



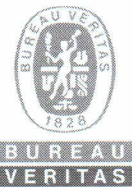
DETERMINATION REPORT CEP CARBON EMISSIONS PARTNERS S.A.

DETERMINATION OF THE “REDUCTION OF METHANE LEAKS ON THE GAS EQUIPMENT OF GAS DISTRIBUTION POINTS AND ON THE GAS ARMATURE, FLANGED, THREADED JOINTS OF THE GAS DISTRIBUTION PIPELINES OF PJSC “CHERNIGIVGAS”

REPORT No. UKRAINE-DET/0639/2012

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BUREAU VERITAS CERTIFICATION



DETERMINATION REPORT

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Client: CEP Carbon Emissions Partners S.A.	Client ref.: Fabian Knodel

Summary:

Bureau Veritas Certification has made the determination of the “Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC “Chernigivgas” project of CEP Carbon Emissions Partners S.A. located in Chernigiv, Chernigiv region, 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.: UKRAINE-det/0639/2012	Subject Group: JI
Project title: “Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC “Chernigivgas”	
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Kyoto protocol, Joint Implementation, project scenario, baseline scenario, determination

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Table of Contents	Page
1 INTRODUCTION	3
1.1 Objective	3
1.2 Scope	3
1.3 Determination team	3
2 METHODOLOGY	4
2.1 Review of Documents	4
2.2 Follow-up Interviews	5
2.3 Resolution of Clarification and Corrective Action Requests	5
3 PROJECT DESCRIPTION	6
4 DETERMINATION CONCLUSIONS.....	7
4.1 Project approvals by Parties involved (19-20)	8
4.2 Authorization of project participants by Parties involved (21)	8
4.3 Baseline setting (22-26)	9
4.4 Additionality (27-31)	11
4.5 Project boundary (32-33)	11
4.6 Crediting period (34)	12
4.7 Monitoring plan (35-39)	13
4.8 Leakage (40-41)	19
4.9 Estimation of emission reductions (42-47)	19
4.10 Environmental impacts (48)	20
4.11 Stakeholder consultation (49)	21
5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES	21
6 DETERMINATION OPINION	22
7 REFERENCES	23
APPENDIX A: PROJECT DETERMINATION PROTOCOL.....	29



1 INTRODUCTION

CEP Carbon Emissions Partners S.A. has commissioned Bureau Veritas Certification to determine its JI project “Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC “Chernigivgas” (hereafter called “the project”) in Chernigiv, Chernigiv region, 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 Lead Verifier



Oleksandr Kuzmenko
Bureau Veritas Certification Team Member, Technical Specialist

This determination report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal reviewer

Vasiliy Kobzar
Bureau Veritas Certification Technical 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 CEP Carbon Emissions Partners 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 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, CEP Carbon Emissions Partners S.A. revised the PDD and resubmitted it.

The determination findings presented in this report relate to the project as described in the PDD version 03 dated 11/07/2012 and the PDD version 04 dated 14/08/2012.

2.2 Follow-up Interviews

On 06/08/2012 Bureau Veritas Certification during site visit performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of CEP Carbon Emissions Partners S.A. and PJSC “Chernigivgas” were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC “Chernigivgas”	<ul style="list-style-type: none"> ➤ Project history ➤ Project approach ➤ Project boundary ➤ Implementation schedule ➤ Organizational structure ➤ Responsibilities and authorities ➤ Training of personnel ➤ Quality management procedures and technology ➤ Rehabilitation/Implementation of equipment (records) ➤ Metering equipment control ➤ Metering record keeping system, database ➤ Technical documentation ➤ Monitoring plan and procedures ➤ Permits and licenses ➤ Local stakeholder’s response
CONSULTANT: CEP Carbon Emissions Partners S.A.	<ul style="list-style-type: none"> ➤ Baseline methodology ➤ Monitoring plan ➤ Additionality proofs ➤ Calculation of emission reduction

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.

If the determination team, in assessing the PDD and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to JI project requirements, it will raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake in the published PDD that is not in accordance with the (technical) process used for the project or relevant JI project requirement or that shows any other logical flaw;

(b) Clarification request (CL), requesting the project participants to provide additional information for the determination team to assess compliance with the JI project requirement in question;

(c) Forward action request (FAR), informing the project participants of an issue, relating to project implementation but not project design, that needs to be reviewed during the first verification of the project.

The determination team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the determination.

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

3 PROJECT DESCRIPTION

JI project "Reduction of methane leaks on the gas equipment of the gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC "Chernigivgas" are to be implemented in Chernigiv city and surrounding territory; it is aimed in reduction of methane leaks at gas transportation and gas distribution infrastructure of PJSC "Chernigivgas". These leaks are the result of leaking gas equipment and gas fittings.

According to the project, the basic sources of leaks are gas distribution network (GDN) components, included to the project boundary. For instance, gas equipment that are located at gas distribution points (GDPs), cabinet-type gas distribution points (CGDPs) of PJSC "Chernigivgas", and gas fittings that are installed at gas pipelines of PJSC "Chernigivgas".



As described and justified in the PDD, the main reason of methane leaks is failure of sealing elements of equipment caused by temperature fluctuations and moisture. Basic component of natural gas is methane, which is greenhouse gas. Methane content in natural gas is 92-95%. Repair of methane leaks will result in a reduction of greenhouse gas emissions, for the most part in reduction of CH₄.

Before the project implementation, PJSC "Chernigivgas" carried out detection of methane leaks from gas fittings of gas distribution networks using organoleptic methods, methane leaks detection at GDP and CGDP using gas detectors in accordance with Ukrainian Gas Supply System Safety Rules. The company detected methane leaks with the purpose of avoidance of emergency and explosive situations. Measurements of methane leak volumes, their registration and accounting were not conducted because of absence of proper measurement devices. Fixing the leaks detected by gas detectors and organoleptic methods usually implied a mere routine repairs of GDP (CGDP) equipment and gas fittings using cotton fiber stuffing with oil tightening and asbestos-graphite compound. This technology of repairs ensured only short-term leak-proofness of the equipment and gas fittings and avoidance of explosion hazards.

Project activities are aimed to reduce of methane leaks that occur as a result of faulty sealing of GDN components (GDP and CGDP equipment and gas fittings of PJSC "Chernigivgas" gas pipelines).

Within the project scenario two types of repairs are applied in order to repair methane leaks at gas equipment and gas fittings. The first type is purposed to replace all old gas equipment and gas fittings with new units. The second type is based on replacement of pressure-sealing elements with the use of modern sealing materials, changing the common practice of servicing and repair on the basis of paronite gaskets and cotton fiber stuffing with oil tightening and asbestos-graphite compound.

As a result of the project activity, in addition to methane leak reductions, technical losses of natural gas will decrease. It leads to improvement of environmental situation and reduction of accidents and explosion risks.

The identified areas of concern as to Project description, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR03 and CAR04).

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 twenty two Corrective Action Requests and two Clarification 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)

The project has already been supported by the Government of the host Party (Ukraine), namely by the State Environmental Investment Agency of Ukraine, which has issued a Letter of Endorsement (i.e., Letter of Endorsement (LoE) # 2220/23/7 dated 14/08/2012) for the Project. Bureau Veritas Certification received this letter from the project participants and does not doubt its authenticity.

As for the present moment no written approvals of the project by Parties involved are available. After receiving Determination Report from the Accredited Independent Entity the project documentation will be submitted to the Ukrainian Designated Focal Point (DFP) which is State Environmental Investment Agency of Ukraine, for receiving a Letter of Approval. The written approval by another Party involved, Switzerland, will be obtained later on.

As the project has no approvals by the Parties involved, CAR01 remains pending (refer to the Appendix A).

The identified areas of concern as to Project approvals by Parties involved, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR01 and CAR06).

4.2 Authorization of project participants by Parties involved (21)

The official authorization of each legal entity listed as project participant in the PDD by Parties involved will be provided in the written project approvals (refer to 4.1 above).

The identified areas of concern as to Authorization of project participants by Parties involved, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR02).



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. The JI specific approach of the JI project “Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC “Chernigivgas” was developed based on “Methodology of calculation of greenhouse gas emission reduction by eliminating excess natural gas leaks in gas distribution networks” that was elaborated by Gas Institute of National Academy of Sciences of Ukraine. Methodology takes into account elements of approved CDM methodology AM0023 “Leak reduction from natural gas pipeline compressor or gate stations” (version 04.0.0) with consideration of activity on methane leaks detection and elimination in Ukrainian conditions.

Approved CDM methodology AM0023 can be applied to projects on reduction of methane leaks in natural gas compressor, gas distribution stations in the system of main gas pipelines, as well as for equipment of gas distribution systems, including the stations, which regulate gas pressure.

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. Continuation of the current situation of diagnosing and elimination of leaks;
 - b. Realization of proposed project activity without the use of the Joint Implementation mechanism;
- (b) Taking into account relevant national and sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector. In this context, the following key factors that affect a baseline are taken into account:
 - a. State policy and applicable law in the gas sector;
 - b. The economic situation in the gas sector in Ukraine and forecast demand for products (natural gas);
 - c. Technical aspects of management and operation of systems in the gas sector;



- d. Availability of capital (including investment barriers), that are typical for PJSC “Chernigivgas”;
- e. Local availability of technology and equipment, etc.

Two plausible future scenarios were regarded separately. The scenario a is continuation of the situation before JI project implementation and does not require additional costs. According to this way, only scheduled repairs of equipment are to be performed, and the level of methane leaks is at the same level and no emission reduction are occurred. The scenario b is realization of proposed project activity without the use of the Joint Implementation mechanism. It requires a lot of additional financing to install of modern efficient technology for leaks reduction and prevention. Without JI mechanism PJSC “Chernigivgas” is not motivated to replace deteriorated devices. PJSC “Chernigivgas” has no benefit from the methane leaks reduction. The prices are developed on the basis of national norms and regulations. Detailed consideration of the situation is stated in the section B of the PDD.

During the baseline consideration by the project developers, for identification and setting the baseline considerable attention was paid to the status of the gas sector and technical conditions of equipment.

As to the analysis, at the present management system of the gas sector is not functioning as interdependent complex. Management and control of innovation, investment projects, and financial schemes are performed autonomously. The management structures are developed without the necessary economic interrelation with the efficient usage of personnel and the production unit. Production development ways are chosen without consideration of the impact of market conditions. Current centralization of company financial flows is not followed by development and implementation of appropriate economic mechanisms of consolidated financial resources distribution. On the one hand, it would ensure the goals realization of current operation and strategic development of enterprises, and on the other hand, it would develop capabilities of production individual components.

Taking into account the baseline study, scenario a “Continuation of the current system on diagnosing and elimination of leaks” was chosen as a baseline scenario.

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

The identified areas of concern as to Baseline setting, project participants response and BV Certification’s conclusion are described in Appendix A (refer to CAR07 and CAR08).



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, in accordance with the JI specific approach, defined in paragraph 2 (c) of the annex I to the “Guidance on criteria for baseline setting and monitoring”. This is considered as a good practice for additionality justification. All explanations, descriptions and analyses are made in accordance with the selected tool.

Additionality proofs are provided by the project participants. Two realistic and credible alternative scenarios to the project activity were identified and proven to be in compliance with mandatory legislation and regulations taking into account the enforcement in the region and Ukraine. References to Ukrainian law were provided in section B.2 of the PDD. Investment analysis was used for demonstrating and assessing of the proposed project’s additionality.

Under the additionality assessment the barrier analysis and common practice analysis were applied. As for details, in the frame of barrier analysis operational barrier, technical barrier, and financial barrier were evaluated and considered. Based on the barrier analysis project participants concluded that only one alternative (i.e., Continuation of the current situation of diagnosing and elimination of leaks) does not face the barriers listed above and regarded in the project design documents. According to the current practice, PJSC “Chernigivgas” has no additional benefits to reduce the methane leaks. Furthermore, project participants are not stimulated to use of state of the art technology and materials. As per common practice analysis, the way of chosen baseline scenario in this JI project is supported by similar enterprises in Ukraine. Current Ukrainian programmes on detection and elimination of methane leaks are aimed to ensure technical safety and to prevent accidents. Thus, the overall conclusion is that the project activity meets additionality criteria, is not the baseline scenario and is additional.

The PDD provides a justification of the applicability of the approach with a clear and transparent description. Traceable and transparent information showing that 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 reductions of anthropogenic emissions by sources of GHGs was also provided. Additionality is demonstrated appropriately as a result of the analysis using the approach chosen.

4.5 Project boundary (32-33)

The project boundary defined in the PDD, which covers the natural gas (methane) leaks on the gas equipment of gas-distribution points and on



the gas armature, flanged, threaded joints of the gas-distribution pipelines of PJSC Chernigivgas”, encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

- (i) Under the control of the project participants, such as:
 - technological natural gas leaks during scheduled repair of gas pipelines;
 - (ii) Reasonably attributable to the project, such as:
 - methane leaks at gas fittings of house distribution networks;
 - (iii) Significant, i.e., as a rule of thumb, would by each source account on average per year over the crediting period for more than 1 per cent of the annual average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tonnes of CO₂ equivalent, whichever is lower:
 - leaks at gas equipment (pressure relief valves, gate valves, filters, etc.) of gas distribution points (cabinet-type gas distribution points);
 - methane leaks at gas fittings (faucets, slide valve, etc.), , located at gas distribution networks of PJSC "Lubnygaz".
- Only leaks of type (iii) are included in the project boundary.

The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD. The natural gas (methane) leaks on the gas equipment of gas-distribution points and the gas armature of the gas-distribution pipelines of PJSC Chernigivgas” in baseline and project scenarios have been factored in emission calculations. Thus, all CH₄ emissions related to project and baseline cases have been taken into account.

The identified areas of concern as to Project boundary, project participants response and BV Certification’s conclusion are described in Appendix A (refer to CAR09 and CAR10).

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 began, and the starting date is 31/09/2005, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 12 years and 3 months or 147 months.

The PDD states the length of the crediting period in years and months, which is 12 years and 3 months that divided into 2 years and 3 months for the period before the first commitment period (2005-2007), 5 years for the first commitment period (2008-2012), and 5 years for the period after the first commitment period (2013-2017); and its starting date as 31/09/2005, which is on the date the first emission 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 are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD.

The identified areas of concern as to Crediting period, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR11).

4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that JI specific approach was the selected. The JI specific approach was developed based on "Methodology of calculation of greenhouse gas emission reduction by eliminating excess natural gas leaks in gas distribution networks" that was elaborated. It was elaborated by Gas Institute of National Academy of Sciences of Ukraine taking into account elements of approved CDM methodology AM0023 (version 04.0.0) and with consideration of activity on methane leaks detection and elimination in Ukrainian conditions.

The monitoring plan describes all relevant factors and key characteristics that are to be monitored, and the period in which they are to be monitored, in particular also all decisive factors for the control and reporting of project performance, such as reporting forms; quality control (QC) and quality assurance (QA) procedures; the operational and management structure that will be applied in implementing the monitoring plan.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e., provide consistent and accurate values), valid (i.e., are clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions to be monitored such as Global Warming Potential of the methane, volume to weight conversion factor for methane leaks, Sequence number of the GDN component (GDP (CGDP), gas fitting) included into the project boundary, Number of activity (replacement/repair) in GDN component after EPNGL was detected, Average mass fraction of methane in natural gas, Natural gas leakage factor of GDN component in conditional leak-proofness (CLP), Natural gas leakage factor corresponding to excess physical natural gas leak (EPNGL) of GDN component, Time of GDN component operation under the pressure from the beginning of monitoring period y to the implementation of the project activity (repair/replacement) that caused EPNGL removal, Time of



GDN component operation under the pressure from the implementation of the project activity (repair/replacement) that caused EPNGL removal to the end of monitoring period y ; and other factors.

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 such as BE_y (baseline emissions), PE_y (project emissions), GWP_{CH_4} (Global Warming Potential of the methane), etc.

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 Sequence number of the GDN component (GDP (CGDP), gas fitting) included into the project boundary, volume to weight conversion factor for methane leaks.

(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, which are absent.

(iii) Data and parameters that are monitored throughout the crediting period, such as Global Warming Potential of the methane, Number of activity (replacement/repair) in GDN component after EPNGL was detected, Average mass fraction of methane in natural gas, Natural gas leakage factor of GDN component in CLP, Natural gas leakage factor corresponding to EPNGL of GDN component, Time of GDN component operation under the pressure from the beginning of monitoring period y to the implementation of the project activity (repair/replacement) that caused EPNGL removal, Time of GDN component operation under the pressure from the implementation of the project activity (repair/replacement) that caused EPNGL removal to the end of monitoring period y .

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as sampling, direct measurement with gas detectors and gas analyzers and calculations with different recording frequency such as continuously or annual and electronic or paper recording method. The respective information for each monitoring parameter is sufficiently described in the section D of the PDD.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions and project emissions,



leakage, as appropriate, and emission reduction. The details of formulae are described below.

Project emissions:

Calculation of project emissions

$$PE_y = GWP_{CH_4} \cdot ConvFactor \cdot W_y \cdot P_y$$

where:

- PE_y - greenhouse gas emissions in period y of the project scenario (t CO₂eq);
- GWP_{CH_4} - global warming potential for methane (tCO₂eq/tCH₄);
- W_y - average mass ratio of methane in natural gas in period y of the project scenario (%);
- P_y - natural gas leaks to the atmosphere in period y of the project scenario (m³);
- $ConvFactor$ - volume to weight conversion factor for methane leaks (t CH₄ / m³ CH₄). The value is 0.0007168 t/m³;
- [y] - index corresponding to monitoring period;
- [CH_4] - index corresponding to methane.

As stated in the PDD, the rate (volume) of methane leak obtained as a result of measurements is reduced to normal conditions ($P_H = 0.1013$ MPa, $T_H = 0$ °C) in accordance with the next formula.

Calculation of natural gas leaks to the atmosphere in period y of the project scenario

$$P_y = \sum_{h \in H_i} \sum_{i' \in I'} K_{i'h}^g \cdot H_{i'hy}^g + \sum_{h \in H_i} \sum_{i'' \in I''} K_{i''h}^g \cdot H_{i''hy}^n$$

where:

- $K_{i'h}^g$ - natural gas leakage factor of GDN component i' in CLP (i.e. corresponding to EPNGL) in period y of the project scenario (m³/h);
- $K_{i''h}^g$ - natural gas leakage factor corresponding to EPNGL of GDN component i'' in period y of the project scenario (m³/h);
- $H_{i'hy}^g$ - time of GDN component operation from the beginning of monitoring period y to the implementation of the project



- $H_{i''hy}^n$ activity (repair/replacement) that caused EPNGL removal (h);
 - time of GDN component operation under the pressure from the implementation of the project activity (repair/replacement) that caused EPNGL removal to the end of monitoring period y (h);
- [y] - index corresponding to monitoring period;
- [i'] - index corresponding to GDN component number that belongs to the set of elements I' ($I'+I''=I$, where I is a set embracing all the GDN components included into the project boundary) where project activity generated no emission reductions (no component replacement/repair took place) in the reporting monitoring period;
- [i''] - index corresponding to GDN component number that belongs to the set of elements I'' ($I'+I''=I$, where I is a set embracing all the GDN components included into the project boundary) where project activity generated emission reductions (component replacement/repair took place) in the reporting monitoring period;
- [h] - index corresponding to the number of project activity in GDN component, if more than one activity was carried out at this component in monitoring period (where H is a set embracing all activities in the project scenario at the GDN component in monitoring period);
- [g] - index corresponding to standard physical natural gas leak (SPNGL);
- [n] - index corresponding to EPNGL.

Baseline emissions:

Calculation of baseline emissions

$$BE_y = GWP_{CH_4} \cdot ConvFactor \cdot W_y \cdot B_y$$

where:

- BE_y - GHG emissions in period y of the baseline scenario (t CO₂eq);
- GWP_{CH_4} - global warming potential of methane (t CO₂eq/t CH₄);
- W_y - average methane weight fraction in natural gas in period y of the project scenario (%);
- B_y - natural gas leaks into the atmosphere in period y of the baseline scenario (m³);
- $ConvFactor$ - conversion factor to convert methane leaks from volume units to weight units (t CH₄ / m³ CH₄). The value is



DETERMINATION REPORT

- 0.0007168 t/m³;
- [y] - index corresponding to monitoring period;
- [CH₄] - - index that corresponds to methane.

Calculation of natural gas leaks into the atmosphere in period y of the baseline scenario

$$B_y = \sum_{h \in H_i} \left(\sum_{i' \in I'} K_{i'h}^g \cdot H_{i'hy}^g + \sum_{i'' \in I''} K_{i''}^n \cdot H_{i''hy}^n \right)$$

where:

- $K_{i'hy}^g$ - natural gas leakage factor for GDN component i' that is in CLP (i.e. corresponds to SPNGL) in period y of the baseline scenario (m³/h);
- $K_{i''}^n$ - natural gas leakage factor for GDN component i'' that corresponds to EPNGL in period y of the baseline scenario (m³/h);
- $H_{i'hy}^g$ - time of operation of GDN component in CLP under pressure in period y of the baseline scenario (h);
- $H_{i''hy}^n$ - time of GDN component operation from the implementation of the project activity (repair/replacement) that caused EPNGL removal to the end of monitoring period y (h);
- [y] - index corresponding to monitoring period;
- [i'] - index corresponding to GDN component number that belongs to the set of elements I' ($I'+I''=I$, where I is a set embracing all the GDN components included into the project boundary) where project activity generated no emission reductions (no component replacement/repair took place) in the reporting monitoring period;
- [i''] - index corresponding to GDN component number that belongs to the set of elements I'' ($I'+I''=I$, where I is a set embracing all the GDN components included into the project boundary) where project activity generated emission reductions (component replacement/repair took place) in the reporting monitoring period;
- [h] - index corresponding to the number of project activity in GDN component, if more than one activity was carried out at this component in monitoring period (where H is a set embracing all activities in the project scenario at the GDN component in monitoring period);
- [g] - index that corresponds to SPNGL;
- [n] - index that corresponds to EPNGL.

Emission reductions:

Calculation of emission reductions achieved as a result of the project activity

$$ERU_y = BE_y - PE_y$$

where:

- ER_y – greenhouse gas emission reductions in period y (t CO₂eq);
- BE_y – greenhouse gas emissions in period y of the baseline scenario (t CO₂eq);
- PE_y – greenhouse gas emissions in period y of the project scenario (t CO₂eq);
- [y] – index corresponding to monitoring period.

The monitoring plan presents the quality assurance and control procedures for the monitoring process which are described in the section D.2 of the PDD. This includes, as appropriate, information on calibration and on how records on data and 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. Based on the documents review and site visit interview, it is concluded that head of the working team and coordinator of the JI project at PJSC “Chernigivgas” control the monitoring procedure. Engineer, metrologist and technologist report to the head of the working team. The engineer is responsible for collection of all information envisaged in the monitoring plan and making all necessary calculations. On the basis of the obtained information the head of the working team, determines the plan of measures under the Project and the volume of necessary resources. The technologist and metrologist that are responsible for conducting monitoring measurements of leaks and repair thereof, ensure that calibrated measuring equipment and technical support are in place. Additionally, the comprehensive description of monitoring procedure and organization chart of JI project management team at PJSC “Chernigivgas” is presented in the figure 4 and Annex 3 of the PDD.

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, technical reports of the enterprise, 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.

The identified areas of concern as to Monitoring Plan, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR12, CAR13, CAR14, CAR15, CAR16, CAR17, CAR18, CL01, CL02 and CAR22).

4.8 Leakage (40-41)

According to the assessment that provided in the PDD and JI specific approach developed in compliance with "Methodology of calculation of greenhouse gas emission reduction by eliminating excess natural gas leaks in gas distribution networks", no significant leakage is expected to occur in this type of the JI project.

4.9 Estimation of emission reductions (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 generated by the project.

The PDD provides the ex ante estimates of:

- (a) Emissions for the project scenario (within the project boundary), which are 665 119 tonnes of CO₂ equivalent for 2005-2007, 1 091 865 tonnes of CO₂ equivalent for 2008-2012, and 1 091 865 tonnes of CO₂ equivalent for 2013-2017;
- (b) Leakage, which is considered equal zero tonnes of CO₂ equivalent;
- (c) Emissions for the baseline scenario (within the project boundary), which are 1 338 602 tonnes of CO₂ equivalent for 2005-2007, 5 073 281 tonnes of CO₂ equivalent for 2008-2012 and 5 973 880 tonnes of CO₂ equivalent for 2013-2017;
- (d) Emission reductions adjusted by leakage (based on (a)-(c) above), which are 683 483 tonnes of CO₂ equivalent for 2005-2007, 3 981 416 tonnes of CO₂ equivalent for 2008-2012 and 4 882 015 tonnes of CO₂ equivalent for 2013-2017.

The estimates referred to above are given:

- (a) On a annual basis;
- (b) From 31/09/2005 to 31/12/2017, covering the whole crediting period;



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

(d) For each GHG gas, which 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 formulas used for calculating the estimates referred above are the same as those used for project monitoring and described in the section 4.7 above. All formulas are consistent throughout the PDD.

For calculating the estimates referred to above, key factors, e.g. the amount of damaged parts of pipeline fittings and shut-off and control gas valves, flange and threaded connections, where methane leaks; number of operation hours of equipment where leak was detected during the year; Global warming potential of the methane; influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating the estimates referred to above, such as feasibility studies, production forecasts, actual historical monitored data, IPCC etc. are clearly identified, reliable and transparent.

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 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.

The identified areas of concern as to Estimation of emission reductions, project participants response and BV Certification's conclusion are described in Appendix A (refer to CAR05, CAR19, CAR20, and CAR21).

4.10 Environmental impacts (48)

The PDD (sections F.1 and F.2) provides the information on documentation containing the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party.



Based on the document review and the site visit, according to Ukrainian environmental regulations the methane emissions into the atmosphere are not considered as contamination. Therefore, no special environmental permits for the transportation and supply of natural gas are required.

Based on the revised information, implementation of the JI project activity leads to reduction of greenhouse gases (i.e., mainly CH₄) emissions into the atmosphere. Also, JI project measures realization will improve the safety of operation of gas distribution networks, which will positively affect social environment (e.g., reduce amount of explosions or fires).

The general environmental impact opinion derived via the provided assessment is that the project will have a positive environmental impact and its foreseeable emergency negative impacts will be insignificant and easily repaired. Moreover, the project activity will cause no harmful transboundary impacts.

The PDD provides conclusion and all references to supporting documentation in accordance with the procedures as required by the host Party.

4.11 Stakeholder consultation (49)

Consultations with stakeholders were held at meetings with representatives of Energy Institute of National Academy of Sciences of Ukraine. As a result, no negative comments toward project implementation were received.

Relevant information on stakeholder comments is included in the section G of the project design documents and justified by the documents of PJSC “Chernigivgas” that completed in accordance with Ukrainian statutory requirements.

Based on the revised documented evidences and results of interviews, verification team can conclude that JI project activities do not imply any negative environmental impact and negative social effect.

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 JI Project “Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC “Chernigivgas” 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 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 04 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation (version 04) 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 CEP Carbon Emissions Partners S.A. that relate directly to the GHG components of the project.

- /1/ PDD of the JI project "Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC "Chernigivgas" version 03 dated 11/07/2012;
- /2/ PDD of the JI project "Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC "Chernigivgas" version 04 dated 14/08/2012;
- /3/ Letter of Endorsement #2220/23/7 of the JI project "Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC "Chernigivgas" issued by the State Environmental investment Agency of Ukraine dated 14/08/2012;
- /4/ Excel spreadsheet with calculation of emission reduction (Supporting document 2);
- /5/ Excel spreadsheet with register of equipment (Supporting document 1);
- /6/ "Methodology of calculation of greenhouse gas emission reduction by eliminating excess natural gas leaks in gas distribution networks" (registration number UkrNTI 0112U00A816 dated 2012) and that is developed by Gas Institute of National Academy of Sciences of Ukraine;
- /7/ Approved methodology AM0023 "Leak reduction from natural gas pipeline compressor or gate stations" version 04.0.0.

Category 2 Documents:

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

- /1/ Statement of allotting of material and technical resources for repair and maintenance needs at Kulykivka gas distribution point (overhaul) for June 2006
- /2/ Statements of completion work for September 2006 (commissioning)
- /3/ Statements of acceptance of completion work for June 2006 (Kulykivka region)
- /4/ Statement of acceptance of work on the completed facility for September 2007
- /5/ Statements of acceptance of work on the completed facility for



- August 2007 (Nosivka administration of gas distribution and gasification and Pryluky administration of gas distribution and gasification)
- /6/ Statement of acceptance of work on the completed facility dated 27/08/2007. Inv. #2072
 - /7/ Statements #11, 12 of acceptance of work on the completed facility for October 2008 (Shchorsk administration of gas distribution and gasification)
 - /8/ Statement of completion work for July 2008 (Semenivka regional administration of gas distribution and gasification)
 - /9/ Statements of acceptance of work on the completed facility for January, August 2008 (Kotsubynske site, Shchorsk administration of gas distribution and gasification)
 - /10/ Statements of acceptance of contracted works for October, November 2009 of JSC "Chernigivgas"
 - /11/ Statements of acceptance of completed works on construction for December 2010
 - /12/ Statements #3, #4, #5 of acceptance of contracted works for September, October, and November 2010 of JSC "Chernigivgas"
 - /13/ Statement of acceptance of completed works for December 2011
 - /14/ Statements #33, #34, #37 of acceptance of completed works for September 2011
 - /15/ Statement #45 of acceptance of completed works for December 2011
 - /16/ Statement of acceptance of completed works for October 2011
 - /17/ Contract #04/01-869 on usage of the state property that is not the subject to privatization dated 28/12/2001
 - /18/ Additional agreement #3 dated 30/12/2008 to the Contract on usage of the state property that is not the subject to privatization dated 28/12/2001 #04/01-869
 - /19/ Additional agreement #2 dated 17/10/2007 to the Contract on usage of the state property that is not the subject to privatization dated 28/12/2001 #04/01-869
 - /20/ Additional agreement #4 dated 30/12/2008 to the Contract on usage of the state property that is not the subject to privatization dated 28/12/2001 #04/01-869
 - /21/ Additional agreement #1 dated 11/12/2002 to the Contract on usage of the state property that is not the subject to privatization dated 28/12/2001 #04/01-869
 - /22/ Operational manuals of gas pipeline leaks detector type JL368
 - /23/ Photo – Handcart gas pipeline leaks detector type JL368
 - /24/ Technical description and operational instruction of interferometer type ШИ-11
 - /25/ Operational manual of Portable gas detector with gooseneck type JL268
 - /26/ Photo – Measurement device type ШИ-11, ser. #100457
 - /27/ Photo – Measurement device type ШИ-11, ser. #939048



DETERMINATION REPORT

- /28/ Photo – Gas indicator type ИГ-6, ser. #199
- /29/ Photo – Gas underground pipeline leaks detector type ТПГ-94м, ser. #0980
- /30/ Certificate on controller type РДУК-2В-50135, ser. #1. It is valid from 28/04/2009 to 27/04/2012
- /31/ Passport of pressure controller type КВ-2
- /32/ Passport of multipurpose pressure controller type РДУК2ПС
- /33/ Letter of PJSC “Chernigivgas” about the information of gas analyzers of Ichnia administration of gas distribution and gasification
- /34/ Photo – Measurement device type ШИ-11, ser. #301246
- /35/ Certificate #80195/10 dated 28/02/2012 of measurement device calibration, type Variotec-B ser. #1618. It is valid up to 28/02/2013
- /36/ Certificate #84026/47 dated 10/03/2011 of measurement device calibration, type Variotec-B ser. #1618. It is valid up to 10/03/2012
- /37/ Certificate on state metrological calibration #12-8838 dated 26/10/2010, leaks detector type JL368 ser. #014080920003
- /38/ Photo – Gas detector type JL268A, ser. #014081029045
- /39/ Photo – Gas detector type JL268A, ser. #014081029039
- /40/ Passport of cabinet-type gas distribution point with pressure controller, ser. #190
- /41/ Passport of cabinet-type gas distribution point with pressure controller, ser. #189
- /42/ Certificate #5473 of verification of device technical condition after repair and technical servicing (device #1011) dated 02/04/2011
- /43/ Certificate #39 dated 31/01/2011 of measurement device calibration (elastic-element pressure gage), ser. #12740. It is valid to 31/01/2012
- /44/ Certificate #08-0026 on state metrological calibration (Variotec-8, ser. #040010208) dated 16/02/2009
- /45/ Certificate #84026/52 dated 10/03/2011 of measurement device calibration type Variotec-8, ser. #040010208. It is valid up to 10/03/2012
- /46/ Certificate #80195/18 dated 28/02/2012 of measurement device calibration type Variotec-8, ser. #040010208. It is valid up to 28/02/2013
- /47/ Certificate #82033/11 dated 31/03/2010 of measurement device calibration type Variotec-8, ser. #040010208. It is valid up to 31/03/2011
- /48/ Certificate #80649/8 dated 16/05/2012 of measurement device calibration type X-am 5600, ser. #ARBN-0032. It is valid up to 16/05/2013
- /49/ Certificate #5476 of verification of device technical condition after repair and technical servicing (device #0244) dated



DETERMINATION REPORT

- 02/04/2010
- /50/ Certificate #4358 of verification of device technical condition after repair and technical servicing (device #0244) dated 14/01/2009
 - /51/ Certificate #4357 of verification of device technical condition after repair and technical servicing (device #0134) dated 08/01/2009
 - /52/ Certificate #3754 of verification of device technical condition after repair and technical servicing (device #040 01 0208) dated 23/12/2007
 - /53/ Photo – Measurement device type ШИ-11, ser. #906682
 - /54/ Photo – Measurement device type ШИ-11, ser. #037908
 - /55/ Photo – Measurement device type ШИ-11, ser. #0535866
 - /56/ Photo – Measurement device type ШИ-10, ser. #319045
 - /57/ Photo – Measurement device type ПГФ2М1-И1АУ4, ser. #5646
 - /58/ Photo – Measurement device type ПГФ2М1-И1АУХЛ4, ser. #5612
 - /59/ Photo – Measurement device type ПГФ2М1-И1АУХЛ4, ser. #5652
 - /60/ Warranty certificate #28-12-4 of the device type X-am 5600, ser. #ARBN-0033 dated 28/12/2010
 - /61/ Certificate #6071 dated 29/12/2010 of measurement device calibration type X-am 5600, ser. #ARBN-0033. It is valid up to 29/12/2011
 - /62/ Certificate #80649/6 dated 16/05/2012 of measurement device calibration type X-am 5600, ser. #ARBN-0033. It is valid up to 16/05/2013
 - /63/ Certificate #8402655 dated 10/03/2012 of measurement device calibration type Variotec-8, ser. #040010170. It is valid up to 10/03/2013
 - /64/ Certificate #84026/46 dated 10/03/2012 of measurement device calibration type Variotec-8, ser. #1622. It is valid up to 10/03/2013
 - /65/ Form of interferometer type ШИ-11, ser. #627273
 - /66/ Form of interferometer type ШИ-11, ser. #910879
 - /67/ Form of interferometer type ШИ-11, ser. #722665
 - /68/ Form of interferometer type ШИ-11, ser. #900447
 - /69/ Form of interferometer type ШИ-11, ser. #715414
 - /70/ Form of interferometer type ШИ-11, ser. #812899
 - /71/ Form of interferometer type ШИ-11, ser. #204867
 - /72/ Form of interferometer type ШИ-11, ser. #131668
 - /73/ Form of interferometer type ШИ-11, ser. #536447
 - /74/ Form of interferometer type ШИ-11, ser. #723552
 - /75/ Form of interferometer type ШИ-11, ser. #020621
 - /76/ Photo – Measurement device type ПГФ2М1-И3ГУ4, ser. #3764
 - /77/ Photo – Interferometer type ШИ-11, ser. #828775
 - /78/ Photo – Gas underground pipeline leaks detector type ТПГ-94м,



- ser. #0159
- /79/ Passport of universal pressure controllers of Kazantsev, ser. #17
- /80/ Passport of cabinet device with pressure controllers type РД-50, ser. #3551
- /81/ Passport of controllers of low (high) pressure, ser. #203
- /82/ Photo – Measurement device type ШИ-11, ser. #023294
- /83/ Photo – Measurement device type ШИ-11, ser. #413006
- /84/ Photo – Measurement device type ШИ-11, ser. #124184
- /85/ Photo – Measurement device type ШИ-11, ser. #131502
- /86/ Photo – Measurement device type ШИ-11, ser. #301103
- /87/ Photo – Measurement device type ШИ-11, ser. #940946
- /88/ Photo – Measurement device type ТПГ-94 М, ser. #0986
- /89/ Photo – Measurement device type JL268A, ser. #014081029041
- /90/ Photo – Measurement device type ШИ-11, ser. #828775
- /91/ List of gas analyzers and gas leaks devices of Sribniansk regional administration of gas distribution and gasification of PJSC “Chernigivgas”
- /92/ List of equipment that detect of gas leaks in emergency conditions (Chernigiv city)
- /93/ Photo – Measurement device type ШИ-11, ser. #118995
- /94/ Photo – Measurement device type ИГ-6, ser. #216
- /95/ Photo – Measurement device type Variotec-8, ser. #2020
- /96/ Photo – Gas underground pipeline leaks detector type ТПГ-94м, ser. #0993
- /97/ Operational manual on handcart type pipeline gas leakage detector JL368, ser. #014080920002
- /98/ Passport of equipment on detection of underground pipelines type АПК-2000МП, ser. #395
- /99/ Certificate on verification dated 11/05/2012 (gas indicator ИГ-6, ser. #216). It is valid to 11/11/2012
- /100/ Certificate on verification of odorimeter ser. #058 dated 18/05/2010
- /101/ Certificate on verification of gas indicator type ИГ-6, ser. #206, dated 11/05/2012. It is valid up to 11/11/2012
- /102/ Statement of work completion for September 2005 (Kulykivka)
- /103/ Emission reductions purchase agreement relating to the Joint Implementation project between CEP Carbon Emissions Partners S.A. and Joint Stock Company of Gas supplying and gasification “Chernigivgas”
- /104/ Information note #13/2472 of PJSC “Chernigivgas” on the average methane fraction in natural gas for the period 2005-2012 dated 25/07/2012
- /105/ Order #157 dated 18/07/2012 on approval of working team on reduction of methane leaks on the gas equipment of the gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines in the frame of Joint Implementation project



/106/ Information note of company redesignating from Open Joint Stock Company on gas distribution and gasification “Chernigivgas” to Public Joint Stock Company on gas distribution and gasification “Chernigivgas”

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/ Alla Yarova - Chairman of the Board;
- /2/ Oleksandr Karashchuk – deputy chief engineer, leader of working team;
- /3/ Sergii Luniov – engineer of master mechanic department, secretary of working team;
- /4/ Viacheslav Kuntsevskyi – engineer of production and technical department, technologist of working team;
- /5/ Sergii Likhuta - engineer of master mechanic department, engineer of working team;
- /6/ Valerii Stuk – head of site of control and measurement equipment, metrologist of working team.
- /7/ Dmitro Prokhach - consultant of CEP CARBON EMISSIONS PARTNERS S.A.

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DETERMINATION REPORT

APPENDIX A: PROJECT DETERMINATION PROTOCOL

Table 1 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?	The title of the project is presented in the section A.1 of the PDD. The title of the JI project is "Reduction of methane leaks on the gas equipment of gas distribution points and on the gas armature, flanged, threaded joints of the gas distribution pipelines of PJSC "Chernigivgas".	OK	OK
-	Is the sectoral scope to which the project pertains presented?	The sectoral scope of the JI project is (10) Fugitive emissions from fuels (solid, oil and gas).	OK	OK
-	Is the current version number of the document presented?	In the PDD current version of the document and the date of issuance are stated. For instance, the version 03 of the PDD is dated 11/07/2012.	OK	OK
-	Is the date when the document was completed presented?	The PDD present the document completion date as required.	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing	According to the PDD, the main purpose of the project is methane leaks reduction on the gas	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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)?	transportation equipment and gas distribution infrastructure of PJSC "Chernigivgas". Methane leaks are a result of permeable and unpressurized equipment of natural gas armature. The main sources of NG leaks are such as: natural gas equipment (i.e., pressure controllers, valves, filters, etc.) and gas armature (i.e., taps, faucets, shutters, etc.) that installed on the natural gas pipeline of PJSC "Chernigivgas". Situation existing prior to the starting date of the project, project scenario and baseline scenario are included in section A.2 of the PDD.		
-	Is the history of the project (incl. its JI component) briefly summarized?	The project history is summarized in the section A of the PDD. Information regarding JI component of the project, including JI prior consideration is presented as well. <u>Corrective Action Request 03 (CAR03)</u> . Please, provide the documented evidences of the dates that concern the history of the JI project with its JI component. <u>Corrective Action Request 04 (CAR04)</u> . Please correct printed errors in the reference through the PDD.	CAR03 CAR04	OK OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	Yes, the respective information is presented in the section A.3 of the PDD. The Parties involved are	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Ukraine (Host Party) and Switzerland.		
-	Is the data of the project participants presented in tabular format?	The data of the project participants are presented in the tabular format.	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	The contact information of project participants is provided in the tabular format 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, it is indicated in the section A.3 of the PDD that Ukraine is a host Party.	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine is a host Party.	OK	OK
-	Region/State/Province etc.	Chernigiv city and adjusted territories.	OK	OK
-	City/Town/Community etc.	The JI project includes all administrative and territorial units of the gas transportation system PJSC "Chernigivgas" are located.	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	The JI project is implemented on the territory of Chernigiv city and Chernigiv region. The coordinates of the city Chernigiv is provided in section A.4.1.4 of the PDD such as 51°30'00"EL, 31°18 '00" NL.	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	Section A.4.2 of the PDD provides the description of the technologies to be employed, measures and actions to be implemented by the regarded JI project as well as the information about technical	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	data and the implementation schedule described?	data. Also, implementation schedule of JI project is stated.		
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 sectoral policies and circumstances				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	Considering that within project activity amount of the methane leaks will be reduced, respectively the amount of GHG – mainly CH ₄ within the project's framework also will be reduced as a result of implementation of measures undertaken that are aimed to reduce the emissions from natural gas leaks in elements of the gas transportation system and gas distribution infrastructure of PJSC "Chernigivgas". Moreover, application and realization of constant monitoring of potential sources of leaks and prevention of their occurrence will significantly reduce the methane leaks at technological equipment.	OK	OK
-	Is it provided the estimation of emission reductions over the crediting period?	In section A.4.3.1 there is provided the estimation of emission reductions over the crediting period that divided into 3 periods (i.e., 2005-2007, 2008-2012, 2013-2017). The data are presented in separate tables with estimated amount of emission reductions for Kyoto protocol commitment period and for the period before the commitment period and for the period after the commitment period.	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Is it provided the estimated annual reduction for the chosen credit period in tCO ₂ e?	The estimated annual average reductions are provided section A.4.3.1 of the PDD and these are 691 911 t CO ₂ eq. for 2008-2012 (the 1st commitment period) and 329 481 t CO ₂ eq. for 2005-2007 (before the 1st commitment period) and 706 032 t CO ₂ eq. for 2013-2017 (after the 1st commitment period).	OK	OK
-	Are the data from questions above presented in tabular format?	Yes, all estimations are provided in the tabular format in the section A.4.3.1 of the PDD.	OK	OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	The length of the crediting period is indicated in the tables with data estimation. <u>Corrective Action Request 05 (CAR05)</u> . Length of the period before the 1st commitment period is 2 years and 3 months (not full 3 years). Please correct.	CAR05	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO ₂ equivalent provided?	Yes, estimates of total as well as annual and average annual emission reductions are provided in tonnes of CO ₂ equivalent and stated in section A.4.3.1 of the project design documents.	OK	OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	<u>Corrective Action Request 01 (CAR01)</u> . The project has no approval of the host Party (Ukraine) no by other Party involved (Switzerland) were provided. <u>Corrective Action Request 06 (CAR06)</u> . Please,	CAR01 CAR06	CAR01 is pending OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		provided the Letter of Endorsement issued by the Host party.		
19	Does the PDD identify at least the host Party as a "Party involved"?	Ukraine, which is the host Party, and Switzerland are indicated as the Parties involved.	OK	OK
19	Has the DFP of the host Party issued a written project approval?	No written project approval by the host Party is available. Refer to CAR01.	Refer to CAR01 above.	-
20	Are all the written project approvals by Parties involved unconditional?	No written project approvals by the Parties involved are available. Refer to CAR01.	Refer to CAR01 above.	-
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 – Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	<u>Corrective Action Request 02 (CAR02)</u> . The authorizations of the legal entities project participant by the Parties involved are absent.	CAR02	CAR02 is pending
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline?	Based on the information provided in section B of the PDD, it can be concluded that the JI specific approach is used for baseline setting of JI project.	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<ul style="list-style-type: none"> - JI specific approach - Approved CDM methodology approach 			
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	A detailed theoretical description in a complete and transparent manner is provided for the applied JI specific approach.	OK	OK
23	<p>Does the PDD provide justification that the baseline is established:</p> <p>(a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one?</p> <p>(b) Taking into account relevant national and/or sectoral policies and circumstance?</p> <p>- Are key factors that affect a baseline taken into account?</p> <p>(c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors?</p> <p>(d) Taking into account of uncertainties and using conservative assumptions?</p> <p>(e) In such a way that ERUs cannot be</p>	<p>The baseline is established:</p> <p>(a) By listing and describing likely future scenarios available for the project owner PJSC "Chernigivags" and selecting the most plausible one. Two plausible future scenario (a. Continuation of the current situation of diagnosing and elimination of leaks and b. Realization of proposed project activity without the use of the Joint Implementation mechanism) were identified and assessed, and based on the alternatives analysis most plausible baseline scenario was identified which is continuing of the existing practice.</p> <p>(b) Taking into account relevant national and sectoral policies and circumstance in the natural gas sector as well as key appropriate factors that affect a baseline, such as state policy and applicable law in the gas sector, economic situation in the gas sector in Ukraine and forecast</p>	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>earned for decreases in activity levels outside the project or due to force majeure?</p> <p>(f) By drawing on the list of standard variables contained in appendix B to “Guidance on criteria for baseline setting and monitoring”, as appropriate?</p>	<p>demand for products (e.g., natural gas), technical aspects of management and operation of systems in the gas sector, availability of capital that are typical for PJSC “Chernigivgas”, local availability of technology / equipment, etc.</p> <p>(c) In a generally transparent manner with regard to the choice of the JI specific approach and related assumptions, parameters, data sources and key factors for baseline setting, which are listed in tabular format in Section B.1.</p> <p>(d) Taking into account of the uncertainty and using a conservative assumption,</p> <p>(e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure.</p> <p>(f) By drawing on the list of standard variables some of which is contained in appendix B to “Guidance on criteria for baseline setting and monitoring”.</p>		
24	<p>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</p>	<p>Yes, JI specific approach is developed based on “Methodology of calculation of greenhouse gas emission reduction by eliminating excess natural gas leaks in gas distribution networks” that was elaborated by Gas Institute of National Academy of Sciences of Ukraine. Methodology takes into account elements of approved CDM methodology</p>	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	23 above?	AM0023 "Leak reduction from natural gas pipeline compressor or gate stations" (version 04.0.0). The last one can be applied to projects on reduction of methane leaks in natural gas compressor, gas distribution stations in the system of main gas pipelines, as well as for equipment of gas distribution systems, including the stations, which regulate gas pressure. <u>Corrective Action Request 07 (CAR07)</u> . Provide Methodology developed by Gas Institute of National Academy of Sciences of Ukraine (Gas Institute NASU). <u>Corrective Action Request 08 (CAR08)</u> . Incorrect reference to Annex 3 was provided (see section B.1 of the PDD). Please make amendment.	OK OK	OK OK
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	No multi-project emission factor is used in the PDD.	OK	OK
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	The JI specific approach is used, the section is not applicable.	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	Not applicable	N/A	N/A



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	period (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?	Not applicable	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?	Not applicable	N/A	N/A
26 (d)	Is the baseline identified appropriately as a result?	Not applicable	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	The PDD indicates that the latest version of the "Tool for the demonstration and assessment of additionality" is used with a purpose of proving the project's additionality.	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>removals;</p> <p>(b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality;</p> <p>(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”.</p>			
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	The PDD provides a justification of the applicability of the approach. Due to the fact that the approved CDM methodology AM0023 (version 04.0.0) requires usage of “Tool for the demonstration and assessment of additionality”, it is applied. This is considered as a good practice for additionality justification.	OK	OK
29 (b)	Are additionality proofs provided?	The project’s additionality is proved using stepwise approach prescribed by the Tool Additionality in section B.2 for the PDD.	OK	OK
29 (c)	Is the additionality demonstrated appropriately as a result?	Yes, it is demonstrated that the project is additional to those that would otherwise occur.	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	Refer to section 28-29 above and to the Table 2 of this Determination protocol.	OK	OK
Approved CDM methodology approach only				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	The JI specific approach is used, the section is not applicable.	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?	Not applicable	N/A	N/A
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	Not applicable	N/A	N/A
31 (d)	Are additionality proofs provided?	Not applicable	N/A	N/A
31 (e)	Is the additionality demonstrated appropriately as a result?	Not applicable	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	Yes, the project boundary is defined in line with all presented requirements. The emission sources identified include natural gas (methane) leaks on natural gas equipment (i.e., pressure controllers, valves, filters, etc.) and gas armature (i.e., taps,		



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	participants? (ii) Reasonably attributable to the project? (iii) Significant?	faucets, shutters, etc.) that installed on the natural gas pipeline of PJSC "Chernigivgas". <u>Corrective Action Request 09 (CAR09)</u> . Provide the Contract on usage of government property dated 28/12/2001 that is referenced to in section B.3 of the PDD.	CAR09	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 based on case-by-case assessment according to the criteria stated in section 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?	The delineation of the project boundary and gases and sources are described and justified in a proper manner using a figure which depicts the project boundary.	OK	OK
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	<u>Corrective Action Request 10 (CAR10)</u> . Please state gases and sources in section B.3 of the PDD.	CAR10	OK
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	The JI specific approach is used, the section is not applicable.	N/A	N/A
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the	The starting date of the project is 31/09/2005. It is the date of the first performed work. The date		



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	implementation or construction or real action of the project will begin or began?	confirms with special documents of PJSC "Chernigivgas". <u>Corrective Action Request 11 (CAR11)</u> . Please, provide documented evidence that justify starting date of the project.	CAR11	OK
34 (a)	Is the starting date after the beginning of 2000?	The JI project starts on 2005. Also, see section 34 (a) above.	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	The expected operational lifetime of the project indicated in the PDD is 12 years and 3 months or 147 months.	OK	OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	The length of the crediting period is stated in years and months, such as 31/09/2005 – 31/12/2007 (2 years and 3 months or 27 months) is the period before the first commitment period, 01/01/2008-31/12/2012 (5 years or 60 months) is the first commitment period, 01/01/2013 - 31/12/2017 (5 years or 60 months) is the period after the first commitment period.	OK	OK
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 crediting period commences with the start of project activity implementation, so it is after the first emission reduction 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	The first commitment period for issuance ERUs starts after the beginning of 2008 (on 01/01/2008). The crediting period stated in PDD does not	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	not extend beyond the operational lifetime of the project?	extend beyond the operational lifetime of the project which is assumed to be 12 years and 3 months or 147 months.		
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?	According to the information that provided in the PDD, the crediting period extends beyond 2012.	OK	OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? – JI specific approach – Approved CDM methodology approach	It is explicitly stated that JI specific approach is used for establishing the monitoring plan.	OK	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: – All relevant factors and key characteristics that will be monitored? – The period in which they will be monitored? – All decisive factors for the control and reporting of project performance?	The monitoring plan in sufficient manner describes all relevant key factors and characteristics that will be monitored and the period in which they will be monitored. All assumption and decisive factors for project monitoring are described appropriately.	OK	OK
36 (b)	Does the monitoring plan specify the	All constants and variables used are reliable and		



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	valid and transparently described in the section D of the PDD. <u>Corrective Action Request 12 (CAR12)</u> . Please describe and justify in the PDD section D parameter <i>ConvFactor</i> that is used in the formulae for baseline and project emissions.	CAR12	OK
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?	Constant used are the default value of the parameter as follows: theoretical data for transferring of values. The default values originate from recognized sources and are presented in a transparent manner.	OK	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, required information is included in the monitoring plan.	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	Clear references for data sources are indicated in the monitoring plan, mainly there are Methodology and IPCC materials. The use of the values as well as their conservativeness is justified.	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	provided justified?			
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	<p>Quality assurance and quality control procedures ensuring data availability and credibility are described in the monitoring plan in a proper manner (refer to section D.2).</p> <p><u>Corrective Action Request 13 (CAR13)</u>. Please, specify the procedures to be followed if expected monitoring data are unavailable.</p> <p><u>Corrective Action Request 14 (CAR14)</u>. Provide identification symbol for each parameter in table D.2 of the PDD.</p>	CAR13	OK
			CAR14	OK
36 (b) (iv)	Are International System Unit (SI units) used?	Yes, the ISU is used	OK	OK
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained through monitoring?	Yes, number of JI project parameters such as Global Warming Potential of the methane, volume to weight conversion factor for methane leaks, Sequence number of the GDN component (GDP (CGDP), gas fitting) included into the project boundary, Number of activity (replacement/repair) in GDN component after EPNGL was detected, Average mass fraction of methane in natural gas, Natural gas leakage factor of GDN component in CLP, Natural gas leakage factor corresponding to EPNGL of GDN component, Time of GDN component operation under the pressure from the beginning of monitoring period y to the	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		implementation of the project activity (repair/replacement) that caused EPNGL removal, Time of GDN component operation under the pressure from the implementation of the project activity (repair/replacement) that caused EPNGL removal to the end of monitoring period y are monitored ex-post; all monitored parameters used for baseline emission calculation are described and justified in the monitoring plan.		
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	The monitoring approach developed for this project is consistent with the assumptions and procedures adopted in the baseline approach. The monitoring approach requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way. All parameter, variables are consistent between 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"?	The monitoring plan uses some standard variables contained in appendix B of the "Guidance". For instance, the following standard variables: PE _y , BE _y , GWP _{CH4} , etc.	OK	OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting	The monitoring plan explicitly and clearly distinguishes: (i) Data and parameters that are not monitored throughout the crediting period, but are determined	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination?</p> <p>(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?</p> <p>(iii) Data and parameters that are monitored throughout the crediting period?</p>	<p>only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination</p> <p>(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</p> <p>(iii) Data and parameters that are monitored throughout the crediting period.</p> <p>More detailed information is described in section D.1 of the PDD.</p>		
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	The method employed for data monitoring including monitoring frequency and recording is described in sufficient details.	OK	OK
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?	All necessary algorithms and formulas are elaborated in the monitoring plan and provided in section D of the PDD.	OK	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The justification for all formulas and algorithms are provided.		



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<u>Corrective Action Request 15 (CAR15)</u> . Provide the formula for calculation of the parameters K_i^n and K_i^g that are used for emission reduction assessment.	CAR15	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	Mainly, all formulas, variable etc. are consistent. <u>Corrective Action Request 16 (CAR16)</u> . Please, make symbols of all variables in consistency through the PDD. <u>Corrective Action Request 17 (CAR17)</u> . Please mark parameters/variables with special symbols for identification baseline parameters and project parameters.	CAR16 CAR17	OK OK
36 (f) (iii)	Are all equations numbered?	Yes, all formulas are numbered. See section D of the PDD.	OK	OK
36 (f) (iv)	Are all variables, with units indicated defined?	All variables are defined, described and units indicated.	OK	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	The algorithms and procedures are conservative which is justified appropriately.	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	The level of uncertainty of the key parameters is indicated in the section D.2 of the PDD.	OK	OK
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?	The consistency between identified baseline scenario and baseline emission calculation procedure is available. The monitoring approach developed for the project is consistent with the assumptions and procedures adopted in the	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		baseline approach.		
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	All formulas and algorithms are described in sufficient details. <u>Corrective Action Request 18 (CAR18)</u> . Provide algorithm for calculation of the parameter W_y .	CAR18	OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	The data collected is rigorously monitored as part of normal operation process of the plant. Data required for the monitoring plan for the project will be closely tracked as integral part of PJSC "Chernigivgas" core business, and the monitoring procedures used are standard technical procedures for gas sector in Ukraine.	OK	OK
36 (f) (vii)	Are references provided as necessary?	In most cases references are provided.	OK	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	The detailed explanation of all assumptions is provided in a sufficient and transparent manner under the section D.1 of the PDD.	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?	The level of uncertainty of key parameters is identified and described D.2 of the PDD.	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	See 36 (f) (vii) above. <u>Clarification Request 01 (CL01)</u> . Clarify uncertainty level of parameter GWP_{CH_4} .	CL01	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	enhancements of net removals provided?			
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?	Special national monitoring standard on calibration is applied, although project monitoring complies with Ukrainian norms and regulations and specific industry standard in metering equipment calibration, measurements etc. <u>Clarification Request 02 (CL02)</u> . Clarify the types of measurement devices that should be used according to the JI project.	CL02	OK
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	Statistical techniques are not used in course of current project monitoring.	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?	The appropriate information regarding quality assurance and control procedures as to the project monitoring in the whole and separate monitoring parameters is reflected in the monitoring plan and provided under the section D.2 of the PDD.	OK	OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring	The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. The data required to monitor	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	activities?	the ERs is routinely collected within the head of the working team of PJSC "Chernigivgas" therefore monitoring is integral part of routine monitoring. On the basis of the obtained monitoring analyses the volume of necessary resources and parameters are to be transferred to coordination. The technologist, methrologist, and engineer at PJSC "Chernigivgas", that are responsible for conducting monitoring measurements of leaks and repair, ensure calibration of measurement equipment and technical support.		
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?	The monitoring plan, on the whole, does not reflect good monitoring practices appropriate to the project type.	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 measured or sampled and data that are collected from other sources but not including data that are calculated with	Yes, the compilation in tabular form on monitoring parameters are provided using format of the tables from Guidelines for JI PDD user.	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	It is indicated that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project. <u>Corrective Action Request 22 (CAR22)</u> . In order to ensure that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project a special document on monitoring data storage should be issued.	CAR22	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, JI specific approach is developed based on "Methodology of calculation of greenhouse gas emission reduction by eliminating excess natural gas leaks in gas distribution networks" that was elaborated by Gas Institute of National Academy of Sciences of Ukraine. Methodology takes into account elements of approved CDM methodology AM0023 "Leak reduction from natural gas pipeline compressor or gate stations" (version 04.0.0). It can be applied to projects on reduction of methane leaks in natural gas compressor, gas distribution stations in the system of main gas pipelines, as well as for equipment of gas distribution systems, including the stations, which regulate gas pressure.	OK	OK
Approved CDM methodology approach only				



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	The JI specific approach is used, the section is not applicable.	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)?	Not applicable	N/A	N/A
38 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	N/A	N/A
38 (c)	Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with the referenced approved CDM methodology?	Not applicable	N/A	N/A
38 (d)	Is the monitoring plan established appropriately as a result?	Not applicable	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	The monitoring plan does not indicate overlapping monitoring periods during the crediting period.	N/A	N/A



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>which emission reductions or enhancements of removals can be calculated independently?</p> <p>(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)?</p> <p>(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?</p> <p>(d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?</p>			
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain	According to the assessment and JI specific approach developed with the elements "Methodology of calculation of greenhouse gas	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	which sources of leakage are to be calculated and which can be neglected?	emission reduction by eliminating excess natural gas leaks in gas distribution networks” that was developed by Gas Institute of National Academy of Sciences of Ukraine. No significant leakage is expected to occur in this type of the JI project.		
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	Refer to 40 (a) 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?	The JI specific approach is used, the section is not applicable.	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	The assessment of emissions in baseline scenario and in the project scenario is chosen which corresponds to the monitoring Option 1, thus the approach 42 (a) is chosen. <u>Corrective Action Requests 19 (CAR19)</u> . Please explain the formula provided in section E.5 of the PDD.	CAR19	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 project scenario (within the project boundary)? (b) Leakage, as applicable?	The approach in 42 (a) is chosen for emission reduction calculation. The PDD provides ex ante estimates of: (a) Emissions for the project scenario (Section E.1); (b) no leakage is expected in the JI project (Section E.2);	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	(c) Emissions for the baseline scenario (Section E.4); (d) Emission reductions adjusted by leakage (Section E.6).		
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?	The approach (a) in 42 is chosen.	OK	OK
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	The estimates are given for each year from the beginning until the end of the crediting period (starting from 2005 ending 2017) on a source-by-source basis for each gas in tonnes of CO ₂ equivalent. The formulas used for calculation and estimates are consistent throughout the PDD. The key factors having impact on baseline and activity level as well as risks were considered appropriately.		OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?</p> <p>(b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD?</p> <p>(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?</p> <p>(d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent?</p> <p>(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?</p> <p>(f) Is the estimation in 43 or 44 based</p>	<p>All data sources are reliable are indicated in transparent manner. No emission factor is used for estimation of emission reduction.</p> <p>All estimations are made using conservative assumption and are consistent throughout the PDD.</p> <p><u>Corrective Action Requests 20 (CAR20)</u>. Please calculate the annual average of estimated emission reductions by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve.</p> <p><u>Corrective Action Requests 21 (CAR21)</u>. In Excel spreadsheet provide the formulae that are used for calculation of emission reduction.</p>	<p>CAR20</p> <p>CAR21</p>	<p>OK</p> <p>OK</p>



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>on conservative assumptions and the most plausible scenarios in a transparent manner?</p> <p>(g) Are the estimates in 43 or 44 consistent throughout the PDD?</p> <p>(h) 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?</p>			
46	<p>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?</p>	<p>The baseline emissions are determined based on monitored the list of parameters, such as: Global Warming Potential of the methane, Number of activity (replacement/repair) in GDN component after EPNGL was detected, Average mass fraction of methane in natural gas, Natural gas leakage factor of GDN component in CLP, Natural gas leakage factor corresponding to EPNGL of GDN component, Time of GDN component operation under the pressure from the beginning of monitoring period y to the implementation of the project activity (repair/replacement) that caused EPNGL removal, Time of GDN component</p>	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		operation under the pressure from the implementation of the project activity (repair/replacement) that caused EPNGL removal to the end of monitoring period y. Thus, the ex ante emission calculation for baseline are provided in the PDD.		
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?	The JI specific approach is used, the section is not applicable.	N/A	N/A
47 (b)	Is the estimation of emission reductions or enhancements of net removals presented in the PDD: <ul style="list-style-type: none"> - 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? - Are the formula used for calculating 	Not applicable	N/A	N/A



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>the estimates consistent throughout the PDD?</p> <ul style="list-style-type: none"> - 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?	<p>The PDD (sections F.1 and F.2) provides the information on documentation containing the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party.</p> <p>Based on the revised information, implementation of the JI project activity leads to reduction of greenhouse gases (i.e., mainly CH₄) emissions into the atmosphere. Also, JI project measures realization will improve the safety of operation of gas distribution networks, which will positively</p>	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		affect social environment (e.g., reduce amount of explosions or fires). Transboundary impacts of project activities will not take place.		
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?	As per provided documentation, proposed JI project activity will have comprehensive positive impact on various aspects of activity of the local community, and all decisions that were made by project participants were transparent and independent to the extent requirements of the Ukrainian legislation.	OK	OK
Stakeholder consultation				
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 with stakeholders were held at meetings with representatives of Energy Institute of National Academy of Sciences of Ukraine. As a result, no negative comments toward project implementation were received. Based on the revised documents and results of interviews, verification team can conclude that JI project activities do not imply any negative environmental impact and negative social effect. The required information is also provided in the section G.1 of the PDD.	OK	OK
Determination regarding small-scale projects (additional elements for assessment)				



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Determination regarding land use, land-use change and forestry projects (additional/alternative elements for assessment)				
Determination regarding programmes of activities (additional/alternative elements for assessment)				

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
<u>Corrective Action Request 01 (CAR01)</u> . The project has no approval of the host Party (Ukraine) no by other Party involved (Switzerland) were provided.	Table 1, 19	The Letter of Approval will be provided after the project determination. This is in consistent with Host Party legislation. The necessary clarification is provided in the section A.5 of the PDD.	The situation is clarified. Issue is pending.
<u>Corrective Action Request 02 (CAR02)</u> . The authorizations of the legal entities project participant by the Parties involved are absent.	Table 1, 21	Legal entities of the project participant by the Parties involved will be authorized by written approvals of the Parties. The Letters of Approval will be provided after the project determination.	The issue will be resolved after the issuance of the project written approvals by the Parties.



DETERMINATION REPORT

<u>Corrective Action Request 03 (CAR03).</u> Please, provide the documented evidences of the dates that concern the history of the JI project with its JI component.	Table 1	Required documents were provided for revision.	Based on the provided documents, issue is closed.
<u>Corrective Action Request 04 (CAR04).</u> Please correct printed errors in the reference through the PDD.	Table 1	Required amendments were done through updated version of the PDD.	Issue is closed.
<u>Corrective Action Request 05 (CAR05).</u> Length of the period before the 1st commitment period is 2 years and 3 months (not full 3 years). Please correct.	Table 1	Corrected.	Amendments were revised and information was found in order. Issue is closed.
<u>Corrective Action Request 06 (CAR06).</u> Please, provided the Letter of Endorsement issued by the Host party.	Table 1, 19	Letter of Endorsement (LoE) issued by State Environmental Investment Agency of Ukraine was provide to verification team.	The document is available for revision. Issue is closed.
<u>Corrective Action Request 07 (CAR07).</u> Provide Methodology developed by Gas Institute of National Academy of Sciences of Ukraine (Gas Institute NASU).	Table 1, 24	Methodology developed by Gas Institute of National Academy of Sciences of Ukraine was provided.	The Methodology was introduced to the methods and algorithms. The document was taking into account during PDD assessment. Issue is closed.
<u>Corrective Action Request 08 (CAR08).</u> Incorrect reference to Annex 3 was provided (see section B.1 of the PDD). Please make amendment.	Table 1, 24	The reference was corrected in updated PDD.	The reference was clarified. Issue is closed.
<u>Corrective Action Request 09 (CAR09).</u> Provide the Contract on usage of government property dated 28/12/2001 that is referenced to in section B.3 of the PDD.	Table 1, 32 (a)	Document was provided to the BVC team.	Required document was provided. Issue is closed.



DETERMINATION REPORT

<u>Corrective Action Request 10 (CAR10).</u> Please state gases and sources in section B.3 of the PDD.	Table 1, 32 (d)	GHG gases and its sources were clarified and described in the PDD.	GHG gases and its sources were described in sufficient way. Issue is closed.
<u>Corrective Action Request 11 (CAR11).</u> Please, provide documented evidence that justify starting date of the project.	Table 1, 34 (a)	Requested document was provided to confirm the starting date of the project.	According to the document revision, issue is closed.
<u>Corrective Action Request 12 (CAR12).</u> Please describe and justify in the PDD section D parameter <i>ConvFactor</i> that is used in the formulae for baseline and project emissions.	Table 1, 36 (b)	Parameter <i>ConvFactor</i> was described in details in relevant sections of the PDD.	Issue is closed based on the corrections that were made.
<u>Corrective Action Request 13 (CAR13).</u> Please, specify the procedures to be followed if expected monitoring data are unavailable.	Table 1, 36 (b) (iii)	The procedures to be followed if expected monitoring data are unavailable is described in section D.2 of the PDD.	Issue is closed.
<u>Corrective Action Request 14 (CAR14).</u> Provide identification symbol for each parameter in table D.2 of the PDD.	Table 1, 36 (b) (iii)	Information is amended. See updated PDD.	Requested information was corrected in right manner. Issue is closed.
<u>Corrective Action Request 15 (CAR15).</u> Provide the formula for calculation of the parameters K^n_i and K^g_i that are used for emission reduction assessment.	Table 1, 36 (f) (i)	The algorithm of assessment of the parameters K^n_i and K^g_i was described in details.	Issue is closed.
<u>Corrective Action Request 16 (CAR16).</u> Please, make symbols of all variables in consistency through the PDD.	Table 1, 36 (f) (ii)	Corrected.	All symbols of variables is in consistency through the PDD. Issue is closed.



DETERMINATION REPORT

<u>Corrective Action Request 17 (CAR17)</u> . Please mark parameters/variables with special symbols for identification baseline parameters and project parameters.	Table 1, 36 (f) (ii)	Requested amendments were done.	Parameters/variables were identified with special symbols. Issue is closed.
<u>Corrective Action Request 18 (CAR18)</u> . Provide algorithm for calculation of the parameter W_y .	Table 1, 36 (f) (vii)	The algorithm for calculation of the parameters W_y was provided and justified.	Based on justification, issue is closed.
<u>Corrective Action Requests 19 (CAR19)</u> . Please explain the formula provided in section E.5 of the PDD.	Table 1, 42	Please for details of explanation see section E of corrected PDD.	Issue is closed.
<u>Corrective Action Requests 20 (CAR20)</u> . Please calculate the annual average of estimated emission reductions by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve.	Table 1, 45	The value of annual average of estimated emission reductions was recalculated taking into account the fact that 2 years and 3 months is the total period.	The value was calculated in sufficient way; so issue is closed.
<u>Corrective Action Requests 21 (CAR21)</u> . In Excel spreadsheet provide the formulae that are used for calculation of emission reduction.	Table 1, 45	Formulae for calculation of emission reductions were provided in the Excel spreadsheet.	As per amendments, issue is closed.
<u>Clarification Request 01 (CL01)</u> . Clarify uncertainty level of parameter GWP_{CH_4} .	Table 1, 36 (f) (vii)	Parameter GWP_{CH_4} has low level of uncertainty. Justification was stated in the updated version of the PDD.	According to the clarification, issue is closed.



DETERMINATION REPORT

<p><u>Clarification Request 02 (CL02)</u>. Clarify the types of measurement devices that should be used according to the JI project.</p>	<p>Table 1, 36 (g)</p>	<p>Portable gas detectors with gooseneck, gas pipeline leaks detectors, multipurpose pressure controllers, interferometers, and other equipment are to be used during JI project realization.</p>	<p>Issue is closed.</p>
<p><u>Corrective Action Request 22 (CAR22)</u>. In order to ensure that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project a special document on monitoring data storage should be issued.</p>	<p>Table 1, 36 (m)</p>	<p>Order #157 dated 18/07/2012 of PJSC "Chernigivgas" that was provided to the verification team contains the special requirements on monitoring data storage.</p>	<p>The provided document is in order. Issue is closed.</p>