VERIFICATION REPORT
VEMA S.A.

VERIFICATION OF THE
IMPLEMENTATION OF THE ENERGY EFFICIENCY MEASURES AT SE "MALYSHEV PLANT"

FIRST PERIODIC
FOR THE PERIOD OF 01/01/2008 – 31/12/2011

REPORT NO. UKRAINE-VER/0668/2012
REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Date of first issue: 13/09/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: VEMA S.A.	Client ref.: Fabian Knodel

Summary:

Bureau Veritas Certification has made the 1st periodic verification for the period of 01/01/2008-31/12/2011 of the "Implementation of the energy efficiency measures at SE "Malyshev Plant" project of VEMA S.A. located in the territory of Kharkiv city, Ukraine, and applying JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria (but for the crediting period) refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Accredited Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the monitoring report against project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (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 emission reductions issued totalize 188 552 tonnes of CO_2 equivalent for the monitoring period from 01/01/2008 to 31/12/2011.

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.: UKRAINE-ver/0668/2012	Subject Group: JI	
Project title: "Implementation of the energy efficiency measures at SE "Malyshev Plant"		
Work carried out by: Viacheslav Yeriomin – Team Leader, Climate Change Lead Verifier Volodymyr Kulish – Team Member, Climate Change Lead Verifier		
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer Oleg Skoblyk– Technical Specialist		☒ No distribution without permission from the Client or responsible organizational unit
Work approved by: Ivan Sokolov – Climate Change Operational Manager		☐ Limited distribution
Date of this revision: 21/09/2012	Rev. No.: 02	Number of pages: 31
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Bureau Veritas Certification Holding SAS

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1 INTRODUCTION

VEMA S.A. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Implementation of the energy efficiency measures at SE "Malyshev Plant" (hereafter called "the project") implemented in the territory of Kharkiv city, Ukraine.

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

The verification covers the period from January 1, 2008 to December 31, 2011.

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, monitoring plan and monitoring report, and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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

1.3 Verification Team

The verification team consists of the following personnel:

Viacheslav Yeriomin
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Volodymyr Kulish
Bureau Veritas Certification Team Member, Climate Change Lead Verifier

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification Internal Technical Reviewer

Oleg Skoblyk
Bureau Veritas Certification Technical Specialist.

2 METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The completed verification protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Monitoring Report (MR) submitted by VEMA S.A. and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Approved CDM methodology, Determination Report of the project issued by Bureau Veritas Certification Holding SAS, No. UKRAINE-det/0533/2012 dated 20/08/2012, 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 for the period of 01/01/2008 – 31/12/2011, version 01 dated 12/09/2012 and version 02 dated 17/09/2012, and project as described in the determined PDD.

2.2 Follow-up Interviews

On 20/09/2012 Bureau Veritas Certification performed (on-site) interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of SE "Malyshev Plant" and VEMA S.A. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
SE "Malyshev Plant"	➢ Organizational structure ➢ Responsibilities and authorities ➢ Roles and responsibilities relating to data collection and processing ➢ Equipment installation ➢ Data logging archiving and reporting ➢ Metering equipment control ➢ Metering record keeping system, database ➢ IT management ➢ Personnel training ➢ Quality control procedures and technology ➢ Internal audit and inspections
Consultant: VEMA S.A.	➢ Baseline methodology ➢ Monitoring plan ➢ Monitoring report ➢ Deviations from the 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 Verification Team to assess compliance with the monitoring plan;

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

The Verification Team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the verification.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

3 VERIFICATION CONCLUSIONS

In the following sections, the conclusions of the verification are stated.

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 10 Corrective Action Requests and 2 Clarification 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

There aren't any remaining issues and FARs from previous verifications.

3.2 Project approval by Parties involved (90-91)

The project obtained approval by the Host party (Ukraine) - Letter of Approval No. 2508/23/7 issued by the State Environmental Investment Agency of Ukraine dated 11/09/2012, and written project approval by the party – buyer of the emission reduction units (Switzerland) - Letter of Approval No. J294-0485 issued by the Federal Office for the Environment of Switzerland (FOEN) dated 20/07/2012.

The abovementioned written approvals are unconditional.

The identified areas of concern as to the project approval by the parties involved, project participants' responses and BVC's conclusions are described in Appendix A to this report (refer to CAR 01).

3.3 Project implementation (92-93)

The main purpose of the Joint Implementation (JI) project "Implementation of the energy efficiency measures at SE "Malyshev Plant" is a

comprehensive modernization of equipment through the introduction and use of more efficient production technologies and improvement of ecological situation in the region. This can be achieved through a comprehensive modernization of SE "Malyshev Plant".

SE «Malyshev Plant» is a company that produces a wide range of civil and military products.
The manufacturing complex of SE “Malyshev Plant” is a complex system with many machines and devices cooperating under the supervision of the servicing staff. The project scenario involves the introduction of new energy efficiency equipment and modernization of existing equipment, as well as implementation of the complex of organizational and technical measures to increase the efficiency of production at SE "Malyshev Plant". It requires only a comprehensive approach as the partial implementation is not effective, takes much longer, and in some cases it is impossible to achieve.
The project provides for the following activities:

1) installation of new effective energy-saving technological equipment involved in production of iron, steel, nonferrous metals and other products, accounting of which is conducted in tonnes;
2) replacement of metering devices;
3) replacement of heat generating equipment, such as:
   - gas and electric boilers;
   - furnaces;
   - drying equipment;
   - heaters.

The introduction of new energy-saving technologies and equipment led to the reduction of electricity and natural gas consumption in the course of manufacturing process, which, in turn, led to lower greenhouse gas (GHG) emissions in the atmosphere.

SE "Malyshev Plant" has all the licenses and permits necessary for the project implementation. Major contracts for the procurement of raw materials and electricity have already been concluded and are updated annually according to the current practice. The necessary equipment for the project is planned to be purchased from the leading Ukrainian and European companies on the tender basis.

The project implementation began in 03/01/2006 when in the meeting of SE "Malyshev Plant" management a decision to start the JI project was made, as provided in the determined PDD version 04. The status of the project in the period from 01/01/2008 to 31/12/2011 is provided in Table 2 below.

Table 2 Status of project implementation in the period from 01/01/2008 to 31/12/2011

No.	Name of equipment	Year of implementation
1	IAT 2,5/1,6 H3 electric furnace	2008
2	65 9a Casting machine	2008
3	SSh3-6.30/742 mine electric furnace	2008
4	AS-HTs-A analytical endogas quality control system	2008
5	BT3T153E front cylindrical grinding machine	2008
6	OM-9969-190M hydraulic machine	2008
7	AKP 9973-5394 installation for downloading of induction heating	2008
8	AS-HTs-A analytical endogas quality control system	2008
9	9969-5189 installation for forming and de-forming of sub-products	2008
10	711-A08-CM die-casting machine	2008
11	9969-5114 die-casting machine	2009
12	9973-024 water charger	2009
13	72/22 rotating device	2009
14	Shake table	2009
15	9-5903 casting machine	2009
16	SShTsM 6,6/9 electric furnace	2009
17	CH3-8 16,5/1042 electric furnace	2009
18	Hardening furnace	2009
19	SShO-6,3/1041 electric furnace	2009
20	KSh 002 UKhL4 resistance welder	2010
21	KSh 001 UKhL 4 resistance welder	2010
22	SLP-8530 belt-saw automated machine	2010
23	A-1416 submerged arc welding machine with KIU rectifier	2010
24	S1Sh-3A continuous mixer	2010
25	PDHO-602 semi-automatic machine for weld deposit with VDU-601	2010
26	UVA-13 inward grinding machine	2010
27	BM-050 balancing machine	2010
28	UVA-13 inward grinding machine	2010
29	Universal cylindrical grinding machine with S 21 Studer system	2010
30	ADR 9986-7239 preserving bath	2011
31	ADR 9986-8396 electrical grinding bath	2011
32	ADR 9955-6474 stand for pressing	2011
33	3M174 cylindrical grinding machine	2011

34	64111 moulding forming machine	2011
35	52-655 automated installation	2011
36	61701 automatic machine for making molding compounds	2011
37	EN-125 endogas installation	2011
38	Automated line for formation and firing of sub-products	2011
39	A-1612 plasma cutter	2011

The implementation of the project is in accordance with the project plan included in the PDD version 04.

The starting date of the crediting period has not changed and remains the date when the first emission reductions are expected to be generated, namely: January 1, 2007.

The monitoring system is in place.

Monitoring equipment, such as electricity meters, natural gas meters, weighing machine and other measurement equipment meet industry standards of Ukraine. All monitoring equipment is included in the detailed verification (calibration) plan and tested at intervals prescribed by the manufacturers of such equipment.

According to the law of Ukraine "On Environmental Protection" and “On Atmosphere Air Protection” authorized entities carried out the Environmental Impact Assessment (EIA) at SE "Malyshev Plant" in 1997. The results of the calculations showed that the maximum concentration of near the ground pollutants are below the maximum allowable concentration values. Emergency and supercritical emissions are absent. Contamination of soil, underground water and groundwater does not take place. In 2001, "Project of standards of maximum allowable emissions of pollutants into the atmospheric air from stationary sources", which describes environmental pollution caused by the company, was developed and approved.
The project has a positive impact on the environment, for the following main reasons:
1. The project implementation saves natural gas. Natural gas is a limited resource, so its saving is important;
2. As a result of improving the efficiency of technical equipment at SE "Malyshev Plant" amount of electricity consumed in the production process was decreased, which in turn has reduced emissions of CO_2, SO_x, NO_x, CO and particulate matter generated from combustion of fossil fuel at power plants.

The identified areas of concern as to the project implementation, project participants' responses and BVC's conclusions are described in Appendix A to this report (refer to CAR 02, CAR 03, CL 01).

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

The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website.

For calculating the emission reductions key factors, such as Ukrainian environmental legislation and other national legislation as well as key factors, such as availability of financial funds to implement the project activities, tariffs set by the state, modern technologies and the possibility to implement know-how in the defence industry in particular metallurgy and machine building industries, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating emission reductions, such as documents and archival data of the enterprise, standards and statistical forms, the results of periodic inspections of meters are clearly identified, reliable and transparent.

Emission factors, including $EF^{j}_{b,CO2,ELEC}$ - carbon dioxide emission factor for electricity consumption by consumers and $EF^{j}_{b,CO2,NG}$ - carbon dioxide emission factor for stationary natural gas combustion are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

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

The monitoring periods per component of the project are clearly specified in the monitoring report and do not overlap with those for which verifications were already deemed final in the past.

The identified areas of concern as to the compliance of the monitoring plan with the monitoring methodology, project participants' responses and BVC's conclusions are described in Appendix A to this report (refer to CAR 04, CAR 05, CAR 06, CAR 07, CAR 08, CAR 09, CAR 10, CL 02).

3.5 Revision of monitoring plan (99-100)

Not applicable.

3.6 Data management (101)

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

The implementation of data collection procedures is in accordance with the monitoring plan provided in the PDD, including the quality control and quality assurance procedures.
The function of the monitoring equipment, including its calibration status, is in order.
According to the current Law “On metrology and metrological activity”, all metering equipment in Ukraine shall meet the specified requirements of relevant standards and is subject to periodic verification. Intercalibration periods are stated in Section B.1. of the MR.
The project complies with the legislative requirements relating to inspections and calibration.
The evidence and records used for the monitoring are maintained in a traceable manner.

Data collection and management system is in accordance with the monitoring plan provided in the PDD.

The most objective and cumulative indicator that provides a clear picture of whether emission reduction took place is electricity and natural gas consumption reduction. Comprehensive modernization of equipment through the introduction and use of more efficient manufacturing technologies has led to the reduction of GHG emissions.

The monitoring plan provides for the following measures:
1. Identification of all potential sources of emissions within the project boundary.
2. Collection of information on greenhouse gas emissions within the project during the crediting period.
3. Assessment of the project implementation schedule.
4. Collection of the information on measurement equipment, its calibration.
5. Collection and archiving information on the impact of project activities on the environment.
6. Data archiving.
7. Determination of the structure of responsibility for project monitoring.
8. Analysis of organization of personnel training.

Data and parameters subject to periodic monitoring, according to the monitoring plan provided in the PDD version 04, as well as the list of constant values used to calculate emission reductions, are provided in Section B.2.1. of the Monitoring Report, as well as in Annex 1.

In order to ensure due fulfillment of the monitoring plan and data collection, VEMA S.A. and SE "Malyshev Plant" created a unified operational structure. The structure of the scheme is shown in Figure 1:

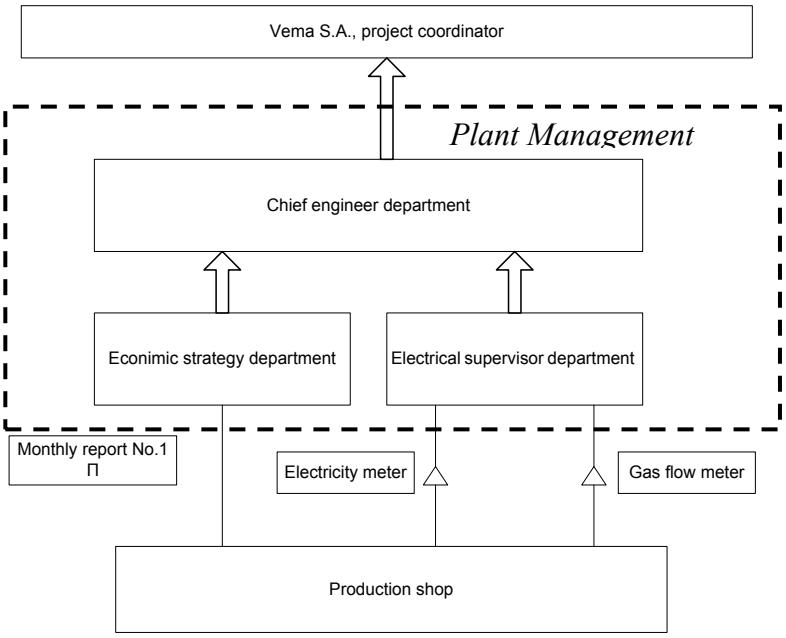

Figure 1 Structure of monitoring data collection and processing

Being the part of the monitoring plan, the operational structure of the enterprise allows it to collect original data, consolidate and make cross-check of the data.

All necessary data concerning GHG emission reduction monitoring is archived in paper and/or electronic form and kept till the end of the crediting period and for two years after the latest transaction with emission reduction units.

The Monitoring Report version 02 provides sufficient information on duties assigned, responsibility and authorities concerning implementation and undertaking of monitoring procedures, including data management. The verification team confirms the efficiency of the existing management and operational systems and considers them appropriate for reliable project monitoring.

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 1st periodic verification of the "Implementation of the energy efficiency measures at SE "Malyshev Plant" Project for the period from January 1, 2008 to December 31, 2011, which applies JI specific approach. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

SE "Malyshev Plant" management is responsible for the preparation of data which serve as the basis for estimation of GHG emission reductions. VEMA S.A. provides SE "Malyshev Plant" with consultative support in the issues relating to organization of data collection and is responsible for developing the monitoring report based on the Project Monitoring Plan included in the final PDD version 04.

Bureau Veritas Certification verified the Project Monitoring Report version 02 for the reporting period of 01/01/2008 - 31/12/2011 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.

Emission reductions achieved by the project for the period from 01/01/2008 to 31/12/2011 do not differ from the amount predicted for the same period in the determined PDD. Emission reductions predicted in the determined PDD version 04 and actual emission reductions stated in the MR version 02 are provided in Table 3 of this report.

Table 3 Emission reductions predicted in the determined PDD version 04 and actual emission reductions stated in the MR version 02

Period	Estimated GHG emission reductions stated in the determined PDD, t CO_{2e}	Actual GHG emission reductions stated in the Monitoring report, t CO_{2e}
2008	70 445	70 445
2009	13 337	13 337
2010	64 227	64 227
2011	40 543	40 543
Total	**188 552**	**188 552**

The emission reductions estimated in the determined PDD and emission reductions stated in the MR under the project "Implementation of the energy efficiency measures at SE "Malyshev Plant" in the period of 2008-2011 are equal because SE "Malyshev Plant" provided accurate conservative data both at the PDD development stage and at the MR development stage.
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 01/01/2008 to 31/12/2011

In the period from 01/01/2008 to 31/12/2008

Baseline emissions	:	149 023	tonnes of CO_2 equivalent.
Project emissions	:	78 578	tonnes of CO_2 equivalent.
Leakage	:	0	tonnes of CO_2 equivalent.
Emission Reductions	:	70 445	tonnes of CO_2 equivalent.

In the period from 01/01/2009 to 31/12/2009

Baseline emissions	:	82 551	tonnes of CO_2 equivalent.
Project emissions	:	69 214	tonnes of CO_2 equivalent.
Leakage	:	0	tonnes of CO_2 equivalent.
Emission Reductions	:	13 337	tonnes of CO_2 equivalent.

In the period from 01/01/2010 to 31/12/2010

Baseline emissions	:	145 582	tonnes of CO_2 equivalent.
Project emissions	:	81 355	tonnes of CO_2 equivalent.
Leakage	:	0	tonnes of CO_2 equivalent.
Emission Reductions	:	64 227	tonnes of CO_2 equivalent.

In the period from 01/01/2011 to 31/12/2011

Baseline emissions	:	110 279	tonnes of CO_2 equivalent.
Project emissions	:	69 736	tonnes of CO_2 equivalent.
Leakage	:	0	tonnes of CO_2 equivalent.
Emission Reductions	:	40 543	tonnes of CO_2 equivalent.

Total in the period from 01/01/2008 to 31/12/2011

Baseline emissions	:	487 435	tonnes of CO_2 equivalent.
Project emissions	:	298 883	tonnes of CO_2 equivalent.
Leakage	:	0	tonnes of CO_2 equivalent.
Emission Reductions	:	188 552	tonnes of CO_2 equivalent.

5 REFERENCES

Category 1 Documents:

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

/1/	Monitoring Report of the JI project ‘‘Implementation of the energy efficiency measures at SE “Malyshev Plant” for the period of 01/01/2008-31/12/2011, version 01, as of 12/09/2012
/2/	Monitoring Report of the JI project ‘‘Implementation of the energy efficiency measures at SE “Malyshev Plant” for the period of 01/01/2008-31/12/2011, version 02, as of 17/09/2012
/3/	Annex 1 “Calculation of GHG emission reductions under the project "Implementation of the energy efficiency measures at SE “Malyshev Plant” (Excel spreadsheet)
/4/	The PDD of the JI project ‘‘Implementation of the energy efficiency measures at SE “Malyshev Plant”, version 04, as of 16/08/2012
/5/	Determination Report of the JI project ‘‘Implementation of the energy efficiency measures at SE “Malyshev Plant”, issued by Bureau Veritas Certification Holding SAS, No. UKRAINE-det/0533/2012 dated 20/08/2012
/6/	Letter of Approval of the JI project ‘‘Implementation of the energy efficiency measures at SE “Malyshev Plant” No. 2508/23/7 issued by the State Environmental Investment Agency of Ukraine as of 11/09/2012
/7/	Letter of Approval of the JI project ‘‘Implementation of the energy efficiency measures at SE “Malyshev Plant” under article 6 of the Kyoto Protocol No. J294-0485 issued by the Federal Office for the Environment (FOEN) of Switzerland dated 20/07/2012.

Category 2 Documents:

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

/1/	Power balance, plant mix and report on power plant (power generating units) operation in 2008 dated 22/01/2009
/2/	Report on fuel, heat and electric energy consumption in January-December 2008 dated 29/01/2009
/3/	Power balance, plant mix and report on power plant (power generating units) operation in 2009 dated 20/01/2010
/4/	Report on fuel, heat and electric energy consumption in January-December 2009 dated 20/01/2010
/5/	Power balance, plant mix and report on power plant (power generating units) operation in 2010
/6/	Report on fuel, heat and electric energy consumption in January-December 2010 dated 20/01/2011

/7/	Power balance, plant mix and report on power plant (power generating units) operation in 2011 dated 20/01/2012
/8/	Report on fuel, heat and electric energy consumption in January-December 2011 dated 20/01/2012
/9/	Report on industrial product manufacturing in 2007 dated 29/01/2008
/10/	Report on industrial product manufacturing in 2008 dated 06/02/2009
/11/	Report on industrial product manufacturing in 2009 dated 17/02/2010
/12/	Report on industrial product manufacturing in 2010 dated 08/02/2011
/13/	Report on industrial product manufacturing in 2011 dated 15/02/2012
/14/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (cylindrical grinding machine with S 21 Studer system) dated 08/12/2010
/15/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (UVA-13 grinding machine) dated 08/12/2010
/16/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (BH 050 balancing machine) dated August 2010
/17/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (ADR 9986-8396 electrical grinding bath) dated 29/03/2011
/18/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (S1Sh-3A continuous mixer) dated 09/12/2010
/19/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (PDHO-602 semi-automatic machine for weld deposit with VDU-601) dated 16/01/2010
/20/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (A-1416 submerged arc welding machine with KIU rectifier) dated 16/01/2010
/21/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (UDHU-501AS arc welding machine) dated 16/01/2010
/22/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (SPD-853 belt-saw automated machine) dated 16/01/2010
/23/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (KSh 001 UKhL 4 resistance welder) dated February 2010
/24/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (KSh 002 UKhL 4 resistance welder) dated February 2010
/25/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (UDH-501 organo-arc welding machine) dated 11/01/2010
/26/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (UDH-501AS/DS organo-arc welding machine) dated February 2010
/27/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (organo-arc welding machine) dated March 2010
/28/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (ADR 9986-7239 preserving bath) dated 21/11/2011
/29/	Certificate of deliver and acceptance (in-company displacement) of non-current assets (A-1612 «Kyiv-4м» plasma cutter) dated September 2010
/30/	Certificate of deliver and acceptance (in-company displacement) of non-

	current assets (room for the stand for testing abrasive wheels f150+130 in TsASe Bldg. 750s) dated 07/04/2008
/31/	Non-current assets delivery and acceptance certificate No. 1222 (IAT-2,5/1,643 electric furnace) dated 01/06/2008
/32/	Non-current assets delivery and acceptance certificate No. 215 (casting machine) dated 27/06/2008
/33/	Non-current assets delivery and acceptance certificate No. 037 (mine electric furnace) dated 24/07/2008
/34/	Non-current assets delivery and acceptance certificate No. 054 (AS-HI-A analytical endogas system) dated 07/07/2008
/35/	Non-current assets delivery and acceptance certificate No. 467 (special machine) dated 01/04/2008
/36/	Non-current assets delivery and acceptance certificate No. 081 (hydraulic machine) dated 26/06/2008
/37/	Non-current assets delivery and acceptance certificate (installation for downloading of induction heating) dated 10/04/2008
/38/	Non-current assets delivery and acceptance certificate No. 055 (AS-HI-A analytical endogas system) dated 29/03/2008
/39/	Non-current assets delivery and acceptance certificate No. 655 (installation for forming and de-forming of sub-products) dated 12/06/2008
/40/	Non-current assets delivery and acceptance certificate No. 126 (die-casting machine) dated 13/05/2008
/41/	Non-current assets delivery and acceptance certificate No. 688 (OM 9964-348 casting machine) dated 10/03/2009
/42/	Non-current assets delivery and acceptance certificate No. 682 (9969-5114 installation) dated 30/04/2009
/43/	Non-current assets delivery and acceptance certificate No. 167 (water charger) dated 14/05/2009
/44/	Non-current assets delivery and acceptance certificate No. 255 (72122 rotating device) dated 29/05/2009
/45/	Non-current assets delivery and acceptance certificate No. 284 (9-5903 casting machine) dated 26/03/2009
/46/	Non-current assets delivery and acceptance certificate No. 880 (SShIM-6,6/9f3 electric furnace) dated 10/09/2009
/47/	Non-current assets delivery and acceptance certificate (CH3-8 16,5/1042 electric furnace) dated 25/06/2009
/48/	Non-current assets delivery and acceptance certificate (SIV-10.10/7m^3 hardening furnace) dated 29/07/2009
/49/	Non-current assets delivery and acceptance certificate No. 876 (CMO 6,30/104 electric furnace) dated 15/07/2009
/50/	Non-current assets delivery and acceptance certificate No. 946 (cylindrical grinding machine) dated 2011
/51/	Non-current assets delivery and acceptance certificate No. 214 (moulding forming machine) dated 15/05/2011
/52/	Non-current assets delivery and acceptance certificate No. 690 (52-655 automated installation) dated 2011

/53/	Non-current assets delivery and acceptance certificate No. 285 (61701 machine for mix preparation) dated 2011
/54/	Non-current assets delivery and acceptance certificate No. 385 (box furnace) dated 29/11/2011
/55/	Non-current assets delivery and acceptance certificate No. 167 (ADR - 9968-5029 installation for alkali liquor removal) dated 2011
/56/	Non-current assets delivery and acceptance certificate No. 951 (endogas installation) dated 06/08/2011
/57/	Non-current assets delivery and acceptance certificate No. 377 (Automated line for formation) dated 2011
/58/	Certificate on initial calibration of working measurement instrument (LOT-3T 5-1-1M1 electricity meter) dated 09/08/2001 valid till 06/05/2012
/59/	Passport of LOT-3T 5-1-1M1 electricity meter
/60/	Certificate on initial calibration of working measurement instrument (LOT-3T 5-1-1M1 electricity meter) dated 15/08/2001 valid till 06/05/2012
/61/	Certificate on calibration of working measurement instrument (VK-011 calculation machine) dated 30/08/2011 valid till 30/08/2013
/62/	Certificate on calibration of working measurement instrument (set of flyweight) dated 11/03/2010 valid till 11/03/2011
/63/	Certificate on calibration of working measurement instrument (laboratory weighing machine) dated 11/03/2010 valid till 11/03/2011
/64/	Results of working measurement instrument calibration (VR-1 TPR-4-1-1 calculation machine) dated 12/08/2008 – 23/02/2012
/65/	Results of working measurement instrument calibration (VLR laboratory weighing machine) dated 21/02/2008 – 02/08/2011
/66/	Results of working measurement instrument calibration (VLR laboratory weighing machine) dated 21/02/2008 – 10/08/2012
/67/	Results of working measurement instrument calibration (RN bench-type scales) dated 01/02/2008 – 06/07/2012

Persons interviewed:

List persons interviewed during the verification or persons that contributed with other information that are not included in the documents listed above.

	Name	Organization	Position
/1/	Bielov L.M.	SE “Malyshev Plant”	General Director, Working Team Member
/2/	Myrhorodskyi Yu.Ya.	SE “Malyshev Plant”	Chief Engineer, Working Team Leader
/3/	Sheiko A.I.	SE “Malyshev Plant”	First Deputy Chief Engineer, Working Team Member
/4/	Ivakhno V.M.	SE “Malyshev Plant”	Deputy Chief Energy Engineer

/5/	Roshka K.H.	SE “Malyshev Plant”	Technical Engineer
/6/	Repinetskyi S.O.	“CEP” LLC	Consultant of VEMA S.A.

APPENDIX A: PROJECT VERIFICATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

VERIFICATION PROTOCOL

Table 1. Check list for verification, according to the JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	The project has been approved by both the Host party (Ukraine) and the other Party involved (Switzerland). The Letters of Approval were issued by NFPs of the Parties involved. Two Letters of Approval were available at the beginning of the first verification of the project. **CAR 01.** The titles of authorities that issued Letters of Approval of the project are incorrect in Section A.2. of the MR.	**CAR 01**	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	**CAR 02**. Section A.3. shall contain information on the project description, but not the baseline scenario. Please, delete unnecessary information. **CAR 03**. The year of the project implementation that	**CAR 02** **CAR 03**	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	UNFCCC JI website?	is stated in Section A.6. is incorrect. Please, make the appropriate corrections.		
93	What is the status of operation of the project during the monitoring period?	The implementation of the project activities is in accordance with the project plan included in the determined PDD version 04. **CL 01**. Please, state the starting date of the crediting period in Section A.6. of the MR.	**CL 01**	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	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	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) of the DVM, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	For calculating the emission reductions key factors, such as Ukrainian environmental legislation and other national legislation as well as key factors, such as availability of financial funds to implement the project activities, tariffs set by the state, modern technologies and the possibility to implement know-how in the defence industry in particular metallurgy and machine building industries, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate. **CAR 04**. The number of the Table in Section B.2.1. of the MR is incorrect. **CAR 05**. The values of $EF^{j}_{b,C,NG}$ parameter are	**CAR 04** **CAR 05** **CAR 06** **CAR 07** **CAR 08**	OK OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		incorrect in Table 3 of the MR. **CAR 06**. The data units for EC_p^y parameter are incorrect in Table 4. **CAR 07**. The name of $EF_{p,CO2,ELEC}^y$ factor is incorrect in Table 4 of the MR. **CAR 08**. Please, add indexes for the following parameters: $FC_{p,NG}^y$, $NCV_{p,NG}^y$, $EF_{p,C,NG}^y$, $OXID_{p,NG}^y$.		
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	Data sources used for calculating emission reductions are clearly identified, reliable and transparent. **CL 02.** Please, provide a reference to JI Guidance on criteria for baseline setting and monitoring, Version 03. **CAR 09.** The title of Annex 1 in the MR is not the same as the title of the Supporting document itself.	**CL 02** **CAR 09**	OK OK
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Emission factors, including $EF_{b,CO2,ELEC}^j$ - carbon dioxide emission factor for electricity consumption by consumers and $EF_{b,CO2,NG}^j$ - carbon dioxide emission factor for stationary natural gas combustion are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	OK	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based	Calculation of emission reductions is based on conservative assumptions and the most plausible	**CAR 10**	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	on conservative assumptions and the most plausible scenarios in a transparent manner?	scenarios in a transparent manner. **CAR 10**. Some of the statements may not correspond to the calculation. Please, recalculate the emission reduction units.		
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?	Not applicable	Not applicable	Not applicable
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?	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	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	Not applicable	Not applicable	Not applicable

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	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
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	The implementation of data collection procedures, including the quality control and quality assurance procedures, is in accordance with the monitoring plan.	OK	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	The order (procedure) of calibration of metering devices (including electricity and natural gas meters) is defined by the law of Ukraine of 11/02/1998 No.113/98-VR «On metrology and metrological activity» (hereinafter - the Law). In particular, article No.28 of the Law states that metering devices in	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		operation are subject to periodic calibration. The procedure for establishing verification frequency is determined by a legal act of the authorized central executive body for metrology (hereinafter - ACEB). Enterprises, organizations and individuals are obliged to duly provide metering devices for calibration (taking into account the verification frequency).		
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Each quarter, representatives of VEMA S.A., project developers, conduct internal audits of the project monitoring system at SE "Malyshev Plant". Internal audit includes measures on verification of monitoring parameter accounting, metering equipment calibration and cross checks.	OK	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The data collection and management system for the project is in accordance with the monitoring plan. The verification team confirms the effectiveness of the existing management and operating systems and considers them suitable for reliable monitoring of the project.	OK	OK
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	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	Not applicable	Not applicable	Not applicable

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	of removals generated by each JPA?			
104	Does the monitoring period not overlap with previous monitoring periods?	Not applicable	Not applicable	Not applicable
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
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: − The types of JPAs; − The complexity of the applicable technologies and/or measures used; − The geographical location of each JPA; − The amounts of expected emission	Not applicable	Not applicable	Not applicable

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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 number, then does the AIE provide a reasonable explanation and justification?	Not applicable	Not applicable	Not applicable
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	Not applicable	Not applicable	Not applicable

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?			

Table 2. Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR 01. The titles of authorities that issued Letters of Approval of the project are incorrect in Section A.2. of the MR.	90	The Letters of Approval were issued by the State Environmental Investment Agency of Ukraine and the Federal Office for the Environment FOEN of Switzerland.	The issue is closed as necessary corrections were made.
CAR 02. Section A.3. shall contain information on the project description, but not the baseline scenario. Please, delete unnecessary information.	92	Unnecessary information was deleted. Refer to the MR version 02.	The issue is closed as unnecessary information was deleted.
CAR 03. The year of the project implementation that is stated in Section A.6. is incorrect. Please, make the appropriate corrections.	92	The project implementation began in 03/01/2006 when in the meeting of SE "Malyshev Plant" management a decision to start the JI project was made, as provided in the determined PDD version 04.	The issue is closed as necessary corrections were made.
CAR 04. The number of the Table in Section B.2.1. of the MR is incorrect.	95(a)	The numbering was checked. Relevant corrections were made.	The issue is closed as necessary corrections were made.
CAR 05. The values of $EF^{j}_{b,C,NG}$ parameter are incorrect in Table 3 of the MR.	95(a)	Relevant corrections were made.	The issue is closed as necessary corrections were made.
CAR 06. The data units for EC^{y}_{p} parameter are incorrect in Table 4.	95(a)	The data units for EC^{y}_{p} parameter are MWh.	The issue is closed as necessary corrections were made.

CAR 07. The name of $EF^{y}_{p,CO2,ELEC}$ factor is incorrect in Table 4 of the MR.	95(a)	$EF^{j}_{b,CO2,ELEC}$ - carbon dioxide emission factor for electricity consumption by consumers, in monitoring period *"y"*, in the project scenario.	The issue is closed as necessary corrections were made.
CAR 08. Please, add indexes for the following parameters: $FC^{y}_{p,NG}$, $NCV^{y}_{p,NG}$, $EF^{y}_{p,C,NG}$, $OXID^{y}_{p,NG}$.	95(a)	Relevant indexes were added. Refer to the MR version 02.	The issue is closed as necessary information was provided in the MR version 02.
CAR 09. The title of Annex 1 in the MR is not the same as the title of the Supporting document itself.	95 (b)	Relevant corrections were made. Refer to the MR version 02 and the Supporting document.	Corrections were made, the issue is closed.
CAR 10. Some of the statements may not correspond to the calculation. Please, recalculate the emission reduction units.	95 (d)	The amount of emission reduction units was recalculated. Refer to the MR version 02.	The issue is closed as the amount of emission reduction units was recalculated.
CL 01. Please, state the starting date of the crediting period in Section A.6. of the MR.	93	The starting date of the crediting period has not changed and remains the same: January 1, 2007.	The issue is closed as necessary information was provided.
CL 02. Please, provide a reference to JI Guidance on criteria for baseline setting and monitoring, Version 03.	95 (b)	Relevant reference was provided in the MR version 02.	The issue is closed as necessary reference was provided.