/176/ Report on thermal workshop furnace #10 operation in January 2011
/177/ Report on thermal workshop furnace #17 operation in January 2011
/178/ Report on thermal workshop furnace #18 operation in January 2011
/179/ Statement dated 21/03/2011 on energy consumption by EAF-1
/180/ Statement dated 18/03/2011 on energy consumption by LF
/181/ Statement dated 23/03/2011 on energy consumption by VS
/182/ Instruction #12 dated 18/03/2011
/183/ Instruction #04-28/403 dated 04/04/2011
/184/ Gas meters calibration data
/185/ Project emission reduction calculations

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/ Bondar Nikolay, the Head of the Forge Press workshop
/2/ Anna Vilde, JI Consultant, Global Carbon BV
/3/ Chubar Oleg, the Head of the environmental safety department
/4/ Garkusha Aleksandr, the Head of the Steel Making workshop
/5/ Masyuk Aleksandr, Deputy Chief Engineer
/6/ Polyachenko Vladimir, Head of the personnel training centre
/7/ Romanenko Sergey, the Head of the automation department
/8/ Smirnof Sergey, the Chief metrologist
/9/ Timoshenko Vadim, Head of the energy saving department
/10/ Zubkov Aleksandr, the Chief Engineer

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
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 NFPs. The Letters of Approval were presented to the verification team. Letters of Approval by both Parties were submitted to the secretariat on the final determination stage.	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	CAR 01. Please correct JISK to JISC throughout the document. CAR 02. MR says that there were changes during the implementation of the project and their detailed analysis in accordance with Procedures Regarding Changes During Project Implementation developed by JISK is provided in the Annex 1 to MR, while no Annex 1 is present. Correct.	CAR 01,02	OK
93	What is the status of operation of the project during the monitoring period?	Project has been operational for the whole monitoring period, which is 01.04.2011 – 30.06.2011.	OK	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the	There are few deviations to the monitoring plan included in the determined PDD. Detailed descriptions	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	of the deviations are given in the Monitoring Report 002 that has been finally verified (see http://ji.unfccc.int/JI_Projects/DeterAndVerif/Verif/FinVerif.html). A revised monitoring plan has been submitted to the AIE during verification, which received a positive determination. There was also proposed change to the existing list of furnaces for the implementation in the PDD version 3.9, which concerned addition of new thermal furnace #1 to the existing list in PDD during previous monitoring period.		
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	Yes, for calculating the emission reductions or enhancements of net removals, key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project were taken into account, as appropriate.	OK	OK
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 or enhancements of net removals 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,	Yes, emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	and appropriately justified of the choice?			
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	Yes, the calculation of emission reductions or enhancements of net removals are based on conservative assumptions and the most plausible scenarios in a transparent manner.	OK	OK
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the 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				
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	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?			
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	Yes, project participants provided an appropriate justification for the proposed revision, which was fully described in the Determination of Monitoring Plan Report (see http://ji.unfccc.int/JI_Projects/DeterAndVerif/Verif/FinVerif.htm). The monitoring of baseline and project emissions and calculation of emission reductions will be performed using same approaches and formulae as in the determined monitoring plan. The relevant changes in terms of monitoring equipment and procedures for monitoring and calculation have been made in the updated monitoring plan.	-	-
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?	Yes, the proposed revision improves the accuracy and 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, which was already verified.	-	-
Data management				
101 (a)	Is the implementation of data collection	Yes, implementation of data collection procedures is in	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	accordance with the monitoring plan, including the quality control and quality assurance procedures		
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	CAR 03. Please provide calibration certificates for: • natural gas meter 69191748 • natural gas meter 69193831 • temperature meter 655359 • temperature meter 655363 • temperature meter 655354 • temperature meter 655360 • temperature meter 655356 • temperature meter 6000 • temperature meter 6011 • pressure meter 241764 • pressure meter 422353 • pressure meter 461211 • pressure meter 486509 • pressure meter 486786 • pressure meter 458976 • pressure meter 486510 • weighting machine 506149 • weighting machine 806148 • logger-evaluator 800	CAR 03	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Yes, records used for the monitoring are maintained in a traceable manner in the form of technical monthly reports.	OK	OK
101 (d)	Is the data collection and management	Yes, data collection and management system for the	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	system for the project in accordance with the monitoring plan?	project is in accordance with the monitoring plan.		
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/a	N/a	N/a
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/a	N/a	N/a
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/a	N/a	N/a
104	Does the monitoring period not overlap with previous monitoring periods?	N/a	N/a	N/a
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/a	N/a	N/a
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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 number, then does the AIE provide a reasonable	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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	Verification team conclusion
CAR 01. Please correct JISK to JISC throughout the document.	92	The misprint was corrected. Please, see updated MR 009 version 2.0	Issue is closed.
CAR 02. MR says that there were changes during the implementation of the project and their detailed analysis in accordance with Procedures Regarding Changes During Project Implementation developed by JISK is provided in the Annex 1 to MR, while no Annex 1 is present. Correct.	92	The mistake was corrected. There were no changes since last verification. Please, see updated MR 009 version 2.0 (page 4).	Issue is closed.

CAR 03. Please provide calibration certificates for: • natural gas meter 69191748 • natural gas meter 69193831 • temperature meter 655359 • temperature meter 655363 • temperature meter 655354 • temperature meter 655360 • temperature meter 655356 • temperature meter 6000 • temperature meter 6011 • pressure meter 241764 • pressure meter 422353 • pressure meter 461211 • pressure meter 486509 • pressure meter 486786 • pressure meter 458976 • pressure meter 486510 • weighting machine 506149 • weighting machine 806148 • logger-evaluator 800	101 (b)	Copies of the requested calibration certificates were provided to AIE.	All the calibration dates are correct according to MR. Issue is closed.

APPENDIX B: VERIFICATION TEAM

The verification team consists of the following personnel:

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

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

Acting CEO Bureau Veritas Black Sea District

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

Kateryna Zinevych, M.Sci. (environmental science)

Climate Change Verifier

Kateryna Zinevych has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She has experience at working in a professional position (analytics) involving the exercise of judgment, problem solving and communication with other professional and managerial personnel as well as customers and other interested parties at analytical centre “Dergzovnishinform” and “Burea Veritas Ukraine” LLC. She has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems and Quality Management Systems. She has successfully completed Climate Change Verifier Training Course and she participated as verifier in the determination/verification of 26 JI projects.

Oleg Skoblyk, Specialist (Power Management)
Climate Change Verifier
Bureau Veritas Ukraine HSE Department project manager.
He has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University" with specialty Energy Management. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). He performed over 10 audits since 2008. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 20 JI projects.

The report was reviewed by:

Leonid Yaskin, PhD (thermal engineering)
Internal Technical Reviewer
Bureau Veritas Certification Rus General Director- Lead Auditor, Lead Tutor, Climate Change Lead Verifier
He has over 30 years of experience in heat and power R&D, engineering, and management, environmental science and investment analysis of projects. He worked in Krrzhizhanovsky Power Engineering Institute, All-Russian Teploelectroproject Institute, JSC Energoperspectiva. He worked for 8 years on behalf of European Commission as a monitor of Technical Assistance Projects. He is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). He performed over 250 audits since 2002. Also he is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered OHSAS 18001 Lead Auditor Training Course. He is an Assuror of Social Reports. He is Lead Tutor of the Climate Change Lead Verifier Training Course and was/is involved in the determination of over 60 JI projects.