



VERIFICATION REPORT

OJSC ODESAGAS

VERIFICATION OF THE  
REDUCTION OF NATURAL GAS EMISSIONS AT OJSC "ODESAGAS" GATE STATIONS AND GAS  
DISTRIBUTION NETWORKS

(FIRST PERIODIC 2008)

Report No. UKRAINE 0084/2009  
REVISION No. 01

BUREAU VERITAS CERTIFICATION HOLDING SAS



VERIFICATION REPORT

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| Date of first issue<br><b>25/12/2009</b> | Company:<br><b>Bureau Veritas Certification Holding SAS</b> |
| Client:<br><b>OJSC Odesagas</b>          | Client's representative:<br><b>Vitaliy Gerasimenko</b>      |

**Summary:**  
 Bureau Veritas Certification has made the determination of the «Reduction of natural gas emissions at OJSC “Odesagas” gate stations and gas distribution networks» project located in Odessa region, Ukraine, on the basis of UNFCCC criteria and local criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting.  
 The verification scope is defined as a periodic independent review and 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 Report, Project Design Documents 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 verification process was conducted in the period from December 16<sup>th</sup> to 26<sup>nd</sup>, 2009. 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 as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements.  
 Our opinion relates to the project’s GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. The quantity of emission reductions received by the JI project implementation is 242297,20 t CO2 equivalents for the period from 01/01/2008 to 31/12/2008.  
 Flavio Gomes, the Bureau Veritas Certification Holding SAS Global Product Manager for Climate Change, approved final version of the Verification Report. Bureau Veritas Certification Holding SAS authorized to sign report Ivan Sokolov, Bureau Veritas Certification Holding SAS Local product manager for Climate Change in Ukraine.

|  |                             |
|--|-----------------------------|
| Report No.<br><b>UKRAINE 0084/2009</b>   | Subject Group:<br><b>JI</b> |
| Title of the project:<br><b>Reduction of natural gas emissions at OJSC “Odesagas” gate stations and gas distribution networks</b>                                    |                             |
| Work carried out by:<br><b>Flavio Gomes - Team leader, Lead Verifier<br/>Nadiya Kaiun - Team member, Lead Verifier<br/>Kateryna Zinevych - Team member, Verifier</b> |                             |
| Work verified by:<br><b>Ivan Sokolov – Internal technical reviewer</b>   |                             |
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**Indexing terms**

**Climate Change, Kyoto Protocol, JI, Emission Reductions, Verification**

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## Abbreviations

|                 |   |
|-----------------|---|
| AIE             | Accredited Independent Entity                         |
| BVCH            | Bureau Veritas Certification Holding SAS              |
| CAR             | Corrective Action Request                             |
| CGDP            | Cabinet Gas-Distribution Posts                        |
| CL              | Clarification Request                                 |
| CO <sub>2</sub> | Carbon Dioxide  |
| ERU             | Emission Reduction Unit                               |
| FAR             | Forward Action Request                                |
| GHG             | Green House Gas(es)                                   |
| GDP             | Gas-Distribution Posts                                |
| IETA            | International Emissions Trading Association           |
| JI              | Joint Implementation                                  |
| JISC            | JI Supervisory Committee                              |
| MoV             | Means of Verification                                 |
| MP              | Monitoring Plan                                       |
| OJSC            | Open Joint Stock Company                              |
| PCF             | Prototype Carbon Fund                                 |
| PDD             | Project Design Document                               |
| UNFCCC          | United Nations Framework Convention on Climate Change |




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## 1. INTRODUCTION

OJSC Odesagas has commissioned Bureau Veritas Certification Holding SAS to verify the emissions reductions of its JI project "Reduction of natural gas emissions at OJSC "Odesagas" gate stations and gas distribution networks" in Odessa city and Odessa region, Ukraine, according to UNFCCC requirements and host party requirements to JI.

This report summarizes the findings of the verification of reductions, performed on the basis of criteria given to provide for consistent project operations, monitoring and reporting, and contains a statement for the verified emission reductions. The order includes the initial and first periodic verification of the project.

The report is based on the Initial Verification Report Template Version 3.0, December 2003, and on the Periodic Verification Report Template Version 3.0, December 2003, both contained in the Validation and Verification Manual (VVM) published by International Emission Trading Association (IETA).

First periodic verification have been performed. It was based on analysis of project documents including PDD, monitoring plan, determination report, monitoring report and further documentation. Project determination was performed by Bureau Veritas Certification Holding SAS. Determination results are given in the report: "Determination of the project "Reduction of natural gas leakages at the shut-off stations and natural gas networks of OJSC Odesagas", Ukraine", as of December 12, 2009. The project is approved by the National Environmental Investments Agency of Ukraine and Ministry of Climate and Energy Danish Energy Agency (Letters of Approval are attached).

### 1.1 Objectives

Verification is the periodic independent review and ex post determination by the 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.

**Initial Verification:** The objective of an initial verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions. A separate initial verification prior to the project entering into regular operations is not a mandatory requirement.

**Periodic Verification:** The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; furthermore the periodic verification evaluates



the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is free of material misstatements; and verifies that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records. If no prior initial verification has been carried out, the objective of the first periodic verification also includes the objectives of the initial verification.

The verification follows UNFCCC criteria referring to the Kyoto Protocol criteria, the JI rules and modalities, and the subsequent decisions by the JISC, as well as the host country criteria.

## 1. 2 Scope of Verification

Verification scope is defined as an independent and objective review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and on determination of the PDD including analysis of the project's baseline, monitoring plan and other relevant documents. Information in these documents is reviewed in accordance with UNFCCC and Kyoto Protocol requirements. Bureau Veritas Certification used recommendations contained in Validation and Verification Manual for evaluation of project risks and generation of emissions reduction units (ERU).

Verification was intended to check project monitoring system for precise assessment of GHG emission reductions.

Verification team worked with Monitoring Reports, rev. 1 (dated 16/12/2009) and rev. 2 (25/12/2009), reflecting the period from January 01, 2008 to December 31, 2008 inclusive.

## 1.3 Description of the project

OJSC Odesagas is the company uniting gas supply facilities of 26 districts in Odessa region and gas supply facility in Odessa, and providing natural gas transportation and supply to industrial and domestic consumers. OJSC Odesagas controls 1917 gas-distribution posts and cabinet gas-distribution posts, among them 1851 (GDP, CGDP) are the OJSC Odesagas property. The structure of current gas transport rates 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 objects of OJSC Odesagas.

At the moment OJSC Odesagas only detects leakages with the help of detectors according to the Ukrainian Gas Supply System Safety Rules in

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order to avoid emergency and explosive situations. Measurement of the leakage volume, its registration and accounting are not performed, and appropriate measuring devices are missing. According to the conducted research leakage volume of natural gas for OJSC Odesagas can make 41 million m<sup>3</sup> per year.

The main goal of the project is reduction of natural gas leakages in gas distribution posts and in cabinet gas distribution posts, which will result in reduction of methane emissions into the air, which is a greenhouse gas. The main sources of leakage are junctions of the elements of gas-distribution posts and cabinet gas-distribution posts. Many connecting parts of GDP and CGDP require repair in the result of quick wear of compactor elements. Within the scope of the project for repair of GDP and CGDP equipment, for the purpose of leakage elimination, modern compacting materials will be used, replacing service and repair practice based on rubberized asbestos fabric and rubber gaskets, and compacting padding made of cotton fiber with fat soakage and asbestos graphite filler, which results in additional methane leakage, which is a greenhouse gas.

The project activity includes:

- Implementation of purposeful examination and technical maintenance (PETM) of gas-distribution posts and cabinet gas-distribution posts – modern and economically most efficient practice, which allows not only detection of leaking areas, but also determination of leakage volume (i.e., potential volume of gas leakage reduction. This is a key information for substantiation of types of repair and priority choice of its objects, which is important under short financing for elimination of all leakages. This activity will include purchase and calibration of modern measuring equipment, appropriate training of employees, development of monitoring map 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 system for elimination and accounting of methane leakage.
- Detection and measurement of leakage: monitoring system of leakages, including eliminated leakages (repaired equipment components) will be exercised on a regular basis (once in four days or once in a week, depending on the type of equipment) by specially trained personnel. Each component will be checked according to the monitoring map, and detected leakage will be duly marked with individual number; gas leakage volumes will be measured and registered in the database.
- Elimination of all detected leakages: repair of leaking junctions of GDP and CGDP elements within the scope of this project will vary from replacement of gaskets and wedge plugs, use of new sealants or



compacting materials, to capital repair and replacement of safety valves of pressure regulators, piston rods, installation of natural gas gauges. Repaired GDP and CGDP equipment components will be regularly checked as a part of a standard monitoring program (see above) to make sure they have not become the source of leakage again.

Duration of the project is not limited, as PETM, monitoring and leakage elimination programs are aimed to become a part of work of OJSC Odesagas. Reduction of emissions equivalent to CO2 is stated for period of crediting 18 years according to modality and Joint Implementation Procedures.

## 2 METHODOLOGY

Verification included preliminary analysis of documents, examination of objects under the project, and active communication with selected experts and stakeholders' representatives.

Verification Protocol is a part of verification.

According to the Validation and Verification Manual (IETA/PCF) a verification protocol is attached to the project, which guarantees transparency of verification process. The protocol shows, in a transparent manner, verification criteria, means of verification and the results of criteria verification. Verification protocol solves the task of specification and explanation of requirements to the project.

It ensures a transparent verification process.

Verification protocol consists of one table under Initial Verification checklist and four tables under Periodic verification checklist. Different columns in these tables are described in Figure 1.

The overall verification in accordance with Verification Agreement was conducted using Bureau Veritas Certification procedures.

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

| Initial Verification Protocol Table 1 |                 |                |                           |
|---------------------------------------|-----------------|----------------|---------------------------|
| Objective                             | Reference       | Comments       | Conclusion (CARs/FARs)    |
| The requirements                      | Gives reference | Description of | This is either acceptable |



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|                       |                                    |                |  |  |
|-----------------------|------------------------------------|----------------|--|--|
| the project must meet | to where the requirement is found. | the conclusion | circumstances and further comments on the conclusion | based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance of the stated requirements. Forward Action Request (FAR) indicates essential risks for further periodic verifications. |
|-----------------------|------------------------------------|----------------|--|--|

**Periodic Verification Checklist Protocol Table 2: Data Management System/Controls**

| Identification of potential reporting risk   | Identification, assessment and testing of management controls  | Areas of residual risks   |
|--|--|---|
| The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table. | A score is assigned as follows: <ul style="list-style-type: none"> <li>• Full - all best-practice expectations are implemented.</li> <li>• Partial - a proportion of the best practice expectations is implemented</li> <li>• Limited - this should be given if little or none of the system component is in place.</li> </ul> | Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non compliance with stated requirements. The corrective action requests are numbered and presented to the client in the verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications. |

**Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing**

| Identification of potential | Identification, assessment | Areas of residual |
|-----------------------------|----------------------------|-------------------|
|-----------------------------|----------------------------|-------------------|



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| <b>reporting risk</b>  | <b>and testing of management controls</b>   | <b>risks</b>   |
|--|---|--|
| <p>Identify and list potential reporting risks based on an assessment of the emission estimation procedures, i.e.</p> <ul style="list-style-type: none"> <li>➤ the calculation methods,</li> <li>➤ raw data collection and sources of supporting documentation,</li> <li>➤ reports/databases/information systems from which data is obtained.</li> </ul> <p>Identify key source data. Examples of source data include metering records, process monitors, operational logs, laboratory/analytical data, accounting records, utility data and vendor data. Check appropriate calibration and maintenance of equipment, and assess the likely accuracy of data supplied.</p> <p>Focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include:</p> <ul style="list-style-type: none"> <li>➤ manual transfer of data/manual calculations,</li> <li>➤ unclear origins of data,</li> <li>➤ accuracy due to</li> </ul> | <p>Identify the key controls for each area with potential reporting risks. Assess the adequacy of the key controls and eventually test that the key controls are actually in operation.</p> <p>Internal controls include (not exhaustive):</p> <ul style="list-style-type: none"> <li>➤ Understanding of responsibilities and roles</li> <li>➤ Reporting, reviewing and formal management approval of data;</li> <li>➤ Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc.</li> <li>➤ Controls to ensure the arithmetical accuracy of the GHG data generated and accounting records e.g. internal audits, and checking/ review procedures;</li> <li>➤ Controls over the computer information systems;</li> <li>➤ Review processes for identification and understanding of key process parameters and implementation of calibration maintenance</li> </ul> | <p>Identify areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks</p> <p>Areas where data accuracy, completeness and consistency could be improved are highlighted.</p> |



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| <p>technological limitations,</p> <ul style="list-style-type: none"> <li>➤ lack of appropriate data protection measures? For example, protected calculation cells in spreadsheets and/or password restrictions.</li> </ul> | <p>regimes</p> <ul style="list-style-type: none"> <li>➤ Comparing and analysing the GHG data with previous periods, targets and benchmarks.</li> </ul> <p>When testing the specific internal controls, the following questions are considered:</p> <ol style="list-style-type: none"> <li>1. Is the control designed properly to ensure that it would either prevent or detect and correct any significant misstatements?</li> <li>2. To what extent have the internal controls been implemented according to their design;</li> <li>3. To what extent have the internal controls (if existing) functioned properly (policies and procedures have been followed) throughout the period?</li> <li>4. How does management assess the internal control as reliable?</li> </ol> |  |
|--|---|--|

| <b>Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing</b> |  |   |
|---|--|---|
| <b>Areas of residual risks</b>  | <b>Additional verification testing performed</b>                                 | <b>Conclusions and Areas Requiring Improvement (including Forward Action Requests)</b>  |
| List the residual areas of risks (Table 2 where detailed audit  | The additional verification testing performed is described. Testing may include: | Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties should be highlighted. |



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|--|--|---|
| <p>testing is necessary. In addition, other material areas may be selected for detailed audit testing.</p> | <ol style="list-style-type: none"> <li>1. Sample cross checking of manual transfers of data</li> <li>2. Recalculation</li> <li>3. Spreadsheet 'walk throughs' to check links and equations</li> <li>4. Inspection of calibration and maintenance records for key equipment                         <ul style="list-style-type: none"> <li>➤ Check sampling analysis results</li> <li>➤ Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</li> </ul> </li> </ol> | <p>Errors and uncertainty can be due to a number of reasons:</p> <ul style="list-style-type: none"> <li>➤ Calculation errors. These may be due to inaccurate manual transposition, use of inappropriate emission factors or assumptions etc.</li> <li>➤ Lack of clarity in the monitoring plan. This could lead to inconsistent approaches to calculations or scope of reported data.</li> <li>➤ Technological limitations. There may be inherent uncertainties (error bands) associated with the methods used to measure emissions e.g. use of particular equipment such as meters.</li> <li>➤ Lack of source data. Data for some sources may not be cost effective or practical to collect. This may result in the use of default data which has been derived based on certain assumptions/conditions and which will therefore have varying applicability in different situations.</li> </ul> <p>The second two categories are explored with the site personnel, based on their knowledge and experience of the processes. High risk process parameters or source data (i.e. those with a significant influence on the reported data, such as meters) are reviewed for these uncertainties.</p> |
|--|--|---|

| <b>Verification Protocol Table 5: Resolution of Corrective Action and Clarification Requests</b>  |  |  |  |
|---|--|--|--|
| <b>Report clarifications and corrective action requests</b>   | <b>Ref. to checklist question in tables 2/3</b>  | <b>Summary of project owner response</b>   | <b>Verification conclusion</b>   |
| If the conclusions from the Verification are either a Corrective Action Request or a Clarification Request, these should be listed in this section. | Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained. | The responses given by the Client or other project participants during the communications with the verification team should be summarized in this section. | This section should summarize the verification team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion". |

**Figure 1 Verification protocol tables**

## 2.1 Review of Documents

The Monitoring Report (MR) version 1 submitted by OJSC Odesagas and additional background documents related to the project design and baseline, i.e. Laws of Ukraine, Project Design Documents (PDD), applied methodology, have been reviewed in accordance with Kyoto Protocol requirements and Clarifications on Verification Requirements determined by a Designated Operational Entity.

The verification findings presented in this report relate to the project as described in the PDD version 06 and project Monitoring Report version 01.

According results of verification the Monitoring Report version 02 dated 25.12.2009 was issued by the project participants as a final version.

## 2.2 Stakeholders' comments

On 22/12/2009 Bureau Veritas Certification Holding SAS performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of OJSC Odesagas were interviewed. The main topics of the interviews are summarized in the Table 1.1.

**Table 1.1 Interview topics**

| <b>Interviewed organization</b>                       | <b>Interviews Topics</b>  |
|---|---|
| OJSC Odesagas   | Organizational structure.<br>Responsibilities and authorities.<br>Training of personnel.<br>Quality management procedures and technology.<br>Rehabilitation /Implementation of equipment (records).<br>Metering equipment control.<br>Metering record keeping system, database. |
| Local Stakeholders:<br>Heating Network Administration | Social impacts.<br>Environmental impacts.   |
| Consultant:<br>ITI Biotekhnika UAAN                   | Baseline methodology.<br>Monitoring plan.<br>Monitoring report.<br>Deviations from PDD.   |

Bureau Veritas Certification published the project documents on the website (<http://www.bureauveritas.com/>) on 25/12/2009 and invited comments within 09/01/2010 by Parties, stakeholders and non-governmental organizations.

### **2.3 Answers to Clarification Requests (CL), Corrective Action Requests (CAR) and Forward Action Requests (FAR)**

The objective of this phase of the verification is to review the answers to Clarification Requests, Forward Action Requests and any other ones required for Bureau Veritas Certification to make a positive conclusion on the GHG emission reduction calculation.

Findings established during the initial verification can either be seen as a non-fulfillment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CAR):

- i) there is a clear deviation from the implementation of the project as defined by the PDD;
  - ii) requirements to the MP have not been met;
  - iii) there is a risk that the project would not be able to deliver (high quality) ERUs.
- Forward Action Requests (FAR) are issued, where:



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- iv) the actual status requires a special focus on this item for the next consecutive verification, or
- v) an adjustment of the MP is recommended.

The verification team may also use the term Clarification Request (CL), which would be where:

- vi) additional information is needed to fully clarify an issue.

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 FINDINGS**

In the following sections, the findings of the verification are stated. The verification findings for each verification subject are presented as follows:

- 1) The findings from the desk review of the original project activity documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Verification Protocol in Appendix A.
- 2) The conclusions for verification subject are presented.

In the final verification report, the discussions and the conclusions that followed the preliminary verification report and possible corrective action requests should also be encapsulated in this section.

#### **3.1 Remaining issues CAR's, FAR's from previous determination/verification**

A task of verification is to check the remaining issues from the previous determination or issues which are clearly defined for assessment in the PDD. The determination report prepared by Bureau Veritas Certification notes following open issues.

##### **CAR N 1:**

There is no evidence of written project approvals by the Parties involved  
Remains unsolved by the time of issuance of letters of approval by the Parties involved

##### **Answer**

Letter of Approval #1566/23/7 was issued by the National Agency of Ecological Investments of Ukraine from 25<sup>th</sup> of December 2009. The Letter of



Approval from the Ministry of Climate and Energy Danish Energy Agency #1602/1102-0023 was issued 21<sup>st</sup> of December 2009 (see References).

### Conclusion of the verification team

Evidencing documents were provided to verifiers and were found satisfactory.

## 3.2 Project implementation

### 3.2.1 Discussion

The scrutiny of a proper implementation of a project is a key issue of an Initial Verification.

Jl project is implemented at gas-distribution stations of OJSC Odesagas, included to the project. List of performed works under the Project is given in the table below.

| No.  | Measures   | Quantity of performed works units | Beginning of construction | Commissioning |
|------|--|-----------------------------------|---------------------------|---------------|
| 2008 |  |                                   |                           |               |
| 1    | Reconstruction and hermetization of GDP (CGDP, etc.) | 184 units                         | April 2008                | July 2008     |

Table 1.2. Implementation status (in accordance with the PDD version 06).

Changes to the Project implementation plan related to the amount of the reconstructed and pressurized objects (GDP, CGDP). To achieve determined in the PDD emission reductions it was planned to the reconstruct and pressurize till 2008 705 objects. However due to insufficient financing only 617 objects (GDP, CGDP) were reconstructed and pressurized.

List of objects which have passed reconstruction is given in Appendix A.

### 3.2.2 Findings

Outstanding questions connected with baseline and additionality are given in Table 5 below (See CL1).

### 3.3 Internal and External Data

#### 3.3.1 Discussion

Specifications used in calculation of methane emission reductions are listed in the table 1.3 below.

| Identification number | Variable data | Sources of data   | Form of data received (electronic/on paper) | Comments   |
|-----------------------|---------------|---|---|--|
| 1. i                  | Number        | Detected leakage was eliminated and then measured again                 | Electronic                                  | Detected leakage is awarded a respective No. according to specially created GDP Equipment Logbook  |
| 2. Ti                 | Time          | Number of hours of equipment operation by the time leakage was detected | Electronic                                  | Number of hours of equipment operating during the year after its replacement (repair)  |
| 3.                    | Date          | Reconstruction and monitoring data                                      | Electronic                                  | Date of reconstruction used together with the number of hours of equipment operation to determine general number of hours of operation. Should leaks be repeated, it |



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|           |                          |  |            |   |
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|           |                          |  |            | is taken the same as the date of last inspection which showed the absence of leakage  |
| 4. GWPCH4 | Global warming potential | IPCC   | Electronic | Project developer will conduct monitoring of any potential changes caused by global warming for methane, published by IPCC and approved by COP  |
| 5. FCH4,i | Leak speed               | Methane leak speed for each detected leakage | Electronic |   |
| 6.        | Temperature and pressure | Gas temperature and pressure                 | Electronic | Measured for determination of CH4 density<br>Note:<br>Notwithstanding measurements, many variants are not expected as pressure and temperature at different stations are taken constant |
| 7. URi    | Equipmen                 | Information                                  | Electronic | Where   |



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|                      |  |                                     |                      |   |
|----------------------|--|-------------------------------------|----------------------|---|
|                      | t<br>uncertain<br>y factor;<br>measurem<br>ent of<br>leakage | manufactur<br>er and/or<br>IPCC GPG |                      | possible, 95%<br>confidence<br>interval is<br>evaluated;<br>advice of<br>management<br>board given in<br>section 6 2000<br>IPCC of GPG If<br>manufacturer<br>of equipment<br>where leaks<br>are measured<br>specifies<br>uncertainty<br>range without<br>specification of<br>confidence<br>interval, it can<br>be taken 95% |
| 8. $V_{bag}$         | Reservoir<br>capacity  | Measureme<br>nt data                | Electronic and paper | Reservoir is<br>filled in with<br>water. Amount<br>of water<br>measured by<br>flow meter will<br>be reservoir<br>capacity<br>Measurement<br>showed that<br>reservoir<br>capacity is 0.87<br>$m^3$ .   |
| 9. $w_{sampleCH4,i}$ | Methane<br>concentrat<br>ion in<br>sample                    | Measureme<br>nt reports             | Electronic           | Methane<br>concentration<br>in sample (in<br>reservoir) of<br>leak $i$ is the<br>difference<br>between<br>methane<br>concentration  |



|               |      |                     |            |   |
|---------------|------|---------------------|------------|---|
|               |      |                     |            | in the beginning and in the end of measurement Concentration is measured with gas analyzer EX-TEC® SR5.   |
| 10. <i>ti</i> | Time | Measurement reports | Electronic | Time during which methane concentration in reservoir reaches certain level is determined with stopwatch. Measurement starts from the moment the tap is opened on the tank cap and ends when methane concentration inside the reservoir reaches certain level. |

Table 1.3. Specifications used in calculation of GHG emissions.

### 3.3.2 Findings

Outstanding questions connected with baseline and additionality are given in Table 5 below (See CAR1, CL2, CL3).

### 3.3.3 Conclusion



Project complies with requirements.

### **3.4 Environmental and Social Indicators**

#### **3.4.1 Discussion**

No environmental and social indicators are defined in the monitoring plan.

The auditor team on site met a sample of local stakeholders. They expressed their deep appreciations for the project. As the project has brought sustainable development in to Odessa Region by means of implementation of activities for natural gas leaks reduction as well as improving of living comfort for population through improving of gas supply quality and safety, it will also have positive environmental impact.

#### **3.4.2 Findings**

None

#### **3.4.3. Conclusion**

The Project complies with Ukrainian Laws, and with the JI project requirements.

### **3.5 Management and Operational System**

#### **3.5.1 Discussion**

In order to ensure successful implementation of a project and the credibility and verifiability of the emissions reductions achieved, the project must have a well defined management and operational system.

Systems of administration, management and control of OJSC Odesagas are organized in accordance with the laws of Ukraine. The audit team knows the laws required for project implementation. The team has been provided with equipment descriptions and technological instructions. Operational instructions are in place. Inspection schedules are duly agreed as provided for by requirements of the law of Ukraine.

#### **3.5.2 Findings**

None



### 3.5.2 Conclusion

The Monitoring Report and the Management and Operational Systems are eligible for reliable project monitoring.

## 4 FIRST PERIODIC VERIFICATION FINDINGS

### 4.1 Completeness of Monitoring

#### 4.1.1 Discussion

The reporting procedures reflect the monitoring plan completely. It is confirmed that the monitoring report does comply with the monitoring methodology and PDD.

All 10 parameters were determined as prescribed. All reported parameters were determined. The complete data is stored electronically and documented. The necessary monitoring procedures defined in internal procedures and additional internal documents have been submitted for determination.

According to PDD version 06, emission reductions during 2008 monitoring period were expected 265000 t CO<sub>2</sub> e. According to Monitoring Report version 01 emission reductions achieved are **242297,20 t CO<sub>2</sub> e**. The difference in the emission reductions are explained as follows. The reductions expected in PDD are expected reductions, but due to the lack of financing project activities were not performed in full.

#### 4.1.2 Findings

None

#### 4.1.3 Conclusion

The project complies with all requirements.



## **4.2 Accuracy of Emission Reduction Calculation**

### **4.2.1 Discussion**

The verification team confirms that emission reduction calculations have been performed according to the Monitoring Plan and to the calculation methodology reported in the Section D.3.4. of the Monitoring Report version 01.

Calculation of methane leaks has taken into account possible error of devices used in measurement of leaks, and calculation uncertainty.

### **4.2.2 Findings**

None

### **4.2.3 Conclusion**

The project complies with all requirements.

## **4.3 Quality Evidence to Determine Emissions Reductions**

### **4.3.1 Discussion**

Verification of the calculation of emission reductions is based on internal data. The origin of those data was explicitly checked. Further on, processing of those data in the monitoring workbook Excel sheet was checked where predefined algorithms compute the net annual profit gained from the emission reductions. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for gas analyzers was performed.

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

### **4.3.2 Findings**

None

### **4.3.3 Conclusion**

The project complies with all requirements.

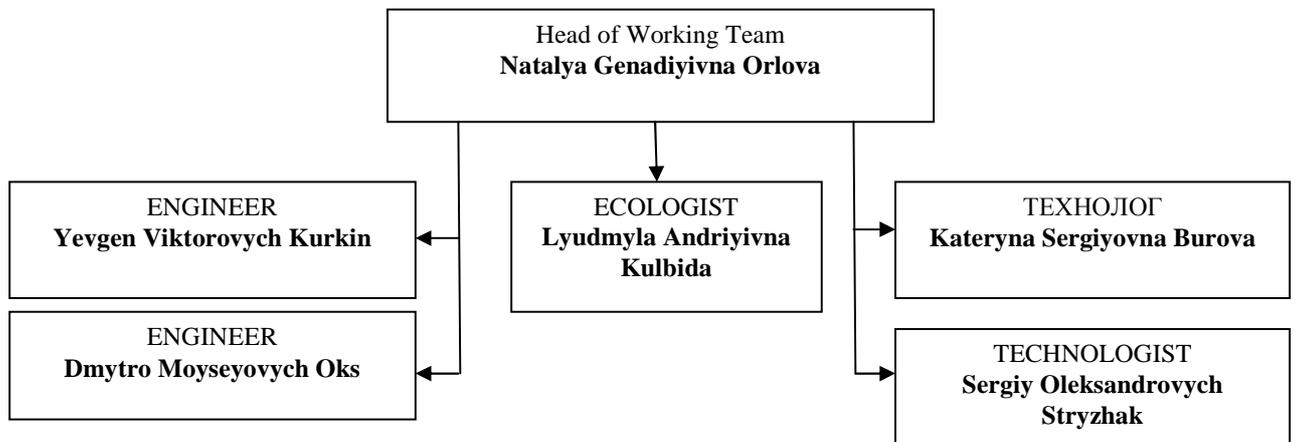
## **4.4 Management System and Quality Assurance**

### **4.4.1 Discussion**

Coordination of work of all departments and services of OJSC Odesagas



concerning project implementation is done by specially created Working team. The structure of Working team is shown on the Picture 3.



*Pic. 3 Structure of Working team*

Sergiy Oleksandrovych Stryzhak and Lyudmyla Andriyivna Kulbida are responsible for collection of all information provided for by 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 working team (Nataliya Genadiyivna Orlova) on the basis of received information determines 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. Control of data collection and processing and execution of Monitoring Report are done by ITI Biotekhnika UAAN.

## VERIFICATION REPORT

**4.4.2 Findings**

None

**4.4.3 Conclusion**

The project complies with all requirements.

**5 PROJECT SCORECARD**

| Risk Areas          |   | Conclusions        |                   |                                | Summary of findings and comments   |
|---------------------|---|--------------------|-------------------|--------------------------------|--|
|                     |   | Baseline Emissions | Project Emissions | Calculated Emission Reductions |  |
| <b>Completeness</b> | Source coverage/<br>boundary definition | ✓                  | ✓                 | ✓                              | All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently. |
| <b>Accuracy</b>     | Physical Measurement and Analysis       | ✓                  | ✓                 | ✓                              | State-of-the-art technology is applied in an appropriate manner. Appropriate backup solutions are provided.                        |
|                     | Data calculations                       | ✓                  | ✓                 | ✓                              | Emission reductions are calculated correctly   |
|                     | Data management & reporting             | ✓                  | ✓                 | ✓                              | Data management and reporting were found to be satisfying.   |
| <b>Consistency</b>  | Changes in the project                  | ✓                  | ✓                 | ✓                              | Results are consistent to underlying raw data.   |



## 6 FIRST PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification has performed a determination of Reduction of natural gas leakages at the shut-off stations and natural gas networks of OJSC Odesagas Project.

Verification was done in accordance with UNFCCC criteria and host party criteria.

OJSC 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 Monitoring and Verification Plan indicated in the PDD version 06, i.e.: project development and organization of data collection, and calculations and determination of GHG emission reductions.

Bureau Veritas Certification verified the project Monitoring Report version 01 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. Monitoring system is duly organized. The project is generating the GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. We confirm the following statement:

Reporting period: From 01/01/2008 to 31/12/2008  
Baseline emissions : 297447,12 t CO2 equivalents  
Project emissions : 55149,92t CO2 equivalents  
Emission Reductions : 242297,20 t CO2 equivalents

## 7 REFERENCES

### Category 1 Documents:

Main Documents directly relating to the project registration.

- /1/ PDD version 06, dated December 10, 2009
- /2/ Monitoring Report version 01, dated December 16, 2009



- /3/ Monitoring Report version 02, dated December 25, 2009
- /4/ Determination Report of Bureau Veritas Certification Holding SAS dated December 10, 2009
- /5/ Letter of Approval, National Agency of Ecological Investments of Ukraine, #1566/23/7 dated 25.12.2009.
- /6/ Ministry of Climate and Energy Danish Energy Agency #1602/1102-0023, dated 21.12.2009

### Category 2 Documents:

Background documents related to the project and/or methodology.

- /1/ Documents checked during the verification onsite are presented in Appendix B

### Persons interviewed:

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

- /1/ Vitaliy Oleksandrovykh Gerasymenko – the executive director of OJSC Odesagas
- /2/ Yakiv Lvovych Zatynaiko - the chief engineer of OJSC Odesagas
- /3/ Natalya Genadiyivna Orlova – VTV head of OJSC Odesagas
- /4/ Dmytro Moyseyovych Oks – head of VTV UEGG in Odessa of OJSC Odesagas
- /5/ Lyudmyla Andriyivna Kulbida - the LOP engineer of OJSC Odesagas
- /6/ Kateryna Sergiyivna Burova - the VTV engineer of OJSC Odesagas
- /7/ Sergiy Oleksandrovykh Stryzhak – head of SEUG and DV UEGG in Odessa of OJSC Odesagas
- /8/ V.Ya. Khodorchuk – scientist, secretary of ITI Biotekhnika UAAN.
- /9/ V.I. Dorovskykh – head of laboratory of ITI Biotekhnika UAAN, candidate of technical sciences
- /10/ M.K. Tsvigovsky – deputy head of department of ITI Biotekhnika UAAN, candidate of technical sciences
- /11/ Vyacheslav Vitaliyevych Ivchuk – Chief engineer of Odessa Interdistrict Department
- /12/ Sergiy Mykolayovych Korzhov – Chief engineer of Ananyev department



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- /13/ Valeriy Ivanovych Yakimchuk – Chief engineer of Berezivsky department
- /14/ Oleksandr Terentiyovych Ivanov – Chief engineer of Bolgrad department
- /15/ Oleksandr Mykolayovych Zhebrovsky – Chief engineer of Ivanivsky department
- /16/ Oleksandr Leontiyovych Bogovyk – Chief engineer of Ovidiopil department
- /17/ Andriy Oleksiyovych Shyshovsky – Head of permanent commission for realization of regulatory policy of Odessa municipal council
- /18/ Anatoliy Yuriyovych Ivanov – Deputy head of commission for fuel and power complex, energy saving and utility complex issues

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**8 APPENDIX A: JI PROJECT VERIFICATION PROTOCOL**

**Initial Verification Protocol  
Table 1**

| Objective                          | References           | Comments  | Conclusion (CARs/FARs) |
|------------------------------------|----------------------|---|------------------------|
| <b>1. Opening Session</b>          |                      |   |                        |
| <b>1.1. Introduction to audits</b> | <i>/1/, /2/, /3/</i> | <p>The intention and the target of the audit were illustrated to the participants of the audit. Participants at the audit were the following persons:</p> <p>Verification Team:</p> <p>Flavio Gomes<br/>Bureau Veritas Certification Leading Climate Change Verifier</p> <p>Nadiya Kaiun<br/>Bureau Veritas Certification Leading Climate Change Verifier</p> <p>Kateryna Zinevych<br/>Bureau Veritas Certification Climate Change Verifier</p> <p>Report checked by:<br/>Ivan Sokolov<br/>Bureau Veritas Certification Internal Technical Reviewer</p> <p>OJSC Odesagas employees:</p> | OK                     |



## VERIFICATION REPORT

| Objective | References | Comments  | Conclusion (CARs/FARs) |
|-----------|------------|---|------------------------|
|           |            | <p>Vitaliy Oleksandrovych Gerasymenko – the executive director of OJSC Odesagas</p> <p>Yakiv Lvovych Zatynaiko - the chief engineer of OJSC Odesagas</p> <p>Natalya Genadiyvna Orlova – VTV head of OJSC Odesagas</p> <p>Dmytro Moyseyovych Oks – head of VTV UEGG in Odessa of OJSC Odesagas</p> <p>Lyudmyla Andriyivna Kulbida - the LOP engineer of OJSC Odesagas</p> <p>Kateryna Sergiyivna Burova - the VTV engineer of OJSC Odesagas</p> <p>Sergiy Oleksandrovych Stryzhak – head of SEUG and DV UEGG in Odessa of OJSC Odesagas</p> <p>Designer's representatives:<br/>V.Ya. Khodorchuk – scientist, secretary of ITI Biotekhinka UAAN.</p> <p>V.I. Dorovskykh – head of laboratory of ITI Biotekhinka UAAN, candidate of technical sciences</p> <p>M.K. Tsvigovsky – deputy head of department of ITI</p> |                        |



## VERIFICATION REPORT

| Objective   | References           | Comments  | Conclusion (CARs/FARs) |
|---|----------------------|---|------------------------|
|   |                      | <p>Biotekhinka UAAN, candidate of technical sciences</p> <p>Public representatives:<br/>Andriy Oleksiyovych Shyshovsky – Head of permanent commission for realization of regulatory policy of Odessa municipal council</p> <p>Anatoliy Yuriyovych Ivanov – Deputy head of commission for fuel and power complex, energy saving and utility complex issues. Mykola Leonidovych Skoryk – Head of Odessa Regional Council.</p> |                        |
| <b>1.2. Clarification of access to data archives, records, plans, drawings etc.</b> | <i>/1/, /2/, /3/</i> | The verification team got open access to all required plans, data, records, drawings, diagrams and to all relevant facilities.  | OK                     |
| <b>1.3. Contractors for equipment and installation works</b>                        | <i>/1/, /2/, /3/</i> | Project has been implemented as defined in the PDD and the implementation is evidenced by statements of work completion.  | OK                     |
| <b>1.4. Actual status of installation works</b>                                     | <i>/1/, /2/, /3/</i> | Implementation of heating networks for elimination of leaks is carried out according to project plan. See section A.6 of Monitoring Report.   | OK                     |
| <b>2. Open issues indicated in validation report</b>                                |                      |   |                        |
| <b>2.1. Missing steps to final approval</b>   | <i>/4/</i>           | Based on the validation report the verification team identified no missing steps. The project has been approved by National   | OK                     |



## VERIFICATION REPORT

| Objective                                   | References           | Comments  | Conclusion (CARs/FARs) |
|---|----------------------|---|------------------------|
|   |                      | Environmental Investment Agency of Ukraine and by Ministry of Climate and Energy Danish Energy Agency.  |                        |
| <b>3. Implementation of the project</b>     |                      |   |                        |
| <b>3.1. Physical components</b>             | <i>/1/, /2/, /3/</i> | <p>Project has been implemented as defined in the PDD with some deviations, see cl. 1.4 and 3.1 of Verification Report.</p> <p>If reduction amount of methane leaks is 18826000 m<sup>3</sup> than amount of GHG emission reduction is 242293,33 t CO<sub>2</sub> eq. Amount of emission reduction that was provided in MR is 242297,20 t CO<sub>2</sub> eq. Please clarify this.</p> | CL1                    |
| <b>3.2. Project boundaries</b>              | <i>/1/, /2/, /3/</i> | Project boundaries are set as described in PDD.   | OK                     |
| <b>3.3. Monitoring and metering systems</b> | <i>/1/, /2/, /3/</i> | OJSC Odesagas has all relevant equipment for monitoring of specifications related to the project. All equipments are of reputed make. They are included in the structured calibration plans where they are periodically calibrated. The procedures documented for the equipment operation are in place.   | OK                     |
| <b>3.4. Data uncertainty</b>                | <i>/1/, /2/, /3/</i> | <p>All measuring equipment corresponds to the regulatory requirements on accuracy of meters and measurement deviations applicable in Ukraine.</p> <p>Verification team analyzed submitted documents characterizing metering devices. Types of devices are</p>   | OK                     |



## VERIFICATION REPORT

| Objective  | References           | Comments  | Conclusion (CARs/FARs) |
|--|----------------------|---|------------------------|
|  |                      | determined in the regulatory documents of Ukraine. Accuracy of devices is guaranteed by the manufacturer, possible error has been calculated and confirmed by device passport. Therefore, uncertainty level of measurements corresponds to technologies used, and is taken into account when taking data from the device.   |                        |
| <b>3.5. Calibration and quality assurance</b>            | <i>/1/, /2/, /3/</i> | All monitoring equipment is part of detailed calibration plan. The strict control is maintained over the calibration process. On the date of verification, Calibration records of the measuring and monitoring equipment has been verified at site. All the meters have been found to be calibrated regularly as per determined calibration plan for each site. The following remarks have been given.  | OK                     |
| <b>3.6. Data acquisition and data processing systems</b> | <i>/1/, /2/, /3/</i> | All measurements of methane leaks are done by operative team equipped as necessary. A program for initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas is executed for each object (gas distribution post) of measurement.<br>Sergiy Oleksandrovykh Stryzhak and Lyudmyla Andriyivna Kulbida are responsible for collection of all information provided for by 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 working team (Nataliya Genadiyivna Orlova) on the basis of received information determines plan of measures under the Project and scope of resources required. Technical maintenance of the Project is carried out by Dmytro Moyseyovych Oks and | OK                     |



## VERIFICATION REPORT

| Objective                                     | References           | Comments  | Conclusion (CARs/FARs) |
|---|----------------------|---|------------------------|
|   |                      | Yevgen Viktorovych Kurkin. Control of data collection and processing and execution of Monitoring Report are done by ITI Biotekhnika UAAN.   |                        |
| <b>3.7. Reporting procedures</b>              | <i>/1/, /2/, /3/</i> | The Monitoring Plan defines responsible persons for collection of the data required for GHG emission reduction calculations. Calculations are transparent and are filled in annually into a predefined Excel spreadsheet.   | OK                     |
| <b>3.8. Documented instructions</b>           | <i>/1/, /2/, /3/</i> | Monitoring report, section B, version 01 specifies procedure for data collection, archiving (including software use), and also reflects monitoring, metering and reporting procedures. This information was verified during the visit to OJSC Odesagas and is satisfactory. | OK                     |
| <b>3.9. Qualification and training</b>        | <i>/1/, /2/, /3/</i> | Refer to section 3.6 above.   | OK                     |
| <b>3.10. Responsibilities</b>                 | <i>/1/, /2/, /3/</i> | Refer to section 3.6 above.   | OK                     |
| <b>3.11. Troubleshooting procedures</b>       | <i>/1/, /2/, /3/</i> | Detection, liquidation and registration of failures and emergencies at gas-distribution posts of OJSC Odesagas is carried out according to Safety rules of gas-supply systems of Ukraine.   | OK                     |
| <b>4. Internal Data</b>                       |                      |   |                        |
| <b>4.1. Type and sources of internal data</b> | <i>/1/, /2/, /3/</i> | The internal parameters are obtained according to the monitoring plan.  | OK                     |



## VERIFICATION REPORT

| Objective                                    | References           | Comments   | Conclusion (CARs/FARs) |
|--|----------------------|--|------------------------|
| <b>4.2. Data collection</b>                  | <i>/1/, /2/, /3/</i> | <p>All measurements of methane leaks are done by operative team equipped as necessary. A program for initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas is executed for each object (gas distribution post) of measurement.</p> <p>Sergiy Oleksandrovych Stryzhak and Lyudmyla Andriyivna Kulbida are responsible for collection of all information provided for by 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 working team (Nataliya Genadiyivna Orlova) on the basis of received information determines 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. Control of data collection and processing and execution of Monitoring Report are done by ITI Biotekhnika UAAN.</p> | OK                     |
| <b>4.3. Quality assurance</b>                | <i>/1/, /2/, /3/</i> | <p>Monitoring report, section B, version 01 specifies procedure for data collection, archiving, and also reflects monitoring, metering and reporting procedures. This information was verified during the visit to OJSC Odesagas and is satisfactory. Monitoring procedures are absolutely effective.</p>  | OK                     |
| <b>4.4. Significance and reporting risks</b> | <i>/1/, /2/, /3/</i> | <p>All data are collected with periodicity established in the norms of monitoring plan. Record-keeping is controlled by the management bodies of OJSC Odesagas and by the representatives of ITI Biotekhnika UAAN. Probability of</p>  | OK                     |



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| Objective                                     | References           | Comments  | Conclusion (CARs/FARs) |
|---|----------------------|---|------------------------|
|   |                      | discrepancy in the report is rather low.  |                        |
| <b>5. External Data</b>                       |                      |   |                        |
| <b>5.1. Type and sources of external data</b> | <i>/1/, /2/, /3/</i> | External data are not used.   | OK                     |
| <b>5.2. Access to external data</b>           | <i>/1/, /2/, /3/</i> | Refer to 5.1  | OK                     |
| <b>5.3. Quality assurance</b>                 | <i>/1/, /2/, /3/</i> | Refer to 5.1  | OK                     |
| <b>5.4. Data uncertainty</b>                  | <i>/1/, /2/, /3/</i> | Refer to 5.1  | OK                     |
| <b>5.5. Emergency procedures</b>              | <i>/1/, /2/, /3/</i> | Refer to 5.1  | OK                     |
| <b>6. Environmental and Social Indicators</b> |                      |   |                        |
| <b>6.1. Implementation of measures</b>        | <i>/1/, /2/, /3/</i> | Environmental and social indicators are not defined in the monitoring plan. Hence the question is not applicable. But the public and staff representatives informed verification team during the audit that the project is of great importance as it implies reconstruction of gas-distribution posts, which will result in improvement of gas supply quality to consumers. No negative environmental impact is expected. | OK                     |



## VERIFICATION REPORT

| Objective                                   | References           | Comments  | Conclusion (CARs/FARs) |
|---|----------------------|---|------------------------|
| <b>6.2. Monitoring equipment</b>            | <i>/1/, /2/, /3/</i> | See chapter 6.1.  | OK                     |
| <b>6.3. Quality assurance procedures</b>    | <i>/1/, /2/, /3/</i> | See chapter 6.1.  | OK                     |
| <b>6.4. External data</b>                   | <i>/1/, /2/, /3/</i> | See chapter 6.1.  | OK                     |
| <b>7. Management and Operational System</b> |                      |   |                        |
| <b>7.1. Documentation</b>                   | <i>/1/, /2/, /3/</i> | The company complies with all legal and statutory requirements of the Ukraine and requirements of the verification team. OJSC Odesagas has all the necessary permissions and licenses, issued by the State Inspection on Labor Safety.  | OK                     |
| <b>7.2. Qualification and training</b>      | <i>/1/, /2/, /3/</i> | No special trainings for operation of new equipment are required. All trainings under the project were performed by equipment suppliers, and their cost is included to the cost of equipment.   | OK                     |
| <b>7.3. Allocation of responsibilities</b>  | <i>/1/, /2/, /3/</i> | All measurements of methane leaks are done by operative team equipped as necessary. A program for initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas is executed for each object (gas distribution post) of measurement.<br>Sergiy Oleksandrovykh Stryzhak and Lyudmyla Andriyivna Kulbida are responsible for collection of all information provided for by monitoring plan, and for making all necessary | OK                     |



## VERIFICATION REPORT

| Objective   | References           | Comments  | Conclusion (CARs/FARs) |
|---|----------------------|---|------------------------|
|   |                      | settlements. Archiving of all received information in the result of measurements and settlements is done under guidance of Kateryna Sergiyivna Burova. The head of working team (Nataliya Genadiyivna Orlova) on the basis of received information determines 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. Control of data collection and processing and execution of Monitoring Report are done by ITI Biotekhnika UAAN. |                        |
| <b>7.4. Emergency procedures</b>                  | <i>/1/, /2/, /3/</i> | Detection, liquidation and registration of failures and emergencies at gas-distribution posts of OJSC Odesagas is carried out according to Safety rules of gas-supply systems of Ukraine.   | OK                     |
| <b>7.5. Data archiving</b>                        | <i>/1/, /2/, /3/</i> | Data are stored on paper and in electronic form, and are archived in relative databased.  | OK                     |
| <b>7.6. Monitoring report</b>                     | <i>/1/, /2/, /3/</i> | Calculations are provided in Monitoring Report.   | OK                     |
| <b>7.7. Internal audits and management review</b> | <i>/1/, /2/, /3/</i> | <p>All information collected and processed by working team is verified by the executive director of OJSC Odesagas and representatives of INI Biotekhnika UAAN.</p> <p>Please clarify what is means a coefficient 0,95.</p> <p>Formulas in Appendix A and formulas in PDD of version 06 are different.</p>   | <p>CL2</p> <p>CAR1</p> |



VERIFICATION REPORT

| Objective | References | Comments                                    | Conclusion (CARs/FARs) |
|-----------|------------|---|------------------------|
|           |            | Please provide units measure in Appendix A. | CL3                    |



**Periodic Verification Checklist Protocol Table 2: Data Management System/Controls**

| Identification of potential reporting risk                                    | Identification, assessment and testing of management controls | Areas of residual risks   |
|---|---|---|
| <b>1. Defined organizational structure, responsibilities and competencies</b> |   |   |
| 1.1. Position and roles   | Full  | OJSC Odesagas employees:<br><br>Vitaliy Oleksandrovykh Gerasymenko – the executive director of OJSC Odesagas<br><br>Yakiv Lvovych Zatynaiko - the chief engineer of OJSC Odesagas<br>Natalya Genadiyivna Orlova – VTV head of OJSC Odesagas<br><br>Dmytro Moyseyovych Oks – head of VTV UEGG in Odessa of OJSC Odesagas<br><br>Lyudmyla Andriyivna Kulbida - the LOP engineer of OJSC Odesagas<br><br>Kateryna Sergiyivna Burova - the VTV engineer of OJSC |



VERIFICATION REPORT

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks   |
|--|---|---|
|  |   | <p>Odesagas</p> <p>Sergiy Oleksandrovykh Stryzhak – head of SEUG and DV UEGG in Odessa of OJSC Odesagas</p> <p>Designer’s representatives:<br/>                     V.Ya. Khodorchuk – scientist, secretary of ITI Biotekhinka UAAN.</p> <p>V.I. Dorovskykh – head of laboratory of ITI Biotekhinka UAAN, candidate of technical sciences</p> <p>M.K. Tsvigovsky – deputy head of department of ITI Biotekhinka UAAN, candidate of technical sciences</p> <p>Public representatives:<br/>                     Andriy Oleksiyovych Shyshovsky – Head of permanent commission for realization of regulatory policy of Odessa municipal council</p> <p>Anatoliy Yuriyovych Ivanov – Deputy head of commission for fuel and power complex, energy saving and utility complex issues</p> |



## VERIFICATION REPORT

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks  |
|--|---|--|
| <b>1.2. Responsibilities</b>               | Full  | Sergiy Oleksandrovych Stryzhak and Lyudmyla Andriyivna Kulbida are responsible for collection of all information provided for by 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 working team (Nataliya Genadiyivna Orlova) on the basis of received information determines 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. Control of data collection and processing and execution of Monitoring Report are done by ITI Biotekhnika UAAN. |
| <b>1.3. Competencies needed</b>            | Full  | All employees of OJSC Odesagas involved into the project have required qualification level and working experience in the area of gas supply.   |
| <b>2. Conformance with monitoring plan</b> |   |  |
| <b>2.1. Reporting procedures</b>           | Full  | The monitoring plan is as per the registered PDD. The project uses Monitoring Methodology provided for by methodology AM0023 "Reduction of natural gas emissions at compressor and gas-distribution stations of main gas lines", version 03.   |



VERIFICATION REPORT

| Identification of potential reporting risk         | Identification, assessment and testing of management controls | Areas of residual risks  |
|--|---|--|
|  |   |  |
| <b>2.2. Necessary Changes</b>                      | Full  | The project is implemented in accordance with the plan.  |
| <b>3. Application of GHG determination methods</b> |   |  |
| <b>3.1. Methods used</b>                           | Full  | The reporting procedures reflect the monitoring plan content. The calculation of the emission reduction is correct.  |
| <b>3.2. Information/process flow</b>               | Full  | All measurements of methane leaks are done by operative team equipped as necessary. A program for initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas is executed for each object (gas distribution post) of measurement. Sergiy Oleksandrovysh Stryzhak and Lyudmyla Andriyivna Kulbida are responsible for collection of all information provided for by 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 working team (Nataliya Genadiyivna Orlova) |




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| Identification of potential reporting risk                         | Identification, assessment and testing of management controls | Areas of residual risks   |
|--|---|---|
|  |   | on the basis of received information determines 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. Control of data collection and processing and execution of Monitoring Report are done by ITI Biotekhnika UAAN. |
| <b>3.3. Data transfer</b>  | Full  | Data are stored on paper and in electronic form, and are archived in relative databased.  |
| <b>3.4. Data trails</b>  | Full  | The necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the all the parameters listed in the monitoring plan.   |
| <b>4. Identification and maintenance of key process parameters</b> |   |   |
| <b>4.1. Identification of key parameters</b>                       | Full  | The critical parameters for the determination of GHG emissions are the parameters listed in section D of the approved PDD.  |
| <b>4.2. Calibration/maintenance</b>                                | Full  | The company maintains the elaborate calibration plan for each piece of the equipment. The audit team verified the status for all the equipment provided for by the JI project, and confirms them to be complying with the plan.   |




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| Identification of potential reporting risk       | Identification, assessment and testing of management controls | Areas of residual risks   |
|--|---|---|
| <b>5. GHG Calculations</b>                       |   |   |
| <b>5.1. Use of estimates and default data</b>    | Full  | All assumptions are given in section D of approved PDD.   |
| <b>5.2. Guidance on checks and reviews</b>       | Full  | Monitoring plan is fully performed.   |
| <b>5.3. Internal validation and verification</b> | Full  | Monitoring procedure for JI Project includes the responsibility and frequency for carrying out internal audits. The audit team did verify all the parameters listed in monitoring report. |
| <b>5.4. Data protection measures</b>             | Full  | The necessary procedures for ensuring data security and preventing the unauthorized use were shown to verifiers during on-site verification.  |
| <b>5.5. IT systems</b>                           | Повністю  | IT systems is an electronic network of OJSC Odesagas, computers and hard data carriers.   |

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| <b>Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing</b> |
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| Identification of potential reporting risk   | Identification, assessment and testing of management controls   | Areas of residual risks   |
|--|---|---|
| <p>Potential reporting risks based on an assessment of the emission estimation procedures can be expected in the following fields of action:</p> <ul style="list-style-type: none"> <li>➤ the calculation methods,</li> <li>➤ raw data collection and sources of supporting documentation,</li> <li>➤ reports/databases/information systems from which data is obtained.</li> </ul> <p>Key source data applicable to the project assessed are hereby:</p> <ul style="list-style-type: none"> <li>➤ metering records (gas and power consumption per heat generated),</li> <li>➤ process monitors (heat generation),</li> <li>➤ operational logs (metering records),</li> <li>➤ laboratory/analytical data (for energy content of fuels),</li> <li>➤ accounting records,</li> </ul> <p>Appropriate calibration and maintenance of equipment resulting in high accuracy of data supplied should be in place.</p> <p>It is hereby needed to focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include:</p> | <p>Regarding the potential reporting risks identified in the left column the following mitigation measures have been observed during the on-site mission:</p> <p>Understanding of responsibilities and roles.<br/>Collection of initial data and their transmission to databases.<br/>Metering equipment management system.<br/>Reporting, analysis and formal data approval by the management.</p> | <p>The areas of residual risks, I,e, the areas of potential risks without adequate means of control are used in a conservative manner in the reports according to the approach prescribed in the PDD.</p> |



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|--|--|--|
| <ul style="list-style-type: none"> <li>➤ manual transfer of data/manual calculations,</li> <li>➤ position of the metering equipment,</li> <li>➤ unclear origins of data,</li> <li>➤ accuracy due to technological limitations,</li> <li>• lack of appropriate data protection measures (for example, protected calculation cells in spreadsheets and/or password restrictions).</li> </ul> |  |  |
|--|--|--|

**Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing**

| Areas of residual risks   | Additional verification testing performed  | Conclusions and Areas Requiring Improvement (including Forward Action Requests)  |
|---|--|--|
| <p>The issue remaining is the way the data obtained is used to calculate the emission reduction in a conservative manner according to the approach prescribed in the PDD.</p> | <p>There has been a complete check of data transferred from daily consumption and generation readings to the calculation tool. There was no error in such transfer. The correct installation of the metering equipment can be confirmed.</p> | <p>Having investigated the residual risks, the audit team comes to the following conclusion:<br/>Immediate action is not needed with respect to the current emission reduction calculation. Those corrections have been considered during the verification process, so no residual risk is open.</p> |

**Verification Protocol Table 5: Resolution of Corrective Action and Clarification Requests**



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| Report clarifications and corrective action requests  | Ref. to checklist question in tables 2/3 | Summary of project owner response   | Verification conclusion  |
|---|--|---|--|
| <b>CL1:</b> If reduction amount of methane leaks is 18826000 m <sup>3</sup> than amount of GHG emission reduction is 242293,33 t CO <sub>2</sub> eq. Amount of emission reduction that was provided in MR is 242297,20 t CO <sub>2</sub> eq. Please clarify this. | Table 2, item 3.1                        | Amount of methane emission reduction that provided in MR is rounded value. The total amount of methane emission reduction is 18826300 m <sup>3</sup> . Monitoring Report is corrected (see Monitoring Report version 02, section A.3) | Monitoring Report version 02, section A.3 is checked. CL closed. |
| <b>CL2:</b> Please clarify what means a coefficient 0,95.   | Table 2, item 7.6                        | 0,95= 1 - UR <sub>i</sub> – confidence interval of measurement method (see. Table 1.2 of Monitoring Report). All necessary corrections were provided in Monitoring Report version 02.   | Monitoring Report version 02, section D is checked. CL closed.   |
| <b>CL3:</b> Please provide units measure in Appendix A.   | Table 2, item 7.6                        | All necessary corrections were provided in Appendix A.  | Appendix A is checked. CL closed.                                |
| <b>CAR1:</b> Formulas in Appendixes A, B, C and formulas in PDD of version 06 are different.  | Table 2, item 7.6                        | All necessary corrections were provided in Appendix A.  | Appendix A is checked. CL closed.                                |



## 9 APPENDIX B: VERIFICATION TEAM

Flavio Gomes  
Leading Verifier

Flavio Gomes is an engineer in chemistry and safety, diploma UNICAMP – University of Campinas State, Master of Construction Engineering Science (improvement of sanitary conditions). He spent four years in RIPASA, a pulp-and-paper mill as an Environmental Engineer. Since 2006 – Global Climate Change Manager. From 1997 – chief consultant of Bureau Veritas Consulting for the management systems of environment, quality, hygiene and occupational safety, and social liability. He is also a project verifier under Clean Development Mechanism, and an auditor of Social/Environmental reports on behalf of Bureau Veritas Certification. Flavio is currently obtaining a degree of Ph.D. in the field of power management of Imperial College – London.

Nadiya Kaiun, Master of sciences (ecology).  
Leading Climate Change Verifier.

Bureau Veritas Ukraine HSE Department project manager  
She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed over 15 audits since 2008. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 6 JI projects.

### **Kateryna Zinevych, M. Sci. (environmental science)**

Climate Change Verifier

Bureau Veritas Ukraine HSE Department project manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed 6 audits since March of 2009. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 3 JI projects.

### **Report checked by:**

Ivan Sokolov, Dr. of Biologic Sciences (biology, microbiology)



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Internal technical analyst, Leading Climate Change Project Verifier  
Head of Ecology and Safety Department of Bureau Veritas in Black Sea region.  
Authorized by Bureau Veritas Certification Holding SAS for Climate Change Projects in Ukraine

Ivan Sokolov has over 25 years of working experience in research institute in the field of biochemistry, biotechnologies and microbiology. From 1999 - Head of Ecology and Safety Department of Bureau Veritas in Black Sea region, Leading Auditor of Environmental Management Systems, quality, hygiene and occupational safety, food safety. Starting from 1999 Ivan Sokolov performed over 130 audits. He is also a leading tutor of primary courses of leading auditors of the Management systems listed above. Ivan passed the course of leading CDM projects verifiers and performed determination and verification of over 15 JI and CDM projects.

## 10 APPENDIX C: VERIFIED DOCUMENTS

- /1/. Contract with ITI Biotekhnika UAAN.
- /2/. Manual to gas analyzer EX-TEC® SR5.
- /3/. An Order on Working Team creation
- /4/. Passport 00(1) GDP 005 Il'ichevsk city Malodolinske village 7, Shmidta str.
- /5/. Passport 04 GDP 009 Lyubopol' village Suvorova str.
- /6/. Passport 04 GDP 012 Berezivka Chornogorka village
- /7/. Passport 10vd GDP 45 Sukhiy Lyman Michurintsiv str.
- /8/. Passport 14 CGDP 021 Usatovo village Lazareva str.
- /9/. Passport 01 CGDP 055 Anan'iv city Kalinina str.
- /10/. Summarized statement of reconstructions of gas-distribution posts of OJSC Odesagas performed in 2008
- /11/. Program of initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas 00(1) GDP 005 Il'ichevsk city Malodolinske village 7, Shmidta str.
- /12/. Program of initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas 04 GDP 009 Lyubopol' village Suvorova str.
- /13/. Program of initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas 04 GDP 012 Berezivka Chornogorka village
- /14/. Program of initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas 10vd GDP 45 Sukhiy Lyman Michurintsiv str.
- /15/. Program of initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas 14 CGDP 021 Usatovo village Lazareva str.
- /16/. Program of initial monitoring measurements for shut-off stations and natural gas networks of OJSC Odesagas 01 CGDP 055 Anan'iv city Kalinina str.
- /17/. Register of equipment of GRP OJSC Odesagas
- /18/. Recommendations on monitoring of methane leaks at gas distribution posts of



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- OJSC Odesagas
- /19/. Certificate 3917 for technical inspection of EX-TEC® SR5 after repair and maintenance (licence XB 145), serial number 041020010, 01.12.2008
  - /20/. Inspection certificate of gas analyzer EX-TEC® SR5.
  - /21/. Photo of gas analyzer EX-TEC® SR5.
  - /22/. Photos of a plant for measurement of methane leaks volumes
  - /23/. Photo 00(1) GDP 005 Il'ichevsk city Malodolinske village 7, Shmidta str.
  - /24/. Photo 04 GDP 009 Lyubopol' village Suvorova str.
  - /25/. Photo 04 GDP 012 Berezivka Chornogorka village
  - /26/. Photo 10vd GDP 45 Sukhiy Lyman Michurintsiv str.
  - /27/. Photo 14 CGDP 021 Usatovo village Lazareva str.
  - /28/. Photo 01 CGDP 055 Anan'iv city Kalinina str.