TÜV Rheinland Group

# DETERMINATION REPORT

## DETERMINATION OF THE JOINT IMPLEMENTATION PROJECT

"UTILIZATION OF COAL MINE METHANE AT THE COAL MINE NAMED AFTER M.P. BARAKOV OF JSC "KRASNODONCOAL"

REPORT NO. 01 998 9105065096 - DR
REVISION NO. 02

**Customer: Global Carbon B.V.**

# DETERMINATION REPORT

| | |
|---|---|
| Date of first issue:<br>27/05/2011 | Project No:<br>01 998 9105065096 |
| Executor:<br>TÜV Rheinland Group | Organizational unit:<br>Ltd. TÜV Rheinland Ukraine |
| Customer:<br>Global Carbon B.V. | Client ref.: Anna Vilde |

Summary:

TÜV Rheinland Group/TÜV Rheinland Ukraine has performed a determination of the project "Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal" 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 serves as project design objective and complete assessment, and is a requirement of all projects. It consists of the following three phases:

i) a desk review of the project design documents including analysis of the baseline justification and monitoring plan;

ii) follow-up interviews with project stakeholders including on site visit;

iii) the 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 TÜV Rheinland Group/TÜV Rheinland Ukraine internal procedures.

To address TÜV Rheinland Group/TÜV Rheinland Ukraine corrective action and clarification requests Global Carbon B.V. revised the PDD and resubmitted 23/11/2011 as version 3.5.

The determination findings presented in this report relate to the project as described in the PDD version 3.5.

In summary, it is TÜV Rheinland Group/TÜV Rheinland's Ukraine opinion that the project complies with the criteria for baseline setting and monitoring methodology according to developed specific approach, and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

| | |
|---|---|
| Report No.:<br>01 998 9105065096 - DR | Subject Group:<br>JI |
| Project title:<br>Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal" | |
| Work carried out by:<br>Dmirty Rakovich – Team leader, Climate Change Verifier<br>Ganna Zadnipriana - Climate Change Verifier | |
| Work verified by:<br>Irina Nikolaieva – Internal Technical Reviewer, Climate Change Verifier | |
| Determination Report approved by:<br>Prof., Dr. Valery Yakubovsky – Technical Competence Center Director | |

| Date of this revision: | Revision No.: | Number of pages: |
|---|---|---|
| 12/12/2011 | 02 | 105 |

## Abbreviations

| | |
|---|---|
| $CO_2$ | Carbon Dioxide |
| AIE | Accredited Independent Entity |
| BE | Baseline Emission |
| CAR | Corrective Action Request |
| CDM | Clean Development Mechanism |
| CL | Clarification Request |
| CMM | Coal Mine Methane |
| DNA | Designated National Authority |
| DR | Document Review |
| EIA | Environmental Impact Assessment |
| ERU | Emission Reduction Unit |
| FAR | Forward Action Request |
| GHG | Greenhouse Gas |
| GWP | Global Warming Potential |
| I | Interview |
| IPCC | Intergovernmental Panel on Climate Change |
| JI | Joint Implementation |
| JISC | Joint Implementation Supervisory Committee |
| LoA | Letter of Approval |
| LoE | Letter of Endorsement |
| Mine | The coal mine named after M.P. Barakov of JSC "Krasnodon coal company" |
| MoV | Means of Verification |
| MP | Monitoring Plan |
| NG | Natural gas |
| OSV | On Site Visit |
| PDD | Project Design Document |
| PE | Project Emissions |
| QA | Quality assurance |
| QC | Quality control |
| SA | Sensitivity Analysis |
| SD | Supporting documentation |
| STHS | Stakeholder Survey |
| t | tonne |
| UNFCCC | United Nations Framework Convention on Climate Change |

## *Table of Contents* *Page*

# 1 DETERMINATION OPINION

The audit team of TÜV Rheinland Group/TÜV Rheinland Ukraine has performed a determination of the project Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal" 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 document (PDD) including analysis of the baseline justification and monitoring plan;
ii) follow-up interviews with project stakeholders including on site visit;
iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participants used the JI specific approach for demonstration of the additionality. In line with this tool, the PDD provides analysis of alternative scenarios and analysis of investment, to determine that the project activity itself is not the baseline scenario. The PDD provides a justification of the approach in a clear and transparent manner, as well as a justification in accordance with Paragraph 23 through 29 of the "Guidance on Criteria for Baseline Setting and Monitoring (version 03)".

By generic description of the project, the project is likely to result in reductions of GHG emissions. 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 (ERUs).

The review of the project design documentation (version 3.5) and the subsequent interviews have provided TÜV Rheinland Group/TÜV Rheinland Ukraine 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.

# 2 INTRODUCTION

The Global Carbon B.V. has commissioned TÜV Rheinland Group/TÜV Rheinland Ukraine to determinate its JI project "Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal" (hereafter called "the project").

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.

Documents that were received for the determination process include Project Design Document (PDD), calculation Excel model and supporting documentation.

## 2.1 Objective

The determination serves as project design objective and complete assessment 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 emission reduction units (ERUs).

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JISC, as well as the host country criteria.

## 2.2 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.

## 2.3 JI Project Description

| | |
|---|---|
| **Project Parties involved:** | Ukraine (Host) and The Netherlands |
| **Title of the project:** | Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal" |
| **Baseline and monitoring methodology:** | JI Specific Approach based on PDD ver.3.5 dated 23/11/2011 |
| **Project entity participant:** | PJSC "Krasnodon Coal Company", Luhansk oblast, Krasnodon sity, Komsomolska str. 5, 94440, Ukraine |
| **Other project participants:** | Global Carbon B.V., Graadt van Roggenweg 328, Building D, 3531 AH Utrecht, The Netherlands |
| **Location of the project:** | Central Site of Coal Mine named after M.P. Barakov not far from Sukhodilsk city. |
| **Length of the period befor credit period:** | From 01/01/2004 to 31/12/2007 |
| **Crediting period of the project:** | From 01/01/2008 to 31/12/2012 |
| **Length of the period after credit period:** | From 01/01/2013 to 31/12/2025 |

Coal mining is accompanied by release of methane which is held in coal beds and surrounding rocks. Methane is a natural gas by origin; also it is a by-product of coal and gas deposits exploitation. Coal Mine Methane (CMM) is a result of organic

remains transformation under a high pressure and temperature. CMM belongs to a group of greenhouse gases under the Kyoto Protocol; its Global Warming Potential (GWP) is 21 times higher than GWP of a carbon dioxide.

At productive coal mines CMM has to be vented from mines according to safety regulations. Currently there are a few methods of methane recovery from coal beds.

Underground coal mine named after M.P. Barakov (Barakov mine) was built and is currently operating in a way that methane is released to a mine working space when coal is mined; methane is removed from the mine through the degassing system.

Degassing system, which consists of a network of mine degassing conduits and vacuum pumping station located on the surface, removes methane from coal beds and surrounding rocks.

In the baseline scenario it is assumed that all the methane collected by the degassing system of the Barakov mine will be released into the atmosphere. No measures aimed at the utilization of the degassing system CMM will be taken; therefore the existing situation in the absence of project activity will be continued.

The main goal of this project is the utilization of CMM that has been captured by degassing system. CMM captured at Barakov mine will be used for generation of heat for the onsite consumption and substitution of natural gas, which was used as a fuel for existing boilers.

# 3 METHODOLOGY

The determination consists of the following three phases:

I) a desk review of the project design documents including analysis of the baseline justification and monitoring plan;

II) follow-up interviews with project stakeholders including on site visit;

III) the resolution of outstanding issues and the issuance of the final determination report and opinion.

The following sections outline each step in more detail.

## 3.1 Desk Review of the Project Design Documentation

The Project Design Document (PDD) submitted by the Global Carbon B.V. and additional background documents related to the project design to be checked by an Accredited Independent Entity were reviewed.
The list of submitted documentation is provided below.
To address TÜV Rheinland Group/TÜV Rheinland Ukraine corrective action and clarification requests Global Carbon B.V. revised the PDD and resubmitted it on 23/11/2011 as version 3.5.

The determination findings presented in this report relate to the project as described in the PDD version 3.5.

The following tables outlines the documentation reviewed during the determination:

**Category 1 Documents:**
Documents provided by Global Carbon B.V. and Krasnodon Coal Company that relate directly to the components of the JI project.

| | |
|---|---|
| /1/ | Join Implementation Project Design Document: "Utilization of coal mine methane at the mine named after M.P. Baracov of the JSC "Krasnodoncoal" Version 3.0 dated 15 of November 2010 |
| /2/ | Join Implementation Project Design Document: "Utilization of coal mine methane at the mine named after M.P. Baracov of the JSC "Krasnodoncoal" Version 3.2 dated 27 of September 2011 |

| | |
|---|---|
| /3/ | Join Implementation Project Design Document: "Utilization of coal mine methane at the mine named after M.P. Baracov of the JSC "Krasnodoncoal" Version 3.5 dated 23 of November 2011 |
| /4/ | ER calculation (20101212_Barakova_ER_3.0_en) |
| /5/ | NPV calculation (20101212_Barakova_CF_3.0_en), dated 12 December 2010 |
| /6/ | ER calculation (20111019_Barakova_ER_3.5_en) dated 19 of October 2011 |
| /7/ | NPV calculation (20110902_Barakova_CF_3.5_en), dated 2 of September 2011 |
| /8/ | Guidelines for users Joint of the Implementation Project Design Document Form, ver. 04, JISC |
| /9/ | Guidance on criteria for baseline setting and monitoring, ver. 03 |
| /10/ | Tool for the demonstration and assessment of additionality, ver. 05.2 |

**Category 2 Documents:**

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

| | |
|---|---|
| /1/ | Accounting statement of enterprise of Coal Mine. Initial cost of equipment |
| /2/ | Calculation of CMM quality which combusted in working conditions and standard conditions |
| /3/ | Calculations file of uncertainty evaluations. Calculating relative error of quantity measurements of methane utilizer in boiler house |
| /4/ | Letter from: Coal mine named after M.P. Barakov of JSC Krasnodoncoal №4/1/11.582 of 01.07.2011. Extension of degasification system |
| /5/ | Letter from: Coal mine named after M.P. Barakov of JSC Krasnodoncoal. Consumption of coal and gas in 2004 – 2009 |
| /6/ | Operation control journal for 20 of June 2010 |
| /7/ | Operation control journal for 15 February 2010 |
| /8/ | Operation control journal for 21-23 of April 2011 |
| /9/ | Journal records the gas-methane supply to boiler house for 17/03/2011 – 31/03/2011 |
| /10/ | Instruction. Method of obtaining date the values of methane on Barakov mine |
| /11/ | Contract №3 about reconstruction of Mine dated on 29 of January |

| | |
|---|---|
| | 2002 |
| /12/ | Additional contract №1dated 22 of March 2002 to the contract №11 from 29 of January 2002 |
| /13/ | Act of acceptance of contract work performed of "Utilization of coal mine methane" 2001-2003 |
| /14/ | Provisional expenses №234. Act of acceptance in October 2001 |
| /15/ | Schedule of coal resource working off. Mine lifetime till 2025 |
| /16/ | Certificate about the coal accounting wich used for mine boiler needs. Data collection of coal |
| /17/ | Calculation of heat demand at Mine |
| /18/ | Letter from: Coal mine named after M.P. Barakov of JSC Krasnodoncoal №4/2/4-609 of 12 July 2011. Review EIA sector in the project |
| /19/ | Certification of workmanship of the boiler №9368 made on October 1977. Boiler passport |
| /20/ | Certification of workmanship of the boiler №5246 made on March 1964. Boiler passport |
| /21/ | Certification of workmanship of the boiler №2983 made on March 1964. Boiler passport |
| /22/ | Certification of workmanship of the boiler №4596 made on March 1974. Boiler passport |
| /23/ | Total information about the boilers at the Mine boiler house |
| /24/ | Implementation schedule of the project: "Distraction of coal mine methane at the mine named after M.P. Barakov" |
| /25/ | Report of independent auditors. The Consolidated Financial Statement according to international standards |
| /26/ | Letter from National Makeev Scientific Research Institute to Director of Mine. Agreement of the project: "Using gas from degasification of coal seams at boilers Mine" |
| /27/ | Technical report. Revision, commissioning and testing equipment's at Mine degasification plant |
| /28/ | Certifications of payment for methane environmental pollution at the Mine |
| /29/ | Order from Coal mine named after M.P. Barakov of JSC Krasnodoncoal №262 of 03/07/2008. Design approval: "Adjustment of the revamped project opening and preparation of the reservoir $K_5$" |
| /30/ | Conclusion №21. Comprehensive National examination of the project "Adjustment of the revamped project opening and preparation of the reservoir $K_5$" dated 19 of May 2008 |

| | |
|---|---|
| /31/ | Passport of the boiler №8010 from 2010 |
| /32/ | Adjustment of the revamped project opening and preparation of the reservoir $K_5$ in the reclining wing of Duvannogo thrust with an increase of design capacity. May 2007. Tom 1, Book 1 Arh. №3-11497 |
| /33/ | Revision of the project: "Opening and preparation of the reservoir $K_5$ in the reclining wing of Duvannogo thrust". Tom 1. Explanatory note. arh. №11156 |

## 3.2 Interviews with project stakeholders

TÜV Rheinland Group/TÜV Rheinland Ukraine performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Krasnodon Coal Company and Global Carbon B.V. were interviewed are summarized in Table 1. The main topics of the interviews are summarized in Table 2.

### Table 1 Persons interviewed

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

| | Name | Organization | Title |
|---|---|---|---|
| /1/ | Anna Vilde | Global Carbon B.V., Project Developer | Project management, site visit |
| /2/ | Frolova Marine | PJSC "Krasnodon coal company", Main Miner | Supporting Kyoto Projects |
| /3/ | Gelezniak Sergei | PJSC "Krasnodon coal company" | Technical expert |
| /4/ | Ustenenkov Sergei | Barakov mine, acting of main engineer | Operational reporting, logbooks, plant visit |
| /5/ | Dorin Victor | Barakov mine, director assistant of capital construction | Finance activity |
| /6/ | Ulesko Andrej | Barakov mine, Master Mechanic | Technical reporting |

| | | | |
|---|---|---|---|
| /7/ | Belova Ludmila | Barakov mine, Boiler House Engineer | Technical support |
| /8/ | Pereguda Vitalij | Barakov mine, head of PRTB section | Technical support |
| /9/ | Glushko Jurij | Barakov mine, lead engineer of OOC | Technical reporting of methane-gas distraction |

**Table 2 Interview topics**

| | Date | Interviewed organization | Interview topics |
|---|---|---|---|
| /1/ | 13/05/2011 | PJSC "Krasnodon coal company", Barakov mine | ➢ History of the project<br>➢ Implementation schedule<br>➢ Project management organization<br>➢ Environmental Impact Assessment<br>➢ Project monitoring responsibilities<br>➢ Monitoring equipment<br>➢ Quality control and quality assurance<br>➢ Local authorities and public opinion<br>➢ Social issues |
| /2/ | 13/05/2011 | Global Carbon B.V. | ➢ Applicability of methodology<br>➢ Baseline and Project scenarios<br>➢ Investment analysis<br>➢ Additionally justification<br>➢ Common practice analysis<br>➢ Monitoring plan |

| | | | |
|---|---|---|---|
| | | | ➢ Conformity of PDD to JI requirements<br>➢ Environmental impacts affected<br>➢ Financial and other resources |

## 3.3 Resolution of Clarification and Corrective Action Requests

The overall determination, from Contract Review to Determination Report & Opinion, was conducted using TÜV Rheinland Group/TÜV Rheinland Ukraine internal procedures.
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 TÜV Rheinland Group/TÜV Rheinland Ukraine positive conclusion on the project design.

In order to ensure transparency, a determination protocol (Annex A of the Determination report) was customized for the project, according to the Annex "Joint Implementation Determination and Verification Manual", version 01. The protocol shows, in a transparent manner, criteria (requirements), means of verification 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 verifier will document how a particular requirement has been determined and the result of the determination.

The determination protocol consists of three tables. The different columns in these tables are described in Figure 1.

To guarantee the transparency of the determination process, the concerns raised are documented in more detail in the determination protocol (Annex A of the Determination report).
The PDD, final version 3.5 of 23/11/2011, has been submitted to the audit team for final determination. The final version of the

PDD (version 3.5 of 23/11/2011) is revised based on the determination protocol and the issued corrective action requests clarification requests. The major changes include: project location more accurate; project history included; baseline discussion on Alternatives; approach of conducting sensitivity analysis with operation hours and annual O&M cost included; monitoring plan revised; background information of stakeholder questionnaire, etc.

| Determination Protocol Table 1: Mandatory Requirements | | | |
|---|---|---|---|
| **Requirement** | **Reference** | **Conclusion** | **Cross reference** |
| The requirements the project must meet. | Gives reference to the legislation or agreement where the requirement is found. | This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)**, a **Clarification Request (CL)** or a **Forward Action Request (FAR)** of risk or non-compliance with stated requirements. The CAR's, CL's and FAR's are numbered and presented to the client in the Determination Report. | Used to refer to the relevant protocol questions in Tables 2, to show how the specific requirement is determined. This is to ensure a transparent determination process. |

| Determination Protocol Table 2: Requirements checklist | | | | |
|---|---|---|---|---|
| **Checklist Question** | **Reference** | **Means of verification (MoV)** | **Comment** | **Draft and/or Final Conclusion** |
| The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question. | Gives reference to documents where the answer to the checklist question or item is found. | Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable. | The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. | This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below).<br>**Clarification Request (CL)** is used when the determination team has identified a need for further clarification.<br>**Forward action request (FAR)** informs the project participants of an issue, that needs to be reviewed during the verification. |

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

Figure 1 Determination protocol tables

## 3.4 Internal Quality Control

The determination report including the determination findings underwent a technical review before requesting registration of the project activity. The technical review was performed by an internal technical reviewer qualified in accordance with TÜV Rheinland Group/TÜV Rheinland Ukraine qualification scheme for JI project determination and verification.

## 3.5 Determination team

The determination team consists of the following personnel:

| Role | Name | Country | Type of work | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Desk Review | Site Visit | Reporting | Supervision | Technical Review | Expert Input |
| Team Leader/Climate Change Verifier | Dmitry Rakovich | Ukraine | ☑ | ☑ | ☑ | | | ☑ |
| Climate Change Verifier | Ganna Zadnipriana | Ukraine | ☑ | ☑ | | | | |
| Internal Technical Reviewer/Climate Change Verifier | Irina Nikolaieva | Ukraine | ☑ | | | | ☑ | |
| Technical Competence Center Director | Valery Yakubovsky | Ukraine | ☑ | | | ☑ | | |

# 4 DETERMINATION FINDINGS

In the following subsections the determination findings are stated as follows:

1) the findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Determination Protocol (Annex A of the Determination report).
2) in case TÜV Rheinland Group/TÜV Rheinland Ukraine had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following subsections and are further documented in the Determination Protocol (Annex A of the Determination report). The determination of the Project resulted in 32 Corrective Action Requests, 22 Clarification Requests and 1 Forward Action Request.
3) the conclusions for determination subject are presented in each subsection.

## 4.1 Project Design

The project is expected to be in line with host-country specific JI requirements. The project activity is aimed at reducing GHG emissions that is:

- to cut GHG emissions by capturing CMM previously released into the atmosphere from the Mine's degasification system; to utilize it for thermal energy generation to cover the heating demand of the Mine;
- to avoid GHG emissions due to natural gas combustion for the purpose of heat generation which would have happened in the absence of the project activity.

The project is expected to be in line with host-country specific JI requirements because it is aimed at utilization of methane as a fuel for heat generation in Boilers, installed at the Barakov mine. Implementation of the proposed project activities will reduce methane emissions into the atmosphere. Generated heat will be used onsite to completely cover the needs of the mine that will reduce $CO_2$ emissions originating from using natural gas combustion.

TÜV Rheinland Group/TÜV Rheinland Ukraine recognizes that this project helps the country in which it is implemented to achieve sustainable development. The project meets the JI specific requirements of the host country.

The Project Scenario is considered additional in comparison to the baseline scenario, and therefore eligible to receive Emissions Reductions Units (ERUs) under the JI project, based on an analysis, presented by the PDD, of investment and other barriers, and prevailing practice.

The project design is sound and the geographical (Luhansk oblast, Krasnodon sity) and temporal (5 years or 60 months) boundaries of the project are clearly defined.

Identified problem areas for project design, project participants' answers and conclusions of TÜV Rheinland Group/TÜV Rheinland Ukraine are described in Annex A Table 3.

## 4.2 Baseline and Additionality

The Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal" project uses JI specific approach.
Project participants used JI specific approach for the baseline setting and monitoring which was applied in line with the paragraph 9 of the latest version of the Guidelines on criteria for baseline setting and monitoring (Version 03, adopted by JISC 26 meeting in September 2011). They provided detailed theoretical description of the baseline in a complete and transparent manner. All the information about baseline scenario required by paragraph 23 through 29 of the Guidance on criteria for baseline setting and monitoring is in the relevant parts of section B of the PDD. Additional information as well as supporting data are in its Annex 2.

The alternatives considered for determination of the baseline scenario in the context of the project activity.

The possible alternative baseline scenarios are the following:

- eat generation by natural gas combustion (continuation of current practice);
- heat generation by CMM combustion with coal as reserve fuel;
- heat generation by oil combustion;
- heat generation by coal combustion;
- heat generation by CMM combustion;
- heat generation by electrical boilers;
- purchase thermal energy from external suppliers.

In terms of CMM treatment the Mine could:
- vent CMM to the atmosphere;
- utilize it to produce heat in existing boiler house;
- flare CMM;
- utilize it for combined heat and power generation;
- utilize it as vehicle fuel.

**Alternative 1**: Producing thermal energy by natural gas combustion and venting CMM into the atmosphere (continuation of the current practice);
**Alternative 2**: CMM utilization for heat generation at boiler house of the Mine with coal as a reserved fuel and venting rest of the CMM into the atmosphere (project scenario without JI incentive).

Alternative 2 was not economically reasonable and it cannot be considered to be baseline scenario.

The most plausible scenarios among the options mentioned above **continue the current practice (Alternative 1**) which could happen in the absence of the project activity and it doesn't indicate extremely high barriers and obstacles.

The most plausible scenario among the alternatives mentioned above has been selected as the baseline scenario, since such scenario is not expected to face any prohibitive barriers that could have prevented it from being taken up as the project activity.
Identified problem areas for baseline and additionally proofs, project participants' answers and conclusions of TÜV Rheinland Group/TÜV Rheinland Ukraine are described in Annex A Table 3.

## 4.3 Monitoring Plan

The Project "Utilization of coal mine methane at the coal mine named after M. P. Barakov of JSC "Krasnodoncoal" uses the JI specific approach in order to establish the monitoring plan for the project.
Monitoring plan of the GHG emissions in the project and baseline scenarios and the GHG emissions reduction is elaborated on the basis of requirements of the "Guidance on criteria for baseline setting and monitoring", version 03.

Variables to be monitored in the baseline scenario are the same as in project scenario and include the following list of parameters:

Table 3: Variables parameters

| | | |
|---|---|---|
| $FC_{CMM}$ | The amount of CMM combusted in boiler house | thousand $m^3$ |
| $FC_{coal}$ | The quantity of coal combusted in boiler house | t |

Table 4: the *Fixed ex ante* parameters

| | | | |
|---|---|---|---|
| $NCV_{CH4}$ | Net calorific value of methane | GJ/1000 $m^3$ | 35.82 |
| $NCV_{coal}$ | Net calorific value of coal | GJ/t | 21.8 |
| $\eta$ | Baseline efficiency of natural gas fired boiler | % | 0.87 |
| $Eff_{HEAT}$ | Efficiency of methane destruction/oxidation in heat plant | % | 0.995 |
| $OXID_{coal}$ | Coal oxidation factor | % | 0.96 |
| $\rho$ | Density of methane | kg/$m^3$ | 0.668 |

An adequate quality control and assurance procedures to maintain a consistent and reliable performance of the controlling and monitoring system are to be implemented in accordance with the existing national calibration standards and quality norms. Regular maintenance and testing regime to ensure accuracy of flow meters and gas-analyzers will be provided, as required by the national standards. All measuring equipment will be calibrated periodically. The calibration protocols will be archived and proved by an independent entity on the annual basis. A consistency check for all measurement data and the calculate on of the emission reductions will be carried out and reported monthly. Detailed data on the collection and archiving of information on the environmental impacts as well as the operational and management structure that the project operator will apply implementing the monitoring plan are presented in Section D.1. of the PDD.

## 4.4 Calculation of GHG Emissions

As per JI specific approach, the baseline emission sources considered are venting CMM into the atmosphere with no destruction and heat generation by burning natural gas in the boiler house of the Mine.
The initial data for calculations and the calculations are presented on the spreadsheet made available to TÜV Rheinland Group/TÜV Rheinland Ukraine. The results are summarized in Section E. The determinators checked the calculations and found them accurate.
Respectively, the main source of GHG emission under the baseline scenario is production of heat through combustion of natural gas and coalmine methane release. The baseline GHG emissions are calculated based on project level of CMM utilization and relevant emission factor using the equation described in sections D.1. of the PDD ver.3.5.

### Project emissions

In the project scenario CMM is utilized in the boiler house to generate thermal energy, rest of CMM is vented. Emission sources in the project scenario:

- Emissions from destruction of methane in the project;
- Emissions of uncombusted methane in the project;
- Emissions from coal combustion (as a reserve fuel).

Project emissions are calculated using the following formulae:

$$PE_y = PE_{MD,y} + PE_{UM,y} + PE_{CC,y}$$

where

$PE_y$ - is the GHG emissions due to the project in period y, $tCO_2e$.

$PE_{MD,y}$ - is the GHG emissions due to methane destruction in period y, $tCO_2e$.

$PE_{UM,y}$ - is the GHG emissions of uncombusted methane in period y, $tCO_2e$.

$PE_{CC,y}$ - is the GHG emissions due to coal combustion in period y, $tCO_2e$.

$$PE_{MD,y} = (FC_{CMM,y} - FC_{CMM,y} \times (1 - Eff_{HEAT})) \times \rho_{CH4} \times EF_{CH4}$$

where

$PE_{MD,y}$ - is the GHG emissions due to methane destruction in period y, $tCO_2e$.

$FC_{CMM,y}$ - is methane sent to boilers in period y, thousand $m^3$;

$\rho_{CH4}$ - is density of methane, t/thousand $m^3$;

$EF_{CH4}$ - is the $CO_2$ emission factor for methane combustion, $tCO_2/tCH_4$;

$Eff_{HEAT}$ - is efficiency of methane destruction/oxidation in heat plant, fraction.

$$PE_{UM,y} = FC_{CMM,y} x \rho_{CH4} x (1 - Eff_{HEAT}) x GWP_{CH4},$$

where

$PE_{UM,y}$ - is the GHG emissions of uncombusted methane in period y, $tCO_2e$.

$FC_{CMM,y}$ - is methane sent to boilers in period y, thousand $m^3$;

$Eff_{HEAT}$ - is efficiency of methane destruction/oxidation in heat plant, fraction;

$GWP_{CH4}$ - is the global warming potential of methane, $tCO_2e/tCH_4$.

$\rho_{CH4}$ - is density of methane, t/thousand m3;

$$PE_{CC,y} = FC_{coal,y} \times NCV_{coal} \times EF_{CC},$$

where

$PE_{CC,y}$ - is the GHG emissions due to coal combustion in period y, $tCO_2e$.

$FC_{coal,y}$ - is coal combustion by the boiler in period y, t;

$NCV_{coal}$ - is net calorific value of coal, GJ/t;

$EF_{CC}$ - is the $CO_2$ emission factor for coal combustion, $tCO_2/GJ$.

## Baseline emissions

The baseline GHG emissions are calculated using the following equation:

$$BEy = BE_{CMM,y} + BE_{HG,y},$$

where

$BE_y$ - is the baseline GHG emissionsin the period *y*, $tCO_2e$;

$BE_{CMM,y}$ - is the GHG emissions due to release of coalmine methane into the atmosphere in baseline scenarioin the period *y*, $tCO_2e$;

$BE_{HG,y}$ - is the GHG emissions due to natural gas combustion for heat generation in baseline scenarioin the period *y*, $tCO_2e$.

$$BE_{CMM,y} = FC_{CMM,y} \times \rho_{CH4} \times GWP_{CH4},$$

where

$BE_{CMM,}$ - is the GHG emissions due to methane release into the atmosphere which would happen in the absence of the project during the period y, $tCO_2e$;

$FC_{CMM,y}$ - is CMM send to the boilers in period y, thousand $m^3$ ;

$\rho_{CH4}$ - is density of methane, t/thousand $m^3$;

$GWP_{CH4}$ - is the global warming potential of methane t $CO_2e/tCH_4$ (See Table 19).

$$BE_{HG,y} = (HG_{CMM,y} + HG_{coal,y}) \times EF_{NG},$$

where:

$BE_{HG,y}$ - is the GHG emissions due to natural gas combustion for heat generation in baseline scenarioin period *y*, $tCO_2e$.

$HG_{CMM,y}$ - is the amount of heat produced from coalmine methane combustion in the project scenario that would otherwise have been produced by natural gas combustion in period *y*, GJ;

$HG_{coal,y}$ - is the amount of heat produced by coal combustion that would otherwise have been produced by natural gas combustion in the baseline scenario, GJ;

$EF_{NG}$ - is the $CO_2$ emission factor for natural gas combustion, t $CO_2$/GJ .

The heat produced from coalmine methane combustion, which in the absence of the project activity would have been generated by burning of natural gas, is calculated using the following formula:

$$HG_{CMM,y} = (FC_{CMM,y} - FC_{CMM,y} \times (1 - Eff_{HEAT})) \times NCV_{CH4} \times \eta$$

where

$HG_{CMM,}$ - is the amount of heat produced from coalmine methane combustion in the project scenario that would otherwise have been produced by natural gas combustion in period *y*, GJ;

$FC_{CMM,}$ - is CMM send to the boilers in period *y*, thousand $m^3$ $CH_4$ ;

$NCV_{CH}$ - is the net calorific value of methane, GJ/ thousand $m^3$;

$\eta$ - is the boiler efficiency factor, fraction;

$Eff_{HEA}$ - is efficiency of methane destruction/oxidation in heat plant, fraction.

$$HG_{coal,y} = FC_{coal,y} \times NCV_{coal} \times OXID_{coal} \times \eta,$$

where

| | | |
|---|---|---|
| $HG_{coal,y}$ | - | is the amount of heat produced from coal combustion that would otherwise have been produced by natural gas combustion in the baseline scenario, GJ; |
| $FC_{coal,y}$ | - | is the amount of coal combusted in the period y, t; |
| $NCV_{coal}$ | - | is the net calorific value of coal, GJ/ t ; |
| $\eta$ | - | is the boiler efficiency factor, fraction;. |
| $OXID_{coal}$ | - | is coal oxidation factor, fraction. |

**Emission reduction**

The general equation for calculating the project emissions reduction is the following:

$$ERy = BEy - PEy,$$

where

| | | |
|---|---|---|
| $ERy$ | - | is the total emission reduction for the project in period *y*, $tCO_2e$; |
| $BEy$ | - | is the total baseline GHG emissions in period *y*, $tCO_2e$; |
| $PEy$ | - | is the total project GHG emissions in period *y*, $tCO_2e$; |

Table 5: List of constants used in the calculations of baseline and project emissions.

| Data / Parameter | Data unit | Description | Data Source | Value |
|---|---|---|---|---|
| $EF_{CH4}$ | $tCO_2/tCH_4$ | $CO_2$ emission factor for CMM combustion | $M_{CO2}/M_{CH4}$ = 44/16 = 2.75 $tCO_2/tCH_4$ | 2.75 |
| $EF_{NG}$ | $kgCO_2/TJ$ (=$tCO_2/GJ$) | $CO_2$ emission factor of natural gas combustion | Default value. IPCC Guidelines for National Greenhouse Gas Inventories, 2006 | 0.0561 |
| $EF_{coal}$ | $kgCO_2/TJ$ (=$tCO_2/GJ$) | $CO_2$ emission factor of coal combustion | Default value. IPCC Guidelines for National Greenhouse Gas Inventories, 2006 | 0.0983 |
| $GWP_{CH4}$ | $tCO_2e/tCH_4$ | Global Warming Potential (GWP) of methane | Default value. IPCC Fourth Evaluation Report, 2007 | 21.0 |
| $\eta$ | % | Average net energy efficiency of heat generation boiler | Default value according to "Tool to determine the baseline efficiency of thermal or electric energy generation systems" | 0.87 |
| $Eff_{HEAT}$ | % | Efficiency of methane destruction/oxidation in heat plant | Default value. Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories | 0.995 |
| $NCV_{CH4}$ | GJ/thousand $m^3$ | Net calorific value of methane | Default value, Grigoriev, Zorin "Theoretical Basics of Thermal Engineering", Moscow, 1988 | 35.82 |
| $NCV_{coal}$ | GJ/t | Net calorific value of coal | Default value. National Inventory Report of Ukraine, 1990-2009 | 21.8 |
| $\rho_{CH4}$ | $kg/m^3$ | Density of methane in normal conditional | Default value, Gases – Densities http://www.engineeringtoolbox.com/gas-density-d_158.html | 0.668 |
| $OXID_{coal}$ | % | Coal Oxidation Factor | Default value. National Inventory Report of Ukraine 1990-2009 | 0.96 |

The calculated amount of project emission reduction over the period 2008 - 2012 is 335 999 $tCO_2e$. The annual average emission reduction for this period is 67 200 $tCO_2e$.

The calculated amount of project emission reduction over the period 2013 - 2025 is 913 350 $tCO_2e$. The annual average emission reduction for this period is 70 258 $tCO_2e$.

With reference to JI specific approach, project doesn't lead to any leakage.

Identified problem areas for calculation of GHG emissions, project participants' answers and conclusions of TÜV Rheinland Group/TÜV Rheinland Ukraine are described in Annex A Table 3.

## 4.5 Environmental Impacts

Environmental impact assessment of the project was undertaken as a part of "Revision of the Project for $K_d^5$ Coal Bad Baring and Exploitation in Lying Wing of Duvannyy Thrust Fault" which explored the developments necessary for the operation of the Mine. All the necessary permissions were obtained before the beginning of the project in compliance with the existing Ukrainian legislation, namely: the Laws of Ukraine "On Protection of Environment", "On Ecological Expertise", "On Protection of Atmospheric Air", "On Ensuring Sanitary and Epidemic Welfare of the Population", and "On Local Councils and Local Government", as well as the applicable Water Code, Land Code, and Forest Code.
The project has received a positive conclusion of State Integrated Assessment, which includes assessments of fire safety, health and safety, sanitary and hygiene impacts, energy efficiency and environmental impact. Compared to the baseline scenario the level of negative environmental impact is much lower. According to EIA section of "Revision of the Project for $K_d^5$ Coal Bad Baring and Exploitation in Lying Wing of Duvannyy Thrust Fault" the execution of the project reduces emissions of methane by up to 100%, emissions of carbon oxide and suspended solid particles by 75%. This is also important in terms of transboundary effects of the project because Barakov Mine is located just 16 km away from Ukrainian border with Russia. Thus, reduction of air pollution achieved by the project also has positive transboundary impact. Main environmental impacts of the project are caused by exhaust gases emitted by boilers ($CO_2$, CO, NOx etc). These gases are annually monitored and reported to State environmental monitoring service of the Committee on natural resources in Luhansk oblast through official annual statistical form 2-tp (air) Data on protection of atmospheric air. Emissions of these gases are within the permitted levels. Project location is not within natural reserve territory; there were no any fauna and flora species mentioned on Red Lists were detected on the area of the project location. The project is physically limited by the territory of Barakov Mine and does not require any additional land.

Identified problem areas for environmental impacts, project participants’ answers and conclusions of TÜV Rheinland Group/TÜV Rheinland Ukraine are described in Annex A Table 3.

## 4.6 Comments by Local Stakeholders

According to the Host Party's legislation, in particular the applicable Resolution of Cabinet of Ministers of Ukraine No. 1308 from 17th of August 1998, amended in 2000 and 2002, "Procedures for approval of investment programs, construction projects and for their integrated assessment" no stakeholder consultations were required for development and approval of the CMM utilization project. The JI project will resulting coal and energy savings, create new employment opportunities, improve safety, and secure the work place availability in the long term prospective. The project implementation will result in greenhouse gases reduction, in particular $CO_2$.
The Host Party requires no stakeholder consultation process for the JI projects. Stakeholder comments will be collected during the time of this PDD publication in the Internet during the determination procedure.

The stakeholders viewed "Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal" project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development. These views were endorsed by the local stakeholders interviewed during the site visit of the determination activity.

Identified problem areas for comments by local stakeholders, project participants' answers and conclusions of TÜV Rheinland Group/TÜV Rheinland Ukraine are described in Annex A Table 3.

# 5 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Determination of JI projects, the AIE shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

TÜV Rheinland Group/TÜV Rheinland Ukraine published the project design documents on the websites: http://www.tuv.com.ua/content/view/95/1/ on 24/05/2011 and

http://ji.unfccc.int/JI_Projects/DB/U53SWU5B0QSRWCEFJ5WQHMO1CENNXK/PublicPDD/UAG2ZB2SS13VS1HCGGSX69IAJ67EYN/view.html on 20/10/2011 and invited comments within 18/11/2011 by Parties, stakeholders and non-governmental organizations.

During the publication of project design documentation no stakeholders' comments were received.

- o0o -

# APPENDIX A: JI PROJECT DETERMINATION PROTOCOL

**Table 1 Mandatory Requirement for Joint Implementation (JI) Project Activities**

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference/Comment |
|---|---|---|---|
| 1. The project shall have the approval of the Parties involved. | Kyoto Protocol Article 6.1 (a) | **FAR 01** | Table 2, section A.5.<br>**FAR 01.** The project has no approval of the Host Party and an investor country.<br>Determinators note: JISC Glossary of joint implementation terms, version 02 defines the following:<br>a) At least the written project approval(s) by the host Party(ies) should be provided to the AIE and made available to the secretariat by the AIE when submitting the determination report regarding the PDD for publication in accordance with paragraph 34 of the JI guidelines;<br>b) At least one written project approval by a Party involved in the JI project, other than the host Party(ies), should be provided to the AIE and made available to the secretariat by the AIE when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines, at the latest. |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference/Comment |
|---|---|---|---|
| | | | To obtain a Letter of Approval a final Determination Report should be submitted to the State Environmental Investment Agency of Ukraine, including the Determination Protocol and a list of reference information.<br>Letter of Approval from the Netherlands, as investor country at this stage of the project is not obtained.<br>**FAR 01** will be closed after issuing Letters of Approval by the parties involved. |
| 2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur. | Kyoto Protocol Article 6.1 (b) | **OK** | Please refer to Table 2, section B. |
| 3. The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7. | Kyoto Protocol Article 6.1 (c) | **OK** | Article 5 requires: “Each Party included in Annex I shall have in place, no later than one year prior to the start of the first commitment period, a national system for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases”.<br>According to the Article 7: “Annex I Parties to submit annual greenhouse gas inventories, as well as national communications, at regular intervals, both including |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference/Comment |
|---|---|---|---|
| | | | supplementary information to demonstrate compliance with the Protocol".<br>The Netherlands has submitted its Initial Report on the 21st of December 2006:<br>http://unfccc.int/files/national_reports/initial_reports_under_the_kyoto_protocol/application/pdf/initial_report_final_191206.pdf |
| 4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3. | Kyoto Protocol Article 6.1 (d) | **OK** | Please refer to Table 2, section B.2. |
| 5. Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects. | Marrakech Accords,<br>JI Modalities, §20 | **OK** | Ukraine has designated its Focal Point. National guidelines and procedures for approving JI projects have been published.<br>Contact data in Ukraine:<br>State Environmental Investment Agency of Ukraine<br>35 Urytskogo St, Kyiv, P.O. 03035<br>Phone: +380 44 594 91 11<br>Fax: +380 44 5949115<br>Ukrainian national guidelines and procedures for the approval of JI projects are available on the website www.neia.gov.ua .<br>On February 22, 2006 the Cabinet of Ministers of Ukraine adopted the Regulation № 206, which established assessment and |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference/Comment |
|---|---|---|---|
| | | | implementation procedures of JI projects within the Kyoto Protocol. |
| 6. The host Party shall be a Party to the Kyoto Protocol. | Marrakech Accords, JI Modalities, §21(a)/24 | **OK** | The Ukraine is a Party (Annex I Party) to the Kyoto Protocol and has ratified the Kyoto Protocol on the February 4th, 2004. |
| 7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts. | Marrakech Accords, JI Modalities, §21(b)/24 | **OK** | The annual compliance target for Ukraine is 100% of its emissions in 1990.<br>In the Initial Report (Ukraine's Initial Report Under Article 7, Paragraph 4, Of The Kyoto Protocol) submitted by Ukraine to the UNFCCC Secretariat, on the 26 May 2006 the AAUs are quantified as:<br>925 362 174.39 (x 5) = 4 626 810 872 $tCO_2e$<br>http://unfccc.int/files/national_reports/initial_reports_under_the_kyoto_protocol/application/pdf/ukraine_aa_report.pdf<br>Currently Ukraine has submitted to the UNFCCC its fifth national communication on climate change under the Kyoto Protocol. |
| 8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4. | Marrakech Accords, | **OK** | The designed system of the national registry has been |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference/Comment |
|---|---|---|---|
| | JI Modalities, §21(d)/24 | | described in the Initial Report: http://unfccc.int/files/national_reports/initial_reports_under_the_kyoto_protocol/application/pdf/ukraine_aa_report.pdf |
| 9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination. | Marrakech Accords, JI Modalities, §31 | **OK** | Project participant Global Carbon B.V. submitted to the Accredited Independent Entity TÜV Rheinland Group/TÜV Rheinland Ukraine PDD that contains all information needed for the determination. |
| 10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments. | Marrakech Accords, JI Modalities, §32 | **OK** | The PDD has been made publicly available through http:/ji.unfccc.int website from the 20th of October 2011 till the 18th of November 2011. |
| 11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the host Party, an environmental impact assessment in accordance with procedures as required by the host Party shall be carried out. | Marrakech Accords, JI Modalities, §33(d) | **OK** | Please refer to Table 2, section F. |
| 12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project. | Marrakech Accords, JI Modalities, Appendix B | **OK** | Please refer to Table 2, section B. |
| 13. A baseline shall be established on a project-specific basis, | Marrakech | **OK** | Please refer to Table 2, section B. |

| REQUIREMENT | REFERENCE | CONCLUSION | Cross Reference/Comment |
|---|---|---|---|
| in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances. | Accords, JI Modalities, Appendix B | | |
| 14. The baseline methodology shall exclude to earn ERUs for decreases in activity levels outside the project activity or due to force majeure. | Marrakech Accords, JI Modalities, Appendix B | **OK** | Please refer to Table 2, section B. |
| 15. The project shall have an appropriate monitoring plan. | Marrakech Accords, JI Modalities, §33(c) | **OK** | Please refer to Table 2, section D. |
| 16. A project participant is a legal entity authorized by a Party involved to participate in the JI project. | "Glossary of Joint Implementation Terms", Version 02. | Conclusion is pending a follow-up on **FAR 01**. | Please refer to Table 2, section A. The Ukrainian project participant will be authorized by the Host Party through the issuance of the approval for the project. |

**Table 2 Requirements Checklist**

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| **A. General description of the project** | | | | | |
| **A.1. Title of the project** | | | | | |
| 1.1. Is the title of the project activity presented? | PDD | DR | Yes. The title is "Utilization of coal mine methane at the coal mine named after M.P. Barakov of JSC "Krasnodoncoal"". | OK | OK |
| 1.2. Is(are) the sectoral scope(s) to which the project pertains presented? | PDD | DR | Yes, the sectoral scope is defined as Sectoral Scope 8. Mining/mineral production | OK | OK |
| 1.3. Are the version number and date of the document presented? | PDD | DR | Yes, the version number of the document and the date are presented as: PDD version: 3.0 Date of the PDD: 15 November 2010. The re-submitted final version of the PDD is provided as: PDD version: 3.5 Date of the PDD: 23 of November 2011. | OK | OK |
| **A.2. Description of the project** | | | | | |
| 2.1. Is the purpose of the project indicated (with the concise, summarizing explanation of the situation existing prior to the starting date of the project, baseline scenario and project scenario)? | PDD | DR | Project purpose and objectives are indicated in the Section A.2. of the PDD. Situation prior the beginning of the project, baseline and project scenarios are summarized. | OK | OK |
| 2.2 . Is the history of the Project including its JI component summarized? | PDD | DR | The summary of Project history including JI component is missing. | **CAR 01** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | **CAR 01**: The history of the project, and specifically its JI component is not discussed in section A.2 of the PDD. Please add relevant information. | | |
| 2.2.1. Is it clarified how the proposed project activity reduces emissions GHG that would occur in the baseline scenario? | PDD | DR | Existing situation before the project implementation concise explanation of how reductions will be achieved is provided in section A.2. of the PDD. | OK | OK |
| **A.3. Project participants** | | | | | |
| 3.1 . Are project participants and Party(ies) involved in the project listed? | PDD | DR | Yes. The PDD lists two project participants from two Parties involved: JSC "Krasnodoncoal" from Ukraine and Global Carbon B.V. from the Netherlands. | OK | OK |
| 3.2 . Is contact information provided in Annex 1 of the PDD that is indicated in section A.3? | PDD | DR | Yes. The contact information project participants mentioned in Section A.3. is provided in Annex 1. | OK | OK |
| 3.3. Is it indicated, if the Party involved is a Host Party? | PDD | DR | Ukraine is the Host Party. | OK | OK |
| 3.4. Is it indicated, if it is the case, if the Party involved wishes to be considered as a project participant? | PDD | DR | None of the Parties involved wishes to be considered as a project participant. | OK | OK |
| **A.4. Technical description of the project** | | | | | |
| **A.4.1. Location of the project** | | | | | |
| 4.1.1. Host Party(ies) | PDD | DR | Ukraine | OK | OK |
| 4.1.2. Region/State/Province etc. | PDD | DR | Luhansk oblast, Eastern Part of Ukraine | OK | OK |
| 4.1.3. City/Town/Community etc. | PDD | DR | Sukhodilsk, Luhansk oblast | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| **4.1.4. Detail of the physical location, including information allowing the unique identification of the project (maximum one page)** | | | | | |
| 4.1.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s) (this section should not exceed one page)? | PDD | DR | The clear and unique identification of the project site is provided by the exact geographic coordinates of the project site. This information does not exceed one page. | OK | OK |
| **A.4.2. Technology(ies) to be employed, or measures, operations or actions to be implemented by the project** | | | | | |
| 4.2.1. Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project described? | PDD | DR | The project envisages implementation of following measures and interventions that will make it possible to utilize coal mine methane: construction of a gas preparation station which reduces humidity of the gases captured; gas pipelines; installation of automatic control and actuating devices; installation of a one new gas fired boiler; replacement of burners at the other existing boiler; installation of a coal fired boiler to back up the mine's heat supply system when coal mine methane is not available; installation of a flare. These measures are described in Section A.4.2. of the PDD.<br><br>**CL 01**: For transparency please add the following information to tables 4,5,6 of the PDD:<br>• Month/year of commissioning<br>• Actual fuels used since | **CL 01** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | implementation of project<br>Please add similar table for the boiler installed in 2010 as well as the boiler that was decommissioned in 2001/2002. | | |
| 4.2.1.1. Does the project design engineering reflect current good practices? | PDD | DR | The project design contains common elements from coal mine methane utilization projects and reflects good engineering practices. The description of the design is provided in Section A.4.2. of the PDD. | OK | OK |
| 4.2.1.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country? | PDD | DR | The level of technology advancement is not indicated in Section A.4.2. of the PDD.<br><br>**CL 02** Please clarify for every project component if the project uses state-of-art technology, requires initial trainings, makes provisions for training and maintenance needs. | **CL 02** | OK |
| 4.2.1.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period? | PDD | DR | The project technology is not likely to be substituted by other or more efficient technologies within the project period according to the Section A.4.2 of the PDD. | OK | OK |
| 4.2.2. Are all relevant technical data and the implementation schedule indicated? | PDD | DR | Relevant technical data and implementation schedule are provided in the Section A.4.2 of the PDD. Certain clarifications are necessary for transparency reasons. | **CL 03**<br>**CL 04**<br>**CAR 02** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | **CL 03**: Please clarify in the PDD that the project is done in two stages, (2001/2002) and (2011). Add justification of the time lag between two stages. The stages should be treated separately when discussing approvals, EIA, stakeholder comments, etc.<br><br>**CL 04**: Please provide an implementation schedule for the project, in particular the following project components:<br>• Construction of gas preparation station<br>• Installation of CMM-fired boiler<br>• Installation of coal-fired boiler<br>• Retrofit of existing boiler. Replacement of burners to allow CMM combustion.<br>• Construction of flare<br>• Expansion of degasification system<br><br>**CAR 02**: Correct modifications of fonts (sizes etc.) throughout the PDD. | | |
| **A.4.3. 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** | | | | | |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page). | PDD | DR | The information in Section A.4.3 presents overview of national policies and circumstances and gives brief summary of reasons as to why the emission reductions will not occur in the absence of the proposed project. The information does not exceed one page. However, it is not stated how emission reductions will be achieved.<br><br>**CAR 03:** Please provide explanation on how anthropogenic greenhouse gas emission reductions are to be achieved in the Section A.4.3 of the PDD. | **CAR 03** | OK |
| **A.4.3.1. Estimated amount of emission reductions over the crediting period** | | | | | |
| 4.3.1.1. Is it provided the estimated annual reduction for the chosen credit period in tCO2e? | PDD | DR | The estimated reductions with breakdown for every year of the crediting period and annual average reductions are provided in Section A.4.3.1. of the PDD. However the numbers require clarification.<br><br>**CAR 04** Please correct numbers in Table 10 and 11 of the PDD. Bring it in accordance with section E. Update estimations of emission reductions for 2010 based on actual data. | **CAR 04** | OK |
| **A.5. Project approval by the Parties involved** | | | | | |
| 5.1. Are written project approvals by the Parties | PDD | DR | The project has received Letter of Endorsement from the DFP of Ukraine | **FAR 01** | **FAR 01** |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| involved attached? Are they unconditional? | | | as stated in Section A.5 of the PDD. The project approval by the Host Party and the Investor Party is expected after completion of the determination process.<br><br>See Table 1. **FAR 01** | | |
| **B. Baseline** | | | | | |
| **B.1 Description and justification of the baseline chosen** | | | | | |
| 1.1. Is it indicated in PDD:<br>- a detailed theoretical description of the baseline in a complete and transparent manner, as well as a justification of chosen baseline using the step-wise approach;<br>- a justification of baseline setting;<br>- references on regulations according to baseline setting. | PDD | DR | Baseline for this JI project was established in accordance with Appendix B to the JI Guidelines and paragraph 23 through 29 of the Guidance on criteria for baseline setting and monitoring. The detailed theoretical description of the baseline is provided in Section B.1. of the PDD. Project participants have chosen the JI specific approach regarding baseline setting.<br><br>**CAR 05**: According to the PDD the baseline is natural gas-fired boilers that were already existing at the time of decision-making.<br>Please describe the existing boilers (capacity, commissioning date, build date, remaining lifetime in 2001). Justify that the boilers constitute a viable | **CAR 05**<br>**CL 05**<br>**CAR 06**<br>**CAR 07** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | baseline, i.e. they would be able to generate the same amount of heat as the project and they would have a sufficient remaining lifetime.<br><br>**CL 05**: For transparency please state in the PDD that from 2003-2010 there was a surplus of CMM (with sufficiently high methane concentration) which could not be used at the boiler house and was therefore vented. Please clarify that this amount will be flared once the second phase of the project is implemented. Please also clarify in the PDD that small amounts of CMM will continue to be vented at the degasification station whenever the methane concentration drops below 25%.<br><br>**CAR 06**: Please provide information whether the extension of the degasification system is part of the project.<br><br>**CAR 07**: Please provide information whether the 2010 boiler is part of the project. | | |
| 1.2. Is it indicated in the PDD that baseline was established: | | | | | |
| 1.2.1. by listing and describing plausible | PDD | DR | The baseline for the project has been | **CAR 08** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| (alternative) future scenarios on the basis of conservative assumptions and selecting the most plausible one? | | | established by listing and describing plausible (alternative) future scenarios and selecting the most plausible one as described in Section B.1. of the PDD.<br><br>**CAR 08**: In section B.1 the scenario H3 (Heat generation from coal combustion) has been excluded as not reasonable. This appears at odds with the fact that as part of the project a coal-fired boiler was installed and the natural gas supply was cut.<br><br>**CL 06**: There appears to be a mistake in how alternative 2 in section B.1 is stated. Please clarify if it should be H3+G2+G1?<br><br>**CL 07**: There appears to be a mistake in how alternative 1 in section B.1 is stated. Please clarify if it should be H1+G2? | **CL 06**<br>**CL 07** | |
| 1.2.2. taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector? | PDD | DR | The PDD in Section B.1. does not describe in sufficient detail how key factors that affect the baseline (specifically those stated in paragraphs 23 through 29 of the Guidance on criteria for baseline setting and monitoring (version 02)) were taken into account. | **CL 08** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | **CL 08**. Please clarify how key factors that affect the baseline (specifically those stated in paragraphs 23 through 29 of the Guidance on criteria for baseline setting and monitoring (version 02)) were taken into account. | | |
| 1.2.3. in a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors? | PDD | DR | The PDD in Section B.1. does not describe in sufficient detail how key factors that affect the baseline (specifically those stated in paragraphs 23 through 29 of the Guidance on criteria for baseline setting and monitoring (version 03)) were taken into account.<br><br>See **CL 08**. | **CL 08** | OK |
| 1.2.4. taking into account of uncertainties and using conservative assumptions | PDD | DR | The PDD in Section B.1. does not describe in sufficient detail how uncertainties were taken into account and what conservative assumptions were used during the baseline setting.<br><br>**CAR 09**: Please add information on how uncertainties have been taken into account during baseline setting and what conservative assumptions have been used. | **CAR 09** | OK |
| 1.2.5. in such a way that emission reduction units (ERUs) cannot be earned for decreases in activity levels outside the project | PDD | DR | The project design in section B.1. of the PDD foresees that ERUs are only claimed for the heat energy that was actually produced by the utilization of | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| activity or due to force majeure? | | | coal mine methane and which substitute the energy which would otherwise be produced by burning natural gas. Application of such an approach to ERUs calculation guarantees that they were not earned for decreases in activity levels outside the project activity or due to force majeure. | | |
| 1.2.6. by drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring"? | PDD | DR | The data, variables and parameters were drawn as appropriate from the appendix B to "Guidance on criteria for baseline setting and monitoring". | OK | OK |
| 1.3. If a multi-project emission factor is used, does the PDD provide appropriate justification? | PDD | DR | In Section B.1. of the PDD it is stated that a baseline was established using a multi-project emission factors. However, appropriate justification has not been provided by the project participants.<br><br>**CAR 10**: Please provide appropriate justification to the statement that a baseline was established using a multi-project emission factors as claimed by the PDD. | **CAR 10** | OK |
| 1.4. Does the PDD explicitly indicate the approach used for identifying the baseline with references on regulations? | PDD | DR | The PDD in Section B.1. indicates that the project participants have chosen the JI specific approach for identifying the baseline in accordance with paragraph 9 of the latest version of the Guidelines | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | on criteria for baseline setting and monitoring (Version 02, adopted by the JISC 18 meeting in October 2009). | | |
| 1.5. Are number, name and version of the methodology clearly indicated in the context of the project? | PDD | DR | The project participants have chosen the JI specific approach for identifying the baseline. | OK | OK |
| 1.6. Is the applied version of the CDM methodology the most recent one and/or is this version still applicable? | PDD | DR | The project participants have chosen the JI specific approach for identifying the baseline. | OK | OK |
| 1.7. Is it described how the chosen approach is applied in the context of the project? | PDD | DR | The JI specific approach applied in the context of the project is completely and clearly described in section B.1. of the PDD. | OK | OK |
| 1.8. Are the key information and data used to establish the baseline (variables, parameters, data sources etc.) indicated in tabular form? | PDD | DR | The key data and parameters that were used to establish the baseline are provided in the tabular form in Section B.1. of the PDD.<br><br>**CAR 11**: Please provide a table containing the key elements of the baseline in Annex 2 of the PDD. | **CAR 11** | OK |
| 1.9. Are all regulations and sources clearly referenced? | PDD | DR | All necessary regulations and sources are clearly referenced in the PDD. | OK | OK |
| **B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project** | | | | | |
| 2.1. Is the step-wise approach used for the demonstration of project additionality indicated and described? | PDD | DR | The step-wise approach in accordance with most recent version of the "Tool for the demonstration and assessment of additionality" is used by the project participants for the demonstration of the | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | project additionality. It is fully described in the Section B.2. of the PDD. | | |
| 2.2. Does the PDD provide a justification of the applicability of the approach with a clear and transparent description with relevant reference on regulations? | PDD | DR | The latest version of "Tool for the demonstration and assessment of additionality" (Version 05.2) was used to demonstrate the additionality of the project. | OK | OK |
| 2.3. Is it described how the chosen approach is applied in the context of the project? | PDD | DR | The Section B.2. of the PDD provides a detailed explanation of how the selected approach is applied in the context of the project. | OK | OK |
| 2.4. Are additionality proofs provided? | | | | | |
| 2.4.1. If the application of the most recent version of the "Tool for the demonstration and assessment of additionality" is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method? | PDD | DR | The explanations, descriptions and analyses are done in accordance with the "Tool for the demonstration and assessment of additionality" (Version 05.2)<br><br>**CAR 12**. In section B.2 of the PDD benchmark analysis is used. It may be necessary to use Investment Comparison Analysis in case the baseline requires an investment in an additional boiler for capacity expansion or the replacement of an obsolete boiler. Besides, Alternative 2 and Alternative 3 are both analyzed even though it is claimed that benchmark analysis is used. | **CAR 12** | OK |
| 2.4.2. Is an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario included? | PDD | DR/I | The benchmark investment analysis is applied in accordance with the "Tool for the demonstration and assessment of | **CAR 13**<br>**CAR 14** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | additionality" (Version 05.2) and included in PDD Section B.2. and supporting Excel sheet.<br><br>**CAR 13.** Provide supporting documents for the investment analysis, in particular the CAPEX (investment cost) figures. Include full list of project equipment with brief description and cost.<br><br>**CAR 14.** Include residual value of the equipment at the time of mine shut down (2025 or 2017).<br><br>**CL 09.** Please clarify reference for the natural gas price used in the calculation as this value is not directly available from the source referenced.<br><br>**CL 10**: Please justify that the availability of the flare is set at 8000 hours according to the excel calculation file.<br><br>**CAR 15**: Please provide evidence for the heat demand calculation in Excel file that is stated as average 2003-2008. How is heat demand determined on site?<br><br>**CL 11:** Please justify that the project does not influence operation and maintenance costs as stated in the PDD when the project foresees | **CL 09**<br>**CL 10**<br>**CAR 15**<br>**CL11**<br>**CAR 16**<br>**CAR 17**<br>**CAR 18** | |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | installation of equipment that is not part of the baseline (coal fired boiler, flare, gas preparation station etc.).<br><br>**CAR 16:** Please provide a more precise date for the investment decision taking. It is only stated 2001 in the PDD, also the Excel file states "as of 2000".<br><br>**CAR 17:** Please reduce the number of repeating footnotes on the page 24 of the PDD for transparency.<br><br>**CAR 18:** During the site visit it has become apparent that second phase of the project (flare / extension of the degasification system) was not decided in 2001 but in 2011. Please prepare a separate investment analysis for both phases. Ensure that input data used for the second phase is plausible at the time of decision-making (2011?) | | |
| 2.4.3. Is it demonstrated that the project activity itself is not a likely baseline scenario? | PDD | DR | It is demonstrated in section B.2. of the PDD that the project activity itself is not a likely baseline scenario. | OK | OK |
| 2.5. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized? | PDD | DR | Yes, consistency with mandatory laws and regulations is described for alternative future scenarios in Section B.2. of the PDD. | OK | OK |
| **B.3. Description of how the definition of the project boundary is applied to the project** | | | | | |
| 3.1. Does the project boundary defined in the PDD | PDD | DR/I | The PDD describes the included | **CAR 19** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| encompass all anthropogenic emissions by sources of GHGs that are:<br>- under the control of the project participants;<br>- reasonably attributable to the project;<br>- significant? | | | emission sources of GHGs in Section B.3. Not all relevant sources were included.<br><br>**CAR 19**: According to the PDD the project replaces natural gas with CMM and coal. Please include coal combustion as a source of project emissions. How will this be monitored?<br><br>**CL 12**: If project does include an extension of the mine degasification system then power consumption has to be included as an emission source.<br><br>**CAR 20**: During the site visit it became apparent that there is an emergency vent at the boiler house. Please list this as a (potential) emission source in section B.3 of the PDD and justify why it is negligible. | **CL12**<br>**CAR 20** | |
| 3.2. Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 3.1. above? | PDD | DR | The project boundary is defined on the basis of a case-by-case assessment. The baseline scenario boundary includes Barakov Mine boiler house and degasification station. The project scenario boundary includes Barakov Mine boiler house, degasification station and connecting pipelines. | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 3.3. 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? | PDD | DR | The PDD in Section B.3. provides appropriate and justified description of the project boundary delineation with the flowchart illustrations (Figures 4 and 5). | OK | OK |
| 3.4. Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified? | PDD | DR | All gases and sources in the project boundary are explicitly stated and justified in the Table 20 provided in the Section B.3. of the PDD. However certain clarifications are needed.<br><br>CAR 21: Please correct Table 20 in the Section B.3. of the PDD as exclusion of project emission sources cannot be treated as conservative.<br><br>CL 13. Provide gas composition analysis for CMM and demonstrate in the PDD that there are no significant amounts of NMHC (non-methane hydrocarbons) in the CMM. | **CAR 21**<br>**CL 13** | OK |
| **B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline** | | | | | |
| 4.1 . Is the date of the baseline setting presented (in DD/MM/YYYY)? | PDD | DR | Date of baseline setting: 15/10/2010 is presented in the PDD Section B.4. | OK | OK |
| 4.2 . Is the contact information of persons setting the baseline provided? | PDD | DR | Global Carbon B.V. Anna Vilde is the person setting the baseline. Contact details are provided in the Annex 1 of the PDD | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | | | |
| 4.3 . Is the person/entity also a project participant listed in Annex 1 of PDD? | PDD | DR | Global Carbon B.V. is the project participant and contact details are available in Annex 1 of the PDD. Anna Vilde is not a project participant. | OK | OK |
| **C. Duration of the project/crediting period** | | | | | |
| **C.1. Starting date of the project** | | | | | |
| 1.1. Is the project's starting date clearly defined? | PDD | DR | Starting date of the project: 06/06/2001 | OK | OK |
| 1.2. Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began? | PDD | DR | The starting date of the project is not clearly explained in the PDD and additional evidence is required.<br><br>**CL 14**: In the PDD the starting date of the project has been set as June 6, 2001. Please provide the relevant supporting evidence, i.e. Letter to Project Development Organization. | **CL 14** | OK |
| 1.3. Is the starting date after the beginning of 2000? | PDD | DR | Yes, the starting date is after the beginning of 2000 | OK | OK |
| **C.2. Expected operational lifetime of the project** | | | | | |
| 2.1. Is the project's operational lifetime clearly defined in years and months? | PDD | DR/I | Yes, operational lifetime of the project is 23 years or 276 month. However, clarification is required in order to determine validity of this term.<br><br>**CL 15**. According to the PDD the mine | **CL 15** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | will be shut down in 2025. According to the site visit the year is 2017. Please clarify and provide supporting documents. | | |
| **C.3. Length of the crediting period** | | | | | |
| 3.1. Is the length of the crediting period specified in years and months? | PDD | DR | Length of crediting period: 5 years or 60 months. | OK | OK |
| 3.2. Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project? | PDD | DR | Yes, please refer to section C.3. of the PDD. | OK | OK |
| 3.3. 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? | PDD | DR | Please refer to section C.3. of the PDD. Estimates of emission reductions for the period before 2012 and after 2012 are presented separately in section A.4.3.1. of the PDD. | OK | OK |
| **D. Monitoring Plan** | | | | | |
| **D.1. Description of monitoring plan chosen** | | | | | |
| 1.1. Is it indicated in PDD a detailed theoretical description in a complete and transparent manner, as well as a justification of chosen monitoring plan using the step-wise approach? | PDD | DR | The detailed theoretical description in a complete and transparent manner, as well as a justification of chosen monitoring plan using the step-wise approach has bee provided by the project participants in the Section D.1. of the PDD. | OK | OK |
| 1.2. Does the PDD explicitly indicate the chosen | PDD | DR | According to the Section D.1. of the | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| approach used for monitoring with references on regulations? | | | PDD the JI specific approach is used for monitoring in accordance with paragraph 9 (a) of the Guidance on criteria for baseline setting and monitoring. Step-wise approach is used to describe the monitoring plan. | | |
| 1.3. Is the applied methodology considered being the most appropriate one? | PDD | DR | In this project the CDM methodology is not applied. JI specific approach is used for establishment of a monitoring plan. | OK | OK |
| 1.4. If national or international monitoring standard has to be applied to monitor certain aspects of the project, is this standard identified and is the reference as to where a detailed description of the standard can be found provided? | PDD | DR | The monitoring plan does not require the application of a national or international monitoring standard. | OK | OK |
| 1.5. Are the description of the assumptions, formulas, parameters, data sources and key factors indicated? | PDD | DR | The assumptions, formulas, parameters, data sources and key factors are described in Section D of the PDD. However, it seems that not all actual monitoring parameters have been taken into account.<br><br>**CAR 22**. Correct tables in section D. Neither FC not HG are measured directly. Please clarify whether MF will be measured in the same way as FC. | **CAR 22** | OK |
| 1.5.1. Is it stated how uncertainties are taken into account and conservativeness is safeguarded? | PDD | DR | The explanation of how uncertainties are taken into account and conservativeness is safeguarded is provided in Section D of the PDD. | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 1.6. Is it described how the chosen approach is applied in the context of the project? | PDD | DR | The explanation of how the chosen approach is applied in the context of the project is provided in Section D of the PDD. | OK | OK |
| 1.7. Does the monitoring plan explicitly and clearly distinguish:<br>1) 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 regarding the PDD;<br>2) 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 regarding the PDD;<br>3) data and parameters that are monitored throughout the crediting period? | PDD | DR | The monitoring plan distinguishes explicitly and clearly 1) 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 regarding the PDD;<br>2) 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 regarding the PDD;<br>3) data and parameters that are monitored throughout the crediting period;<br>in the Section D of the PDD. However certain parameters are not clearly described and justified:<br><br>**CL 16**: The Table 21 in the PDD lists CO2 emission factor of grid electricity consumption as sourced from the 2007 | **CL 16** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | study prepared by Global Carbon. However, newer emission factors have been developed by the DFP of Ukraine for the use in JI projects. Please update this. | | |
| 1.8. Are alternative tables used instead of using the tables provided in sections D.1.1.1., D.1.1.3., D.1.2.1., D.1.3.1. and D.2. in line with the approach regarding monitoring chosen for all data/parameters? | PDD | DR | Not applicable. | OK | OK |
| 1.8.1. Are all the required data / parameters according to the used methodology indicated? | PDD | DR | Not applicable. | OK | OK |
| 1.8.2. Fill in the required amount of sub checklists for fixed data and comment any line answered with "No" | | | | | |
| 1.10.1. Parameter Title<br>Data Checklist / Yes/No<br>Is the title in line with methodology?<br>Are data unit correctly expressed?<br>Is the appropriate description of parameter indicated?<br>Is the time of monitoring clearly indicated?<br>Is the source clearly referenced?<br>Is the correct value provided?<br>Has this value been verified?<br>Is the choice of data correctly justified or is the measurement method correctly described?<br>Are quality control and quality assurance procedures indicated? | N/A | N/A | Not applicable. | N/A | N/A |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| **D.1.1. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario** | | | | | |
| 1.1.1. Is the option 1 used for monitoring of the emissions in the project scenario and the baseline scenario? | PDD | DR | The Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario is used for the monitoring according to the Section D of the PDD. | OK | OK |
| **D.1.1.1. Data to be collected in order to monitor emissions from the project, and how these data will be archived** | | | | | |
| 1.1.1.1. Are the data to be collected in order to monitor emissions from the project described? | PDD | DR | The data to be collected in order to monitor emissions from the project are described by the project participants in the Section D.1.1.1. of the PDD. | OK | OK |
| 1.1.1.2. Is it indicated how the data will be archived? | PDD | DR | According to the Section D.1.1.1. of the PDD all data will be archived in electronic and paper form. | OK | OK |
| 1.1.1.3. Is it indicated that data monitored are to be kept for two years after the last transfer of ERUs for the project? | PDD | DR | It is indicated in Section D.1. of the PDD that the data monitored and required for calculation of the ERUs will be archived and kept for 2 years after the last transfer of ERUs. | OK | OK |
| **D.1.1.2. Description of formulae used to estimate project emissions (for each gas, source etc.; emissions in units of $CO_2$ equivalent)** | | | | | |
| 1.1.2.1. Are the formulae clearly and consistently indicated throughout the PDD? | PDD | DR | The formulas to estimate project emissions are clearly and consistently indicated in Section D.1.1.2 of the PDD. However, certain aspects of the formulas require clarification and correction: | **CAR 23**<br>**CAR 24**<br>**CAR 25** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | **CAR 23**: In equation (D.1.2) and Table 21 please demonstrate that the assumed methane density is conservative given actual pressure and temperature conditions at the flow meter.<br><br>**CAR 24**: In equation (D.1.3) please incorporate uncombusted methane into the equation. See equation (8) in ACM0008.<br><br>**CAR 25**: In equation (D.1.4) please refer to the Tool to calculate project emissions from a flare in order to calculate emissions for uncombusted methane. | | |
| **D.1.1.3. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and archived** | | | | | |
| 1.1.3.1. Are the data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary described? | PDD | DR/I | The data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary are described in the Section D.1.1.3. of the PDD. However, it appears that not all actually monitored parameters were described:<br><br>**CAR 26**: In table D.1.1.3, please | **CAR 26** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | identify actual monitoring variables from which FCy will be calculated. According to the site visit these are CMM flow, %CH4 and time of venting. For time of venting please clarify how situations are handled where more CMM is available than can be used at the boilers, i.e. when part of the CMM is vented and part of the CMM is combusted. In this respect, please explain how data in Figure 7 was obtained. | | |
| 1.1.3.2. Is it indicated how data will be archived? | PDD | DR | According to the Section D.1.1.3. of the PDD all data will be archived in electronic and paper form. | OK | OK |
| **D.1.1.4. Description of formulae used to estimate baseline emissions (for each gas, source etc.; emissions in units of $CO_2$ equivalent)** | | | | | |
| 1.1.4.1. Are the formulae clearly and consistently indicated throughout the PDD? | PDD | DR | The formulas to estimate baseline emissions are clearly and consistently indicated in Section D.1.1.4 of the PDD. However, certain aspects of the formulas require clarification and correction:<br><br>**CAR 27**: In equation D.2.2 please ensure that uncombusted amounts of methane at the boilers are excluded. Please also ensure that the density of methane is chosen conservatively given | **CAR 27**<br>**CAR 28**<br>**CAR 29**<br>**CAR 30** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | actual temperature and pressure conditions at the flow meter.<br><br>**CAR 28**: In equation D.2.3. It appears that HG should be divided by ηBL, i.e. the efficiency of the baseline boilers. For guidance see equations (26) and (32) in ACM0008.<br><br>**CAR 29**: In equation D.2.3 please ensure variable names are consistent: EFCC versus EFNG<br><br>**CAR 30**: In equation D.2.4 please justify that NCV is chosen conservatively (not too high) given the actual temperature and pressure at the flow meter. Please also justify that ηPJ (efficiency of the project boilers) is chosen conservatively (not too high) | | |
| **D.1.2. Option 2 Direct monitoring of emission reductions from the project (values should be consistent with those in section E.)** | | | | | |
| 1.2.1. Is the option 2 used for monitoring of the emissions in the project scenario and the baseline scenario? | N/A | N/A | Not applicable. | N/A | N/A |
| **D.1.2.1. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived** | | | | | |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 1.2.1.1. Are the data to be collected in order to monitor emissions from the project described? | N/A | N/A | Not applicable. | N/A | N/A |
| 1.2.1.2. Is it indicated how the data will be archived? | N/A | N/A | Not applicable. | N/A | N/A |
| 1.2.1.3. Is it indicated that data monitored are to be kept for two years after the last transfer of ERUs for the project? | N/A | N/A | Not applicable. | N/A | N/A |
| **D.1.2.2. Description of formulae used to calculate emission reductions from the project (for each gas, source etc.; emissions/emission reductions in units of CO2 equivalent):** | | | | | |
| 1.2.2.1. Are the formulae clearly and consistently indicated throughout the PDD? | N/A | N/A | Not applicable. | N/A | N/A |
| **D.1.3. Treatment of leakage in the monitoring plan** | | | | | |
| 1.3.1. Are data and information that will be collected in order to monitor leakage effects of the project described, if applicable? | PDD | DR | The project participants claim that the project activity does not result in leakage in Section D.1.3. of the PDD. However, this requires clarification.<br><br>**CL 17:** Please clarify whether there is any energy consumption for transporting CMM from the degasification station to the boiler house or the flare.<br><br>**CAR 31**: If the 2010 coal fired boiler is installed as a part of the project then assessment of potential leakages associated with coal consumption (transportation, fugitive methane emissions etc.) must be provided. | **CL 17**<br>**CAR 31** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 1.3.2. Are formulae used to estimate leakage (for each gas, source etc.; emissions in units of CO2 equivalent) described? | PDD | DR | The formulae used to estimate leakage is not described in the PDD as it is assumed that the project activity does not result in leakage. | OK | OK |
| **D.1.4. Description of formulae used to estimate emission reductions for the project (for each gas, source etc.; emissions/emission reductions in units of $CO_2$ equivalent)** | | | | | |
| 1.4.1. Are the formulae clearly and consistently indicated throughout the PDD? | PDD | DR | The description of formulae is clearly and consistently indicated in section D.1.4. of the PDD. | OK | OK |
| **D.1.5. Where applicable, in accordance with procedures as required by the host Party, information on the collection and archiving of information on the environmental impacts of the project** | | | | | |
| 1.5.1. Is information on the collection and archiving of information on the environmental impacts of the project indicated? | PDD | DR | Collection and archiving of the information on the environmental impacts of the project will be done in accordance with the Host Party legislation based on the approved EIA and received allowances for pollution. | OK | OK |
| 1.5.2. Is reference to the relevant host Party regulation(s) provided? | PDD | DR | The references to the necessary Host Party regulations are provided in the Section F.1. of the PDD. | OK | OK |
| 1.5.3. If not applicable is it stated so? | PDD | DR | All relevant information is indicated in section D.1.5. of the PDD. | OK | OK |
| **D.2. Quality control (QC) and quality assurance (QA) procedures undertaken for data monitored** | | | | | |
| 2.1. Are the quality assurance and control procedures for the monitoring process established? This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made | PDD | DR | The quality assurance and control procedures for the monitoring process have been established and described in Section D.2. of the PDD. However, certain aspects of these procedures | **CL 18** **CL 19** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| available on request? | | | need to be clarified:<br><br>**CL 18**. Justify that uncertainty level of FC is low. According to the site visit both the concentration meter and the flow meter are read manually from a clock-like meter. Please explain how uncertainty is taken into account and conservativeness is safeguarded in manually reading the data with 2 hour frequency on site?<br><br>**CL 19**. In section D.2, please provide internal calibration procedures for the meters used in the monitoring plan. Include frequency of calibration, calibration requirements and standards, measurement uncertainty and relevant procedures for each device used in the monitoring. | | |
| 2.2. Are data corresponded with those in section D.1? | PDD | DR | Data are corresponded with those in sections D.1.1. and D.1.1.3. | OK | OK |
| **D.3. Please describe the operational and management structure that the project operator will apply in implementing the monitoring plan** | | | | | |
| 3.1 Is it described briefly the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project? | PDD | DR | The operational and management structure that the project participants(s) will implement in order to monitor emission reductions of the project is described in the Section D.3. of the PDD. A clear management structure | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| | | | has been established to ensure accurate execution of the monitoring plan and is presented on the Figure 8 in the PDD. | | |
| 3.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided? | PDD | DR | The responsibilities and institutional arrangements for data collection and archiving are clearly provided in the Section D.3. of the PDD. The general supervision of the monitoring system will be executed by Krasnodoncoal administration under the existing control and reporting system. | OK | OK |
| 3.3. Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? | PDD | DR | The monitoring plan, on the whole, reflects good monitoring practices for the project of this type. Nevertheless, clarification regarding sources of data in case of unavailability of expected data is required.<br><br>**CL 20**: Please indicate for all the values that are monitored and that are taken as default values procedures to be followed if expected data are unavailable. | **CL 20** | OK |
| **D.4. Name of person(s)/entity(ies) establishing the monitoring plan** | | | | | |
| 4.1. Is the contact information of person(s)/entity(ies) establishing the monitoring plan provided? | PDD | DR | Global Carbon B.V. /Anna Vilde contact information is provided in Annex 1 of the PDD. | OK | OK |
| 4.2. Is the person/entity also a project participant | PDD | DR | Global Carbon B.V. is the project participant and contact details are | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| listed in Annex 1 of PDD? | | | available in Annex 1. Anna Vilde is not a project participant. | | |
| **E. Estimation of greenhouse gases emission reductions** | | | | | |
| **E.1. Estimated project emissions** | | | | | |
| 1.1. Are described the formulae used to estimate anthropogenic emissions by source of GHGs due to the project (for each gas, source etc.; emissions in units of $CO_2$ equivalent)? | PDD | DR | The formulae used to estimate anthropogenic emissions by source of GHGs due to the project (for each gas, source etc.; emissions in units of CO2 equivalent) is provided in the Section D.1.1.2 of the PDD. | OK | OK |
| 1.1.1. Is there a description of calculation of GHG project emissions in accordance with the formula? (Supporting documentation) | PDD | DR/I | The description of calculation of GHG project emissions in accordance with the formula is provided in the Section D.1.1.2 of the PDD and in supporting Excel file. However the basis for estimation calculation requires clarification.<br><br>**CL 21**: During the site visit it became apparent that reliable data on CMM combustion is only available from August 2003. This should be made clear in the PDD. | **CL 21** | OK |
| 1.1.2. Have conservative assumptions been used to calculate project GHG emissions? | PDD | DR | The conservative assumptions have been used to calculate project GHG emissions with some concerns.<br><br>See **CAR 23; CAR 24** | **CAR 23**<br>**CAR 24** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| **E.2. Estimated leakage** | | | | | |
| 2.1. Are described the formulae used to estimate leakage due to the project activity where required (for each gas, source etc.; emissions in units of $CO_2$ equivalent)? | PDD | DR | The project participants claim that the project activity does not result in leakage.<br><br>See **CL 17; CAR 31** | **CL 17 CAR 31** | OK |
| 2.1.1. Is there a description of calculation of leakage in accordance with the formula? (supporting documentation) | PDD | DR | The project participants claim that the project activity does not result in leakage.<br><br>See **CL 17; CAR 31** | **CL 17 CAR 31** | OK |
| 2.2. Have conservative assumptions been used to calculate leakage? | PDD | DR | The project participants claim that the project activity does not result in leakage.<br><br>See **CL 17; CAR 31** | **CL 17 CAR 31** | OK |
| 2.3. If not applicable, is it stated in the PDD? | PDD | DR | The project participants claim that the project activity does not result in leakage.<br><br>See **CL 17; CAR 31** | **CL 17 CAR 31** | OK |
| **E.3. Sum of E.1 and E.2.** | | | | | |
| 3.1. Does the sum of E.1. and E.2. represent the project activity emissions? | PDD | DR | The sum of E.1. and E.2. represents the project activity emissions. | OK | OK |
| **E.4. Estimated baseline emissions** | | | | | |
| 4.1. Are the formulae used to estimate the anthropogenic emissions by source of GHGs in the baseline using the baseline methodology for the applicable project category described (for each gas, | PDD | DR | The formulae used to estimate the anthropogenic emissions by source of GHGs in the baseline using the baseline methodology for the applicable | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| source etc.; emissions in units of CO2 equivalent)? | | | project category is described (for each gas, source etc.; emissions in units of CO2 equivalent) in the Section D.1.1.4 of the PDD. | | |
| 4.1.1. Is there a description of calculation of GHG baseline emissions in accordance with the formula? (supporting documentation) | PDD | DR | The description of calculation of GHG baseline emissions in accordance with the formula is provided in the Section D.1.1.4 of the PDD and in supporting Excel file. However the details of the calculation require clarification.<br><br>See **CAR27; CAR28; CAR29; CAR30** | **CAR 27**<br>**CAR 28**<br>**CAR 29**<br>**CAR 30** | OK |
| 4.2. Have conservative assumptions been used to calculate baseline emissions? | PDD | DR | The conservative assumptions have been used to calculate project GHG emissions with some concerns.<br><br>See **CAR 30.** | **CAR 30** | OK |
| **E.5. Difference between E.4. and E.3. representing the emission reductions of the project** | | | | | |
| 5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period? | PDD | DR | The difference between E.4. and E.3. represents the emission reductions due to the project during a period indicated. | OK | OK |
| **E.6. Table providing values obtained when applying formulae above** | | | | | |
| 6.1. Is the data provided under this section in consistency with data as presented by other chapters E of the PDD? | PDD | DR | Yes, the data provided under this section are in consistency with the data as presented by other chapters of the Section E of the PDD. | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 6.2. Is there a table providing the total value of emission reductions? | PDD | DR | Yes, there is a table in Section E.6. of the PDD providing the total volume of emission reductions. | OK | OK |
| **F. Environmental impacts** | | | | | |
| **F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party** | | | | | |
| 1.1. Has an analysis of the possible environmental impacts of the project been sufficiently described? | PDD | DR | The project participants provided description of the analysis of possible environmental impacts of the project in the Section F of the PDD. According to this analysis the level of negative environmental impact under the project scenario is much lower compared to the baseline scenario. Some clarifications are required to determine the completeness of such analysis.<br><br>**CAR 32** Please provide evidence that the EIA mentioned in the PDD considers boiler switch to natural gas, installation of new boilers (including coal fired boiler) and flare<br><br>**CL 22**. Please provide information on the pollution payments made for venting of CMM | **CAR 32**<br>**CL 22** | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 1.2. Are transboundary environmental impacts considered in the analysis? | PDD | DR | The project design foresees positive transboundary effect. | OK | OK |
| 1.3. Are all regulations and sources clearly referenced? | PDD | DR | All regulations and sources are clearly referenced. | OK | OK |
| **F.2. If environmental impacts are considered significant by the project participants or the host Party, provision of conclusions and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party** | | | | | |
| 2.1. Is a viewpoint regarding significant environmental impacts of the project participants or the host Party indicated? | PDD | DR | Overall, the project is environmentally beneficial as it causes less pollution than in case of realisation of the baseline scenario. | OK | OK |
| 2.2. Are there any host Party requirements for an Environmental Impact Assessment (EIA)? | PDD | DR | Environmental Impact Assessment has been carried out in accordance with Host Party regulations referenced in Section F.1 of the PDD. | OK | OK |
| 2.3. Have conclusions and all references to the supporting documentation on the analysis of the environmental impacts been indicated? | PDD | DR | The conclusions and all references to the supporting documentation on the analysis of the environmental impacts have been indicated in the Section F. of the PDD. | OK | OK |
| **G. Stakeholders' comments** | | | | | |
| **G.1. Information on stakeholders' comments on the project, as appropriate** | | | | | |
| 1.1. Have relevant stakeholders been consulted and how? | PDD | DR | According to the Host Party's legislation no stakeholder consultations were required for development and approval of the CMM utilization project. | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| 1.1.1. Have appropriate media been used to invite comments by local stakeholders? | PDD | DR | Not applicable. | N/A | N/A |
| 1.2. Is there a list of stakeholders from whom comments on the project have been received? | PDD | DR | Not applicable. | N/A | N/A |
| 1.3. Is the nature of comments provided? | PDD | DR | Not applicable. | N/A | N/A |
| 1.4. Has due account been taken of any stakeholder comments received? | PDD | DR | Not applicable. | N/A | N/A |
| **Annexes** | | | | | |
| **Annex 1. Contact information on project participants** | | | | | |
| 1.1. Is the information provided in consistency with the one given under section A.3? | PDD | DR | Yes, the information provided is in consistency with the one given under the Section A.3 | OK | OK |
| 1.2. Are the mandatory fields for each organisation listed in section A.3. of the PDD filled notably organisation, name of contact person, street, city, postal code, country, telephone number(s) and fax number or e-mail address? | PDD | DR | Yes, the mandatory fields for each organisation listed in the Section A.3. of the PDD are filled. | OK | OK |
| **Annex 2. Baseline information** | | | | | |
| 2.1. Is a table containing the key elements of the baseline (including variables, parameters and data sources) provided? | PDD | DR | The table containing the key elements of the baseline (including variables, parameters and data sources) is not provided.<br><br>See **CAR 11** | **CAR 11** | OK |
| 2.2. If additional background information on baseline data is provided: is this information in consistency with data presented by other sections of the PDD? | PDD | DR | The information on the baseline that is provided in the Annex 2 is consistent with the other Sections of the PDD. | OK | OK |

| CHECKLIST QUESTION | Ref.* | MoV** | COMMENTS | Draft Concl. | Final Concl. |
|---|---|---|---|---|---|
| **Annex 3. Monitoring plan** | | | | | |
| 3.1. Is the detail description of all key elements of monitoring plan provided? | PDD | DR | The detailed description of all key elements of the monitoring plan is provided in the Annex 3 of the PDD. | OK | OK |
| 3.2. Is the provided information on monitoring plan in consistency with data presented in section D of the PDD? | PDD | DR | The information on the monitoring plan that is provided in the Annex 3 is consistent with the other Sections of the PDD. | OK | OK |

**Ref.*** - gives reference to Category 1 and Category 2 documents (see section 3.1. of the Determination Report) where the answer to the checklist question or item is found.
**MoV**** - Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.

**Table 3 Resolution of Corrective Action and Clarification Requests**

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| **CAR 01**: The history of the project, and specifically its JI component is not discussed in section A.2 of the PDD. Please add relevant information. | Table 2. A.2.2. | CMM utilization projects in the context of their GHG reduction potential were considered by the project owner back in 2001, which is reflected in the corresponding study by Partnership for Energy and Environmental Reform (PEER) "Coal Mine Methane In Ukraine: Opportunities For Production And Investment In The Donetsk Coal Basin"*, commissioned by the U.S. Environmental Protection Agency (EPA). The study evaluates potential GHG reductions from CMM utilization projects at four coal mines of Krasnodoncoal Coal Association: Molodogvardeyskaya Mine, Samsonovskaya-Zapadnaya Mine, Suhodolskaya-Vostochnaya Mine, 50 years of the USSR Mine. The possible reason why Barakov Mine is not listed there is that there were intentions to shut down this mine at the time when the study was being prepared. Later on it was decided to continue the operation at Barakov Mine and reconstruct the boiler house to allow CMM utilization. In other words, this possibility was considered by the mine management.<br><br>The project documentation was approved by the Makeevka SSI of Health and Safety in Mining on | The updated PDD contains necessary information and the supporting evidence has been examined.<br><br>The issue is closed. |

* http://www.epa.gov/cmop/docs/ukraine_handbook.pdf

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | 6th of June 2001, which is considered to be the starting date of the project. The copy of the letter is provided as evidence in the answer to CL 14 . The project was realized in accordance with implementation schedule detailed in Table 1 (page 3).<br><br>The above explanation was added to Section A.2 PDD version 3.5 (page 3).<br><br>Please also note, that according to the Answer provided by JISC to DNV "on the request of clarification regarding the assessment of prior consideration in JI"* "there is no explicit mentioning in the existing JI regulations that prior consideration needs to be demonstrated in JI". Based on this no additional evidence on prior consideration was provided to the AIE. | |
| **CAR 02**: Correct modifications of fonts (sizes etc.) throughout the PDD. | Table 2. A.4.2.2. | Modifications of fonts (sizes etc.) were corrected throughout the PDD version 3.5. | The updated PDD has been checked and is found to be correct.<br><br>The issue is closed. |
| **CAR 03:** Please provide explanation on how anthropogenic greenhouse gas emission reductions are to be achieved in the Section A.4.3 of the PDD. | Table 2. A.4.3.1. | Anthropogenic GHG emissions are reduced by the project through capturing direct emissions of methane (CMM) and combusting it to carbon dioxide with much lower global warming potential. CMM is combusted in boilers to generate heat | The updated PDD has been checked and is found to contain necessary information.<br><br>The issue is closed. |

* http://ji.unfccc.int/Ref/Guida/reqClarifications.html

<table>
<tr><th>Draft report clarifications and corrective action requests by determination team</th><th>Ref. to checklist question in tables 1, 2</th><th>Summary of project owner response</th><th>Determination team conclusion</th></tr>
<tr><td></td><td></td><td>energy which otherwise would be produced by fossil fuel combustion, being another source of GHG emissions, which is avoided because of realization of the project. Emission reductions would not occur in the absence of the project because no reconstruction would be made to allow CMM capture and utilization. Consequently, CMM would be vented into the atmosphere and heat energy produced by natural gas combustion in boiler house of the Mine.<br>The above explanation was added to Section A.4.3 of PDD version 3.5 (page 12).</td><td></td></tr>
<tr><td>CAR 04 Please correct numbers in Table 10 and 11 of the PDD. Bring it in accordance with section E. Update estimations of emission reductions for 2010 based on actual data.</td><td>Table 2. A.4.3.1.1.</td><td>Numbers in Tables 10 and 11 were corrected, data for 2010 were added. See changes in Section A.4. and Section E of PDD version 3.5 (pages 11-12, 41-45). Copy of the letters from the Mine with data on fuel consumption of the boiler house in 2004-2010 were provided to the AIE.</td><td>The updated PDD has been checked and is found to contain correct information. The evidence has been examined and found to be correct.<br><br>The issue is closed.</td></tr>
<tr><td>CAR 05: According to the PDD the baseline is natural gas-fired boilers that were already existing at the time of decision-making.<br>Please describe the existing boilers (capacity, commissioning date, build date, remaining lifetime in 2001). Justify that the boilers constitute a viable baseline, i.e. they would be able to generate the same amount of heat as</td><td>Table 2. B.1.1</td><td>In 2001 before any project activity took place the Mine’s boiler house had two natural gas-fired steam boilers:
<table>
<tr><td rowspan="4">DKVR 6,5/13</td><td>Serial No</td><td>4596</td></tr>
<tr><td>Capacity</td><td>6,5 t/hour</td></tr>
<tr><td>Commissioning date</td><td>Oct 1974</td></tr>
<tr><td>Build date</td><td>1974</td></tr>
<tr><td rowspan="2">DKVR 6,5/13</td><td>Serial No</td><td>2983</td></tr>
<tr><td>Capacity</td><td>6,5 t/hour</td></tr>
</table></td><td>The explanation is accepted. The updated PDD has been checked and is found to contain correct information. The evidence has been examined and found to be correct.<br><br>The issue is closed.</td></tr>
</table>

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| the project and they would have a sufficient remaining lifetime. | | <table><tr><td></td><td>Commissioning date</td><td>Oct 1967</td></tr><tr><td></td><td>Build date</td><td>1964</td></tr></table> Operational lifetime of this type of boilers is about 40 years provided that regular maintenance is undertaken*. This is controlled by State Boil Inspection which periodically checks boiler operation parameters and allows or restricts operation of the boilers for certain period of time.<br>First boiler (DKVR No 4596) was restricted from further operation and had to be replaced. It is assumed that in baseline it would have been replaced by the similar one. Therefore, costs of such a boiler were deducted from project capital expenditures in the investment analysis.<br>Second boiler (DKVR No 2983) was in good technical condition and could be operated for the period of time allowed by annual decisions of the State Boil Inspection. The boiler was inspected annually, which is documented in the boiler passports copies of which were provided to AIE. Last records in the boiler passport by State Boil Inspection as of Aug 2009 state that there were no serious defects and further operation was allowed. However, in 2007 its service life was exceeding 40 years so it had to be replaced. DKVR No 2983 remained in operation till 2010 | |

* http://www.suzmk.ru/kotel_dkvr.htm

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | when it was substituted by the new coal-gas-fired boiler. (more about this boiler in the answer to CAR 07). It is assumed that this boiler would have been replaced by the similar one in baseline as well. Costs of the replacement are not reflected in the investment analysis as they cannot be attributed to the project.<br>Same amount of heat as in project scenario could be produced in baseline because heat generating equipment is same for both scenarios (excluding reserve coal fired boiler which works when others do not and therefore do not add additional capacity to the boiler house).<br>Letter from the Mine with information about replaced and operational boilers in the Boiler house was provided to AIE. The corresponding changes were made in Section A.4.2 in PDD version 3.5 (pages 9-10). | |
| **CAR 06**: Please provide information whether the extension of the degasification system is part of the project. | Table 2. B.1.1 | Extension of degasification system mentioned by representatives of the Mine during the site visit is not part of the project. At current stage it is an idea under development which has no any project documents elaborated and no decision regarding its implementation has been taken. Copy of the letter from the Mine with such statement was provided to the AIE. (see also answers to CAR 18, CL 3 and CL 12) | The explanation is accepted. The evidence has been examined and found appropriate.<br><br>The issue is closed. |
| **CAR 07**: Please provide information whether the 2010 boiler is part of the | Table 2. B.1.1 | The boiler, which was installed in 2010, was replacing one of the operating boilers which ran | The explanation is accepted. The updated PDD has been |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| project. | | out of its lifetime. Please, see answer to CAR 05. Therefore, this boiler is also part of the baseline scenario. This information was made clear in Section A.4.2. of PDD version 3.5 (page 10). | checked and is found to contain correct information.<br><br>The issue is closed. |
| **CAR 08**: In section B.1 the scenario H3 (Heat generation from coal combustion) has been excluded as not reasonable. This appears at odds with the fact that as part of the project a coal-fired boiler was installed and the natural gas supply was cut. | Table 2. B.1.2.1 | There is no contradiction between exclusion of scenario H3 (Heat generation from coal combustion) and installation of a coal-fired boiler as a part of project scenario.<br>Coal fired boiler which was installed under the project is a part of the heat supply system to allow CMM combustion. Its function is producing heat energy only when methane concentration in gases captured by degasification system is dangerous for its utilization (below 25%). Under the optimistic scenario coal is not used at all, being a back-up option. Actual fuel consumption at the boiler house proves this. During 2003-2010 coal was combusted only in three years: 2004 (80,1 t), 2008 (700 t) and 2009 (1393 t). Natural gas supply was cut when the boiler house was switched to CMM. No changes were made in PDD.<br>Besides, excluding such scenario is conservative. Copy of the letters from the Mine with data on fuel consumption of the boiler house in 2004-2010 were provided to the AIE (see also answer to CAR 32). | The explanation is accepted. The evidence has been examined and has been found to be appropriate..<br><br>The issue is closed. |
| **CAR 09**: Please add information on how uncertainties have been taken into | Table 2. B.1.2.4 | Uncertainties have been taken into account by applying IPCC default emission factors which are | The explanation is accepted. The updated PDD has been |

<table>
<tr><th>Draft report clarifications and corrective action requests by determination team</th><th>Ref. to checklist question in tables 1, 2</th><th>Summary of project owner response</th><th>Determination team conclusion</th></tr>
<tr><td>account during baseline setting and what conservative assumptions have been used.</td><td></td><td>calculated on conservative basis taking into account uncertainties and fall within 95-% confidence interval.<br>The main baseline emission source is release of methane into the atmosphere (90% of emissions of $CO_2$ eq.) with the rest of emissions resulted from baseline production of heat energy. The key parameter for calculation of emission reductions is quantity of methane which was to be vented, but instead was utilized in the boiler house for heat generation under the project scenario.<br>Because there is no adjustment to standard temperature and pressure during CMM measurement by the flow meter, quantity of CMM at working conditions was used for emission reduction calculations. Conservativeness of such approach was checked by recalculating the volume of CMM at standard conditions applying ideal gas law at working conditions measured by the Mine. The result obtained was the following:
<table>
<tr><td></td><td>Quantity of CMM combusted in boilers (WTP; (t=305,15 K; p= 110,932 kPa)), 1000 $m^3$ (measured)</td><td>Quantity of CMM combusted in boilers (STP; (t=273,15 K; p= 101,325 kPa)) , 1000 $m^3$ (calculated)</td></tr>
<tr><td>2004</td><td>5175</td><td>5443</td></tr>
<tr><td>2005</td><td>6685</td><td>7032</td></tr>
</table></td><td>checked and found to be correct. The evidence has been examined and has been found to be appropriate.<br><br>The issue is closed.</td></tr>
</table>

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|

| | | |
|---|---|---|
| 2006 | 5955 | 6263 |
| 2007 | 5240 | 5511 |
| 2008 | 5134 | 5400 |
| 2009 | 3772 | 3967 |
| 2010 | 4916 | 5170 |

It is clear, that volume of CMM combusted in boilers would be higher at STP. However, it was decided to base calculations at measured values to maintain conservativeness and accuracy of the results.

**Uncertainty evaluation**

Uncertainty was evaluated by calculating relative error of measurement of quantity of methane utilized in boiler house.

Quantity of methane utilized in boiler house is calculated by following formula:

$FC - (FR_{DG}/60 \times C_{CH4} \times T_{boilers})/1000$,

where

$FC$ - is CMM send to the boilers, thousand $m^3$ $CH_4$;

$FR_{DG}$ is flow rate of degasified gases, $m^3$/hour;

$C_{CH4}$ is CMM concentration in gases degasified, %;

$T_{boilers}$ is time of CMM supply to boiler house, minutes.

Relative error is a ratio between absolute error and average value of series of measurements.

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | Absolute error was calculated by the law of propagation of uncertainties:<br>$U_{FC} = \sqrt{U_{FR}^2 + U_C^2 + U_T^2}$,<br>where<br>$U_{FC}$ - is absolute error of *FC*;<br>$U_{FR}$ is absolute error of *FR*;<br>$U_C$ is absolute error of *C*;<br>$U_T$ is absolute error of *T.*<br><br>Absolute error of each component is determined as<br>$U = \sqrt{U_S^2 + U_R^2}$,<br>where<br>$U$ is absolute error of a parameter;<br>$U_S$ is standard error;<br>$U_R$ is random error.<br><br>Standard error is reflected in accuracy class of the monitoring equipment and was taken from their specifications. It was assumed to be half of clock's division value for time measurement.<br>Random error was calculated based on standard deviation of a randomly selected series of measurements multiplied by Student's ratio for confidence interval 95%.<br>As a result, the following values were obtained.<br>Relative error of measuring gas 8% | |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | flow (FR)<br>Relative error of measuring methane concentration (C) 5%<br>Relative error of measuring time of CMM supply to boiler house (T) 1%<br>**Combined relative error of FC 10%**<br>Calculation files for uncertainty and adjustment to STP were provided to AIE. The above explanation was added to section B.1. and Annex 2 of PDD version 3.5 (pages 14, 50-51). | |
| **CAR 10**: Please provide appropriate justification to the statement that a baseline was established using a multi-project emission factors as claimed by the PDD. | Table 2. B.1.3. | Phrase "multi-project emission factor" is a mistake. IPCC default emission factors are used in calculation of emission reductions. The mistake was corrected in PDD version 3.5 (page 18). | The updated PDD has been checked and found correct.<br><br>The issue is closed |
| **CAR 11**: Please provide a table containing the key elements of the baseline in Annex 2 of the PDD. | Table 2. B.1.8. | A table containing the key elements of baseline was added to Annex 2 in PDD version 3.5 (pages 52-54). | The updated PDD has been checked and found correct.<br><br>The issue is closed |
| **CAR 12**. In section B.2 of the PDD benchmark analysis is used. It may be necessary to use Investment Comparison Analysis in case the baseline requires an investment in an additional boiler for capacity expansion or the replacement of an obsolete boiler. Besides, Alternative 2 and Alternative 3 are both analyzed even | Table 2. B.2.4.1. | Costs of replacement of an obsolete boiler were deducted from the project investment so that they reflected costs of those changes caused by the project. Since installation of flare is not to be financed before 2012 and this activity was excluded from the proposed JI project Alternative 3 is no longer considered. NPV is calculated for the one remaining alternative. With this done benchmark analysis was applied. | The updated PDD has been checked and found correct. Changes to the investment analysis are accepted.<br><br>The issue is closed |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| though it is claimed that benchmark analysis is used. | | The relevant changes were made in Section B.2 of PDD version 3.5 (pages 21-25) and investment analysis calculation file. | |
| **CAR 13.** Provide supporting documents for the investment analysis, in particular the CAPEX (investment cost) figures. Include full list of project equipment with brief description and cost. | Table 2. B.2.4.2. | Copies of the main contracts, total costs estimation and Acceptance certificates were provided to the AIE. | The provided evidence has been checked and found correct.<br><br>The issue is closed |
| **CAR 14.** Include residual value of the equipment at the time of mine shut down (2025 or 2017). | Table 2. B.2.4.2. | According to the information provided by the Mine's Accounting office book value of all of the boilers in 2025 is 0 UAH. The copy of the answer from the Mine's Accounting office was provided to the AIE. Scrap metal cost of the boilers was included as residual value of the equipment at the time of mine shut down in 2025.<br>The relevant changes were made PDD version 3.5 (page 22) and investment analysis calculation file. | The updated PDD has been checked and found correct. The provided evidence has been checked and found correct. Explanation is accepted.<br><br>The issue is closed |
| **CAR 15**: Please provide evidence for the heat demand calculation in Excel file that is stated as average 2003-2008. How is heat demand determined on site? | Table 2. B.2.4.2. | Heat demand on site is determined as the sum of heat demands of Mine's calorifer, heating, ventilation and daily housing needs. Calculation of the annual heat demand of each consumer was provided by the Mine as a separate document which was presented to AIE. Annual heat demand of the Mine was estimated to be 173 630 GJ. | The provided evidence has been checked and found correct. Explanation is accepted.<br><br>The issue is closed. |
| **CAR 16:** Please provide a more precise date for the investment decision taking. It is only stated 2001 in the PDD, also the Excel file states "as of 2000". | Table 2. B.2.4.2. | Excel file states "as of 2000" because according to paragraph 6 of Annex to Tool for the demonstration and assessment of additionality, Version 05.2 "input values used in all investment | The provided evidence has been checked and found correct. Explanation is accepted. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | analysis should be valid and applicable at the time of the investment decision taken by the project participant. As the project design document was approved on 6th of July 2001 (which is considered to be the starting date of the project), it is assumed that investment decision was taken before the project design document was developed. | The issue is closed. |
| **CAR 17:** Please reduce the number of repeating footnotes on the page 24 of the PDD for transparency. | Table 2. B.2.4.2. | Number of repeating footnotes on the page 24 of the PDD was reduced in PDD version 3.5 (page 24). | The updated PDD has been checked and found correct.<br><br>The issue is closed. |
| **CAR 18:** During the site visit it has become apparent that second phase of the project (flare / extension of the degasification system) was not decided in 2001 but in 2011. Please prepare a separate investment analysis for both phases. Ensure that input data used for the second phase is plausible at the time of decision-making (2011?) | Table 2. B.2.4.2. | Since installation of flare is not to be financed before 2012 this activity was excluded from the proposed JI project.<br>The relevant changes were made throughout PDD version 3.5, emission reduction and investment analysis calculation files. | The updated PDD has been checked and found correct. The provided evidence has been checked and found correct. Explanation is accepted.<br><br>The issue is closed. |
| **CAR 19**: According to the PDD the project replaces natural gas with CMM and coal. Please include coal combustion as a source of project emissions. How will this be monitored? | Table 2. B.3.1. | Coal combustion was included into the list of emission sources. The corresponding changes were made in emission reductions calculation and monitoring plan. Investment analysis remained unchanged as it was assumed that no coal consumption was expected at the time of decision making. In case of inclusion these costs would make NPV of the project even lower than it is | The updated PDD has been checked and found correct. Explanation is accepted.<br><br>The issue is closed |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | without them.<br>Monitoring of the coal consumption takes place at Coal Loader Complex. Coal is measured by the bunker above the boiler with known dimensions. The size of the bunker is 30 tonnes, it is filled with coal by transport line from Coal Loader Complex. Quantity of coal combusted is determined by the number of bunkers which were emptied. In case when some coal is left in bunker its mass is determined by the fraction of bunker volume that it fills. Coal consumption is registered in log books at Boiler House and Coal Loader Complex which are cross checked. Please see PDD version 3.5 (pages 25-26, 55), and updated emission reduction calculation file. | |
| **CAR 20**: During the site visit it became apparent that there is an emergency vent at the boiler house. Please list this as a (potential) emission source in section B.3 of the PDD and justify why it is negligible. | Table 2. B.3.1. | Emergency vent at the boiler house is a required safety installation without which none of the boiler houses working at CMM can be operated. This vent is for use only in two situations:<br>1) release CMM during short period of time (up to 5 minutes) taken to firing the boiler when CMM reaches the boiler house before burner is turned on; and<br>2) in occasions when dangerously low concentrations of methane in degasified gases is detected by concentration meters. In this case emergency valve is automatically activated and CMM is released directly from the vent at | The updated PDD has been checked and found correct. Explanation is accepted.<br><br>The issue is closed |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | degasification station. The time interval when the vent in boiler house can be used is couple of seconds.<br>Estimated amount of CMM released through vent in boiler house is 1843 $m^3$ (15 $m^3$/minute*5minutes*4times per day*365), which is less than 1% of baseline emissions, therefore this emission source was neglected in calculations. Boiler house vent was listed in Table 20 in Section B.3 with justification of its negligibility in PDD version 3.5 (page 26). | |
| **CAR 21**: Please correct Table 20 in the Section B.3. of the PDD as exclusion of project emission sources cannot be treated as conservative. | Table 2. B.3.4. | Table 20 in the Section B.3 was corrected correspondingly in PDD version 3.5 (page 26). | The updated PDD has been checked and found correct.<br><br>The issue is closed. |
| **CAR 22**. Correct tables in section D. Neither FC not HG are measured directly. Please clarify whether MF will be measured in the same way as FC. | Table 2. D.1.5. | Tables D.1.1.1 and formulae in Section D.1.1.2 were corrected. Description of FC calculation method and procedures were added to Annex 3. See PDD version 3.5 (pages 32, 55).<br>Since installation of flare is not to be financed before 2012 this activity was excluded from the proposed JI project, consequently, MF is no longer actual for this project. | The updated PDD has been checked and found correct.<br><br>The issue is closed. |
| **CAR 23**: In equation (D.1.2) and Table 21 please demonstrate that the assumed methane density is conservative given actual pressure and temperature conditions at the flow meter. | Table 2. D.1.1.2.1. | Since using quantity of methane at working conditions is conservative (see answer to CAR 09) applying density of methane at standard conditions do not lead to significant distortion of the result. | Explanation is accepted.<br><br>The issue is closed. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| **CAR 24**: In equation (D.1.3) please incorporate uncombusted methane into the equation. See equation (8) in ACM0008. | Table 2. D.1.1.2.1. | Uncombusted methane was incorporated into the equations (D.1.2) and (D.1.3) in PDD version 3.5 (pages 33). The calculation file was changed accordingly. | The updated PDD has been checked and found correct. The provided evidence has been checked and found correct.<br><br>The issue is closed. |
| **CAR 25**: In equation (D.1.4) please refer to the Tool to calculate project emissions from a flare in order to calculate emissions for uncombusted methane. | Table 2. D.1.1.2.1. | Since installation of flare is not to be financed before 2012 this activity was excluded from the proposed JI project.<br>The relevant changes were made PDD version 3.5 (page 33) and emission reduction calculation file. | The updated PDD has been checked and found correct. Explanation is accepted.<br><br>The issue is closed. |
| **CAR 26**: In table D.1.1.3, please identify actual monitoring variables from which FCy will be calculated. According to the site visit these are CMM flow, %CH4 and time of venting. For time of venting please clarify how situations are handled where more CMM is available than can be used at the boilers, i.e. when part of the CMM is vented and part of the CMM is combusted. In this respect, please explain how data in Figure 7 was obtained. | Table 2. D.1.1.3.1. | Table D.1.1.3 was changed in accordance with site visit findings. The following calculation formula was added to Annex 3 of PDD version 3.5 (pages 32, 55):<br>$FC = (FR_{DG}/60 \times C_{CH4} \times T_{boilers})/1000$,<br>where<br>$FC$ - is CMM send to the boilers, thousand $m^3$ $CH_4$;<br>$FR_{DG}$ is flow rate of degasified gases, $m^3$/hour;<br>$C_{CH4}$ is CMM concentration in gases degasified, %;<br>$T_{boilers}$ is time of CMM supply to boiler house, minutes.<br><br>CMM from degasification station can be either directed to vent at the station or switched to boiler | The updated PDD has been checked and found correct. The provided evidence has been checked and found correct. Explanation is accepted.<br><br>The issue is closed. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | house pipeline, therefore no simultaneous CMM venting and combustion happen.<br>According to technical specification of DKVR 6,5/13 boilers their fuel consumption is 721 $m^3$/hour*, therefore the maximum annual fuel consumption at boiler house is 2boilers×721 $m^3$/hour ×8760 hours (year) = 12 632 th.$m^3$/year. The data on CMM combustion in the Mine's boiler house never exceeded this value, so all the available CMM was used in the boilers.<br>Data in figure 7 represents total CMM degasification (marked in red) and its utilization at boiler house (marked green). Graphs overlap, with green part taking share of red part and leaving some of it above. The remaining red part represents the amount of CMM actually vented. Data collection and calculation procedures for total CMM degasification are similar to CMM utilization, which were described in the monitoring plan and Annexes 2 and 3 of the PDD version 3.5 . Copy of the letter with explanation of the data collection method provided by the Mine was sent to AIE. | |
| **CAR 27**: In equation D.2.2 please ensure that uncombusted amounts of methane at the boilers are excluded. Please also ensure that the density of | Table 2. D.1.1.4.1. | Uncombusted amounts of methane at the boilers are excluded in equation in D.2.4. Please see answer to CAR 22 for justification of methane density chosen. The relevant changes were made | The updated PDD has been checked and found correct. Explanation is accepted. |

* http://saem.su/tehnicheskie_harakteristiki_kotlov_

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| methane is chosen conservatively given actual temperature and pressure conditions at the flow meter. | | in PDD version 3.5 (pages 35) and calculation file accordingly. | The issue is closed. |
| **CAR 28**: In equation D.2.3. It appears that HG should be divided by ηBL, i.e. the efficiency of the baseline boilers. For guidance see equations (26) and (32) in ACM0008. | Table 2. D.1.1.4.1. | Since there is no documented information available about baseline boiler efficiency ηBL it was taken in accordance with CDM approved Tool to determine the baseline efficiency of thermal or electric energy generation systems". Equation D.2.3. is correct. ηBL is taken into account in the next equation D.2.4. | The updated PDD has been checked and found correct. Explanation is accepted.<br><br>The issue is closed. |
| **CAR 29**: In equation D.2.3 please ensure variable names are consistent: EFCC versus EFNG | Table 2. D.1.1.4.1. | Equation D.2.3 was corrected in PDD version 3.5 (pages 35). | The updated PDD has been checked and found correct.<br><br>The issue is closed. |
| **CAR 30**: In equation D.2.4 please justify that NCV is chosen conservatively (not too high) given the actual temperature and pressure at the flow meter. Please also justify that ηPJ (efficiency of the project boilers) is chosen conservatively (not too high) | Table 2. D.1.1.4.1. | Because the Mine's boiler house supplies heat in form of saturated steam which is then used for heating purposes at Mine's shaft the energy of condensing vapor is also utilized. This means that applying GCV (11% higher than NCV) for determining actual heat output would be accurate. However, in order to avoid overestimation of emission reductions it was chosen to use NCV. Consequently, choice of NCV as a measure of methane energy content is conservative.<br>The value of NCV of methane used for calculation | Explanation is accepted.<br><br>The issue is closed |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | is conservative. Another reference source provides even higher value: 35.881* versus 35.820, used in PDD.<br>Because using quantity of methane at working conditions is conservative (see answer to CAR 09) applying NCV of methane at standard conditions do not lead to significant distortion of the result.<br>Default value of ηPJ (efficiency of the project boilers) as per CDM approved "Tool to determine the baseline efficiency of thermal or electric energy generation systems" † is used which is allowed by paragraph 11 of Guidance on Criteria for Baseline Setting and Monitoring, Version 03: "Project participants that select a JI-specific approach may use selected elements or combinations of approved CDM baseline and monitoring methodologies or approved CDM methodological tools". | |
| **CAR 31**: If the 2010 coal fired boiler is installed as a part of the project then assessment of potential leakages associated with coal consumption (transportation, fugitive methane emissions etc.) must be provided. | Table 2. D.1.3.1. | According to technical specification of boiler KVTG-10-150 which was installed in 2010 it is gas-coal fired with gas planned to be main fuel. Potential leakages associated with consumption of coal (fugitive methane emissions) are estimated to be 25,67 $m^3/t$‡, which results in | The provided evidence has been checked and found correct. Explanation is accepted.<br>Issue is closed. |

* http://www.engineeringtoolbox.com/gross-net-heating-values-d_420.html
† "Tool to determine the baseline efficiency of thermal or electric energy generation systems", http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-09-v1.pdf
‡ National Inventory Report of Ukraine 1990-2009, p.90

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | maximum of 502 t $CO_2$ a year (as in 2009 with maximum coal consumption). As it is less than 1% of difference between baseline and project emissions, or 2000 t of $CO_2$ eq. They were considered negligible in accordance with paragraph 18 of Guidance on Criteria for Baseline Setting and Monitoring, Version 03. | |
| **CAR 32** Please provide evidence that the EIA mentioned in the PDD considers boiler switch to natural gas, installation of new boilers (including coal fired boiler) and flare | Table 2. F.1.1. | Reconstruction of boiler house (boiler switch to CMM and installation of coal-fired boiler) were discussed in section "Environmental impact assessment" of the Mine's main design document. Its latest version as of 2007 "Corrections to the corrected project 'Kd5 Coal Bad Baring and Exploitation in Lying Wing of Duvannyy Thrust Fault' (with design capacity increase)" has gone through Complex State Expertise and was approved. Copies of the "Environmental impact assessment" section and Conclusion No 21 of Complex State Expertise were provided to AIE. | Evidence were examined and found appropriate. Explanation is accepted.<br><br>The issue is closed. |
| **CL 01**: For transparency please add the following information to tables 4,5,6 of the PDD:<br>• Month/year of commissioning<br>• Actual fuels used since implementation of project<br>Please add similar table for the boiler installed in 2010 as well as the boiler that was decommissioned in | Table 2. A.4.2.1. | The requested information was added to existing tables and two more tables were added, see tables 4-8 in Section A.4.2 of the PDD version 3.5 (pages 8-9). Copy of the Letter from the Mine with the corresponding information was provided to AIE. | The updated PDD has been checked. The provided evidence has been checked and found correct. Explanation is accepted.<br><br>Issue is closed. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| 2001/2002. | | | |
| **CL 02** Please clarify for every project component if the project uses state-of-art technology, requires initial trainings, makes provisions for training and maintenance needs. | Table 2. A.4.2.1.2. | The technologies used in each of the project components are well known and do not require any special trainings or profound maintenance. Operation and safety instructions are available at each workplace. Staff trainings are held monthly, registration journals were also available upon request during site visit. | Explanation is accepted.<br><br>Issue is closed. |
| **CL 03**: Please clarify in the PDD that the project is done in two stages, (2001/2002) and (2011). Add justification of the time lag between two stages. The stages should be treated separately when discussing approvals, EIA, stakeholder comments, etc. | Table 2. A.4.2.2. | Since installation of flare is not to be financed before 2012 this activity was excluded from the proposed JI project. | Explanation is accepted.<br><br>Issue is closed. |
| **CL 04**: Please provide an implementation schedule for the project, in particular the following project components:<br>• Construction of gas preparation station<br>• Installation of CMM-fired boiler<br>• Installation of coal-fired boiler<br>• Retrofit of existing boiler. Replacement of burners to allow CMM combustion.<br>• Construction of flare<br>• Expansion of degasification system | Table 2. A.4.2.2. | Implementation schedule follows<br>Project component / Implementation time<br>Installation of coal-fired boiler / May 2002<br>Construction of gas preparation station / December 2003<br>Installation of CMM-fired boiler / November 2002<br>Replacement of burners to allow CMM combustion / May 2004<br>The copy of the implementation schedule provided by the Mine was sent to AIE. | The provided evidence has been checked and found correct. Explanation is accepted.<br><br>Issue is closed. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| **CL 05**: For transparency please state in the PDD that from 2003-2010 there was a surplus of CMM (with sufficiently high methane concentration) which could not be used at the boiler house and was therefore vented. Please clarify that this amount will be flared once the second phase of the project is implemented. Please also clarify in the PDD that small amounts of CMM will continue to be vented at the degasification station whenever the methane concentration drops below 25%. | Table 2. B.1.1 | The fact that there was a surplus of CMM during 2003-2010 is illustrated by the Figure 7 on the page 10 in PDD (see answer to CAR 26 for more details).<br>Since installation of flare is not to be financed before 2012 this activity was excluded from the proposed JI project. | Explanation is accepted.<br><br>Issue is closed. |
| **CL 06**: There appears to be a mistake in how alternative 2 in section B.1 is stated. Please clarify if it should be H3+G2+G1? | Table 2. B.1.2.1 | Baseline alternatives as well as additionality analysis were changed in PDD version 3.5 (page 17) to reflect exclusion of the second stage of the project (see answer to CL 03 for more details). | The updated PDD has been checked. Explanation is accepted.<br><br>Issue is closed. |
| **CL 07**: There appears to be a mistake in how alternative 1 in section B.1 is stated. Please clarify if it should be H1+G2? | Table 2. B.1.2.1 | Baseline alternatives as well as additionality analysis were changed in PDD version 3.5 (page 17) to reflect exclusion of the second stage of the project (see answer to CL 02 for more details). | The updated PDD has been checked. Explanation is accepted.<br><br>Issue is closed. |
| **CL 08**. Please clarify how key factors that affect the baseline (specifically those stated in paragraphs 23 through 29 of the Guidance on criteria for baseline setting and monitoring (version 02)) were taken into account. | Table 2. B.1.2.2 | The following text was added to Section B.1 in PDD version 3.5 (pages 13-14) in accordance with Guidance on criteria for baseline setting and monitoring (version 03):<br>“Key factors that affect the baseline were taken into account: | The updated PDD has been checked. The provided evidence has been checked and found correct. Explanation is accepted. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | a) ***Sectoral reform policies and legislation***. In order to improve the efficiency in coal mining and increase coal extraction the Ukrainian Coal Program was adopted by the Resolution # 1205 of Cabinet of Ministers of Ukraine on 19th of September 2001. It envisioned state support to coal industry, ownership structure change, improvement of safety conditions at mines and decreasing negative environmental impact caused by coal mining. Coal mine methane utilization was not covered by the Program as well as by other relevant regulation documents, namely:<br>- Decree of the President of Ukraine as of 16th of January 2002 # 26/2002 "On urgent activities for improvement of work conditions and development of the state supervision at mining enterprises";<br>- The Governmental Decree as of 6th of July 2002 # 939 "On Complex Program of coal-beds degasification at coal mines".<br>Thus, there were no any regulations in place obliging to utilize the gases captured by methane drainage techniques, consequently, the common practice at Ukrainian mines was its venting into the atmosphere;<br><br>b) ***Economic situation/growth and socio-demographic factors in the relevant sector as*** | Issue is closed. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | ***well as resulting predicted demand.*** In the beginning of 2000s when the decision to implement the project was made Ukrainian coal industry was in economic, financial, technical and social crisis. Coal extraction in 1991 was 135.6 million tonnes while in 2001 it turned to 80.3 million tonnes. As stated in the World Bank report : "a core problem of the Ukrainian coal industry is that coal prices reflect neither the costs of production nor the costs of alternative energy sources that are available or potentially available to the country. The coal sector's average current production cost is about 29 $/t, or 15% higher than the sector's current average price of about 25 $/t". Attracting capital to coal mining at that time was highly constrained. By 2000 over 30% of mines were closed down due to their unprofitability, at the remaining mines the funds for maintenance were channeled from their operational capitals which leaded to growth of payables and wages arrears. In the beginning of 2001 mining enterprises owed to their employees 1.9 billion UAH. Together with dangerous working conditions and high mortality rate of miners this created high social tension in the region. It is assumed that the level of coal production and demand is not influenced by the project. Main outcome of the project is on-site heat generation by utilization of CMM. In the absence of the | |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | project activity the same amount of heat would be produced by natural gas combustion, therefore the same level of service as in the project scenario would be offered in the baseline scenario;<br><br>c) ***Availability of capital (including investment barriers).*** Attracting external capital was highly constrained for a company with such debts as Barakov Mine had at the time of decision making because positive credit history was required. Investment programs by IFI's were focused mainly on large-scale infrastructure projects having requirements for minimal investment of 5-10 million USD. Overall, investment climate of Ukraine was considered risky, capital markets underdeveloped, private capital could be attracted at prohibitively high cost due to real and perceived risks of doing business in Ukraine. This made Barakov Mine seek for solutions requiring minimal investment that could be covered by own funds of the Enterprise, which were very limited.<br><br>d) ***Local availability of technologies/techniques, skills and know-how and availability of the best available technologies/techniques in the future.*** Technologies, skills and know-how for | |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | implementation of the project activity were available. Ukraine has more than 130 year history of coalmining during which research and development base was created. The technology employed was well known, local suppliers of solutions and equipment were available.<br><br>e) ***Fuel prices and availability.*** Electricity and natural gas are widely used in Ukraine, distribution networks are well developed, and these energy sources are accessible to most of industrial users. At the time of decision making the prices for natural gas and electricity were heavily state regulated and had been relatively stable for couple of previous years. Natural gas was mainly imported from Russia, its price for Ukraine was lower than for European countries.<br>***f) National and/or subnational expansion plans for the energy sector, as appropriate*.** Project realization did not have any relation to any plans of expansion of energy sector.<br>***g) National and/or subnational forestry or agricultural policies, as appropriate*.** Project realization did not have any relation to any forestry or agricultural policies. | |
| **CL 09.** Please clarify reference for the natural gas price used in the calculation as this value is not directly available from the source referenced. | Table 2. B.2.4.2 | The source referenced is a Consolidated Financial Report of NJSC "Naftogas Ukraine" for 2001 the copy of which was provided to AIE. It states that price for natural gas for the consumer | The provided evidence has been checked and found correct. Explanation is accepted. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | is a sum of natural gas price and cost of its delivery. Natural gas price for boiler houses can be found on the page 16 of the document (189 UAH), while price for its transportation is on the page 17 (42 UAH). The value used in calculation file is the sum of these two values with VAT excluded (20%). | Issue is closed. |
| **CL 10**: Please justify that the availability of the flare is set at 8000 hours according to the excel calculation file. | Table 2. B.2.4.2 | Since installation of flare is not to be financed before 2012 this activity was excluded from the proposed JI project. | Explanation is accepted.<br><br>Issue is closed. |
| **CL 11:** Please justify that the project does not influence operation and maintenance costs as stated in the PDD when the project foresees installation of equipment that is not part of the baseline (coal fired boiler, flare, gas preparation station etc.). | Table 2. B.2.4.2 | There were minor changes in the maintenance costs associated with installation of project equipment which were not included due to difficulties with separating them from other costs in the Mine's accounting. It was assumed that they did not change significantly and therefore could be excluded from investment analysis. Their inclusion could only lower the calculated value of NPV which was found to be negative. Thus, excluding these costs do not compromise the conclusion about additionality of the project. | |
| **CL 12**: If project does include an extension of the mine degasification system then power consumption has to be included as an emission source. | Table 2. B.3.1. | Extension of degasification system is not a part of the proposed project. Copy of the letter from the Mine confirming this was provided to AIE. | The provided evidence has been checked and found correct. Explanation is accepted.<br>Issue is closed. |
| **CL 13.** Provide gas composition analysis for CMM and demonstrate in the PDD that there are no significant | Table 2. B.3.4. | Copy of results of chemical analysis of gases sample from Barakov mine made by SSIMI "Respirator" was provided to the AIE. Analysis | The updated PDD has been checked. The provided evidence has been checked |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| amounts of NMHC (non-methane hydrocarbons) in the CMM. | | has shown that total concentration of NMHC in the sample is 0,26% which is not significant and therefore was neglected. This information was added to Section B.3. PDD version 3.5 (page 27). | and found correct. Explanation is accepted.<br><br>Issue is closed. |
| **CL 14**: In the PDD the starting date of the project has been set as June 6, 2001. Please provide the relevant supporting evidence, i.e. Letter to Project Development Organization. | Table 2. C.1.2. | Copy of the Approval Letter from Makeevka SSI of Health and Safety in Mining to Director of Barakov Mine dated June 6, 2001 was provided to AIE. | The provided evidence has been checked and found correct. Explanation is accepted.<br>Issue is closed. |
| **CL 15**. According to the PDD the mine will be shut down in 2025. According to the site visit the year is 2017. Please clarify and provide supporting documents. | Table 2. C.2.1. | According to the Mine's project documentation it has enough coal deposits to be operated by 2025. Copy of the extract from "Corrections to the corrected project 'Kd5 Coal Bad Baring and Exploitation in Lying Wing of Duvannyy Thrust Fault' (with design capacity increase)" was provided to AIE as evidence. However, the Project owner decided to shut down the Mine earlier in 2017. It was decided to use longer project lifetime in case Project owner's decision is changed in future. | The provided evidence has been checked and found correct. Explanation is accepted.<br>Issue is closed. |
| **CL 16**: The Table 21 in the PDD lists CO2 emission factor of grid electricity consumption as sourced from the 2007 study prepared by Global Carbon. However, newer emission factors have been developed by the DFP of Ukraine for the use in JI projects. Please update this. | Table 2. D.1.7 | Since installation of flare is not to be financed before 2012 this activity was excluded from the proposed JI project. So, no electricity consumption is included into the project's emission sources. | Explanation is accepted.<br><br>Issue is closed. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| **CL 17:** Please clarify whether there is any energy consumption for transporting CMM from the degasification station to the boiler house or the flare. | Table 2. D.1.3.1. | CMM is transported from degasification station by natural flow, no additional equipment is used for its transportation, therefore no energy is consumed. | Explanation is accepted.<br><br>Issue is closed. |
| **CL 18**. Justify that uncertainty level of FC is low. According to the site visit both the concentration meter and the flow meter are read manually from a clock-like meter. Please explain how uncertainty is taken into account and conservativeness is safeguarded in manually reading the data with 2 hour frequency on site? | Table 2. D.2.1. | Uncertainty level of FC measurement was estimated to be +/- 10%. Conservativeness of FC was safeguarded by using FC value at working conditions (value at STP is 5% higher), using conservative IPCC default values etc. (see CAR 09 for more details). | Explanation is accepted.<br><br>Issue is closed. |
| **CL 19**. In section D.2, please provide internal calibration procedures for the meters used in the monitoring plan. Include frequency of calibration, calibration requirements and standards, measurement uncertainty and relevant procedures for each device used in the monitoring. | Table 2. D.2.1. | Each device used in monitoring is calibrated annually by external certified organization. Testing results and maintenance activities made are recorded in annual Technical reports. Technical report for 2009 was provided to AIE as evidence.<br>Section D.2 was updated. Please, see Section D.2 in PDD version 3.5 (page 39). | The updated PDD has been checked. The provided evidence has been checked and found correct. Explanation is accepted.<br><br>Issue is closed. |
| **CL 20**: Please indicate for all the values that are monitored and that are taken as default values procedures to be followed if expected data are unavailable. | Table 2. D.3.3. | The procedures to be followed if expected data (either volume of degasified gases or CMM concentration) are unavailable are as follows: data recording process during the time of repair of metering devices: in case of absence of the flow meters due to their calibration or repair the | The updated PDD has been checked. The provided evidence has been checked and found correct. Explanation is accepted. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | average readings for the previous three days are to be recorded. The maximum acceptable period for the flow meter absence is 3 days. This information was added to PDD version 3.5 (page 41). | Issue is closed. |
| **CL 21**: During the site visit it became apparent that reliable data on CMM combustion is only available from August 2003. This should be made clear in the PDD. | Table 2. C.1.1.1. | To maintain accuracy of the input data it was decided to use data beginning from 2004, for which information is available. Relevant changes were made throughout PDD version 3.5. | The updated PDD has been checked. The provided evidence has been checked and found correct. Explanation is accepted.<br><br>Issue is closed. |
| **CL 22**. Please provide information on the pollution payments made for venting of CMM | Table 2. F.1.1. | Here is the information on payments made for venting methane: 4861 UAH (2001), 6917 UAH (2002), 576 UAH (2003), 7001 UAH (2004), 9196 UAH (2005), 9373 UAH (2006), 11300 UAH (2007), 169629 (2008), 70010 (2009), 139494 (2010).<br><br>Copy of the Letter from Mine's accounting office was provided to AIE as evidence of pollution payments made by the Mine. | The provided evidence has been checked and found correct. Explanation is accepted.<br><br>Issue is closed. |
| **FAR 01.** The project has no approval of the Host Party and an investor country. | Table 1 Question 1 | Letter of Approval from the Netherlands can be applied for after publication of PDD on UNFCCC web-page which was delayed due to Accreditation issues from AIE side. Copy of the Letter will be provided to AIE immediately upon receipt of the Letter. | Explanation is accepted. Determination report will be updated and finalized when the appropriate approval documents will be presented to the AIE. |

| Draft report clarifications and corrective action requests by determination team | Ref. to checklist question in tables 1, 2 | Summary of project owner response | Determination team conclusion |
|---|---|---|---|
| | | In accordance with Ukrainian rules, package of documents submitted to apply for host country LoA includes determination report. Therefore, host country LoA can be provided only after positive determination conclusion. | The issue is not closed. |