



# VERIFICATION REPORT VEMA S.A.

## VERIFICATION OF THE RECONSTRUCTION OF WATER SUPPLY AND DRAINAGE SYSTEM “LUGANSK VODA LTD.”

3<sup>rd</sup> periodic  
for the period of October 2010 – April 2011

REPORT No. UKRAINE-ver/0284/2011

REVISION No. 02

BUREAU VERITAS CERTIFICATION



VERIFICATION REPORT

|                                    |   |
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| Date of first issue:<br>18/05/2011 | Organizational unit:<br>Bureau Veritas Certification<br>Holding SAS |
| Client:<br>VEMA S.A.               | Client ref.:<br>Fabian Knodel                                       |

**Summary:**  
Bureau Veritas Certification has made the 3<sup>rd</sup> periodic verification for the period of 01/10/2010 – 30/04/ 2011 of the JI project "Reconstruction of water supply and drainage system "Luganskvoda Ltd.", project registration reference number UA1000195, project of VEMA S.A. located in Lugansk region, Ukraine, and applying the JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria (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.

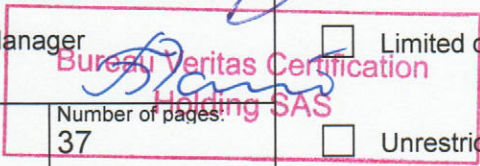
The verification scope is defined as a periodic independent review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the monitoring plan; ii) follow-up 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 and Forward Actions Requests (CR, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented according to determined changes. Installed equipment that is essential for generating emission reductions 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 errors, and the ERUs issued totalize 156 044 tons of CO<sub>2</sub>eq for the monitoring period of 01/10/2010 - 30/04/2011.

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.:<br>UKRAINE-ver/0284/2011   | Subject Group:<br>JI |
| Project title:<br>"Reconstruction of water supply and drainage system "Luganskvoda Ltd."                       |                      |
| Work carried out by:<br>Oleg Skoblyk – Team Leader, Lead verifier<br>Karina Kucherenko - Team Member, verifier |                      |
| Work reviewed by:<br>Ivan Sokolov – Internal technical reviewer  |                      |
| Work approved by:<br>Flavio Gomes – Operational Manager  |                      |
| Date of this revision:<br>23/05/2011   | Rev. No.:<br>02      |
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| <b>Table of Contents</b> |   | <b>Page</b> |
|--------------------------|---|-------------|
| 1                        | INTRODUCTION .....  | 4           |
| 1.1                      | Objective   | 4           |
| 1.2                      | Scope   | 4           |
| 1.3                      | Verification Team   | 4           |
| 2                        | METHODOLOGY .....   | 5           |
| 2.1                      | Review of Documents   | 5           |
| 2.2                      | Follow-up Interviews  | 6           |
| 2.3                      | Resolution of Clarification, Corrective and Forward Action Requests       | 6           |
| 3                        | VERIFICATION CONCLUSIONS .....  | 7           |
| 3.1                      | Remaining issues and FARs from previous verifications                     | 7           |
| 3.2                      | Project approval by Parties involved (90-91)                              | 7           |
| 3.3                      | Project implementation (92-93)  | 8           |
| 3.4                      | Compliance of the monitoring plan with the monitoring methodology (94-98) | 10          |
| 3.5                      | Revision of monitoring plan (99-100)                                      | 11          |
| 3.6                      | Data management (101)   | 12          |
| 3.7                      | Verification regarding programmes of activities (102-110)                 | 15          |
| 4                        | VERIFICATION OPINION .....  | 15          |
| 5                        | REFERENCES .....  | 17          |
|                          | APPENDIX A: VERIFICATION PROTOCOL .....                                   | 21          |



## 1 INTRODUCTION

VEMA S.A. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Reconstruction of water supply and drainage system "Luganskvoda Ltd." (hereafter called "the project") in Lugansk 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, as well as the host country criteria.

The verification covers the period from October 1, 2010 to April 30, 2011.

### 1.1 Objective

Verification is the periodic independent review and ex post determination by the Accredited Independent Entity (AIE) 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, 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:

Oleg Skoblyk

Bureau Veritas Certification Team Leader, Climate Change Lead Verifier



Karina Kucherenko

Bureau Veritas Certification Team Member, Climate Change Verifier

This verification report was reviewed by:

Ivan Sokolov

Bureau Veritas Certification Internal Technical Reviewer

## 2 METHODOLOGY

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

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

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

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

### 2.1 Review of Documents

The Monitoring Report (MR) submitted by VEMA S.A. and additional background documents related to the project design, baseline, and monitoring plan, i.e. country Law, Project Design Document (PDD), Determination Report of the project prepared by Bureau Veritas Certification Holding SAS No. UKRAINE/0138/2010 rev.01 dated 04/10/2010, Guidance on criteria for baseline setting and monitoring, Host party criteria, the 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 from 01/10/2010 to 30/04/2011, version 01 as of May 4, 2011 and version 02 as of May 20, 2011 and the project as described in the determined PDD.



## 2.2 Follow-up Interviews

On 16/05/2011 Bureau Veritas Certification verification team visited the project implementation site (pumping plants of “Luganskvoda Ltd.”) and performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of “Luganskvoda Ltd.” 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   |
|--------------------------|--|
| “Luganskvoda Ltd.”       | <ul style="list-style-type: none"> <li>➤ Organizational structure</li> <li>➤ Responsibilities and authorities</li> <li>➤ Roles and responsibilities for data collection and processing</li> <li>➤ Installation of equipment</li> <li>➤ Data logging, archiving and reporting</li> <li>➤ Metering equipment control</li> <li>➤ Metering record keeping system, database</li> <li>➤ IT management</li> <li>➤ Training of personnel</li> <li>➤ Quality management procedures and technology</li> <li>➤ Internal audits and check-ups</li> </ul> |
| Consultant:<br>VEMA S.A. | <ul style="list-style-type: none"> <li>➤ Baseline methodology</li> <li>➤ Monitoring plan</li> <li>➤ Monitoring report</li> <li>➤ Deviations from the PDD.</li> </ul>   |

## 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 and forward actions as well as clarification requests and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

If the Verification Team, in assessing the monitoring report and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should



raise these issues and inform the project participants of these issues in the form of:

- (a) Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;
- (b) Clarification request (CL), requesting the project participants to provide additional information for the AIE to assess compliance with the monitoring plan;
- (c) Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

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

### **3 VERIFICATION CONCLUSIONS**

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

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

The Clarification, Corrective and Forward Action Requests are stated, where applicable, and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 6 Corrective Action Requests, and 1 Clarification Request.

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 are no any remaining CR and FAR from previous verifications.

#### **3.2 Project approval by Parties involved (90-91)**

The project obtained approval by the Host party (Ukraine) on 09/11/2010 (Letter of Approval #1808/23/7 issued by National Environmental Investment Agency of Ukraine as of 09/11/2010).

Written project approval by Switzerland (sponsor party) has been issued by the NFP of that Party when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI



guidelines, at the latest (Letter of Approval # J294-0485 issued by the Federal Office for the Environment FOEN of Switzerland dated 26/10/2010). The project was registered under the reference number UA1000195.

The abovementioned written approvals are unconditional. The identified areas of concern as to project approval by the parties involved, project participants response and BV Certification's conclusion are described in Appendix A to this report (refer to CAR 01).

### **3.3 Project implementation (92-93)**

The main objective of the project that is being implemented at "Luganskvoda Ltd." is reduction of electric energy consumption by the centralized water supply system in Lugansk region due to its reconstruction thereof, which includes replacement and reconstruction of water pumping equipment and water distribution systems, installation of frequency regulators and optimization of the technological process of water pumping. The reduction of consumption of the electric energy, which is produced in power system of Ukraine, will lead to the decrease of fossil fuel combustion for electricity production, and as a result to the greenhouse gas emission reduction.

The reconstruction measures under the project include:

- Replacement of energy intensive pumps by new highly energy efficient ones;
- Optimization of the technological process of water pumping;
- Introduction of automatic air valves on water mains for pressure decrease and improvement of discharge capacity;
- Replacement of water-supply networks;
- Installation of a new group of metering devices;
- Introduction of new devices for concealed leakage detection;
- Installation of frequency regulators.

The project operation was started in May 2007 with the first measures on optimization of the technological process of water pumping. Because of the fact that implementation of measures under the project commenced in 2007, which was determined as a baseline year, in view of conservative approach the emission reductions generated due to these measures were not accounted into the project emissions.

The status of project activity implementation during the period October 2010 – April 2011 is presented in the table below:





**Table 2. Project implementation status during October 2010 – April 2011**

| # | Project measures                                | Number of units of works performed | Starting date of project measures implementation | Expected date of completion of project implementation measures |
|---|---|------------------------------------|--|--|
| 1 | Replacement of pumping equipment                | 131 units                          | 05/10/2007                                       | 06/2011  |
| 2 | Installation of a new group of metering devices | 53 units                           | 02/11/2007                                       | 12/2011  |
| 3 | Installation of frequency regulators            | 7 units                            | 23/12/2008                                       | 12/2011  |

The project measures are mainly being realized according to the implementation schedule presented in the determined PDD ver.02.

There were some insignificant deviations from the PDD in the process of implementation of pumping plants modernization and reconstruction in respect of capacity of the installed pumping equipment. This was caused by change of volume of water to be supplied to the consumers. According to the schedule of implementation, which was specified in the PDD, in October, 2007 the development of the project documentation for the installation of frequency regulators was started, the activities on the installation of frequency regulators began on 23/12/2008.

Detailed information about implemented measures and installed equipment during the reporting period of October 2010- April 2011 by departments and divisions is provided in Annex 4 to the Monitoring report.

The starting date of the crediting period did not change and remains the date of the first generated emission reduction units, namely: January 01, 2008.

The Monitoring System is in place and operational.

The monitoring equipment such as electricity meters, water meters, manometers and others are in place and comply with the industrial standards of Ukraine. All monitoring equipment is covered by the detailed verification (calibration) plan and is verified with periodicity, established by its manufacturer.



The project implementation doesn't provide for any negative impacts on environment. The only impact on environment is dismantled equipment, which will be further used as secondary material.

"Luganskvoda Ltd." has all necessary reports, permissions, limits and licenses required by Ukrainian legislation, including:

- permit for "Special water use";
- Form 2-TP (water industry), Report on water use;
- Form 11 MTP, Report on the results of fuel, heat energy and electric energy use.

Implementation of this project allows for improvement of servicing of water consumers. Experience of the employees of "Luganskvoda Ltd." and adherence to the norms "On drinking water and drinking water supply" allow for minimization of occurrence of emergency situations in the course of this project implementation.

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 02 and CAR 03).

### **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 increased demand for water amount to be supplied to the customers, applicable tariffs for water supply and drainage, state policies in potable water and potable water supply sector, experience in implementation of measures provided for by the project, existing practice in Ukraine in this sphere, financial costs and experience as well as sectoral policies in the water supply sphere and legislation 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 appropriately calibrated metering equipment, the study of standardized emission factors for the Ukrainian electricity grid are clearly identified, reliable and transparent.

Emission factors used for emission reductions calculations were selected by carefully balancing accuracy and reasonableness, and appropriately



justified of the choice. Carbon emission factors (EF) for electricity consumption were set in accordance with Decree # 43 of the National Environmental Investment Agency of Ukraine "On approval of specific carbon dioxide emission factors in 2010" dated 28/03/2011 and Decree # 75 of the National Environmental Investment Agency of Ukraine "On approval of specific carbon dioxide emission factors in 2011" dated 12/05/2011.

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 response and BV Certification's conclusion are described in Appendix A to this report (refer to CAR 04 and CL 01).

### **3.5 Revision of monitoring plan (99-100)**

The project participants provided an appropriate justification for the proposed revision.

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.

Due to the fact that the original monitoring plan provided for calculation of project and baseline emissions as well as emission reductions on an annual basis, it has been reviewed to allow for the monitoring process on a monthly basis. Formulae to calculate emissions have been adapted to the monitoring period of 1 month instead of 1-year period, which was established in the original monitoring plan specified in the PDD. This allowed for making calculations for 7 months (from October 2010 to April 2011). To improve the accuracy of calculations of emission reductions, and to consider the fact that the volume of water supply to some extent depends on the season, the calculation of value of baseline parameter PPER (specific consumption of electricity per unit of water in 2007) for each month of 2007 was made, and these historical monthly values were used to determine baseline emissions for each month of the reporting period. New formulae are provided in the Monitoring Report, version 02 as of 20/05/2011.



One more change of the monitoring plan consists in the use of carbon emission factor EF in calculations that was set in accordance with Decree # 43 of the National Environmental Investment Agency of Ukraine "On approval of specific carbon dioxide emission factors in 2010" dated 28/03/2011 and Decree # 75 of the National Environmental Investment Agency of Ukraine" On approval of specific carbon dioxide emission factors in 2011" dated 12/05/2011.

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.

The Management and Operational Systems are eligible for reliable project monitoring according to the revised plan.

### **3.6 Data management (101)**

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

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

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

According to the existing legislation "On metrology and metrological activity" all metering equipment in Ukraine shall conform to stated requirements of corresponding standards and be calibrated periodically. Flow meters were calibrated by Lugansk Center of Meters Standardization, Metrology and Certification. Verification of commercial electric meters of "Luganskvoda Ltd." was executed by Luganskstandardmetrology. The project complies with legal requirements to the calibration and verification.

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

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

The project and baseline emissions subject to monitoring relate to the electricity consumption by the pumping equipment used for water transportation as this is the only emission source attributable to the current project. The baseline emissions are determined based on historical value of specific electricity consumption per water unit for each



month of 2007 (considered as a baseline year) and actual monitored value of water amount supplied to customers in the reporting period.

The monitoring procedure provides for:

- 1) Metering of water transferred by “Luganskvoda Ltd.” water facilities;
- 2) Metering of electricity consumption by all “Luganskvoda Ltd.” pumping plants;

Parameters which are monitored throughout the crediting period are metered for each separate water supply system (19 separate sub departments are united into 13 independent water supply systems).

Based on the obtained data that are subject to metering and control “Luganskvoda Ltd.” prepares the following documents:

- Electricity consumption report under the form 11-MTP, that is signed by “Luganskvoda Ltd.” director and submitted to Lugansk regional state administration;
- Report 2-TP (water industry) is executed on the basis of monthly statements and shall be submitted every three, six and twelve months to the Lugansk Administration of Water Resources. Payment for water transferred to consumers is made according to such report.

“Luganskvoda Ltd.” collects and keeps the data relating to electric energy and acquired water for water-supply in the forms of electric energy and acquired water bills.

Structure of monitoring data collection at “Luganskvoda Ltd.” is the following:

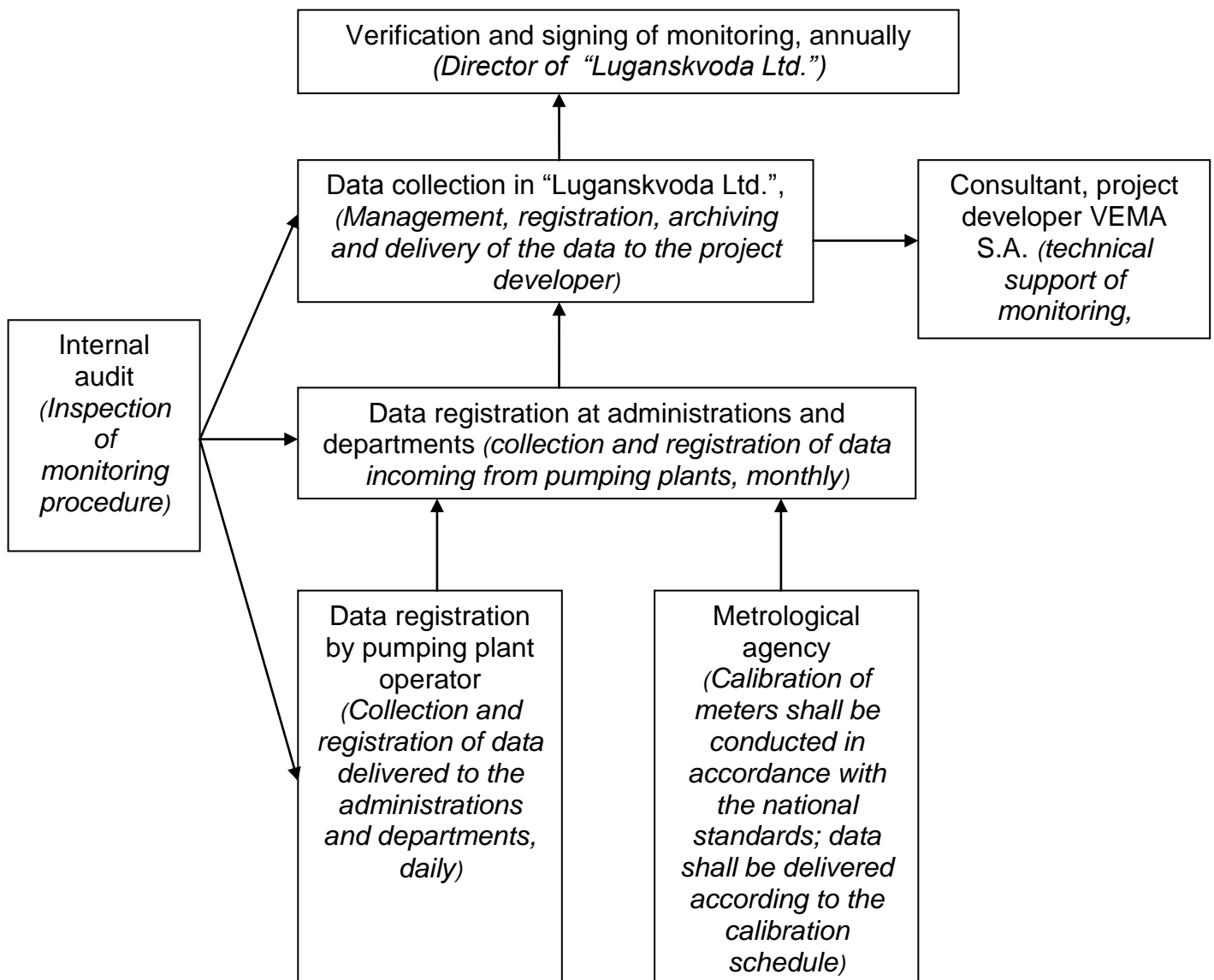


Figure 1. Structure of monitoring data collection

All necessary information for monitoring of GHGs emission reductions is stored in paper or/and electronic formats and will be saved till the end of the crediting period and for two years after the last operation with ERUs from the project.

The Monitoring Report rev.02 provides sufficient information on the assigning roles, responsibilities and authorities for implementation and maintenance of monitoring procedures including control of data. The verification team confirms effectiveness of the existing management and operational systems and found them eligible for reliable project monitoring.



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 (refer to CAR 05, CAR 06, CL 01).

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

Not applicable.

## **4 VERIFICATION OPINION**

Bureau Veritas Certification has performed the 3<sup>rd</sup> periodic verification for the period of October 2010 – April 2011 of the “Reconstruction of water supply and drainage system ”Luganskvoda Ltd.” 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 monitoring reports, 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 VEMA S.A. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 02 and the revised monitoring plan. The development and maintenance of records and reporting procedures are in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report, version 02, for the reporting period of October 2010 – April 2011 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 confirms 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 01/10/2010 to 30/04/2011

|                     |           |                                |
|---------------------|-----------|--------------------------------|
| Baseline emissions  | : 321 123 | t CO <sub>2</sub> equivalents; |
| Project emissions   | : 165 079 | t CO <sub>2</sub> equivalents; |
| Emission Reductions | : 156 044 | t CO <sub>2</sub> equivalents. |





## 5 REFERENCES

### Category 1 Documents:

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

- /1/ Monitoring Report for the period from 01/10/2010 to 30/04/2011, version 01, dated May 4, 2011
- /2/ Monitoring Report for the period from 01/10/2010 to 30/04/2011, version 02, dated May 20, 2011
- /3/ Annex 2 "Project and monitoring equipment" (Excel file)
- /4/ Annex 3 "Calculation of tCO<sub>2</sub>e emission reductions due to electric energy saving in the water supply and drainage system "Luganskvoda Ltd." (Excel file)
- /5/ Annex 4 "Measures that were implemented under the project" (Excel file)
- /6/ Annex 5 "Monitoring values of the parameters used for GHG emissions calculation" (Excel file)
- /7/ PDD "Reconstruction of water supply and drainage system "Luganskvoda Ltd.", version 02 dated 04/10/2010  
Determination Report by Bureau Veritas Certification Holding SAS No. UKRAINE/0138/2010 "Reconstruction of water supply and drainage system "Luganskvoda Ltd.", rev.01 dated 04/10/2010  
Letter of Approval of the Joint Implementation project "Reconstruction of water supply and drainage system "Luganskvoda Ltd." #1808/23/7 issued by National Environmental Investment Agency of Ukraine as of 09/11/2010
- /9/ Letter of Approval of the project under article 6 of Kyoto protocol (JI) "Reconstruction of water supply and drainage system "Luganskvoda Ltd." # J294-0485 issued by the Federal Office for the Environment of Switzerland dated 26/10/2010
- /10/

### Category 2 Documents:

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

- /1/ Report on electric energy consumption by the Sverdlovsk Department of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /2/ Report on electric energy consumption by Pivdennyi administration of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /3/ Report on energy consumption by "Svetlychansk administration" separate sub department of "Luganskvoda Ltd." for the period of 10/10- 04/11



## VERIFICATION REPORT

- /4/ Report on electric energy consumption by "Pervomaysk Department" separate sub department of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /5/ Report on electric energy consumption by Krasnoluzhskiy Department of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /6/ Report on electric energy consumption and volume of water lifted by the Antratsitovskiy Department of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /7/ Report on electric energy consumption by Luganskskiy separate sub department of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /8/ Report on electric energy consumption by ACU Western Filtration Plant "Luganskvoda Ltd." for the period of 10/10- 04/11
- /9/ Report on electric energy consumption by Alchevsk administration of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /10/ Report on electric energy consumption by Slaviansoserbskiy Department of "Luganskvoda Ltd." for the period of 10/10- 04/11
- /11/ Report on electric energy consumption by "Luganskvoda Ltd." for the period of 10/10- 04/11
- /12/ The report on fuel, heat power and electric power consumption for January-December 2007 of the Administration "Western filtration plant" of "RUE Company "Luganskvoda Ltd." (Form #11-MTP)
- /13/ The report on fuel, heat power and electric power consumption for January-December 2007 of the Lutuginskiy division of "RUE Company "Luganskvoda Ltd." (Form #11-MTP)
- /14/ The report on fuel, heat power and electric power consumption for January-December 2007 of "RUE Company "Luganskvoda Ltd.". (Form #11-MTP)
- /15/ The report on fuel, heat power and electric power consumption for January-December 2007 of the Pivdennyi RVU of "RUE Company "Luganskvoda Ltd." (Form #11-MTP)
- /16/ Certificate on Facility Commission Readiness "Replacement of submerged pumping equipment with imported equipment (5 units). Derkul'skiy water intake" at "Luganskvoda Ltd."
- /17/ Job-order on provision of maintenance and repair services with certificate of completion VO-1/31-130 dated 12/16/2010
- /18/ Permit № 4424883502-4 for pollutant emissions into the atmosphere from stationary sources dated 30/09/09 № 5 / 279



## VERIFICATION REPORT

- /19/ Annex to the special water use permit # Ukr. 335 "Luganskvoda Ltd." "Svitlichanskyi administration" separate sub department (valid from 01/01/2011 to 01/04/2012)
- /20/ Permit for special water use # Ukr. 335 Lug issued by the Ministry of Environment in the Luhansk region
- /21/ Permit for special water use # Ukr. 335 "Luganskvoda Ltd." "Svitlichanskyi administration" separate sub department, id. code. # 35936896
- /22/ Annex 1 to the special water use permit # Ukr. 335 Lug. Permitted discharge of pollutants with return waters of Svitlichanskyi Administration
- /23/ Information about issuance of permits for special water use and intakes at "Luganskvoda Ltd." for 2011
- /24/ Report on electric energy consumption of "Slavianoserbsky' Department" separate sub department of "Luganskvoda Ltd." for the years 2010-2011
- /25/ Report on electric energy consumption of "Stakhanov Department" of "Luganskvoda Ltd." for 2010-2011.

**Persons interviewed:**

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

- /1/ Anchishkin A.G. – Head of energy and mechanical services
- /2/ Tsygoev A.M. – Main power engineering specialist
- /3/ Tkachenko O.M. – Deputy of main power engineering specialist
- /4/ Pavlenko E.M. – Engineer
- /5/ Movchan S.V. – Head of Production and Technical Department
- /6/ Shyngareva I.I. – Hydro geologist
- /7/ Sleta U.N. – Lead engineer
- /8/ Ivanova G.V. – Lead engineer
- /9/ Pryadko V.B. – Head of Slavyanoserbsk division
- /10/ Vandin A.I. – Operator of Slavyanoserbsk pumping plant
- /11/ Mozhnyakov D.N. – Chief Engineer of Lutuginskyi division



- /12/ Pryadko V.B. – Head of Krasnolimanskaya pumping plant
- /13/ Kashyntsev A.V. – Operator of Krasnolimanskaya pumping plant
- /14/ Didenko A.P. – Head of Slavyanoserbbsk pumping plant of the third lift
- /15/ Bashlyakova S.L. – Operator of Slavyanoserbbsk pumping plant
- /16/ Artsev A.V. – Head of Slavyanoserbbsk lift pumping plant of the fourth lift
- /17/ Shchetinina I.V. – Operator of Slavyanoserbbsk pumping plant
- /18/ Apostolaka S.P. – JI Consultant of VEMA S.A.
- /19/ Vorobyov E.V. – JI Consultant of VEMA S.A.



## VERIFICATION REPORT

## APPENDIX A: VERIFICATION PROTOCOL

## BUREAU VERITAS CERTIFICATION HOLDING SAS

## VERIFICATION PROTOCOL

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

| DVM Paragraph                                | Check Item  | Initial finding  | Action requested to project participants  | Review of project Participants' action  | Conclusion |
|--|---|--|---|---|------------|
| <b>Project approvals by Parties involved</b> |   |  |   |   |            |
| 90   | Has the NFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest? | The project has been approved by both Host Party (Ukraine) and sponsor Party (Switzerland). The Letter of Approval 1808/23/7 issued by the National Environmental Investment Agency as of 09/11/2010 and the Letter of Approval J294-0485 issued by Federal Office the Environment FOEN of Switzerland as of | <b>CAR 01.</b> Please provide information about project registration in the MR. | The project was registered under the registration number UA1000195. Required information was included to the 2 <sup>nd</sup> version of the MR. CAR 01 is closed based on the provided information in the | OK         |



## VERIFICATION REPORT

| DVM Paragraph                 | Check Item   | Initial finding  | Action requested to project participants   | Review of project Participants' action   | Conclusion |
|-------------------------------|--|--|--|--|------------|
|                               |  | 26/10/2010 were presented to the verification team. However, no information on project registration was included in MR ver.1.  |  | MR ver.2.  |            |
| 91                            | Are all the written project approvals by Parties involved unconditional?   | See cl.90 above  | See cl.90 above  | See cl.90 above  | OK         |
| <b>Project implementation</b> |  |  |  |  |            |
| 92                            | Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website? | The project is being implemented in accordance with the determined PDD. There were some insignificant deviations from the PDD in respect of capacity of the installed pumping equipment caused by the change in demand for water volume to be supplied to the customers. | N/a  | N/a  | OK         |
| 93                            | What is the status of operation of the project during the monitoring period?   | Mainly the project measures are being realized according to the implementation schedule presented in the determined PDD ver.02. as of 04/10/2010. The first reconstruction measures  | <b>CAR 02.</b> Please provide in the MR the information regarding implementation status of all | Installation of new groups of meters and installation of automatic air valves did not occur during the monitoring period | OK         |



## VERIFICATION REPORT

| DVM Paragraph                          | Check Item  | Initial finding   | Action requested to project participants  | Review of project Participants' action  | Conclusion |
|--|---|---|---|---|------------|
|  |   | <p>under the project started at the end of 2007. During the monitoring period of October 2010-April 2011 the project was operational and generated emission reduction units, although full completion of installation of all project measures is planned for the end of 2011. The MR revision 1 does not include any information on status of installation of new groups of metering equipment and installation of automatic air valves. Thus, CAR 02 was raised.</p> | <p>project measures envisaged in the PDD.<br/><b>CAR 03.</b> Please provide documents confirming implementation of equipment to be installed under the project.</p> | <p>from 01/10/2010 to 30/04/2011. Certificates of brining into service of pumping equipment, Certificates of bringing into service of frequency regulators and other supporting documents were submitted to verification group. CAR 02 is closed based on relevant clarifications. Relevant documents have been provided. CAR 03 is closed.</p> |            |
| <b>Compliance with monitoring plan</b> |   |   |   |   |            |
| 94                                     | Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination | There are few deviations from the monitoring plan included in the determined  | <b>CAR 04.</b> The Monitoring report version 01 the   | Correct reference to the methodology was provided in  | OK         |



## VERIFICATION REPORT

| DVM Paragraph | Check Item   | Initial finding  | Action requested to project participants  | Review of project Participants' action                   | Conclusion |
|---------------|--|--|---|--|------------|
|               | has been deemed final and is so listed on the UNFCCC JI website? | <p>PDD.</p> <p>Due to the fact that the original monitoring plan provided for calculation of project and baseline emissions as well as emission reductions on an annual basis, it has been reviewed to allow for the monitoring process of 7 months (October 2010 – April 2011). Formulae to calculate emissions have been adapted to the monitoring period of 1 month instead of 1-year period, which was established in the original monitoring plan specified in the PDD. This allowed for making calculations for 7 months. To improve the accuracy of calculations of emission reductions, and to consider the fact that the volume of water supply to some extent depends on the</p> | reference to Methodology "Baseline methodology for water pumping efficiency improvements", Version 02 is incorrect. | the Monitoring report, version 02, the issue is closed.. |            |





## VERIFICATION REPORT

| DVM Paragraph | Check Item   | Initial finding  | Action requested to project participants | Review of project Participants' action | Conclusion |
|---------------|--|--|--|--|------------|
|               |  | <p>season, the calculation of value of baseline parameter PPER (specific consumption of electricity per unit of water in 2007) for each month of 2007 was made, and these historical monthly values were used to determine baseline emissions for each month of the reporting period. New formulae are provided in the Monitoring Report, version 02 as of 20/04/2011.</p>   |  |  |            |
| 95 (a)        | <p>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?</p> | <p>For calculating the emission reductions, key factors such as increased demand for water amount to be supplied to the customers, applicable tariffs for water supply and drainage, state policies in potable water and potable water supply sector, experience in implementation of measures provided for by the project, existing practice in Ukraine in this sphere,</p> | N/a                                      | N/a                                    | OK         |



## VERIFICATION REPORT

| DVM Paragraph | Check Item   | Initial finding   | Action requested to project participants | Review of project Participants' action | Conclusion |
|---------------|--|---|--|--|------------|
|               |  | financial costs and experience as well as sectoral policies in the water supply sphere and legislation 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. |  |  |            |
| 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.  | N/a                                      | N/a                                    | 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? | 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   | N/a                                      | N/a                                    | OK         |



## VERIFICATION REPORT

| DVM Paragraph                             | Check Item  | Initial finding  | Action requested to project participants | Review of project Participants' action | Conclusion |
|---|---|--|--|--|------------|
|   |   | choice. For calculations carbon emission factors in accordance with Decree # 43 of the National Environmental Investment Agency of Ukraine "On approval of specific carbon dioxide emission factors in 2010" dated 28/03/2011 and Decree # 75 of the National Environmental Investment Agency of Ukraine" On approval of specific carbon dioxide emission factors in 2011" dated 12/05/2011 were used. |  |  |            |
| <b>Applicable to JI SSC projects only</b> |   |  |  |  |            |
| 96  | Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis?<br>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                                    | N/a        |



## VERIFICATION REPORT

| DVM Paragraph   | Check Item  | Initial finding   | Action requested to project participants | Review of project Participants' action | Conclusion |
|---|---|---|--|--|------------|
| <b>Applicable to bundled JI SSC projects only</b>                           |   |   |  |  |            |
| 97 (a)  | Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?  | N/a   | 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                                    | N/a        |
| 98  | If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past? | N/a   | N/a                                      | N/a                                    | N/a        |
| <b>Revision of monitoring plan</b>  |   |   |  |  |            |
| <b>Applicable only if monitoring plan is revised by project participant</b> |   |   |  |  |            |
| 99 (a)  | Did the project participants provide an appropriate justification for the proposed revision?  | In the course of the 3rd monitoring period (01/10/2010 – 30/04/2011) the original monitoring plan described in the registered PDD version 02 was changed by the project participants. | N/a                                      | N/a                                    | OK         |



## VERIFICATION REPORT

| DVM Paragraph          | Check Item  | Initial finding  | Action requested to project participants                                | Review of project Participants' action                      | Conclusion |
|------------------------|---|--|---|---|------------|
|                        |   | <p>The deviations relate to the periodicity of the emission reduction calculation which was changed from a year to a month in order to allow for the seven-month-monitoring process (from October 2010 to April 2011).<br/>Relevant justification has been provided in Section A.8 of the Monitoring Report.</p> |   |   |            |
| 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? | The proposed revision improves the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans.  | N/a   | N/a   | OK         |
| <b>Data management</b> |   |  |   |   |            |
| 101 (a)                | Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance   | The implementation of data collection procedures is in accordance with the PDD and revised monitoring plan,  | <b>CL 01.</b> Please provide evidence of the internal audits and audits | During the monitoring period of October 2010 – April 2011 2 | OK         |



VERIFICATION REPORT

| DVM Paragraph | Check Item  | Initial finding  | Action requested to project participants   | Review of project Participants' action  | Conclusion |
|---------------|---|--|--|---|------------|
|               | procedures?   | including the quality control and quality assurance procedures. However, the information regarding recording frequency of the monitored parameters in the MR is inappropriate. | of current JI project, that is being implemented at "Luganskvoda Ltd.", during the monitoring period of (October 2010 - April 2011) in accordance with the internal audit procedure described in the MR (e.g., audit reports or other records that prove internal audits / inspections and their results). | internal audits of the JI project monitoring system at "Luganskvoda Ltd." were conducted by the project developers "VEMA S.A.". The audits were carried out in accordance with the plan described in the section C.3 of the MR and established quarterly frequency. The protocols of the executed audit were provided to the verifiers. |            |
| 101 (b)       | Is the function of the monitoring equipment, including its calibration status in order? | Yes, The function of the monitoring equipment, including its calibration status, is in order. According to the existing  | <b>CAR 05.</b> Some dates of last calibrations/verifications of the metering   | The information on the last calibration date of the meters has been provided in Annex 2. The  | OK         |



## VERIFICATION REPORT

| DVM Paragraph | Check Item   | Initial finding  | Action requested to project participants  | Review of project Participants' action                          | Conclusion |
|---------------|--|--|---|---|------------|
|               |  | <p>legislation "On metrology and metrological activity" all metering devices in Ukraine shall conform to stated requirements of corresponding standards and be calibrated periodically. Flow meters were calibrated by Lugansk Centre of Meters Standardization, Metrology and Certification. Verification of commercial electrical meters of «Luganskvoda Ltd.» was executed by Luganskstandardmetrology. The project complies with legal requirements to the calibration and verification. However, some dates of last calibrations/verifications indicated in the Annex 2 (Excel file) to the MR are missing.</p> | <p>equipment indicated in the Annex 2 to the MR are missing. Please provide relevant information.</p> | <p>issue is closed based on due amendments made in Annex 2.</p> |            |
| 101 (c)       | Are the evidence and records used for the monitoring maintained in a traceable manner? | The evidence and records used for the monitoring are maintained in a traceable   | <b>CAR 06.</b> Please provide justification   | Electric energy logbooks, lifted water logbooks,                | OK         |

## VERIFICATION REPORT

| DVM Paragraph | Check Item   | Initial finding   | Action requested to project participants                                 | Review of project Participants' action  | Conclusion |
|---------------|--|---|--|---|------------|
|               |  | <p>manner.<br/>«Luganskvoda Ltd.» collects and keeps the data relating to electric energy and acquired water for water-supply in the forms of electric energy and acquired water bills. All necessary information for monitoring of GHGs emission reductions are stored in paper or/and electronic formats and will be saved till the crediting period and for two years after the last operation with ERUs from the project.</p> | <p>documents regarding the data and records used for the monitoring.</p> | <p>reports on electricity consumption by departments, reports of water lifted in October 2010 - April 2011 were provided to the project developers.</p> |            |
| 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 effectiveness of the existing management and operational systems and found them eligible for reliable project monitoring.   | N/a  | N/a   | OK         |





## VERIFICATION REPORT

| DVM Paragraph   | Check Item  | Initial finding | Action requested to project participants | Review of project Participants' action | Conclusion |
|---|---|-----------------|--|--|------------|
| <b>Verification regarding programs of activities (additional elements for assessment)</b> |   |                 |  |  |            |
| 102   | Is any JPA that has not been added to the JI PoA not verified?  | N/a             | 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                                    | 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                                    | N/a        |
| 104   | Does the monitoring period not overlap with previous monitoring periods?  | N/a             | 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                                    | N/a        |
| <b>Applicable to sample-based approach only</b>   |   |                 |  |  |            |
| 106   | Does the sampling plan prepared by the AIE:<br>(a) Describe its sample selection, taking into account that:<br>(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 | N/a             | N/a                                      | N/a                                    | N/a        |



## VERIFICATION REPORT

| DVM Paragraph | Check Item   | Initial finding | Action requested to project participants | Review of project Participants' action | Conclusion |
|---------------|--|-----------------|--|--|------------|
|               | into account differences among the characteristics of JPAs, such as: <ul style="list-style-type: none"> <li>- The types of JPAs;</li> <li>- The complexity of the applicable technologies and/or measures used;</li> <li>- The geographical location of each JPA;</li> <li>- The amounts of expected emission reductions of the JPAs being verified;</li> <li>- The number of JPAs for which emission reductions are being verified;</li> <li>- The length of monitoring periods of the JPAs being verified; and</li> <li>- The samples selected for prior verifications, if any?</li> </ul> |                 |  |  |            |
| 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                                    | N/a        |
| 108           | Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole  | N/a             | N/a                                      | N/a                                    | N/a        |



## VERIFICATION REPORT

| DVM Paragraph | Check Item  | Initial finding | Action requested to project participants | Review of project Participants' action | Conclusion |
|---------------|---|-----------------|--|--|------------|
|               | number, then does the AIE provide a reasonable explanation and justification?   |                 |  |  |            |
| 109           | Is the sampling plan available for submission to the secretariat for the JISC's ex ante assessment? (Optional)  | N/a             | N/a                                      | N/a                                    | 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                                    | N/a        |



## VERIFICATION REPORT

**TABLE 2 RESOLUTION OF CLARIFICATION AND CORRECTIVE ACTION REQUESTS**

| Clarification and corrective action requests issued by the verification team  | Ref to checklist question in Table 1 | Summary of project participant's response  | Verification team conclusion   |
|---|--------------------------------------|--|--|
| <b>CAR 01.</b> Please provide information about project registration in the MR.   | 90                                   | The project was registered under the registration number UA1000195. Required information was included to the 2 <sup>nd</sup> version of the MR.  | CAR is closed based on the provided information in the MR ver.2.                   |
| <b>CAR 02.</b> Please provide in the MR the information regarding implementation status of all project measures envisaged in the PDD.                                       | 93                                   | Installation of new groups of meters and installation of automatic air valves did not occur during the monitoring period from 01/10/2010 to 30/04/2011.  | CAR 02 is closed based on relevant clarifications                                  |
| <b>CAR 03.</b> Please provide documents confirming implementation of equipment to be installed under the project.   | 93                                   | Certificates of bringing into service of pumping equipment, Certificates of bringing into service of frequency regulators and other supporting documents were submitted to verification group. | Relevant documents have been provided. CAR is closed.                              |
| <b>CAR 04.</b> The Monitoring report version 01 the reference to Methodology "Baseline methodology for water pumping efficiency improvements", Version 02 is incorrect.     | 94                                   | Correct reference to the methodology was provided in the Monitoring report, version 02.  | Corrections were made, the issue is closed.  |
| <b>CAR 05.</b> Some dates of last calibrations/verifications of the metering equipment indicated in the Annex 2 to the MR are missing. Please provide relevant information. | 101 (b)                              | The information on the last calibration date of the meters has been provided in Annex 2.   | The issue is closed based on information provided in Annex 2 to the MR version 02. |



## VERIFICATION REPORT

|   |         |  |   |
|---|---------|--|---|
| <p><b>CAR 06.</b> Please provide justification documents regarding the data and records used for the monitoring.</p>  | 101 (c) | <p>Electric energy logbooks, lifted water logbooks, reports on electricity consumption by departments, reports of water lifted in October 2010 - April 2011 were provided to the project developers.</p>   | <p>The issue is closed based on the provision of the justification documents.</p> |
| <p><b>CL 01.</b> Please provide evidence of the internal audits and audits of current JI project, that is being implemented at "Luganskvoda Ltd.", during the monitoring period of (October 2010 - April 2011) in accordance with the internal audit procedure described in the MR (e.g., audit reports or other records that prove internal audits/inspections and their results).</p> | 101 (a) | <p>During the monitoring period of October 2010 – April 2011 2 internal audits of the JI project monitoring system at "Luganskvoda Ltd." were conducted by the project developers "VEMA S.A.". The audits were carried out in accordance with the plan described in the section C.3 of the MR and established quarterly frequency. The protocols of the executed audit were provided to the verifiers.</p> | <p>Relevant information is provided, the issue is closed.</p>                     |