# VERIFICATION REPORT
# CEP CARBON EMISSIONS PARTNERS S.A.

## VERIFICATION OF THE JI PROJECT

## REDUCTION OF METHANE EMISSIONS ON THE GAS EQUIPMENT OF GAS-DISTRIBUTING POINTS AND ON THE GAS ARMATURE, FLANGED AND THREADED CONNECTIONS OF GAS-DISTRIBUTING NETWORKS OF PJSC «VINNITSAGAZ»

REPORT № UKRAINE-VER/0681/2012

REVISION № 02

3RD PERIODIC

FOR THE PERIOD OF 01/10/2011-31/08/2012

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0681/2012

# VERIFICATION REPORT

| Date of first issue: | Organizational unit: |
|---|---|
| 05/09/2012 | Bureau Veritas Certification Holding SAS |
| **Client:** | **Client ref.:** |
| CEP Carbon Emissions Partners S.A. | Fabian Knodel |


Summary:

Bureau Veritas Certification has made the 3rd periodic verification of CEP Carbon Emissions Partners S.A. project "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC "Vinnitsagaz", which is implemented in Vinnytsya city, towns and villages of Vinnytsya region, Ukraine, and uses a specific approach to JI projects, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Accredited 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, Forward Actions Requests (CL, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented according to the plan and provisions stated in the project design document. 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 emission reductions issued totalize 680 633 tons of $CO_{2eq}$ for the monitoring period of 01/10/2011 - 31/08/2012.

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


| Report No.: | Subject Group: | |
|---|---|---|
| UKRAINE-ver/0681/2012 | JI | |
| Project title: "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC "Vinnitsagaz" | | |
| Work carried out by: Oleg Skoblyk – Team Leader, Climate Change Lead Verifier<br>Katerina Zinevich – Team member, Climate Change Lead Verifier | | |
| Work reviewed by: Ivan Sokolov – Internal technical reviewer<br>Olexandr Kuzmenko – Technical specialist | | |
| Work approved by: Ivan Sokolov – Climate Change Operational Manager | | |
| Дата цього видання: 13/09/2012 | № ред.: 02 | Number of pages: 29 |

Bureau Veritas Certification Holding SAS

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# 1 INTRODUCTION

CEP Carbon Emissions Partners S.A. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC "Vinnitsagaz", (hereafter called "the project") that is implemented in Vinnytsya city, towns and villages of Vinnitsa region, Ukraine.

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

The verification covers the period from October 01, 2011 to August 31, 2012.

## 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

Katerina Zinevich
Bureau Veritas Certification, Team member, Climate Change Lead Verifier

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

Olexandr Kuzmenko
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$^{th}$ 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 CEP Carbon Emissions Partners 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 issued by Bureau Veritas Certification Holding SAS No. UKRAINE - det/0365/2011 as of 26/09/2011, 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 01/10/2011 to 31/08/2012, version 01 as of September 03, 2012, version 02 as of September 11, 2012 and the project as described in the determined PDD.

## 2.2 Follow-up Interviews

On 07/09/2012 Bureau Veritas Certification verification team visited the project implementation site and performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of PJSC «Vinnitsagaz» and CEP Carbon Emissions Partners 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 |
|---|---|
| PJSC «Vinnitsagaz» | ➢ Organizational structure<br>➢ Responsibilities and authorities<br>➢ Roles and obligations relating to data collection and processing<br>➢ Equipment installation<br>➢ Data registration, archieving and reporting<br>➢ Metering equipment control<br>➢ Metering record keeping system, database<br>➢ IT management<br>➢ Personnel training<br>➢ Quality control procedures and technology<br>➢ Internal audit and verification |
| Consultant:<br>CEP Carbon Emissions Partners S.A. | ➢ Baseline methodology<br>➢ Monitoring plan<br>➢ Monitoring report<br>➢ 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, and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 5 Corrective Action Requests, and 1 Clarifications 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 not any remaining CLs, CARs 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 № 2905/23/7 issued by the State Environmental Investment Agency of Ukraine as of 04/10/2011; and written project approval by the party – buyer of emission reductions units (Estonia) - Letter of Approval № 12-1/7524 issued by the Ministry of the Environment of Estonia dated 05/10/2011.
The abovementioned written approvals are unconditional.

## 3.3 Project implementation (92-93)

PJSC “Vinnitsagaz” is the company providing natural gas transportation and supply to industrial consumers (286 companies), municipal services (5573 enterprises) and population (633 992 appartments and households) in Vinnytsya city as well as towns and villages in Vinnytsya region, Ukraine.

The structure of current gas transport rates that are regulated by the government does not include depreciation and investment needs of gas distribution enterprises. This leads to the lack of funds for performance of necessary repair works and modernization of gas networks, purchase of appropriate engineering equipment and components, and also results in increase of natural gas leakage at the PJSC «Vinnitsagaz» facilities.

Application of JI project mechanism provided by the Kyoto Protocol was planned before the beginning of the project implementation. For this purpose, a Memorandum of Understanding relating to the Joint Implementation project between Moston Properties Limited (the Great Britain) and PJSC “Vinnitsagaz” (Ukraine) was signed in August 2006.

In December 2010 Moston Properties Limited acting with the knowledge of PJSC “Vinnitsagaz” transferred all its rights and obligations under the Memorandum of Understanding relating to the JI project to CEP Carbon Emissions Partners S.A. (Switzerland); on this basis emission reductions purchase agreement relating to the JI project was signed between CEP

Carbon Emissions Partners S.A. and PJSC "Vinnitsagaz" on December 16, 2010.

The purpose of the project is reduction of the natural gas leakage at gas-transport and gas-distribution infrastructure of PJSC «Vinnitsagaz», which are the result of seal failures of gas equipment and gas fittings. The main sources of leakage, included into the project scope are:

- gas equipment (reducing gears, valves, filters, switches, etc.), flanged and threaded connections in gas distributoin points (GDP) and cabinet-type gas distribution points (CGDP) of PJSC «Vinnitsagaz»;
- gas fittings (faucets, bolts, valves, etc.), threaded and flanged connections at gas pipelines of PJSC «Vinnitsagaz».

In accordance with PDD, version 03, the project boundaries include the places of methane leakages due to nonhermeticity of gas equipment GDP (CGDP), gas armature, flanged and threaded joints of gas controlnetworks of PJSC «Vinnitsagaz». In total the project's boundaries include equipment of 1576 GDP and CGDP, and 4551 units of gas armature

The main reason of natural gas leakage is failure of sealing elements of equipment as a result of action of temperature vibrations and moisture. Basic component of natural gas, methane (92 - 95%), is a greenhouse gas. Removal of natural gas leakage will result in reductions of greenhouse gas emissions.

Within the framework of the JI project with the aim of elimination of methane leakage at gas equipment and gas fittings three types of repairs are used:

- Complete replacement of out-of-date and morally worn out gas equipment and gas fittings with new units;
- Repair of gas equipment and gas fittings components;
- Replacement of pressure-sealing elements by using modern sealing materials thus changing common practice of maintenance and repair that is based on using paronite gaskets, and sealing stuffing made of cotton fibres with fatty impregnation and asbestos-graphite filler.

In addition to reduction of methane leakage, the JI project activity will lead to reduction of technical leaks of natural gas and it will contribute to improvement of environmental situation, reduction of the risk of accidents and explosive situations.

The project activity includes:

- Implementation of purposeful examination and technical maintenance (PETM) of GDP (CGDP) gas equipment and gas

fittings, flange and threaded joints – modern and the most economically effective practice, which allows not only for detection of leaking areas, but also determination of leakage volume (i.e., potential volume of gas loss reduction). This key information is required for substantiation of efficiency of repair works and priority choice of its objects, which is important under short financing for elimination of all leakages. This activity includes purchase and calibration of modern measuring equipment, appropriate training of employees, monitoring of each unit of gas equipment and gas fittings, flange and threaded joints, creation of methane volume leakage data collection and storage system, and implementation of internal audit and quality assurance system for elimination and accounting of methane leakage.

- Detection and measurement of methane leakage: the monitoring system of leakage at all GDP (CGDP) gas equipment, gas fittings (faucets, bolts, valves), flange and threaded joints, including eliminated methane leakage (repaired components of equipment). The monitoring is carried out on a regular basis by specially trained staff. Detected leakage is duly marked with individual number; methane leakage volumes are measured and registered in the database.

- Elimination of all detected leakages: repairs of leaking gas equipment and gas fittings of gas distribution pipelines in the framework of this project vary from replacement of gaskets and the use of new materials of compactors at sealing materials to capital repairs and replacement of the gas equipment and gas fittings with new and modern ones. Repaired components of gas equipment and gas fittings of gas distribution pipelines are regularly checked as a part of a standard monitoring activity to make sure they have not become the source of leakage again.

Quantity of repaired (replaced) equipment of GDP (CGDP) and gas distribution networks of PJSC «Vinnitsagaz» by periods is given in Table 2:

**Table 2 Quantity of project repaired GDP (CGDP) and repaired (replaced) gas armature or gas pipelines by periods**

| Period | Quantity of GDP (CGDP), wherein the gas equipment was replaced (repaired) | Quantity of repaired gas armature of gas controlnetworks |
|---|---|---|
| 2006 | 157 | 450 |
| 2007 | 630 | 1820 |
| 2008 | 631 | 101 |
| 2009 | 158 | - |
| 2010 | - | - |
| January – September 2011 | - | - |
| October – December 2011 | - | 243 |
| January – August 2012 | - | 1396 |
| **Total** | **1576** | **4010** |

The list of GDP (CGDP) and gas armature, which were repaired (replaced) out of schedule, as well as list of gas armature, repaired (replaced) during reporting period is given in Annex A to the Monitoring report.

Gas equipment that was repaired in the period of the project activity is regularly checked during current monitoring period as a part of a standard monitoring program to make sure it has not become the source of leakage again.

Regular maintenance of gas equipment according to the Monitoring Plan, provided in the PDD version 03, is conducted once a year, technical maintenance - once per six month.

The project was in operation throughout the monitoring period from 01/10/2011 to 31/08/2012.
Identified problem areas of concern as to project implementation, project participants answers and conclusions of Bureau Veritas Certification are described in Annex A to this report (refer to CAR 01, CAR 02, 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.

To calculate the emission reductions such key factors as the rate of leakage for each leakage found, gas temperature and pressure, volume of capacity, the concentration of methane in the sample, the time during which the concentration of methane in the volume capacity reaches a certain level, experience in implementing measures envisaged by the project, the current practice that exists in Ukraine in this area, financial costs and the availability of expertise, legislation affecting the emissions in the baseline, level of activity on the project and the project emissions and risks associated with the project were taken into consideration.

Data sources used for calculating emission reductions, such as calibrated measuring equipment (gas analyzer), passport data of of metering equipment (gas analyzer, thermometer, barometer, stopwatch) are clearly identified, reliable and transparent.

Emission factors, including default emission factors, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.
Monitoring periods for each project component are clearly defined in the monitoring report and do not overlap with those for which verification has been made in the past and is considered final.

Identified problem areas of concern as to compliance of monitoring plan with monitoring methodology, project participants answers and conclusions of Bureau Veritas Certification are described in Annex A to this report (refer to CAR 03, CAR 04).

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

Not applicable.

## 3.6 Data management (101)

Data and their sources, which are contained in the monitoring report, are clearly defined, reliable and transparent.

Implementation of data collection procedures is carried out in accordance with the PDD monitoring plan, including quality control and quality assurance procedures.

Monitoring equipment function, including its calibration status, is in line with the requirements.
According to current legislation "On metrology and metrological activity", all measuring equipment in Ukraine must meet the specified requirements of relevant standards and is subject to a periodic verification. Calibration of measuring devices is conducted in accordance with national standards.

The only device that requires calibration procedure and is used in the methane monitoring process is gas analyzer EX-TEC®SR5. Inter-calibration interval is 1 year.

After verification (calibration) a certificate confirming the technical health of the device is issued.

Actual data and records used for monitoring are duly verified.

Data collection and data management system of the project is in line with the PDD, the monitoring plan and consists of three parts:

- Measurements of methane leakage value before the repair (replacement) of gas equipment;
- Measurements of methane leakage value after the repair (replacement) of gas equipment;
- Archiving and processing of obtained results.

To measure leakage volume of natural gas the method based on the Calibrated Bag Technology described in the approved baseline methodology AM0023 "Leak reduction from natural gas pipeline compressor or gate stations", version 3.0 was used. One of the problems of using this method is difficult accounting of the volume of the fittings whereat measurements are done, and the initial air volume in the course of determining gas volume received in the bag.
To solve these problems a special installation was made on the basis of plastic container of known volume (0.11 $m^3$), package, plastic hose and pressure gauge.
In order to ensure successful implementation of the project and the credibility and verifiability of the emissions reductions achieved, the project must have a well-organized management system.

Co-ordination of work of all departments and services of PJSC "Vinnitsagaz" in relation to implementation of the JI project is carried out by the Working team created by Order No. 143 of PJSC "Vinnitsagaz" management dated 30/08/2006. The updated structure of the Working team was approved by Order №291 of acting chairman of the management board dated 27/07/2011 and it is presented in Figure 1.

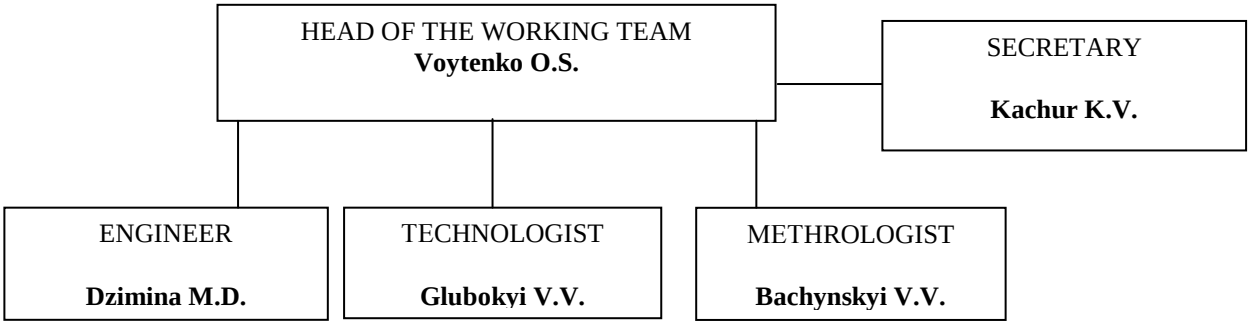


**Figure 1 Structure of the Working team**

Glubokyi V.V. is responsible for collection of all information envisaged in the monitoring plan and making all necessary calculations. Kachur K.V. is responsible for storage and archiving of all information obtained as a result of the measurements and calculations. On the basis of the obtained information Voytenko O.S., the leader of the working team, determines the plan of measures under the Project and the volume of necessary resources. Dzimina M.D. and Bachynskyi V.V. who are responsible for conducting monitoring measurements of leaks and repair thereof, ensure that calibrated measuring equipment and technical support are in place.

All the necessary information on monitoring of GHG emissions is stored in paper and/or electronic form and will be stored until the end of the crediting period and two years after the last transaction with emission reduction units.

The monitoring Report version 02 provides sufficient information about the intended role, responsibilities and authorities for implementing and maintaining monitoring procedures, including data management. Verification group confirms the effectiveness of existing management system and operating system and considers them suitable for reliable monitoring of the project.
Identified problem areas of concern as to data management, project participants answers and conclusions of the Bureau Veritas Certification are described in Annex A to this report (refer to CAR 05).

## 3.7 Verification regarding programs of activities (102-110)

Not applicable.

# 4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 3rd periodic verification of the project “Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC “Vinnitsagaz” for the period from October 1, 2011 to August 31, 2012, which applies the JI Specific Approach. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of CEP Carbon Emissions Partners 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 03. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 02 for the reporting period of 01/10/2011-31/08/2012 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.

Emission reductions achieved by the project for the period from 01/10/2011 to 31/08/2012 do not differ significantly from the amount predicted for the same period in the determined PDD. Emission reductions predicted in the determined PDD version 03 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 03 and actual emission reductions stated in the MR version 02**

| Period | Estimated GHG emission reductions stated in the determined PDD in tonnes of $CO_2eq$ | Ex-post GHG emission reductions stated in the Monitoring report in tonnes of $CO_2eq$ |
|---|---|---|
| 01/10/2011-31/12/2011 | 201 382 | 176 979 |
| 01/01/2012-31/08/2012 | 537 019 | 503 654 |
| **Total** | **738 401** | **680 633** |

This difference in the emission reductions under the project “Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC “Vinnitsagaz” in 01/10/2011-31/08/2012 in the determined PDD and the MR is explained by the fact that accurate conservative values were available during MR development but at the PDD development stage assumptions were made in relation to monitoring period. The quantity of emission reductions for the period from 01/10/2011 to 31/08/2012 that was provided in the determined PDD was identified by dividing the total annual amount of emission reductions in 2011 and 2012

(separately) by 12 (12 months) and multiplying by 3 (3 months of 2011) and multiplying by 8 (8 months of 2012).

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

Reporting period: From 01/10/2011 to 31/08/2012

| | | | |
|---|---|---|---|
| Baseline emissions | : | 828 668 | t $CO_2$ equivalent; |
| Project emissions | : | 148 035 | t $CO_2$ equivalent; |
| Emission Reductions | : | 680 633 | t $CO_2$ equivalent. |

## 5 REFERENCES

**Category 1 Documents:**

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

| | |
|---|---|
| /1/ | The PDD of the JI project "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC "Vinnitsagaz", version 03, as of September 23, 2011 |
| /2/ | Monitoring Report for the period of 01/10/2011-31/08/2012, version 01, as of September 03, 2012 |
| /3/ | Monitoring Report for the period of 01/10/2011-31/08/2012, version 02, as of September 11, 2012 |
| /4/ | Annex A to the Monitoring report "Calculation of greenhouse gas emission reductions at gas equipment of gas-distribution points (cabinet-type gas-distribution points), gas armature, flanged, threaded joints of gas-distribution networks of PJSC «Vinnitsagaz» for the period from October 1, 2011 to August 31, 2012. |
| /5/ | Determination Report of the JI project "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC "Vinnitsagaz", issued by Bureau Veritas Certification Holding SAS, № UKRAINE-det/0365/2011 dated 26/09/2011 |
| /6/ | Letter of Endorsement of the JI project "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC "Vinnitsagaz" issued by the State Environmental Investment Agency of Ukraine № 2457/23/7 dated 08/09/2011 |
| /7/ | Letter of Approval № 2905/23/7 issued by the State Environmental Investment Agency of Ukraine as of 04/10/2011 |
| /8/ | Letter of Approval № #12-1/7524 issued by the Ministry of the Environment of Estonia dated 05/10/2011. |

**Category 2 Documents:**

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

| | |
|---|---|
| /1/ | Approved consolidated baseline methodology AM0023 "Leak reduction from natural gas pipeline compressor or gate stations", version 3.0 |
| /2/ | Registry of gas distribution points and gas fittings of the JI project |

| | |
|---|---|
| | "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature, flanged and threaded connections of gas-distributing networks of PJSC "Vinnitsagaz" |
| /3/ | List of metering equipment with indication of their place of installation and territory, where the business activity relating to distribution of natural and petroleum gas between PJSC "Vinnitsagaz» and licensees with the transportation of natural and petroleum gas by trunk pipelines is carried out. |
| /4/ | The Memorandum of understanding in relation to the JI project between Moston Properties Limited and PJSC "Vinnitsagaz" dated 29/08/2006 |
| /5/ | Order of the chairman of the management board of OJSC "Vinnitsagaz" № 143 on creation of Working team responsible for natural gas leaks reduction and repair at gas distribution networks equipment in the framework of the JI project implementation dated 30/18/2006 |
| /6/ | Order of the acting chairman of the management board of PJSC "Vinnitsagaz" on changes of the structure of the Working team responsible for control over natural gas leakage at equipment of gas distribution networks and elimination of natural gas leakage in the framework of the JI project № 291 dated 27/07/2011 |
| /7/ | Contract on metrological service dated 26/02/2010 |
| /8/ | Passport of gas analyzer EX-TEC® SR5 |
| /9/ | Passport of the stopwatch SOS pr-2b-2-000 |
| /10/ | Passport of mercury thermometer TL 4 |
| /11/ | Passport of the barometer aneroid BAMM-1 |
| /12/ | Passport of wedge steel valve with pull-out stem |
| /13/ | Passport of steel flanged valve |
| /14/ | Passport of filters of mesh-type FS and hair type FV-50 |
| /15/ | Passport of safety waste valves PSK n/5 |
| /16/ | Passport of the pressure regulator of series RB 3200 Actaris |
| /17/ | Passport of the filter element - cartridge of filter FV-100 |
| /18/ | Passport of the ball flanged shortened valve KZSHS 41 nzh PS |
| /19/ | Passport of gas pressure regulator RDG-150/200N(B)/140 |
| /20/ | Passport of the mechanical stopwatch SOS pr-2b-2-000 |
| /21/ | Information on the availability of project documents and as-built documents on pipelines and structures thereat |
| /22/ | Information on material and technical base of PJSC "Vinnitsagaz" |
| /23/ | Calibration certificate on working measuring instrument, valid until April 16, 2012 |
| /24/ | Certificate on state metrological attestation dated 15/06/2011 |
| /25/ | Calibration certificate on working measuring instrument, valid until 30/06/2012 |
| /26/ | Calibration certificate on working measuring instrument, valid until 20/03/2014 |

| | |
|---|---|
| /27/ | Calibration certificate on working measuring instrument, valid until 15/09/2012 |
| /28/ | Manual for operation of gas analyzer EX-TEC® SR5 |
| /29/ | Permission to carry out works of heightened danger dated 25/04/2011 |
| /30/ | Photo "Monitoring leaks measurements at GDP (CGDP) devices" |
| /31/ | Photo “Visualization of leaks at flanged, threaded joints of gas distribution networks of PJSC “Vinnitsagaz” |
| /32/ | Photo of barometer, stopwatch, thermometer, gas analyzer |
| /33/ | Photo of new equipment |

**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/ | Voytenko O.S. | PJSC «Vinnitsagaz» | Head of the Working Team |
| /2/ | Kachur K.V. | PJSC «Vinnitsagaz» | Secretary |
| /3/ | Dzimina M.D. | PJSC «Vinnitsagaz» | Engineer |
| /4/ | Glubokiy V.V. | PJSC «Vinnitsagaz» | Technologist |
| /5/ | Bachinskiy V.V. | PJSC «Vinnitsagaz» | Metrologist |
| /6/ | Belov E.V. | “CEP” Ltd. | Consultant of CEP Carbon Emissions Partners S.A. |

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 | Draft Conclusion | Final Conclusion |
|---|---|---|---|---|
| **Project approvals by Parties involved** | | | | |
| 90 | Has the DFP 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 was approved by both the Host Party (Ukraine) and the other Party involved (Estonia). Written project approvals were issued by DFPs of Parties involved. Both Letters of Approval were available at the beginning of the first verification of the project. | OK | OK |
| 91 | Are all the written project approvals by Parties involved unconditional? | Yes, all the written project approvals by Parties involved are unconditional. | OK | OK |
| **Project implementation** | | | | |
| 92 | Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website? | **CL 01.** The Section A.7. of MR provides that in the previous monitoring period all planned equipment has not been installed, please provide information, when full implementation of the project equipment is planned.<br><br>**CAR 01.** Please provide information about the installed equipment in Table 1 separately for the 2011 and 2012.<br>**CAR 02.** In the Section A.7. the final version of PDD | **CL 01**<br>**CAR 01**<br>**CAR 02** | OK<br>OK<br>OK |

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|---|---|---|
| | | specified incorrectly. | | |
| 93 | What is the status of operation of the project during the monitoring period? | Project was operational for the whole monitoring period, which is 01/10/2011-31/08/2012. | OK | 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? | Yes, monitoring occured in accordance with the monitoring plan included in the PDD version 03 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) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate? | Yes, for calculating the emission reductions such key factors as the rate of leakage for each leakage found, gas temperature and pressure, volume of capacity, the concentration of methane in the sample, the time during which the concentration of methane in the volume capacity reaches a certain level, experience in implementing measures envisaged by the project, the current practice that exists in Ukraine in this area, financial costs and the availability of expertise, legislation affecting the emissions in the baseline, level of activity on the project and the project emissions and risks associated with the project were taken into account, as appropriate. | OK | OK |
| 95 (b) | Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent? | Data sources used for calculating emission reductions (measuring equipment - gas analyzer “EX-TEC®SR5”, stop-watch timer "SOS pr-2b-2 ', mercury glass thermometer of TL-4 type, flow meter, pressure gauge; information from manufacturers and IPCC) are clearly | OK | OK |

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|---|---|---|
| | | identified, reliable and transparent. | | |
| 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, that were used for calculating the emission reductions or enhancements of net removals, were 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 on conservative assumptions and the most plausible scenarios in a transparent manner? | Yes, the calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.<br>**CAR 04.** Please provide separately the results of emission reductions over the period 01/10/2011-31/12/2011 and 01/01/2012 - 31/08/2012. | **CAR 04** | OK |
| **Applicable to JI SSC projects only** | | | | |
| 96 | Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis?<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 |
| **Applicable to bundled JI SSC projects only** | | | | |
| 97 (a) | Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE? | N/a | N/a | N/a |

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|---|---|---|
| 97 (b) | If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report? | N/a | N/a | N/a |
| 98 | If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past? | N/a | N/a | N/a |
| **Revision of monitoring plan** | | | | |
| **Applicable only if monitoring plan is revised by project participant** | | | | |
| 99 (a) | Did the project participants provide an appropriate justification for the proposed revision? | The monitoring plan was not revised by the project participants. | N/a | N/a |
| 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? | N/a | N/a | N/a |
| **Data management** | | | | |
| 101 (a) | Is the implementation of data collection procedures in accordance with the | The implementation of data collection procedures is in accordance with the monitoring plan, including the | OK | OK |

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|---|---|---|
| | monitoring plan, including the quality control and quality assurance procedures? | quality control and quality assurance procedures. | | |
| 101 (b) | Is the function of the monitoring equipment, including its calibration status, is in order? | Measuring equipment designed for the project monitoring, operates properly, and its calibration is performed according to manufacturer's instructions and standards of the industry. However, there were some questions about measuring equipment to be corrected or clarified:<br>**CAR 05.** Frequency of calibration of measuring equipment was not specified in the MR. Please provide information on the frequency of calibration of all equipment used for project monitoring. | **CAR 05** | OK |
| 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 manner.<br>All information needed for monitoring of emission reductions is stored in paper and / or electronic formats. | 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 of the project is in accordance with the monitoring plan.<br>The Verification team confirms the effectiveness of existing management system and operating system and considers them suitable for reliable monitoring of the project.<br><br>**CL 04.** Please, check the numbering of Tables and Figures in the MR. | OK | OK |

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

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|---|---|---|
| | characteristics of JPAs, such as:<br>− The types of JPAs;<br>− The complexity of the applicable technologies and/or measures used;<br>− The geographical location of each JPA;<br>− The amounts of expected emission reductions of the JPAs being verified;<br>− The number of JPAs for which emission reductions are being verified;<br>− The length of monitoring periods of the JPAs being verified; and<br>− The samples selected for prior verifications, if any? | | | |
| 107 | Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation? | N/a | N/a | N/a |
| 108 | Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification? | N/a | N/a | N/a |

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|---|---|---|
| 109 | Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional) | N/a | N/a | N/a |
| 110 | If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing? | N/a | N/a | N/a |

## TABLE 2 RESOLUTION OF CLARIFICATION AND CORRECTIVE ACTION REQUESTS

| Draft report clarifications and corrective action requests by validation team | Ref. to checklist question in table 1 | Summary of project participant response | Verification team conclusion |
|---|---|---|---|
| **CAR 01.** Please provide information about the installed equipment in Table 1 separately for the 2011 and 2012 | 92 | Relevant information is provided in Table 1 MR. | The issue is closed based on necessary changes made. |
| **CAR 02.** In the Section A.7. the final version of PDD specified incorrectly. | 95 (b) | The final version of the PDD is 03. Corrections were made in the Section A.7. of MR. | The issue is closed based on necessary changes made. |
| **CAR 04.** Please provide separately the results of emission reductions over the period 01/10/2011-31/12/2011 and 01/01/2012 - 31/08/2012. | 95 (d) | the results of emission reductions over the period 01/10/2011-31/12/2011 and 01/01/2012 - 31/08/2012 is provided separately/ See Section D.4. of MR. | The issue is closed based on necessary corrections made. |
| **CAR 05.** Frequency of calibration of measuring equipment was not specified in the MR. Please provide information on the frequency of calibration of all equipment used for project monitoring. | 101 (b) | The only device that requires calibration procedure and is used in the methane monitoring process is gas analyzer EX-TEC®SR5. Inter-calibration interval is 1 year. After verification (calibration) a certificate confirming the technical health of the device is issued. | Clarifications are accepted, the issue is closed. |

| | | | |
|---|---|---|---|
| **CL 01.** The Section A.7. of MR provides that in the previous monitoring period all planned equipment have not been installed, please provide information when the full implementation of the project equipment is planned. | 92 | During current monitoring period the situation began correct and till the end of 2012 year all objects which was included into project boundaries will repaired (replaced). | Information was provided, the issue is closed. |