VERIFICATION REPORT
PJSC "ODESAGAS"

VERIFICATION OF JI PROJECT

REDUCTION OF METHANE EMISSIONS AT FLANGED, THREADED JOINTS AND SHUT-DOWN DEVICES OF OJSC "ODESAGAS" EQUIPMENT

seventh periodic

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

REPORT № UKRAINE-VER/0438/2012

REVISION № 02

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0438/2012

VERIFICATION REPORT

Date of first issue: 20/01/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: PJSC "Odesagas"	Client ref.: Vitaliy Gerasymenko

Summary:

Bureau Veritas Certification has made the 7th periodic verification of PJSC "Odesagas" project "Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC "Odesagas" Equipment", which is implemented in Odesa city and cities of Odesa 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 (but for the crediting period) refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

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

The first output of the verification process is a list of Clarification Requests, 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 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 316 813 tonnes of CO_2 equivalent for the monitoring period from 01/08/2011 to 31/01/2012.

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.: UKRAINE-ver/0438/2012	Subject Group: JI	
Project title: "Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC "Odesagas" Equipment"		
Work carried out by: K. Zinevych – Team Leader, Climate Change Verifier O.Kuzmenko - Team Member, technical specialist		
Work reviewed by: I.Sokolov – Internal technical reviewer V.Kobzar - Technical specialist		
Work approved by: Flavio Gomes – Operational Manager		
Date of this revision: 24/02/2012	Rev. No.: 02	Кіль Number of 36

Bureau Veritas Certification Holding SAS

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1 INTRODUCTION

PJSC “Odesagas” has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project “Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC “Odesagas” Equipment”, (hereafter called “the project”) in Odesa city and cities in Odesa 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 August 1, 2011 to January 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, monitoring plan, monitoring report and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.
The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 Verification Team

The verification team consists of the following personnel:

Kateryna Zinevych
Bureau Veritas Certification, Team Leader, Climate Change Verifier
O.Kuzmenko
Bureau Veritas Certification, Team Member, technical specialist

This verification report was reviewed by:

Ivan Sokolov

Bureau Veritas Certification, Internal Technical Reviewer

V.Kobzar
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 19th 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 PJSC “Odesagas” and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Approved CDM methodology, Determination Report of the project issued by Bureau Veritas Certification Holding SAS No. UKRAINE-0118/2010 as of 15/05/2010, 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 01/08/2011 to 31/01/2012, version 01 as of January 19, 2012 and version 02 as of February 23, 2012 and the project as described in the determined PDD.

2.2 Follow-up Interviews

On 07/02/2012 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 "Odesagas" and ETI "Biotekhnika" UASA were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC "Odesagas"	➢ Organizational structure ➢ Responsibilities and authorities ➢ Personnel training ➢ Quality control procedures and technology ➢ Equipment use (records) ➢ Metering equipment control ➢ Metering record keeping system, database
Consultant: ETI «Biotekhnika" UASA	➢ Baseline methodology ➢ Monitoring plan ➢ Monitoring report ➢ Deviations from the PDD

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to raise the requests for corrective 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 reductions 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 9 Corrective Action Requests, and 3 Clarification Request.

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

3.1 Remaining CL and FARs from previous verifications

There are no any remaining CL and FAR from previous verifications.

3.2 Project approval by Parties involved (90-91)

The project obtained approval by the Host party (Ukraine) - Letter of Approval №737/23/7 dated 07/06/2010 issued by the National Environmental Investment Agency of Ukraine and written project approval by the party – buyer of emission reductions units (Denmark) - Letter of Approval №1602/1102-0041 dated 01/06/2010 issued by the Danish Energy Agency of the Danish Ministry of Climate and Energy).

The abovementioned written approvals are unconditional.

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

3.3 Project implementation (92-93)

PJSC "Odesagas" is the company uniting gas supply facilities of 26 districts in Odesa region and gas supply facility in Odesa city, and providing natural gas transportation and supply to industrial and domestic consumers. Total length of distribution gas pipeline of high (12Mpa – 0.6 Mpa), medium (0.3 Mpa) and low (0.005 Mpa) pressure is 4579 km. 2625 km is the property of PJSC "Odesagas". Average annual volume of transported gas reaches 2861718 ths m^3. The structure of current gas transport tariffs (the tariffs are regulated by the state) does not include depreciation and investment needs of gas distribution enterprises, which does not ensure receipt 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 "Odesagas" facilities.

Following the Regulations on gas supply system safe operation in Ukraine based primarily on safety concerns, at the beginning of the project (2005) PJSC "Odesagas" just detected leaks using detectors with the purpose to avoid emergency and explosions. Measurement of volumes of leaks is not required, and measurement instruments are absent. Theoretical calculations of leaks volume based on executed measurements of natural gas losses as a result of not hermetic shut-down and flanged devices of PJSC «Odesagas» may be equal to 41 mln m^3 per year.

The project activities are reduction of natural gas (methane) leakage that results from leakiness of shut-down, flanged and threaded devices of PJSC "Odesagas" equipment in the total amount of 11 174 pieces. Within the project scope, advanced sealant materials are used for repair of gas equipment. This replaces the current practice of maintenance and repair of networks, namely the use of rubberized asbestos fabric gaskets and

cotton fiber stuffing with oil tightening with asbestos-graphite compound resulting in increased leaks and methane emissions into the atmosphere. In addition to methane emission reductions, the project reduces technical natural gas losses (therefore, financial losses), benefits the environment and reduces emergency risks, especially for building gas pressure regulators and above ground gas pipelines.

The project activity includes:

- Implementation and use of purposeful examination and technical maintenance (PETM) of flanged, threaded joints and shut-down devices of PJSC "Odesagas" equipment with the use of modern and the most economically efficient practice, which allows for not only detection of leaking areas, but also determination of leakage volume (i.e., potential volume of gas leakage reduction). This key information is necessary for substantiation of effectiveness of repair and priority choice of its objects, which is important under short financing for repair of all leakage. This activity will include purchase of modern measuring equipment, appropriate training of employees, development of monitoring map for each gas plant and gas distribution network with the list of all equipment components to be regularly examined, creation of leakage data collection and storage system, and implementation of internal audit and quality assurance system for repair and accounting of methane leakage.
- Detection and measurement of leakage: the monitoring system of leakage at all flanged, threaded joints and shut-down devices of PJSC "Odesagas" equipment, including repaired leakage (repaired equipment components). The monitoring is exercised on a regular basis (once per four days or once a week, depending on the type of equipment; once per year for equipment of apartments and buildings) by specially trained personnel. Each component is checked and detected leakage is duly marked with individual number; gas leakage volumes are measured and registered in the database.
- Repair of all detected leakage: repairs of equipment with leakage within the scope of this project will vary from tightening of block valves and flanges, use of new sealants or compacting materials, to capital repair and replacement of safety valves of pressure regulators, piston rods. Repaired equipment components will be regularly checked as a part of a standard monitoring program to make sure they have not become the source of leakage again.

Duration of the project is not limited, as PETM and monitoring programs are aimed to become a part of work and business practice of PJSC "Odesagas". Reduction of CO_{2e} emissions is stated for the period of 22 years according to modality and Joint Implementation Mechanism Procedures.

According the PDD version 07 the project boundary includes the methane leakage places as a result of non-hermetic flanged, threaded joints and shut-down devices of gas distribution networks in Odesa city and Odesa region. The project boundary included the total of 11174 shut-down devices. For the period from the beginning of the project implementation (2005) to the beginning of the reporting period all shut-down devices included in the project boundary were repaired and replaced.
Scope of the period-based repairs and replacements of shut-down devices of gas distribution networks is presented in Table 2:

Table 2 Number of repaired (replaced) shut-down devices under the project per years

Period	Number of repaired (replaced) shut-down devices, un.
2005	5 832
2006	3 312
2007	529
2008	752
2009	566
2010	174
2011	9
01/01/2012- 31/01/2012	-
Total	**11 174**

The project activities for the current monitoring period (01/08/2011-31/01/2012) are further carrying out of purposeful examination and technical maintenance (PETM) of all gas equipment of gas distribution networks, which was repaired (hermetically sealed) and replaced during all JI project operation time.

Repaired (hermetically sealed) and replaced in previous periods shut-down devices are regularly checked as a part of a standard monitoring program to make sure they have not become the source of leakage again.
According to the Monitoring Plan in the PDD version 07 the regular repairs of shut-down devices at gas distribution networks of PJSC “Odesagas” are done once per year, technical maintenance – once per half year.

Methane leakage volumes from the repaired (replaced) shut-down devices of PJSC “Odesagas” received in the result of monitoring measurements do not exceed the methane leakage volumes, which were measured after the first repair of the devices.

The project was in operation throughout the monitoring period - from 01/08/2011 to 31/01/2012.
The identified areas of concern as to the project implementation, project participants responses and Bureau Veritas Certification’s conclusions are described in Appendix A to this report (refer to CAR 02).

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 gas leakage for each leakage found, gas temperature and pressure, volume of capacity, the concentration of methane in the sample, time for 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 the sphere of gas transportation and supply, 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 measuring equipment - gas analyzer “EX-TEC® SR5”, stop-watch timer "SOS pr-2b-2”, mercury glass thermometer of TL-4 type, flow meter, manometer “D-59N-100-1.0 6kPa”; information from manufacturers and IPCC 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 is clearly identified in the monitoring report and do not overlap with those for which verification has been made in the past and is considered final.

The identified areas of concern as to compliance of the monitoring plan with the monitoring methodology, project participants responses and Bureau Veritas Certification's conclusions are described in Appendix A to this report (refer to CAR 03, CAR 04, CAR 05, CAR 06, CL 01).

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.
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:
1) Measurements of methane leakage value before the rehabilitation (hermetization) of the facility;
2) Measurements of methane leakage value after the rehabilitation (hermetization) of the facility;
3) Archiving and processing of obtained results.

To measure leakage volume of natural gas it was decided to use 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". One of the problems incurred by using this method is difficult accounting of the volume of the fittings where measurements are done, and the initial air volume when 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 (0.87 m^3), package, plastic hose and manometer. All joints are made in a hermetical manner.

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.

Collection and processing of parameters, coordination of work of all departments and services of PJSC "Odesagas" related to the project implementation is done by specially created Working team. The structure of the Working team is shown in the Figure 1.

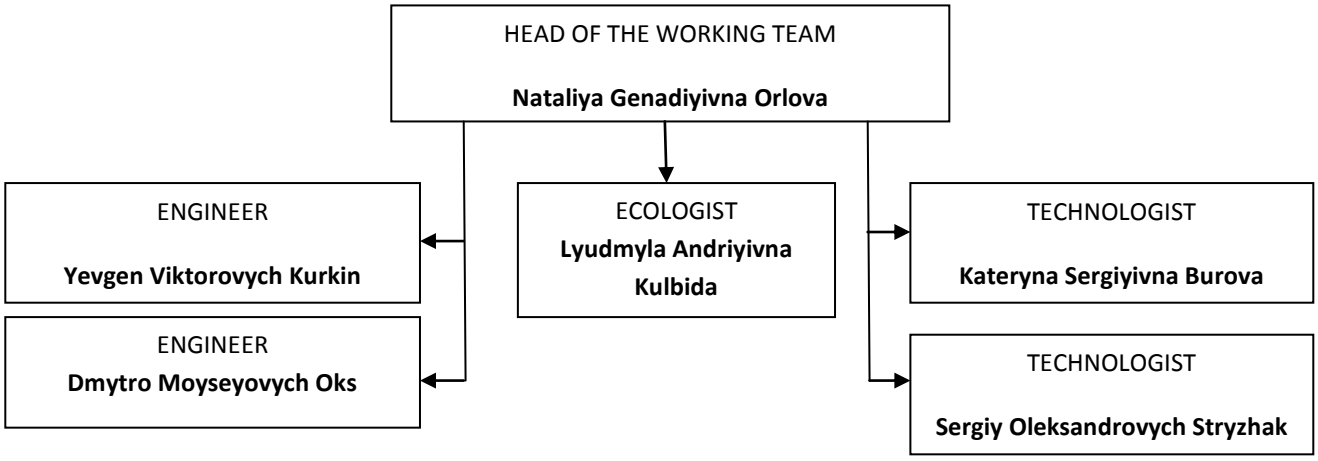

Figure 1 Structure of the Working team

Sergiy Oleksandrovych Stryzhak and Lyudmyla Andriyivna Kulbida are responsible for collection of all information provided for by the monitoring plan, and for making all necessary settlements. Archiving of all received information in the result of measurements and settlements is done under guidance of Kateryna Sergiyivna Burova. The head of the working team (Nataliya Genadiyivna Orlova) on the basis of received information determines the plan of measures under the Project and scope of resources required. Technical maintenance of the Project is carried out by Dmytro Moyseyovych Oks and Yevgen Viktorovych Kurkin.

Regular maintenance of shut-down devices of PJSC "Odesagas" gas distribution networks is carried out once per year, technical maintenance - once per half year.

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.

The identified areas of concern as to compliance of the monitoring plan with the monitoring methodology, project participants responses and Bureau Veritas Certification's conclusions are described in Appendix A to this report (refer to CAR 07, CAR 08, CAR 09, CL 02, CL 03).

3.7 Verification regarding programs of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the seventh periodic verification of the "Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC "Odesagas" Equipment" Project for the period from August 1, 2011 to January 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 monitoring report against the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of PJSC "Odesagas" is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring Plan indicated in the final PDD version 07. 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 th project.

Bureau Veritas Certification verified the Project Monitoring Report version 02 for the reporting period of 01/08/2011-31/01/2012 as indicated below. Bureau Veritas Certification confirms that the project is implemented as per approved PDD version. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

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

Reporting period: From 01/08/2011 to 31/01/2012
Baseline emissions : 325 176 tonnes of CO_2 equivalent;
Project emissions : 8 363 tonnes of CO_2 equivalent;
Emission Reductions : 316 813 tonnes of CO_2 equivalent.

5 REFERENCES

Category 1 Documents:

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

/1/	The PDD of "Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC "Odesagas" Equipment" JI Project, version 07, dated April 30, 2010
/2/	Determination Report of "Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC "Odesagas" Equipment" JI Project, issued by Bureau Veritas Certification Holding SAS dated May 15, 2010
/3/	Monitoring Report of "Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC "Odesagas" Equipment" JI Project, version 01, dated January 19, 2012
/4/	Monitoring Report of "Reduction of Methane Emissions at Flanged, Threaded Joints and Shut-down Devices of OJSC "Odesagas" Equipment" JI Project, version 02, dated February 23, 2012
/5/	Appendix A. Calculations of greenhouse gas emission reduction at flanged, threaded joints and shut-down devices of PJSC "Odesagas" equipment for 6 months (from August 1, 2011 to January 31, 2012)
/6/	Letter of Approval №737/23/7 dated 07/06/2010 issued by the National Environmental Investment Agency of Ukraine
/7/	Letter of Approval №1602/1102-0041 dated 01/06/2010 issued by the Danish Energy Agency, the Danish Ministry of Climate and Energy)

Category 2 Documents:

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

/1/	Instruction for exploitation of gas-analyzer EX-TEC® SR5
/2/	Appearance of gas-analyzer EX-TEC® SR5
/3/	Calibration certificate of gas-analyzer EX-TEC® SR5

/4/	State metrological attestation certificate of gas-analyzer EX-TEC® SR5
/5/	Appearance of gas-analyzer EX-TEC® SR5
/6/	Appearance of mercury glass thermometer TL-4
/7/	Passport of mercury glass thermometer TL-4
/8/	Stop-watch and passport of mercury glass thermometer TL-4
/9/	Manual of manometer «D-59H-100-1.0 6 kPa»
/10/	Calibration certificate of barometer D-59-N, dated 27/09/08
/11/	Calibration certificate of barometer D-59-N, dated 15/12/09
/12/	Statement of measurements on unscheduled works of shut-down devices, flanged and threaded joints hermetization of OJSC "Odesagas", August 2011
/13/	Statement of measurements on unscheduled works of shut-down devices, flanged and threaded joints hermetization of OJSC "Odesagas", Septembe 2011
/14/	Statement of measurements on unscheduled works of shut-down devices, flanged and threaded joints hermetization of OJSC "Odesagas", October 2011
/15/	Statement of measurements on unscheduled works of shut-down devices, flanged and threaded joints hermetization of OJSC "Odesagas", November 2011
/16/	Order on formation of a working team on JI project dated 12/01/05
/17/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-075, 1 Melitopolska Str. dated 02/04/2005
/18/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-075, 1 Melitopolska Str. dated 12/06/2006
/19/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-075, 1 Melitopolska Str. dated 25/06/2007
/20/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-075, 1 Melitopolska Str. dated 10/06/2008
/21/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-075, 1 Melitopolska Str. dated 15/06/2009
/22/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-075, 1 Melitopolska Str. dated 04/06/2010

/23/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-073, 6 the 3rd Stupinchatyi per., dated 05/04/2010
/24/	Program of initial monitoring measurements for OJSC “Odesagas” gate stations and gas distribution networks GDP-044, 25 Lokomotyvna Str. dated 06/04/2010
/25/	Gate valve, corner of Zhukovska and Polska Streets
/26/	Passport a gate valve, corner of Zhukovska and Polska Streets
/27/	Manometer D-59-N
/28/	Leakage measuring device
/29/	Gate valve in the well, corner of Zhukovska and Polska Streets
/30/	Gate valve, corner of Bunina and Polska Streets
/31/	Valve with compensator in the well, corner of Zhukovska and Polska Streets
/32/	Gate valve in the city park, Deribasivska Street
/33/	Gate valve, 110 Balkivska Street
/34/	Gate valve in the duct, Prohorivska Street
/35/	Gate valve when checking for leaks, gas shutoff station, Melnitska Street
/36/	Gate valve at gas shutoff station
/37/	Gate valve at gas shutoff station, checking of the tightness of connections
/38/	Gate valve at gas shutoff station, a new sealing gasket
/39/	Gas valve, corner of Zaporozka and B.Khmelnitskogo Streets
/40/	Valve with regulator in the duct, Zaporizka Street
/41/	Regulator in the duct
/42/	Gas valves in well, 1 Marshal Malinovskyi Street
/43/	The form of leakage records
/44/	Calibration certificate of the working measuring instrument # 8226 dated 09/23/2010 (gas analyzer EX-TEC SR5)
/45/	Manual 9P2.832.012 RE (Barometers and domestic barometers)
/46/	Passport and application of the tool (laboratory glass thermometer, designed to measure temperature in different areas, TLS, 4, TU U 33.2-14307481-035:2005)
/47/	Summarizing Report on special automobile with installed equipment of «Gazomat» type 15/06/2011-29/11/2011
/48/	Summarizing Report on special automobile with installed

	equipment of «Gazomat» type for the period 15/06/2011-11/08/2011
/49/	Photo of special automobile with installed equipment of «Gazomat» type

Persons interviewed:

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

	Name	**Organization**	**Position**
/1/	Gerasymenko V.O.	PJSC “Odesagas”	Executive Director
/2/	Zatynayko Y. L.	PJSC “Odesagas”	Chief Engineer
/3/	Orlova N.G.	PJSC “Odesagas”	Head of production and technical department
/4/	Oks D.M.	PJSC “Odesagas”	Head of production and technical department UEGG
/5/	Kulbida L.A.	PJSC “Odesagas”	Engineer of LOP
/6/	Burova K.S.	PJSC “Odesagas”	Engineer of production and technical department
/7/	Stryzhak S.O.	PJSC “Odesagas”	Head of SEUG and DV UEGG
/8/	Khodorchuk V.Y.	ETI «Biotekhnika” UASA	Scientific Secretary
/9/	Dorovskyi V.I.	ETI «Biotekhnika” UASA	Head of the Laboratory
/10/	Tsvigovskyi M.K.	ETI «Biotekhnika” UASA	Deputy Head of Department
/11/	Ivchuk V.V.	Odesa interregional administration	Chief Engineer
/12/	Korzhov S.M.	Ananyivsk administration	Chief Engineer
/13/	Yakymchuk V.I.	Berezovsk administration	Chief Engineer
/14/	Ivanov O.T.	Bolgradsk	Chief Engineer

		administration	
/15/	Zhebrovskyi O.M.	Ivanivsk administration	Chief Engineer
/16/	Bogovyk O.L.	Ovidiopilsk administration	Chief Engineer
/17/	Shyshovskyi A.O.	Odessa City Council	Chairman of the Standing Committee of Regulatory Policy
/18/	Ivanov A.Y.	Commission on fuel and energy complex, energy saving and housing and utilities sector	Vice chairman

APPENDIX A: COMPANY PROJECT VERIFICATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

JI PROJECT 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 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 the Host party and the other Party involved. The Letters of Approval were issued by NFPs of the Parties involved. Two Letters of Approval were available at the beginning of the first verification of the project. **CAR 01.** The name of organization that issued the Letter of Approval from the party – buyer (Denmark) is incorrect in the Ukrainian version of the MR. Please, make corrections.	**CAR 01**	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in	Yes, the project has been implemented in	**CAR 02**	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	accordance with the PDD, which is listed on the UNFCCC JI website. The project activities are reduction of natural gas (methane) leakage that results from leakiness of shut-down, flanged and threaded devices of OJSC "Odesagas" equipment in the total amount of 11 174 pieces. Within the project scope, advanced sealant materials will be used for repair of gas equipment. This replaces the current practice of maintenance and repair of networks, namely the use of rubberized asbestos fabric gaskets and cotton fiber stuffing with oil tightening with asbestos-graphite compound resulting in increased leaks and methane emissions into the atmosphere. In addition to methane emission reductions, the project reduces technical natural gas losses (therefore, financial losses), benefits the environment and reduces emergency risks, especially for building gas pressure regulators and above ground gas pipelines. **CAR 02.** Table 1 of the Monitoring report contains information about the number of shut-down devices that were repaired (replaced) up to April 30, 2011. Please,		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		specify the project activities in the reporting period.		
93	What is the status of operation of the project during the monitoring period?	The Project was operational for the whole monitoring period, which is 01/08/2011 – 31/01/2012.	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, the monitoring was carried out 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. **CAR 03.** The name of the methodology the elements of which are used to set the baseline is incorrect. Please, make relevant corrections. **CAR 04.** A specific approach based on the methodology AM0023 version 3.0 approved by the Clean Development Mechanism Executive Committee was used in the project when determining the baseline. Please provide reference to the methodology in the MR.	**CAR 03** **CAR 04**	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)-	To calculate the emission reductions such key factors as the rate of gas leakage for each leakage found, gas temperature ands	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(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?	pressure, volume of capacity, the concentration of methane in the sample, the time for 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 the sphere of gas transportation and supply, 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.		
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, such as measuring equipment - gas analyzer “EX-TEC® SR5”, stop-watch timer "SOS pr-2b-2”, mercury glass thermometer of TL-4 type, flow meter, manometer “D-59N-100-1.0 6kPa”; information from manufacturers and IPCC are clearly identified, reliable and transparent. **CAR 05.** Please, specify the baseline,	**CAR 05** **CL 01**	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		project emissions and emission reductions in t CO_2 equivalent. **CL 01.** Total values of project GHG emissions, baseline GHG emissions and GHG emission reductions that are stated in the MR don't coincide with the values stated in Appendix A to the MR. Please justify this inconsistency.		
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. **CAR 06.** Please specify correct data units of parameters, that are used in calculations of GHG emissions and specified in Table 3 of the MR.	**CAR 06**	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	Calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	manner?			
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	N/a	N/a	N/a
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/a	N/a	N/a
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/a	N/a	N/a
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?			
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	The monitoring plan was not reviewed by the project participants.	OK	OK
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 monitoring plan, including the quality control and quality assurance procedures?	Yes, the implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures. **CAR 07.** Please, provide the description of data quality control procedure.	**CAR 07**	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	Yes, the function of the monitoring equipment, including its calibration status is in order. **CAR 08.** Please in the MR provide a detailed description by which device the monitoring measurement of methane leaks is carried out. **CAR 09.** Please provide the passport of the portable gas analyzer EX-TEX ® SR5, mercury glass thermometer of TL4 type and manometer D-59N-100-1.0 6 kPa, which are indicated in the MR. **CL 02.** Please specify error range of gas analyzer EX-TEC® SR5.	**CAR 08** **CAR 09** **CL 02**	OK OK OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Yes, the evidence and records used for the monitoring are maintained in a traceable manner	OK	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The data collection and management system of the project is in accordance with the monitoring plan. Verification team confirms the effectiveness of existing management system and operating system and considers them suitable for reliable monitoring of the	**CL 03**	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		project. **CL 03.** Please check the numbering of tables and Figures in the MR.		
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/a	N/a	N/a
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/a	N/a	N/a
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/a	N/a	N/a
104	Does the monitoring period not overlap with previous monitoring periods?	N/a	N/a	N/a
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/a	N/a	N/a
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that:	N/a	N/a	N/a

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	(i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI Project. Such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: − The types of JPAs; − The complexity of the applicable technologies and/or measures used; − The geographical location of each JPA; − The amounts of expected emission reductions of the JPAs being verified; − The number of JPAs for which emission reductions are being verified; − The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	through the secretariat along with the verification report and supporting documentation?			
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
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

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
CAR 01. The name of organization that issued the Letter of Approval from the party – buyer (Denmark) is incorrect in the Ukrainian version of the MR. Please, make corrections.	90	The project was approved by the State Environmental Investment Agency of Ukraine (Letter of Approval №737/23/7 dated 07/06/2010) and the Danish Energy Agency of the Danish Ministry of Climate and Energy (Letter of Approval №1602/1102-0041 dated 01/06/2010).	The issue is closed based on the necessary changes made.

CAR 02. Table 1 of the Monitoring report contains information about the number of shut-down devices that were repaired (replaced) up to April 30, 2011. Please, specify the project activities in the reporting period.	92	The project boundary included the total of 11174 shut-down devices. For the period from the beginning of the project implementation (2005) to the beginning of the reporting period all shut-down devices included in the project boundary were repaired and replaced. The project activities for the current monitoring period (August 1, 2011 – January 31, 2012) are further carrying out of purposeful examination and technical maintenance (PETM) of all gas equipment of gas distribution networks, which was repaired (hermetically sealed) and replaced during all JI project operation time.	Information was provided, the issue is closed.
CAR 03. The name of the methodology the elements of which are used to set the baseline is incorrect. Please, make relevant corrections.	94	A specific approach based on the methodology AM0023 version 3.0 “Leak reduction from natural gas pipeline compressor or gate stations” approved by the Clean Development Mechanism Executive Committee was used. Corrections were made in the MR.	Corrections are accepted. The issue is closed.

CAR 04. A specific approach based on the methodology AM0023 version 3.0 approved by the Clean Development Mechanism Executive Committee was used in the project when determining the baseline. Please provide reference to the methodology in the MR.	94	Required references were provided in the MR version 02.	The references were checked, the issue is closed.
CAR 05. Please specify the baseline, project emissions and emission reductions in t CO_2 equivalent.	95 (b)	Necessary corrections were made in the MR version 02.	The issue is closed based on the necessary changes made.
CAR 06. Please specify correct data units of parameters, that are used in calculations of GHG emissions and specified in Table 3 of the MR.	95 (c)	Corrections were made in Table 3 of the Monitoring report of version 02.	Corrections are accepted, the issue is closed.

CAR 07. Please, provide the description of data quality control procedure.	101 (a)	Monitoring methane measurements are carried out in each of the administrations of gas facilities operation (AGFO) in Odesa region. Monitoring measurements are made by specifically trained personnel according to the Methodology of conducting measurements. Data from conducted monitoring measurements directly when making measurements are recorded on paper. Then, based on data on paper according to the measurements each AGFO makes electronic databases, which are sent to the central office and kept in a single database of monitoring measurements of leakage. The regular repairs of shut-down devices at gas distribution networks of PJSC "Odesagas" are done once per year, technical maintenance – once per half year. Repaired (hermetically sealed) and replaced in previous periods shut-down devices are regularly checked as a part of a standard monitoring program to make sure they have not become the source of leakage again.	The issue is closed based on the provision of necessary information.

CAR 08. Please in the MR provide a detailed description by which device the monitoring measurement of methane leaks was carried out.	101 (b)	For monitoring leakage measurement a special installation for the quantitative measurement of methane leakage based on plastic container of known volume (0.87 m^3), package, plastic hose and manometer was made. A detailed description is provided in the Monitoring report version 02.	The issue is closed based on information provided in the MR version 02.
CAR 09. Please provide the passport of the portable gas analyzer EX-TEX ® SR5, mercury glass thermometer of TL4 type and manometer D-59N-100-1.0 6 kPa, which are indicated in the MR.	101 (b)	Passports of equipment were provided to the verification team.	The documents were reviewed, the issue is closed.
CL 01. Total values of project GHG emissions, baseline GHG emissions and GHG emission reductions that are stated in the MR don't coincide with the values stated in Appendix A to the MR. Please justify this inconsistency.	95 (b)	This inconsistency is connected with rounding of calculations in Appendix A (Excel).	The issue is closed based on the information provided.
CL 02. Please specify error range of gas analyzer EX-TEC® SR5.	101 (b)	Relative error range of gas analyzer EX-TEC® SR5 is 10%, which corresponds to standard EN 50054/57. The device is calibrated annually.	The issue is closed based on provided information.
CL 03. Please check the numbering of tables and Figures in the MR.	101 (d)	Appropriate corrections were made in the MR version 02.	The issue is closed based on the changes made.