DETERMINATION REPORT
VEMA S.A.

DETERMINATION OF THE REDUCTION OF METHANE EMISSIONS ON THE GAS EQUIPMENT OF GAS-DISTRIBUTING POINTS AND ON THE GAS ARMATURE OF GAS-DISTRIBUTING NETWORKS OF PJSC «MARIUPOLGAZ»

REPORT NO. UKRAINE-DET/0311/2011

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DETERMINATION REPORT

Date of first issue:	Organizational unit:
14/07/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Vema S.A.	Fabian Knodel

Summary:

Bureau Veritas Certification has made the determination of the "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»" project of Vema S.A. located in city of Mariupol, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final determination report and opinion. The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the determination process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies Guidance on criteria for baseline setting and monitoring and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
UKRAINE-det/0311/2011	JI

Project title:

"Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»"

Work carried out by:

Oleg Skoblyk – Team Leader, Lead Verifier
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1 INTRODUCTION

Vema S.A. has commissioned Bureau Veritas Certification to determine its JI project “Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»” (hereafter called “the project”) at Mariupol city, Ukraine.

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

1.1 Objective

The determination serves as project design verification and is a requirement of all projects. The determination is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project’s compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emissions reductions units (ERUs).

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 determination scope is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The determination is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Determination team

The determination team consists of the following personnel:

Oleg Skoblyk
Bureau Veritas Certification Team Leader, Climate Change Verifier

Kateryna Zinevych

Bureau Veritas Certification Team Member, Climate Change Lead Verifier

Alexey Kulakov

Bureau Veritas Certification Team Member, Climate Change Specialist

This determination report was reviewed by:

Ivan Sokolov

Bureau Veritas Certification, Internal Technical Reviewer

Elena Mazlova

Bureau Veritas Certification Team Member, Climate Change Specialist

2 METHODOLOGY

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

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

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

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

2.1 Review of Documents

The Project Design Document (PDD) submitted by Vema S.A. and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Approved CDM methodology and/or Guidance on criteria for baseline setting and

monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Vema S.A. revised the PDD and resubmitted it on 06/07/2011.

The determination findings presented in this report relate to the project as described in the PDD versions 01, 02 and 03, 04, 05.

2.2 Follow-up Interviews

On 04/07/2011 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of PJSC «Mariupolgaz» and Vema S.A. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC «Mariupolgaz», Vema S.A.	➢ Additionality of the project, ➢ Emission factor of the project, ➢ EIA and its approval, ➢ Project design, ➢ Consulting process for stakeholder's comments , ➢ Approval status by the host country, ➢ Applicability of methodology, ➢ Monitoring Plan, ➢ QA issues, ➢ Baseline calculations.

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

Corrective Action Request (CAR) is issued, where:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The JI requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

The determination team may also issue Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable JI requirements have been met.

The determination team may also issue Forward Action Request (FAR), informing the project participants of an issue that needs to be reviewed during the verification.

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

3 PROJECT DESCRIPTION

The purpose of the project is reduction of the natural gas emissions at gas-transport and gas-distributing infrastructure of PJSC «Mariupolgaz», which are the result of leakage of gas equipment and gas armature. The basic sources of emissions, included into the project scope are:

- gas equipment (reducing gears, valves, filters, turning off devices and others like that), flanged and screw-thread connections which are in gas-distributing points (GDP) and cabinet-type gas-distributing points (CGDP) PJSC «Mariupolgaz»;

- gas armature (faucets, bolts, valves and others like that), screw-thread and flanged connections located on gas pipelines PJSC «Mariupolgaz».

General quantity of GDP included into the boundary of the project is 138 units, CGDP – 106 units, number of gas armature on gas pipelines is 6481 units.

Principal reason of natural gas emissions is death of sealing elements of equipment as a result of action of temperature vibrations and moisture. Basic component of natural gas, methane (92 - 95%), is greenhouse gas. Removal of sources of natural gas will result in reductions of emission of greenhouse gases. In future, for determination of sources of natural gas emissions is used «emissions of methane», as instrumental measurings of emissions refer to methane exactly.

Project measures consist in reduction of methane emissions that are the consequences of the gas equipment of GDP (CGDP) and gas armature of gas pipelines of PJSC «Mariupolgaz».

Within the framework of JI project with the aim of elimination of methane emissions on gas equipment and on the gas armature there are three types of repairs used as follows:

1. Complete substituting of out-of-date and morally threadbare gas equipment and gas armature by new units.
2. Repair of gas equipment components and gas armature;

3. Replacement of pressure-sealing elements with the use of modern sealing materials, changing practice of service and repair, that has become common, on the basis of paronite gaskets, and also sealing stuffing of cotton fibres with fatty impregnation and asbestos-graphite filler.

The existent practice of service and repair that has become common, on the basis of paronite gaskets, and also the sealing stuffing of cotton fibres with fatty impregnation and asbestos-graphite filler does not give long-lasting effect of methane emissions reduction. As a result of activities due to JI project in addition to methane emissions reduction there will be natural gas technical losses reduced and it will be the contribution to ecological situation improvement, the risk of emergency and explosive situations will reduce.

Activity in accordance with the project will include:

- Introduction of Purposeful Examination and Technical Maintenance (PETM) of gas equipment of GDP (CGDP) and gas armature, flanged and threaded joints - modern and most economically-effective practice, that allows not only to find out the places of emissions but also to determine their volumes (i. e. potential volume of reduction of gas losses). This key information is necessary for grounding of efficiency of repairs and priority choice of its objects, which is important at the insufficient financing for the removal of all emissions. This activity will include purchase and calibration of modern measuring equipment, corresponding studies of workers, monitoring of every gas equipment and gas armature, flanged and threaded connection, creation of the system of collection and storage of methane sources and also input of internal audit and system for providing of removal quality and account of methane emissions volumes.
- Exposure and methane emissions measuring: monitoring system of emissions on all gas equipment of GDP (CGDP), on gas armature (bolts, faucets, valves), on flanged and threaded connections, including the removed methane emissions (repaired components of equipment). Monitoring will be performed on regular basis by the specially taught personnel. The found out emissions will be properly marked by individual numbers, the volumes of methane emissions will be measured and registered in a database.
- Removal of found out emissions: repairs of gas equipment of GDP (CGDP) and gas armature on gas pipelines with emissions within the framework of this project will be varied from replacement of sealing elements or pressure-sealing, to major repairs and replacement of gas equipment and gas armature by a new, modern equipment. The repaired components of gas equipment GDP (CGDP) and gas armature of gas pipelines will be inspected regularly, as component part of standard monitoring activity, to ascertain, that they did not become the source of emissions again.

The project was initiated in December, 2004:

In December, 2004 there was inspection of gas equipment of GDP (CGDP) and gas armature, flanged and threaded joints of gas pipelines PJSC «Mariupolgaz» performed and primary measuring of emissions done, the results of which made the basis for forming of the project baseline.

A preliminary investment contract was signed on December, 10, 2004 in relation to JI project between company VEMA S.A. (Switzerland) and PJSC «Mariupolgaz». It was also foreseen by the contract, that company VEMA S.A. develops the monitoring program of emissions and JI Project Design Documentation (PDD).

On December, 30, 2004 - the Working group was organized with the basic tasks of provision of JI project implementation.

On January, 10, 2005 by the participants of project PDD was approved (version 01), which included the program of emissions monitoring.

January, 2005 - beginning inspection and repair works of gas equipment GDP (CGDP) and gas armature, flanged and threaded joints of gas-distributing networks of PJSC «Mariupolgaz».

Durations of project is unlimited, as PETM program, monitoring and emissions removal ptograms were aimed at becoming a component part of PJSC «Mariupolgaz» day by day work. Reduction of CO2-equ emissions is confirmed for the period of 13 years in accordance with modality and procedures of JI Mechanism.

4 DETERMINATION CONCLUSIONS

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

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

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 17 Corrective Action Requests.

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

4.1 Project approvals by Parties involved (19-20)

A letter of approval has not been received yet, which is described in the CAR 4 in the Determination protocol below.

But the project is already supported by the Ukrainian NFP, namely by State Environmental Investment Agency of Ukraine, which has issued a Letter of Endorsement for the JI Project № 1636/23/7 of 23.06.2011.

On receipt of Determination Report from the Accredited Independent Entity project documentation will be presented to the State Environmental Investment Agency of Ukraine for the receipt of the Letter of Approval. Second Letter of Approval will be received from the other project participant party.

Outstanding issues (CAR 01, CAR 02, CAR 03, CAR 04, CAR 05) concerning project implementation and project approval are stated in the Appendix A below.

4.2 Authorization of project participants by Parties involved (21)

The participation for each of the legal entities listed as project participants in the PDD will be authorized by a Party involved, which is also listed in the PDD, through a written project approval. A letter of approval has not been received yet, which is described in the CAR 4 in the Determination protocol below.

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline. Baseline determination (measurement and calculation of natural gas leaks) has been performed using JI Specific Approach on the basis of the approved baseline methodology AM0023 version 3 «Leak reduction from natural gas pipeline compressor or gate stations». The modification of methodology AM0023 version 3 connected with application of more exact method of measuring of methane leakages.

The PDD provides a detailed theoretical description in a complete and transparent manner, as well as justification, that the baseline is established:

(a) By listing and describing the following plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one:

a. Keeping the current system for detection and elimination of leaks;
b. Implementation of this Project not as JI project.

(b) Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector the AIE hereby confirms that the selected baseline and monitoring

methodology based on approved baseline methodology AM0023 version 3 «Leak reduction from natural gas pipeline compressor or gate stations» is applicable to the project activity, which, complies with all the applicability conditions therein.

All explanations, descriptions and analyses pertaining to the baseline in the PDD were found adequate and the baseline is identified appropriately.

Outstanding issues (CAR 06, CAR 07, CAR 12) concerning baseline setting are stated in the Appendix A below.

4.4 Additionality (27-31)

The most recent version of the "Tool for the demonstration and assessment of additionality" approved by the CDM Executive Board was used. All explanations, descriptions and analyses are made in accordance with the selected tool or method.

The PDD provides a justification of the applicability of the approach with a clear and transparent description, as per item 4.3 above. Since the "Guidance on Criteria for Baseline Setting and Monitoring (Version 2)" allows PP to use any of the three Options (a,b,c) so in order to prove additionality Option (c) was used.

In order to demonstrate that the project is not a plausible baseline scenario without being registered as a JI project, a three-step process was undertaken:

- *Identification of alternatives*: Only two variants of initial terms can be examined as acceptable to Project.
- *Barrier Analysis*: It is demonstrated that the project faces technological, organisational and financial barriers regarding technology upgrades
- *Common Practice Analysis*: Measures similar to the measures of this particular Project, at current time can be conducted only on condition of receipt of predictable profit from realization of the mechanism set by the article 6 of Kyoto protocol up to UNFCCC.

Additionality is demonstrated appropriately as a result of the analysis using the approach chosen.

Outstanding issues (CAR 08, 09) concerning additionality are stated in the Appendix A below.

4.5 Project boundary (32-33)

The project boundary defined in the PDD, which is only methane emissions sources, encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

(i) Under the control of the project participants: technological methane emissions during plan repair of gas pipeline;

(ii) Reasonably attributable to the project: methane emissions from gas fittings of house distribution networks;

(iii) Significant:
- leaks on gas equipment (reducing gears, valves, filters and others like that) of gas-distributing points (cabinet-type gas-distributing points) and
- leaks on gas armature (faucets, bolts and others like that), threaded and flanged connections that are located on gas-distributing networks of PJSC "Mariupolgaz".

The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD.

Outstanding issues (CAR 10, CAR 11) concerning project boundary are stated in the Appendix A below.

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began, and the starting date is 10/12/2004, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 13 years or 156 months.

The PDD states the length of the crediting period in years and months, which is 13 years or 156 months, and its starting date as 10/01/2005, which is on the date the first emission reductions or enhancements of net removals are generated by the project.

The PDD states that the crediting period for the issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.

The PDD states that the extension of its crediting period beyond 2012 is subject to the host Party approval, and the estimates of emission

reductions or enhancements of net removals are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD.

No outstanding issues considering crediting period were issued during the determination process.

4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that JI specific approach was selected.

The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. be clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions or enhancements of net removals to be monitored such as Potential of global warming, Factor of vagueness of emissions measuring equipment.

The monitoring plan draws on the list of standard variables contained in appendix B of “Guidance on criteria for baseline setting and monitoring” developed by the JISC, as appropriate GWP_{CH4}, Ti, $F_{CH4,I}$, $w_{sampleCH4,I}$.

The monitoring plan explicitly and clearly distinguishes:

(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination, such as (not applicable for this project).

(ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination, such as (not applicable for this project).

(iii) Data and parameters that are monitored throughout the crediting period, such as (The sequence number of gas equipment GDP (CGDP), gas armature, where methane emissions are found, removed, and then checked; Time; Date; Potential of global warming; Speed of emissions for every found source; Temperature and gas pressure; Factor of vagueness of emissions measuring equipment; Tank capacity; Methane concentration in a sample; Period during which methane concentration in a tank reaches a certain level).

After exposure and measuring of methane emissions the monitoring program was worked out for all gas equipment GDP (CGDP), locking-regulating gas armature, flanged and threaded connections of gas pipelines of PJSC "Mariupolgaz". Implementation of such program is component part of the project activity. Monitoring embraces both emissions from the sources of leakages that appear again and control after the already repaired gas equipment, on which methane emissions were observed before. Within the framework of JI Project a working group of PJSC "Mariupolgaz" the Register of gas-distributing points and gas armature of JI project "Reduction of methane emissions" was drawn for the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC "Mariupolgaz" (see Supporting document 1), that includes complete information about all GDP (CGDP), locking-regulating gas armature, flanged and threaded connections that enter the limits of the Project. All corresponding data related to the calculation of reduction of methane emissions are kept in an electronic database. Every monitoring report will include all necessary information from this database. Data and documents on a project in a paper and/or electronic kind, in accordance with the Heads of PJSC "Mariupolgaz" Orders of 30.12.2004 № 243 and of 26.05.2011 № 132a are kept till 31.12.2019.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate, such as:

Project emissions

$F^{+}_{CH4,i} = Vbag * w_{sampleCH4,i} * 3600 / \tau_i$, where

$F^{+}_{CH4,i}$ - speed of methane emissions (emission volume) through leaking equipment and after the repair (substitution) (m³/hour.);
Vbag - leakage-proof tank volume for measuring (m³);
$w_{sampleCH4,i}$ - methane concentration in the emission sample, which is the difference of concentrations at the beginning and the end of measuring (%);
τ_i - average duration of filling the tank for emission and up to the determined concentration (seconds).

$$F_{CH_{4,i,P}} = \frac{F^{+}_{CH_{4,i}} \cdot 273 \cdot P}{0{,}1013 \cdot (273 + t)}$$, where

$F_{CH_{4,i,P}}$ – speed (volume) of project (after repair, substitution) of methane emission for i- equipment, adjusted to the normal conditions (m^3/hours.);
P – gas pressure in the tank, MPa;
t – temperature of gas in the tank, °C.

Q_{yP} = ConvFactor *Σ[$F_{CH_{4,i,P}}$ * Ti,y * URi]*GWP_{CH4}*0,9 , where

QyP - methane emissions during the period y, for equipment, which was repaired (substituted) (tCO2eq);
ConvFactor - coefficient of transformation m³CH4 in tCH4. Under normal conditions (0 °C and 0.1013 MPa) it equals 0.0007168 tCH4/m³CH4;
URi - coefficient which takes into account the vagueness of measuring method (equals to 95%);
Ti,y - time (in hours) for i-equipment, which functioned during period y (period of monitoring) being repaired (substituted);
GWP_{CH4} - Global Warming Potential for methane (equals to 21 tCO2eq/tCH4);
0,9 - coefficient which takes into account the error of measuring devices.

Baseline Emissions

$\bar{F}_{CH_{4,i}}$ = Vbag * $w_{sampleCH4,\,i}$ * 3600 / τ_i , where

$\bar{F}_{CH_{4,i}}$ speed (volume) of methane emissions through leaking equipment and before repair (m³/hours);
Vbag volume of impermeable tank for measuring (m³);
$w_{sampleCH4,\,i}$ concentration of methane in the sample of emission *i* that is the difference of concentrations at the beginning and at the end of measuring (%);
τ_i average duration of filling to the tank for emissions i before its repair (seconds).

$$F_{CH_{4,i,B}} = \frac{\bar{F}_{CH_{4,i}} \cdot 273 \cdot P}{0{,}1013 \cdot (273+t)}$$, where

$F_{CH_{4,i,B}}$ is speed (volume) of base methane emission for i - element, corrected to the normal conditions(m3/hours);
P is pressure of gas in a tank, MPa;
t is a gas temperature in a tank, °C.

QyB = ConvFactor *Σ[* Ti, y * of URi]*GWPCH4*0,9 , where

QyB base extrass of methane on gas equipment for the period y (tCO2 equivalents);
ConvFactor coefficient of counting of m³of CH4 in tCH4 at normal terms (0 degrees celsius and 101.3 kPa). It equals 0,0007168 tCH4/m³ CH4;
URi coefficient that takes into account the vagueness of method of measuring;
Ti, y time (in hours) for the equipment of i that functioned during the considered period y (monitoring period) before its repair (replacements);
GWP_{CH4} Potential of Global Warming for methane (21 tCO2eq/equals tCH4);
0,9 coefficient that takes into account the error of measuring devices.

Emission Reductions

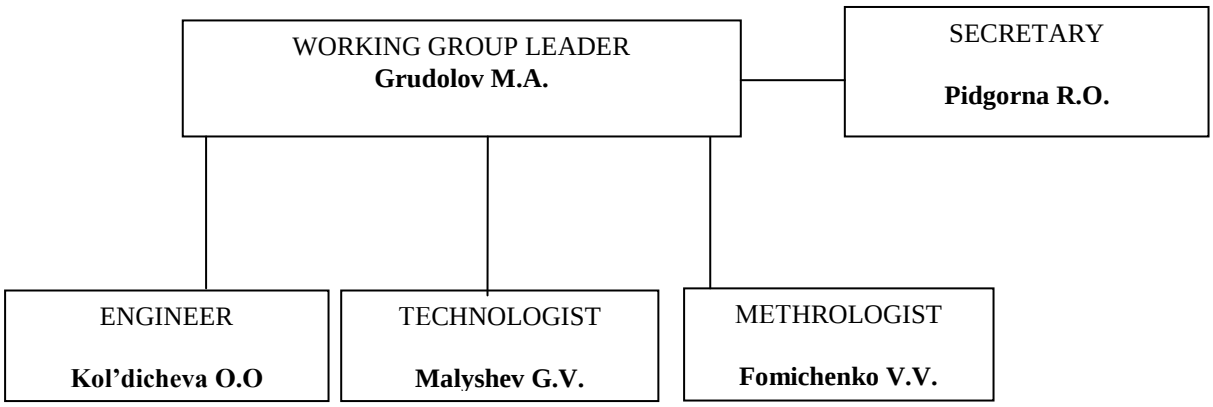
ERU = $\sum[Q_{yB} - Q_{yP}]$, where

ERU– Emissions unit reduction, t CO_2;
Q_{yP} – project emissions, t CO_2;
Q_{yB} – base emissions, t CO_2.

The monitoring plan presents the quality assurance and control procedures for the monitoring process, which is properly described in the PDD version 05. This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities.

Co-ordination of work of all departments and services of PJSC "Mariupolgaz" is carried out in relation to introduction of JI project by the Working group created by Order of Chairman of the Board of PJSC "Mariupolgaz" № 243 of 30.12.2004. The updated structure of the Working group was approved by Order of General director of PJSC “Mariupolgaz” №132a of 26.05.2011 and is presented at Pic. 5



Pic.5. Structure of the Working group

Responsible people for collection of all information foreseen by the monitoring plan and also implementation of all necessary calculations is Kol'dicheva O.O. Responsible for storage and archiving of all received information as a result of the conducted measuring and calculations is Pidgorna R.O. On the basis of the received information the leader of the working group Grudolov M.A. determines the plan of measures for Project and the volume of necessary resources. Technical support of the Project is performed by Malyshev G.V. Fomichenko V.V. provides the presence of trusted measuring equipment.

On the whole, the monitoring report reflects good monitoring practices appropriate to the project type.

The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources (e.g. official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature etc.) but not including data that are calculated with equations

The monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project.

Outstanding issues (CAR 13, CAR 14, CAR 15, CAR 16, CAR 17) concerning monitoring plan are stated in the Appendix A below.

4.8 Leakage (40-41)

The PDD appropriately describes an assessment of the potential leakage of the project and appropriately explains which sources of leakage are to be calculated, and which can be neglected. By the JI Specific Approach chosen leakage is not foreseen.

No outstanding issues considering leakage were issued during the determination process.

4.9 Estimation of emission reductions or enhancements of net removals (42-47)

The PDD indicates assessment of emissions in the baseline scenario and in the project scenario as the approach chosen to estimate the emission reductions or enhancement of net removals generated by the project.

The PDD provides the ex ante estimates of:

(a) Emissions for the project scenario (within the project boundary), which are 68462 tons of CO2eq for 2005 – 2007, 233394 tons of CO2eq for 2008 – 2012 and 233394 tons of CO2eq for 2013-2017;

(b) Leakage, as applicable, which are 0 tons of CO2eq for the before Kyoto, crediting and post Kyoto period;

(c) Emissions for the baseline scenario (within the project boundary), which are 604983 tons of CO2eq for 2005 – 2007, 2 062 443 tons of CO2eq for 2008 – 2012 and 2 062 443 tons of CO2eq for 2013-2017;

(d) Emission reductions adjusted by leakage (based on (a)-(c) above), which are 536521 tons of CO2eq for 2005 – 2007, 1 829 049 tons of CO2eq for 2008 – 2012 and 1 829 049 tons of CO2eq for 2013-2017.

The estimates referred to above are given:

(a) On an annual basis;

(b) From 10/01/2005 to 31/12/2017, covering the whole crediting period;

(c) On a source-by-source basis;

(d) For each GHG gas, which in this case is CH4

(e) In tonnes of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol;

The formula used for calculating the estimates referred above, which are clearly described in the section 4.7 of this report, are consistent throughout the PDD.

For calculating the estimates referred to above, key factors, e.g. (amount of natural gas leakage to the atmosphere) influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating the estimates referred to above, such as (measurement reports) are clearly identified, reliable and transparent.

Emission factors were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The estimation referred to above is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The estimates referred to above are consistent throughout the PDD.

The annual average of estimated emission reductions or enhancements of net removals over the crediting period is calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period, and multiplying by twelve.

Outstanding issues (CAR 18) concerning estimation of emission reductions are stated in the Appendix A below.

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party.

According to the ecological norms of Ukraine the emissions of natural gas to the atmosphere are not pollutants. Therefore no ecological permissions on transporting and supply of natural gas are needed. The only influence on environment by the project implementation is reduction of emissions of natural gas to the atmosphere.

Introduction of this project will allow promoting safety of exploitation of gas-distributing networks that will decrease probability of explosions or fires.

Transboundary influence by the project activity, in accordance with their determination in text of the "Convention on transboundary contamination at long range", ratified by Ukraine, will not occur.

The Project activity does not cause harmful influence to the environment.

The PDD provides conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party, if the analysis referred to above indicates that the environmental impacts are considered significant by the project participants or the host Party.

No outstanding issues considering environmental impact were issued during the determination process.

4.11 Stakeholder consultation (49)

Consultations were conducted with the specialists of Institute of General Energy of NAS of Ukraine. Comments from local Stakeholders were not received. The project activity does not foresee negative influence on the environment and negative social effect.

No outstanding issues considering stakeholder consultation were issued during the determination process.

4.12 Determination regarding small scale projects (50-57)

Not applicable.

4.13 Determination regarding land use, land-use change and forestry (LULUCF) projects (58-64)

Not applicable.

4.14 Determination regarding programmes of activities (65-73)

Not applicable.

5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES

No comments, pursuant to paragraph 32 of the JI Guidelines, were received.

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the "Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»" Project in Ukraine. The determination 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 determination consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participants used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides barrier analysis AND common practice analysis to determine that the project activity itself is not the baseline scenario.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The determination revealed two pending issues related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant by the host Party. If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 05 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation (version 05) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

The determination is based on the information made available to us and the engagement conditions detailed in this report.

7 REFERENCES

Category 1 Documents:
Documents provided by Vema S.A. that relate directly to the GHG components of the project.

/1/ PDD «Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»». Version 01, January 10th, 2005.
/2/ PDD «Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»». Version 02, June 24th, 2011.
/3/ PDD «Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»». Version 03, July 6th, 2011.
/4/ PDD «Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»». Version 04, July 12th, 2011.
/5/ PDD «Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»». Version 05, July 21st, 2011.
/6/ Guidelines for Users of the Join Implementation Project Design Document Form, version 04, JISC
/7/ Joint Implementation Project Design Document Form, version 01
/8/ Glossary of JI terms, version 03, JISC.
/9/ Guidance on Criteria for Baseline Setting and Monitoring, version 02, JISC.
/10/ JISC "Clarification regarding the public availability of documents under the verification procedure under the Joint Implementation Supervisory Committee." Version 03
/11/ Determination and Verification Manual, version 01
/12/ Letter of Endorsement from National Environmental Investment Agency of Ukraine #1636/23/7 dated 23.06.2011

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/ Register of the gas distribution points, gas armature and gas distribution networks OJSC "Mariupolgaz" dated 01.01.2005
/2/ Gas armature installed at the OJSC "Mariupolgaz"
/3/ Monitoring Plan dated 2005
/4/ Previous investment agreement considering Joint Implementation Project between OJSC "Mariupolgaz" and Vema S.A. dated 10.12.2004
/5/ Order #132a on the providing changes to the working group on the control of natural gas leaks at the gas distributing networks and their removal according

to JI project dated 26.05.2011

/6/ Order #243 on the creation of the working group on the control of natural gas leaks at the gas distributing networks and their removal according to JI project dated 30.12.2004

/7/ Register of the gas distribution points according to the JI project «Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»»

/8/ Emission Reductions Calculations version 2

/9/ Emission Reductions Calculations version 3

/10/ Emission Reductions Calculations version 4

Persons interviewed:

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

/1/ Veremeenko M.V. – general director, 2005-2010 member of the working group

/2/ Grudolov M.A. – chief engineer, head of the working group

/3/ Malyshev G.V. – deputy head of the gas networks, member of the working group

/4/ Koldycheva O.O. – production and technical department engineer, member of the working group

/5/ Podgornaya R.O. - production and technical department engineer, member of the working group

/6/ Belov E.V. – project manager, Vema S.A.

DETERMINATION PROTOCOL

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	Reduction of methane emissions on the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC «Mariupolgaz»	OK	OK
-	Is the sectoral scope to which the project pertains presented?	Yes, Scope 10. Volatile emissions from fuels (solid, liquid fuels and gases) CAR 01. Please correct 'area' to 'scope'.	CAR 01	OK
-	Is the current version number of the document presented?	Version of Project Design Documentation: 02.	OK	OK
-	Is the date when the document was completed presented?	Date: June 24, 2011.	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	The purpose of the project is reduction of the natural gas emissions at gas-transport and gas-distributing infrastructure of PJSC «Mariupolgaz», which are the result of leakage of gas equipment and gas armature. Situation existing prior to the project, baseline and project scenario are properly described.	OK	OK
-	Is the history of the project (incl. its JI component) briefly summarized?	Yes, the history of the project (incl. its JI component) is briefly summarized	OK	OK
Project participants				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Are project participants and Party(ies) involved in the project listed?	PJSC «Mariupolgaz», VEMA S.A.	OK	OK
-	Is the data of the project participants presented in tabular format?	CAR 02. Please strictly follow to the PDD format explained in the "Guidelines for JI PDD users"	CAR 02	OK
-	Is contact information provided in Annex 1 of the PDD?	Yes, contact information is provided in Annex 1 of the PDD	OK	OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	Yes, the host Party is Ukraine	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine	OK	OK
-	Region/State/Province etc.	Donetsk region	OK	OK
-	City/Town/Community etc.	Mariupol, Novoazovsk, 7 settlements of municipal type and 56 villages of Novoazovsk, Volodarsky and Pershotravnevy districts of Donetsk region, Ukraine	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	Detail of the physical location, including information allowing the unique identification of the project is present in the section A.4.1.4	OK	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule described?	The technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule are properly described CAR 03. Please provide all the documentation that proves implementation schedule dates.	CAR 03	OK
Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
sectoral policies and circumstances				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	Project activity includes: - repair (replacement) of gas equipment GDP (CGDP), gas armature, pressurizing of the threaded and flanged connections of gas pipelines of PJSC "Mariupolgas" with the use of modern equipment of the European producers and their analogues of home productions, by the use of modern sealing materials; - monitoring of methane emissions aimed at the exposure of methane emissions through the leakage; - next renewal of leakage of gas equipment GDP (CGDP), gas armature, threaded and flanged connections of gas pipelines. Reduction of natural gas emissions will result in reduction of methane that is greenhouse gas emissions. Absence of project activity means that all equipment, including the old is morally threadbare, but yet capable of working with less leak-proofness than it is foreseen by project activity, will be exploited long in the ordinary mode that does impossible reduction of methane emissions.	OK	OK
-	Is it provided the estimation of emission reductions over the crediting period?	Yes, it is provided the estimation of emission reductions over the crediting period	OK	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	Yes, it is provided the estimated annual reduction for the chosen credit period in tCO2e	OK	OK
-	Are the data from questions above	Yes, the data from questions above are presented in	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	presented in tabular format?	tabular format		
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	Yes, all the parts of the crediting period are clearly indicated.	OK	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	Yes, estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent are provided	OK	OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	CAR 04. Please provide evidence of project approval by the parties involved. CAR 05. Please follow the official names of the state letters – it is not letter of support but Letter of Endorsement	CAR 04, 05	CAR 4 is pending CAR 05 is OK
19	Does the PDD identify at least the host Party as a "Party involved"?	Yes, Ukraine is indicated as party involved and a host party.	OK	OK
19	Has the DFP of the host Party issued a written project approval?	Please refer to CAR 04.	-	-
20	Are all the written project approvals by Parties involved unconditional?	Please refer to CAR 04	-	-
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: − A written project approval by a Party involved, explicitly indicating the name of the legal entity? or	Please refer to CAR 04	-	-

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?			
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? − JI specific approach − Approved CDM methodology approach	The project uses JI Specific Approach. CAR 06. Please strictly state that the project uses JI Specific Approach on the basis of AM0023 ver 03 with the detailed description of the differences and remove all the identifications of direct use of methodology since it is not correct.	CAR 06	OK
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	Please refer to CAR 06.	-	-
23	Does the PDD provide justification that the baseline is established: (a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one? (b) Taking into account relevant national and/or sectoral policies and circumstance? − Are key factors that affect a baseline taken into account? (c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, date sources and key factors?	Only two variants of initial terms can be examined as possible and reliable alternatives for the Project: 1. keeping the current system for detection and elimination of leaks; 2. implementation of this Project not as JI project. Arguments are presented in this PDD (see Paragraph B.2) prove that maintenance of the existent system on exposure and elimination of emissions is the most credible scenario of development on condition of absence of the Project. All the key factors are properly described in the PDD version 02 section B.1.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?			
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements supplementary developed by the project participants in line with 23 above?	Yes, selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements supplementary developed by the project participants are in line with 23 above	OK	OK
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	CAR 07. Please specify revision of IPCC from which "Factor of vagueness of equipment of emissions measuring"	CAR 07	OK
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N\a	N\a	N\a
26 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period	N\a	N\a	N\a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(was the methodology revised to a newer version in the past two months)?			
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	N\a	N\a	N\a
26 (c)	Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?	N\a	N\a	N\a
26 (d)	Is the baseline identified appropriately as a result?	N\a	N\a	N\a
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under	CAR 08. Please strictly follow to the English names of all the methodological tools. The most recent version of the "Tool for the demonstration and assessment of additionality" ver.05.2. is applied.	CAR 08	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".			
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	CAR 09. Please remove investment analysis part from the Step 2 of the additionality prove to the one of the barriers in the Step 3 since the one described is not a simple cost analysis	CAR 09	OK
29 (b)	Are additionality proofs provided?	Yes, the projects additionality is proved by the barrier analysis	OK	OK
29 (c)	Is the additionality demonstrated appropriately as a result?	Yes, after all additionality is demonstrated appropriately	OK	OK
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	Please refer to CAR 8 and CAR 9	-	-
Approved CDM methodology approach only				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N\a	N\a	N\a
31 (b)	Does the PDD provide a description of why and how the referenced approved CDM methodology is applicable to the project?	N\a	N\a	N\a
31 (c)	Are all explanations, descriptions and	N\a	N\a	N\a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	analyses with regard to additionality made in accordance with the selected methodology?			
31 (d)	Are additionality proofs provided?	N\a	N\a	N\a
31 (e)	Is the additionality demonstrated appropriately as a result?	N\a	N\a	N\a
Project boundary (applicable except for JI LULUCF projects				
JI specific approach only				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	CAR 10. Please define all the emission sources as: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant	CAR 10	OK
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	Yes, the project boundary is defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above	OK	OK
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	Yes, the delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD by using a figure or flow chart as appropriate	OK	OK
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the	CAR 11. Please indicate all the emissions sources CAR 12. Please state the date of the baseline setting according to the format.	CAR 11, CAR 12	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	project are appropriately justified?			
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	N\a	N\a	N\a
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	Project activity start date is 10.12.2004	OK	OK
34 (a)	Is the starting date after the beginning of 2000?	Yes, see above	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	Operational lifetime is 13 years / 156 months	OK	OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	The JI project refers to the first period of obligations and presents 5 years / 60 months (from January, 1, 2008 till December, 31, 2012). By the initial date of crediting period a date was taken, when the first feasible measures were on Project on gas pipelines of PJSC "Mariupolgaz", namely on January, 10, 2005. The end of period of crediting is on December, 31, 2012. Thus, duration of period of crediting will amount in 8 years /96 months. If after the first period of obligations according to Kyoto Protocol its action will be continued, a credit period of a project will be continued till December, 31, 2017. The general period of crediting (till the period of crediting,	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		period of crediting and after completion the period of crediting) will amount in 13 years /156 months.		
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	The starting date is on or after the date of the first emission reductions or enhancements of net removals generated by the project	OK	OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	Please see above 34 (b)	-	OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	Please see above 34 (b)	-	OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? − JI specific approach − Approved CDM methodology approach	Please refer to CAR 6.	-	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: − All relevant factors and key characteristics that will be monitored?	After exposure and measuring of methane emissions the monitoring program was worked out for all gas equipment GDP (CGDP), locking-regulating gas		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− The period in which they will be monitored? − All decisive factors for the control and reporting of project performance?	armature, flanged and threaded connections of gas pipelines of PJSC "Mariupolgaz". Implementation of such program is component part of the project activity. Monitoring embraces both emissions from the sources of leakges that appear again and control after the already repaired gas equipment, on which methane emissions were observed before. Within the framework of JI Project a working group of PJSC "Mariupol'gaz" the Register of gas-distributing points and gas armature of JI project "Reduction of methane emissions" was drawn for the gas equipment of gas-distributing points and on the gas armature of gas-distributing networks of PJSC "Mariupolgaz" (see the Accompanying document 1), that includes complete information about all GDP (CGDP), locking-regulating gas armature, flanged and threaded connections that enter the limits of the Project. All corresponding data related to the calculation of reduction of methane emissions are kept in an electronic database. Every monitoring report will include all necessary information from this database. Data and documents on a project in a paper and/or electronic kind, in accordance with the Heads of PJSC "Mariupolgaz" Orders of 30.12.2004 № 243 and of 26.05.2011 № 132a are kept till 31.12.2019.		
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission	Yes, the monitoring plan specifies the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	reductions or enhancements of net removals to be monitored?	monitored		
36 (b)	If default values are used: − Are accuracy and reasonableness carefully balanced in their selection? − Do the default values originate from recognized sources? − Are the default values supported by statistical analyses providing reasonable confidence levels? − Are the default values presented in a transparent manner?	CAR 13. Please provide the sources of all data monitored.	CAR 13	OK
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	Yes, for those values that are to be provided by the project participants, the monitoring plan clearly indicates how the values are to be selected and justified	OK	OK
36 (b) (ii)	For other values, − Does the monitoring plan clearly indicate the precise references from which these values are taken? − Is the conservativeness of the values provided justified?	Yes, the monitoring plan clearly and conservatively indicates the precise references from which these values are taken	OK	OK
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	See 36 (a)	OK	OK
36 (b) (iv)	Are International System Unit (SI units) used?	See 36 (a)	OK	OK
36 (b) (v)	Does the monitoring plan note any	n/a	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained through monitoring?			
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	Yes, the use of parameters, coefficients, variables, etc. are consistent between the baseline and monitoring plan	OK	OK
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"?	Yes, the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"	OK	OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period?	CAR 14. Please clearly identify parameters: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period	CAR 14	OK
36 (e)	Does the monitoring plan describe the	CAR 15. Please provide an explanation why the time,	CAR 15, 16,	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	methods employed for data monitoring (including its frequency) and recording?	Potential of global warming, which is supposed to be monitored during the whole crediting period is not presented in the excel spreadsheet for ERUs calculation. CAR 16. Please provide data on repair (reconstructions) and monitoring (register) of the equipment. CAR 17. Please, explain, why at an estimation of methane emission reductions (excel spreadsheet) you used 9 months during which the repaired (replaced) equipment was maintained within a year.	17	
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	Yes, the monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate	OK	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	Yes	OK	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	Yes	OK	OK
36 (f) (iii)	Are all equations numbered?	Yes	OK	OK
36 (f) (iv)	Are all variables, with units indicated defined?	Yes	OK	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	Yes	OK	OK
36 (f) (v)	To the extent possible, are methods to	Yes	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	quantitatively account for uncertainty in key parameters included?			
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	Yes	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	Yes	OK	OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	Yes	OK	OK
36 (f) (vii)	Are references provided as necessary?	Yes	OK	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Yes	OK	OK
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	Yes	OK	OK
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	Yes	OK	OK
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to	n/a	n/a	n/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?			
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	Please refer to section D.2 of the PDD	OK	OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	Please refer to section D.2 of the PDD	OK	OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	Please refer to section D.3 of the PDD	OK	OK
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	Please refer to section D.3 of the PDD	OK	OK
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are	Yes, the monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	measured or sampled and data that are collected from other sources but not including data that are calculated with equations?	other sources but not including data that are calculated with equations		
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	Yes, the monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project	OK	OK
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	Yes, selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants are in line with 36 above	OK	OK
Approved CDM methodology approach only				
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N\a	N\a	N\a
38 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	N\a	N\a	N\a
38 (b)	Does the PDD provide a description of why the approved CDM methodology is	N\a	N\a	N\a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	applicable to the project?			
38 (c)	Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with the referenced approved CDM methodology?	N\a	N\a	N\a
38 (d)	Is the monitoring plan established appropriately as a result?	N\a	N\a	N\a
Applicable to both JI specific approach and approved CDM methodology approach				
39	If the monitoring plan indicates overlapping monitoring periods during the crediting period: (a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently? (b) Can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)? (c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met? (d) Does the monitoring plan explicitly	n/a	N\a	N\a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?			
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	Leakage is not foreseen	OK	OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	See above	OK	OK
Approved CDM methodology approach only				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	N\a	N\a	N\a
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	Assessment of emissions or net removals in the baseline scenario and in the project scenario is used	OK	OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the	Yes, baseline, project emissions and emission reductions are clearly identified	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?			
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	n/a	N\a	N\a
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink basis? (iv) For each GHG? (v) In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the	Yes, all the estimates are provided for the whole crediting period on a source by source basis in tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol. The formulae are consistent throughout the PDD. All the data are provided according to relevant format. CAR 18. Emissions for the baseline scenario, project scenario and emission reductions stated in PDD version 04, differ from the ones in the excel spreadsheet.	CAR 18	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	Kyoto Protocol? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate? (d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent? (e) Are emission factors (including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD? (h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or			

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	n/a	N\a	N\a
Approved CDM methodology approach only				
47 (a)	Is the estimation of emission reductions or enhancements of net removals made in accordance with the approved CDM methodology?	N\a	N\a	N\a
47 (b)	Is the estimation of emission reductions or enhancements of net removals presented in the PDD: − On a periodic basis? − At least from the beginning until the end of the crediting period? − On a source-by-source/sink-by-sink basis? − For each GHG? − In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?	N\a	N\a	N\a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− Are the formula used for calculating the estimates consistent throughout the PDD? − Are the estimates consistent throughout the PDD? − Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	Under the ecological norms of Ukraine the emissions of natural gas in atmosphere ignore contaminating. Therefore no ecological permissions on transporting and supply of natural gas are needed. The only influence on environment is reduction of emissions of natural gas in the atmosphere. Introduction of this project will allow to promote safety of exploitation of gas-distributing networks, that will decrease probability of explosions or fires. Transfrontal influence from project activity, in accordance with their determination in text of the "Convention on transfrontal contamination at long range", ratified by Ukraine, will not take place. Harmful influences on the environment the introduction of the Project is not envisaged.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	See above.	OK	OK
Stakeholder comments				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?	Consultations were conducted with the specialists of Institute of General Energy of NAS of Ukraine. Comments from Parties concerned were not received. The project activity does not foresee negative influence on the environment and negative social effect.	OK	OK
Determination regarding small-scale projects (additional elements for assessment)_Paragraphs 50 - 57_Not applicable				
Determination regarding land use, land-use change and forestry projects _Paragraphs 58 – 64(d)_Not applicable				
Determination regarding programmes of activities_Paragraphs 66 – 73_Not applicable				

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
CAR 01. Please correct 'area' to 'scope'.		See corrected PDD version 03	Issue is closed.
CAR 02. Please strictly follow to the PDD format explained in the "Guidelines for JI PDD form users"		See corrected PDD version 03	Issue is closed.

CAR 03. Please provide all the documentation that proves implementation schedule dates.		Such documents have been presented: 1. The copy of preliminary investment contract on December, 10, 2004 in relation to JI project between company VEMA S.A. and PJSC «Mariupolgaz». 2. The copy of the Order of the Chairman of the Board №243 from 30/12/2004 about organisation of Working group under the JI project. 3. Letter of Endorsement for the JI Project № 1636/23/7 of 23.06.2011 of State Environmental Investment Agency of Ukraine 4. PDD version 01 of 10/01/2005 PETM is a complex of actions which consist of: • Definition of baseline conditions; • Registration of measurements of leaks before repair; • The analysis of the data and calculation of reductions of emissions; • Elimination of leaks; • Monitoring of already eliminated leaks.	***KZ:*** Please also provide documents that prove: Drawing of primary register of gas equipment GDP (CGDP), gas armature, threaded and flanged connections of gas pipelines. Realization of inspection of gas equipment GDP (CGDP),

		Each of listed above actions is carried out under control of Working group in which zones of responsibility of its members are accurately described. Supervising document of performance of the actions provided PETM, the Monitoring Plan, which includes such sections as: Initial measurements; Measurement technique; Card of monitoring and Management on gathering and data storage of monitoring measurements. Thus, PETM is the generalised concept which includes all aspects of project activity according to the Monitoring Plan. Any separate document on introduction PETM is not present, and there is a set of documents which testify that program PETM is provided in PJSC "Mariupolgaz".	gas armature, threaded and flanged connections of gas pipelines and primary monitoring measuring; Signing of previous investment agreement in relation to the Joint Implementation project. Organization of the Working group. Development of monitoring Plan, PDD of project version 1; Introduction and realization of the program PETM. Issue is closed.

CAR 04. Please provide evidence of project approval by the parties involved.	19	The JI project will receive approval from both Parties after sending of the determination report to the State Environmental Investment Agency of Ukraine (SEIAU) and to the Federal Office of Environment (FOEN) of Swiss Confederation.	Pending.
CAR 05. Please follow the official names of the state letters – it is not letter of support but Letter of Endorsement	19	See corrected PDD version 03	Issue is closed.
CAR 06. Please strictly state that the project uses JI Specific Approach on the basis of AM0023 ver03 with the detailed description of the differences and remove all the identifications of direct use of methodology since it is not correct.	22	See corrected PDD version 03	Issue is closed.
CAR 07. Please specify revision of IPCC from which "Factor of vagueness of equipment of emissions measuring"	25	See corrected PDD version 03	Issue is closed.
CAR 08. Please strictly follow to the English names of all the methodological tools.	28	See corrected PDD version 03	Please follow the format. There are still mistakes. Issue is closed.
CAR 09. Please remove investment analysis part from the Step 2 of the additionality prove to the one of the barriers in the Step 3 since the one described is not a simple cost analysis	29 (a)	See corrected PDD version 03	Issue is closed.

CAR 10. Please define all the emission sources as: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant	32 (a)	See corrected PDD version 03	Issue is closed.
CAR 11. Please indicate all the emissions sources	32 (d)	See corrected PDD version 03	Issue is closed.
CAR 12. Please state the date of the baseline setting according to the format.	32 (d)	See corrected PDD version 03	Issue is closed.
CAR 13. Please provide the sources of all data monitored.	36 (b)	See corrected PDD version 03	Issue is closed.
CAR 14. Please clearly identify parameters: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period	36 (d)	See corrected Annex 3 to PDD version 03	***KZ:*** Please provide reference to the page in PDD where correction is provided. Issue is closed.

CAR 15. Please provide an explanation why the time, Potential of global warming, which is supposed to be monitored during the whole crediting period is not presented in the excel spreadsheet for ERUs calculation.	36 (e)	See corrected Supporting document 2 to PDD version 03	***KZ:*** The time, Potential of global warming are still not in the excel spreadsheet. Issue is closed.
CAR 16. Please provide data on repair (reconstructions) and monitoring (register) of the equipment.	36 (e)	The Accompanying document 2 is intended only for an estimation of methane leaks reduction volumes on the basis of initial monitoring measurements. Full and more exact data about methane leaks reduction volumes on the gas equipment before and after its repair (replacement) will be presented in annual monitoring reports under the project.	Issue is closed.
CAR 17. Please, explain, why at an estimation of methane emission reductions (excel spreadsheet) you used 9 months during which the repaired (replaced) equipment was maintained within a year.	36 (e)	As a rule, repair works (equipment replacement) are carried out in spring months of year. More correct value of quantity of months in a year during which repaired (replacement) equipment was maintained - 8 months. The corrected calculations of an estimation of base, project methane emissions and also ERU's are given in the corrected Accompanying document 2 and also in corresponding tables of corrected PDD, version 03	Issue is closed.

CAR 18. Emissions for the baseline scenario, project scenario and emission reductions stated in PDD version 04, differ from the ones in the excel spreadsheet.	45	See corrected Supporting document 2 to PDD version 04	Issue is closed.