



DETERMINATION REPORT CARBON MARKETING AND TRADING LTD.

DETERMINATION OF THE
WASTE HEAP DISMANTLING IN LUHANSK
REGION OF UKRAINE WITH THE AIM OF
REDUCTION GREENHOUSE GASES
EMISSIONS TO ATMOSPHERE

REPORT NO. UKRAINE-DET/0433/2012

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BUREAU VERITAS CERTIFICATION



DETERMINATION REPORT

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Client: Carbon Marketing and Trading Ltd.	Client ref.: Tahir Musayev

Summary:
Bureau Veritas Certification has made the determination of the "Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere" project of Small Private Enterprise «BIK» located near the Kodruche village, Sverdlovsk district, Luhansk Region, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

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

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

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

Report No.: Ukraine-det/0433/2011	Subject Group: JI	
Project title: "Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere"		
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1 INTRODUCTION

Carbon Marketing and Trading Ltd. has commissioned Bureau Veritas Certification to determine its JI project “Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere” (hereafter called “the project”) located near the Kodruche village, Sverdlovsk district, Luhansk Region, Ukraine.

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

1.1 Objective

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

1.2 Scope

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

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

1.3 Determination team

The determination team consists of the following personnel:

Kateryna Zinevych
Bureau Veritas Certification Team Leader, Climate Change Verifier

Vladimir Lukin
Bureau Veritas Certification Climate Change Verifier



Vladimir Kulish
Bureau Veritas Certification Climate Change Verifier

This determination report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal technical reviewer

2 METHODOLOGY

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

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

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

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

2.1 Review of Documents

The Project Design Document (PDD) submitted by Small Private Enterprise (SPE) «BIK» and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Approved CDM methodology and/or Guidance on criteria for baseline setting and monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, SPE «BIK» revised the PDD and resubmitted it on 27/03/2012.

The determination findings presented in this report relate to the project as described in the PDD version(s) 1.0, 2.0 and 3.0.



2.2 Follow-up Interviews

On 20/03/2012 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Carbon Capital Services Ltd. and SPE «BIK» were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
SPE «BIK»	<ul style="list-style-type: none"> ➤ Project history, ➤ Project approach, ➤ Project boundary, ➤ Implementation schedule, ➤ Organizational structure, ➤ Responsibilities and authorities, ➤ Training of personnel, ➤ Quality management procedures and technology, ➤ Rehabilitation/Implementation of equipment (records), ➤ Metering equipment control, ➤ Metering record keeping system, database, ➤ Technical documentation, ➤ Monitoring plan and procedures, ➤ Permits and licenses, ➤ Local stakeholder's response.
Consultant: Carbon Capital Services Ltd.	<ul style="list-style-type: none"> ➤ Baseline methodology, ➤ Monitoring plan, ➤ Additionality proofs, ➤ Calculation of emission reduction.

2.3 Resolution of Clarification and Corrective Action Requests

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

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



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

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

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

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

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

3 PROJECT DESCRIPTION

The project “Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere” is a progressive project that envisages processing and dismantling the waste heaps at the sites of the former Mine # 70, which are located near the Kodruche village, Sverdlovsk district, Luhansk Region, Ukraine.

Ukraine is the largest coal mining country in Europe and is among top eight in the world. The centre of coal mining in Ukraine is Donbas, an area located in the eastern part of Ukraine and spreading from the North of Donetsk region to the South of Luhansk region. The coal mining industry is one of the major polluters of the environment in Ukraine. The damage to ecology during the process of coal extraction is caused presumably by corruption of the underground layers, formation of huge spoil areas for waste rock storage, and uncontrolled combustion of coal in the waste heaps.

The main idea of the project is to process waste heaps originated due to coal extraction from mines. Coal extraction from the mine's waste heap will prevent greenhouse gas emissions into the atmosphere as if in the case of spontaneous burning and will produce additional amount of coal instead of its mining.

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The Project activities include installation of the coal extraction facilities near the waste heaps and application of special machinery that will perform preparation, loading and transportation of the rock mass from the waste heaps to the beneficiation factory. After beneficiation procedure, the extracted coal will be sold for heat and power generation, and the remaining bare rock will be stored in a reshaped waste heap with possibility of utilization for land engineering and road building.

The Project envisages carrying out a number of works on coal beneficiation for high-grade anthracite production. The main stages are:

- Preparation of the waste heaps to ensure continuous supply of the rock to the beneficiation plant;
- Beneficiation of coal aimed at production of high-quality coal of sort "A" (anthracite);
- Utilizing the discharge substance to form new flat multi-tiered heaps suitable for further recultivation.

All technologies used for coal extraction from the waste heaps are typical and used in the other plants, hence no weaknesses are expected.

The project objective is to reduce anthropogenic greenhouse gas emissions into the atmosphere. Moreover, the project will contribute to improvement of ecological situation at the enterprise.

The mentioned above objective to be achieved by coal extraction from coal containing waste heaps in order to prevent CO₂eq emissions into the atmosphere which are occurring as the result of waste heaps spontaneous burning and also to obtain additional quantities of coal. An important result of waste heaps coal extraction with further processing of the waste heaps mass is the exclusion of unfavourable ecological impacts of the waste heaps (dust emissions, greenhouse gas emissions, harmful gases and pollutants emissions, polluted waste water discharge from the surface of the waste heaps into the environment). Waste heaps coal extraction and the usage of the rock mass enables further reclamation of the renewed land from the waste heaps and efficient economical use of the area, which is restored for construction needs.

The benefits provided by the JI mechanism were crucial in the decision to implement the project. Decision on the project implementation was taken on the 15th of January 2006. Operation of the plant started on 31/05/2008.

Coal extracted from the waste heaps will substitute the coal from the mines and will be used mainly for energy production purposes at coal-fired power plants. Coal mining is a source of the fugitive emissions of methane; therefore, the project activity will reduce methane emissions by reducing the amount of coal required to be mined.



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Emission reductions due to the implementation of this project will come from two major sources:

- Removing the source of green-house gas emissions from the burning / slow burning waste heap by the extraction of non-combusted coal contained in a waste heap;
- Negative leakage through reduced fugitive emissions of methane due to the replacement of coal that would have been mined, by the coal extracted from the heap under the project activity.
- Reduce electricity consumption at waste heap dismantling in comparison with energy consumption at coal mine.

Waste heaps are sources of uncontrolled green-house gas emissions, particle emissions, ground water contamination. Addressing problems of waste heaps is costly and is not addressed in a systematic way in Ukraine. Efforts to stop burning waste heaps and break them down completely are in line with the existing environmental legislation of Ukraine. The proposed project is positively evaluated by local authorities.

CARs (CAR01 - CAR06 and CAR 15), CL (CL 01 – CL 05) and their resolutions/conclusions applicable to project description are listed in the Appendix A: Determination protocol (Table 2) below.

4 DETERMINATION CONCLUSIONS

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

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

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 17 Corrective Action Requests and 20 Clarification Requests.

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

4.1 Project approvals by Parties involved (19-20)

The project has already received Letter of Endorsement № 746/23/7 dated 22/03/2012 issued by the State Environmental Investment Agency of Ukraine.

Bureau Veritas Certification received these letters from the project participants and does not doubt their authenticity.



As for the time being no written approval for the project was issued by Ukrainian Party. After receiving Determination Report from the Accredited Independent Entity the project documentation will be submitted to the Ukrainian Designated Focal Point (DFP) which is State Environmental Investment Agency of Ukraine, for receiving a Letter of Approval.

Bureau Veritas Certification considers the letters to be unconditional in accordance with paragraphs 19-20 of the DVM.

CARs (CAR 07, CAR 08) and their resolutions/conclusions applicable to project approvals are listed in the Appendix A: Determination Protocol (Table 2) below.

4.2 Authorization of project participants by Parties involved (21)

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

No outstanding issues were raised.

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline.

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

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

- a. *Scenario 1. Continuation of existing situation*

The situation before the project was installed, without beneficiation plant and waste heap dismantling. In the current situation waste heaps are not utilized. Coal contained in the waste heaps is not a subject of extraction and; as a result, spontaneous self-heating and subsequent burning of waste heaps leading to uncontrolled GHG emissions is very common. Coal is produced by underground mines that causes fugitive



emissions of methane as well as the formation of new waste heaps.

b. *Scenario 2. Direct energy production from the heat energy of burning waste heap*

Waste heaps are not extinguished and not monitored properly. Some burning heaps are used to produce energy by direct insertion of heat exchangers into the waste heap. This captures a certain amount of heat energy for direct use or conversion into electricity. Coal for industrial use is not extracted from the waste heaps under this scenario. Coal is produced by underground mines of the region and used for energy production or other purposes. Mining activities result in fugitive gas release, and the formation of more waste heaps.

c. *Scenario 3. Production of construction materials from waste heap matter*

Waste heaps are being processed in order to produce construction materials (bricks, panels, etc.). Coal in the waste heap matter is burnt during the agglomeration process. Coal is produced by underground mines of the region and used for energy production or other purposes. Mining activities result in fugitive gas release, and the formation of more waste heaps.

d. *Scenario 4. Systematic monitoring of waste heaps condition, regular fire prevention and application of extinguishing measures*

Waste heaps are systematically monitored and its thermal condition is observed. Regular fire prevention measures are taken. Coal is not extracted from the waste heaps, but is produced by underground mines and used for energy production or other purposes. Mining activities result in fugitive gas release and formation of more waste heaps.

e. *Scenario 5. Coal extraction from waste heaps without JI incentives*

Although this scenario is similar to the project activity only, the project itself does not benefit from the possible development as a joint implementation project. In this scenario waste heaps are processed in order to extract coal and use it in the energy sector. Less coal is produced by underground mines of the region.

(b) Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector. In this context, the following key factors that affect a baseline are taken into account:

a. Although efforts to stop burning waste heaps and break them down are completely in line with the existing environmental legislation of Ukraine, the solution of these problems is rather



- costly, requires significant efforts and, actually, is not addressed in a systematic way in Ukraine. The main reason is deficiency of necessary financial resources and lack of political will. The situation is deteriorated by the fact that coal mining itself has decreased over the last 10-12 years as a result of the lack of financing and high net cost of coal extraction;
- b. Key factors that affect the baseline such as sectoral reform policies and legislation, economic situation/growth and socio-demographic factors as well as decreasing and/or increasing demand to be met by the project, availability of capital, technologies/techniques, skills and know-how, availability of best available technologies/techniques in the future, fluctuations in fuel prices, national expansion plans for the energy;
 - c. Ukraine is considered to be a high risk country for doing business and investing. Almost no private capital is available from domestic or international capital markets for mid to long term investments, and any capital that is available has high cost. In table 5 the PDD Version 3.0 dated 27/03/2012 represents risks of doing business in Ukraine according to various international indexes and studies;
 - d. The most plausible future scenario identified by performing a barrier analysis. Key factors that affect the baseline such as sectoral reform policies and legislation, economic situation/growth and socio-demographic factors as well as decreasing and/or increasing demand to be met by the project, availability of capital, technologies/techniques, skills and know-how, availability of best available technologies/techniques in the future, fluctuations in fuel prices, national and/or subnational expansion plans for the energy sector taken into account while formulating the plausible feature scenarios;
 - e. Ukrainian coal sector is largely state-controlled. Energy and Coal Ministry of Ukraine decides production level of state mines, based on their performance. After this, state controlled mines sell their coal to the state Trading Company "Coal of Ukraine". This company also buys coal from private mines and arranges supply of coal to thermal electricity companies. Prices for coal mines differ significantly for public and private mines. In general, prices of state mines are more than 60% higher than the prices for private enterprises;
 - f. The role of energy sector is crucial for Ukraine. Power sector is a political factor of sovereignty in Ukraine. Ukrainian economy is considered to be one of the most energy intensive in the world in terms of the consumption of primary energy per a gross domestic product unit. On March 15, 2006 the Cabinet



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of Ministers of Ukraine adopted “Energy Strategy of Ukraine till 2030”. The Energy strategy considers exploration of alternative and renewable energy sources as a significant factor in increasing the level of energy safety, decrease of energy anthropogenic impact on the environment and counteractions against global climate change.

The alternatives have been identified based on national practice and reasonable assumptions with regard to the sectoral legislation and reform, economic situation in the country, availability of raw materials and fuel as well as technologies and logistics etc.

Existing Ukrainian laws and regulations treat waste heaps as sources of possible dangerous emissions into the atmosphere. In general the burning of waste heaps should be extinguished and measures must be taken to prevent fires in the future. However, due to the large numbers of waste heaps and their substantial sizes, combined with the limited resources of the owners, they typically do not even undertake the minimum required regular monitoring. Even when informed of a burning waste heap, and measures have to be taken under existing legislation, it is more typical to accept the fine for air contamination, rather than take action to extinguish the burning waste heap itself.

In such circumstances it is safe to say that all scenarios do not contradict existing laws and regulations.

All scenarios, except Scenario 1 - Continuation of existing situation, face prohibitive barriers. Therefore, continuation of existing situation is the most plausible future scenario and is the baseline scenario.

The project “Processing of waste heaps at Monolith-Ukraine” is selected as the comparable JI project. Accredited independent entity has already positively determined that it would result in a reduction of anthropogenic emissions by sources or an enhancement of net anthropogenic removals by sinks that is additional to any that would otherwise occur. This determination has already been deemed final by the JISC. Appropriate documentation such as PDD and Determination Report regarding this project is available traceably and transparently on the UNFCCC JI Website:

http://ji.unfccc.int/JI_Projects/DB/IPT7L3CLGIZTGGX27T2101W7XCUCW/W/Determination/DNV-CUK1315829182.27/viewDeterminationReport.html

CLs (CL 06 – CL 16 and CL 20) and their resolutions/conclusions applicable to baseline setting are listed in the Appendix A: Determination protocol (Table 2) below.



4.4 Additionality (27-31)

The PDD provides a justification of the applicability of the approach with a clear and transparent description, as per item 4.3 above.

The developer of the project proved that anthropogenic emissions under the project are lower than the emissions that would take place in the absence of the project activity.

Additionality proofs are provided. Five plausible and realistic alternative scenarios were identified for each type of modernization identified in the project:

- Continuation of existing situation
- Direct energy production from the heat energy of burning waste heap
- Production of construction materials from waste heap matter
- Systematic monitoring of waste heaps condition, regular fire prevention and application of extinguishing measures
- Coal extraction from waste heaps without JI incentives

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

The identified areas of concern as to additionality, project participants response and Bureau Veritas Certification's conclusion are described in Appendix A to Determination report (refer to CL 17).

4.5 Project boundary (32-33)

The project boundary defined in the PDD, which in accordance with the specific approach is delineated by the physical site of the entire technological complex, encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

- (i) Under the control of the project participants, such as:
 - Carbon dioxide emissions from the use of fuel to run part of the project equipment (motor cars),
 - Carbon dioxide emissions associated with the electricity consumption by the project equipment.
- (ii) Reasonably attributable to the project; and
- (iii) Significant, i.e., as a rule of thumb, would by each source account on average per year over the crediting period for more than 1 percent of the annual average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tonnes of CO₂ equivalent, whichever is lower.



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

Based on the above assessment, the AIE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

No outstanding issues were raised.

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project began, and the starting date is 15/01/2006, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 13 years and 11 month or 167 months.

The PDD states the length of the crediting period in years and months, which is 11 years and 7 month or 139 months, and the date on which first emission reductions are generated by the project.

The PDD states that the crediting period for the issuance of ERUs starts on 31/05/2008 which is after the beginning of 2008 and does not extend beyond the operational lifetime of the project.

The PDD states that the extension of its crediting period beyond 2012 is subject to the host Party approval, and the estimates of emission reductions are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD.

No outstanding issues were raised.

4.7 Monitoring plan (35-39)

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

The monitoring plan describes all the necessary factors and key characteristics that will be monitored, and the period during which they will be monitored, particularly all the critical factors for controlling and reporting on project activities, such as reporting forms, the operating structure and management structure of the enterprise, that will be applied when implementing the monitoring plan.

The monitoring plan specifies the parameters, constant values and variables that are reliable (i.e. consistent and accurate values), dependable (i.e. that is clearly related to results that are measured) and

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provide a clear picture of emission reductions that are subject to monitoring, such as: total amount of diesel fuel, coal and electricity consumed.

The monitoring plan has properly given a list of standard variables that are contained in Annex B to the "Guidance on criteria for baseline setting and monitoring" developed by the JISC, including: baseline emissions (BE_y , $BE_{XX,y}$), project emissions (PE_y , $PE_{XX,y}$), electricity consumption (EC_y), CO_2 emission factor ($EF_{CO_2,XX}$, $EF_{CH_4,XX}$, $EF_{CO_2,ELEC,y}$), leakages in period - LE_y , $LE_{XX,y}$, global warming potential - GWP_{XX} , density - ρ_x , net calorific value - NCV_{XX} , fuel quantity combusted - FC_{XX} , oxidation factor for fuel combustion $OXID_{XX}$, carbon content of fuel k_{XX}^C .

The monitoring plan explicitly and clearly distinguishes:

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

GWP_{CH_4}	Global Warming Potential of Methane
ρ_{CH_4}	Methane density
NCV_{coal}	Net Calorific Value of coal
NCV_{diesel}	Net Calorific Value of diesel fuel
$OXID_{COAL}$	Carbon Oxidation factor of coal
$OXID_{DIESEL}$	Carbon Oxidation factor of diesel fuel
k_{coal}^C	Carbon content of coal
k_{diesel}^C	Carbon content of diesel fuel
$EF_{grid,y}$	Relevant emission factor for the electricity from the grid in the period y
$N_{Coal,y}^E$	Average electricity consumption per ton of coal, produced in Ukraine in the year y
A_{Coal}	The average ash content of coal produced in Ukraine
W_{Coal}	The average moisture of coal produced in Ukraine
$EF_{CH_4,CM}$	Average rate for fugitive methane emissions from coal mining
ρ_{WHB}	Correction factor for the uncertainty of the waste heaps burning process

- (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination: none.

* For the years 2008-2011 – NEIA Orders No.43 dated 28.03.2011, No.62 dated 15.04.2011, No.63 dated 15.04.2011, No.75 dated 12.05.2011 http://neia.gov.ua/nature/control/uk/publish/category?cat_id=111922



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(iii) Data and parameters that are monitored throughout the crediting period, such as:

$EC_{PJ,y}$	Additional electricity consumed in period y as a result of the implementation of the project activity
$FC_{PJ,Diesel,y}$	Amount of diesel fuel that has been used for the project activity in the period y
$FC_{BE,Coal,y}$	Amount of coal that has been mined in the baseline scenario and combusted for energy use, equivalent to the amount of coal extracted from the waste heaps in the project activity in period y . Calculated by the equation 3.
$FR_{Coal,y}$	Amount of sorted fraction (0-50mm), which is extracted from the dumps because of the project activity in a period y

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording. For any monitoring period the following parameters have to be collected and registered:

- additional electricity consumed in the relevant period as a result of the implementation of the project activity;
- amount of diesel fuel that has been used for the project activity in the relevant period;
- amount of coal that has been extracted from the waste heaps and combusted for energy use in the project activity in the relevant period which is equal to the amount of coal that has been mined in the baseline scenario and combusted for energy use.

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

Emissions in the baseline scenario are calculated as follows:

$$BE_y = BE_{WHB,y} + BE_{EL,y} + BE_{WHBC,y} \quad (\text{Equation 1})$$

where:

- BE_y - baseline emissions in period y (tCO₂e),
- $BE_{WHB,y}$ - baseline emissions due to burning of the waste heaps in period y (tCO₂),
- $BE_{EL,y}$ - baseline emissions due to consumption of electricity from a grid at coal mine in a period y , (tCO₂).
- $BE_{WHBC,y}$ - baseline emissions due to burning of dump, created as a result of coal mining during the period y , (tCO₂).

Baseline Emissions due to burning of the waste heaps, in turn, are calculated as:

$$BE_{WHB,y} = FC_{BE,Coal,y} / 1000 * p_{WHB} * NCV_{Coal} * OXID_{Coal} * k^C_{Coal} * 44/12 \quad (\text{Equation 2})$$

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where:

- $FC_{BE,Coal,y}$ - amount of coal that has been mined in the baseline scenario and combusted for energy use, equivalent to the amount of coal extracted from the waste heaps in the project activity in period y , t. Calculated by the equation 3.
- ρ_{WHB} - correction factor for the uncertainty of the waste heap burning process. This factor is defined on the basis of the survey of all the waste heaps in the area that provides a ratio of waste heaps that are or have been burning at any point in time to all existing waste heaps. This number is taken from the study of waste heaps in Luhansk region and is defined as the ratio of waste heaps that are or have been on fire historically to all existing waste heaps of Luhansk region. This ratio is equal to 0.699 according to this study.
- NCV_{coal} - Net Calorific Value of coal, GJ/t.
- $OXID_{coal}$ - Carbon oxidation factor of coal, ratio.
- k^C_{coal} - carbon content of coal, tC/TJ.
- 44/12 - ration between molecular mass of CO_2 and C. Reflect oxidation of C to CO_2 .

In this project there is no beneficiation of coal, so in order to correctly calculate the amount of energy coal produced in mines and substituted by coal, received by dismantling of waste heap, it is necessary to recount, taking into account different value of ash and moisture content of energy coal and fraction (0-50 mm), obtained by dismantling of the waste heaps. If in the mass of carbonaceous rocks we extract moisture and substances that are not burned during combustion, and turn to ash, we obtain the conditional ideal coal with no moisture and ash content. Therefore, to obtain coal with averaged over Ukraine characteristics it is necessary to add to that ideal coal the averaged moisture and ash content. In addition to moisture and ash, the coal (carbonaceous rocks) also contains sulfur, but its amount does not exceed a few percent*, content of it in carbonaceous rocks always less than in coal, extracted from the mine, so to calculate the amount produced in coal mine, which replaced by coal from waste heaps, this value can be neglected. Thus, the amount of coal produced in mines in the baseline scenario is calculated by the equation:

$$FC_{BE,Coal,y} = FR_{Coal,y} * (1 - A_{Rock,y} / 100 - W_{Rock,y} / 100) / (1 - A_{Coal} / 100 - W_{Coal} / 100)$$

(Equation 3)

Where:

- $FR_{Coal,y}$ - amount of sorted fraction (0-30mm), which is extracted from the dumps because of the project in a period y , that came to blending with further combustion in thermal power plants, t;

* <http://masters.donmtu.edu.ua/2009/feht/semkovskiy/library/article9.htm>

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- $A_{Rock,y}$ - the average ash content of sorted fractions(0-50mm), which is extracted from dump in period y, %;
- $W_{Rock,y}$ - the average humidity of sorted fractions (0-50mm), which is extracted from dump in period y, %;
- A_{Coal} - the average ash content of coal, mined in Ukraine, %;
- W_{Coal} - the average humidity of coal, mined in Ukraine, %;
- 100 - Conversion factor from percent to fraction, ratio.

Baseline emissions due to electricity consumption at coal mines in a period y, calculated by the equation:

$$BE_{EL,y} = FC_{BE,Coal,y} * N^E_{Coal,y} * EF_{grid,y} \quad (\text{Equation 4})$$

Where:

- $FC_{BE,Coal,y}$ - amount of coal that has been mined in the baseline scenario and combusted for energy use, equivalent to the amount of coal extracted from the waste heaps in the project activity in period y, t. Calculated by the equation 3.
- $N^E_{Coal,y}$ - average electricity consumption per ton of coal, produced in Ukraine in the year y, MWh/t
- $EF_{grid,y}$ - relevant emission factor for the electricity from the grid in the period y.

Baseline emissions due to burning of dump, created as a result of coal mining during the period y, calculated by equation:

$$BE_{WHBC,y} = FC_{BE,Coal,y} / 1000 * \rho_{WHB} * NCV_{Coal} * OXID_{Coal} * k^C_{Coal} * 44/12 * S_{Coal} * I_{Coal} / 100 \quad (\text{Equation 5})$$

- $FC_{BE,Coal,y}$ - Amount of coal that has been mined in the baseline scenario and combusted for energy use, equivalent to the amount of coal extracted from the waste heaps in the project activity in period y, t. Calculated by the equation 3.
- P_{whb} - Correction factor for the uncertainty of the waste heap burning process. This factor is defined on the basis of the survey of all the waste heaps in the area that provides a ratio of waste heaps that are or have been burning at any point in time to all existing waste heaps.
- NCV_{coal} - Net Calorific Value of coal, GJ/t.
- $OXID_{coal}$ - Carbon Oxidation factor of coal, ratio.
- k^C_{coal} - Carbon content of coal, tC/TJ.
- 44/12 - Ration between molecular mass of CO₂ and C. Reflect oxidation of C to CO₂.
- S_{Coal} - Ratio of rock amount, which is in dump to the amount of coal produced due to mining, ratio.
- I_{Coal} - Percentage of coal in dumps' mass in Ukraine, %.

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Value of emissions, calculated by the equation 5, differs from the value calculated by the equation 2, only two multiplier values S_{Coal} and I_{Coal} . According to the Scientific research was verified and confirmed by accredited independent entities Bureau Veritas Certification Holding SAS and DNV Climate Change Services AS for analogous projects ID: UA2000020 and UA2000034, the amount of rocks, which supplied into the dump, is 30-35% by weight of coal mined. Percentage of coal in the rock mass (also as ash content of rocks) for different dumps in the Ukraine has considerable variation, generally accounting for about 10%. Thus, the product $S_{Coal} * I_{Coal}$ is about $0.35 * 0.1 = 0.035$, i.e. the quantity of emissions from this source is about 3.5% of the value of emissions from burning dumps in the project. However, the exact calculation of this value is associated with a high degree of uncertainty. This is due to, at first, that the ash content of rock in modern heaps is greater than such in the heap, which is considered in the project, though to apply it automatically for the new heap is not correct. In addition, modern coal mining at many cases conducted by technologies of back-filling without the formation of dump. Therefore, despite the fact that this source of emissions is significant, for reasons of conservatism in the calculation of the baseline take $BE_{WHBC,y} = 0$.

Leakages in the period y are calculated as follows:

$$LE_y = -LE_{CH_4} \quad (\text{Equation 6})$$

Leakages due to fugitive emissions of methane in the mining activities in the period y (t CO₂eq).

$$LE_{CH_4,y} = FC_{BE,Coal,y} * EF_{CH_4,CM} * \rho_{CH_4} * GWP_{CH_4} \quad (\text{Equation 7})$$

where:

$FC_{BE,Coal,y}$ - Amount of coal that has been mined in the baseline scenario and combusted for energy use, equivalent to the amount of coal extracted from the waste heaps in the project activity in the period y , t. Calculated by the equation 3.

$EF_{CH_4,CM}$ - Emission factor for fugitive methane emissions from coal mining, m³/t,

ρ_{CH_4} - Methane density, t/m³,

GWP_{CH_4} - Global Warming Potential of Methane, tCO₂eq /tCH₄.

Emissions from the project activity are calculated as follows:

$$PE_y = PE_{EL,y} + PE_{Diesel,y} \quad (\text{Equation 8})$$

where

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- PE_y - Project Emissions due to project activity in the period y (t CO₂eq),
- $PE_{EL,y}$ - Project Emissions due to consumption of electricity from the grid by the project activity in the period y (t CO₂eq),
- $PE_{Diesel,y}$ - Project Emissions due to consumption of diesel fuel by the project activity in the period y (t CO₂eq).

These, in turn, are calculated as:

$$PE_{EL,y} = EC_{PJ,y} * PE_{grid,y} \quad (\text{Equation 9})$$

where:

- $EC_{PJ,y}$ - Additional electricity consumed in period y as a result of the implementation of the project activity (MWh),
- $EF_{grid,y}$ - Relevant emission factor for the electricity from the grid in the period y , kgCO₂/kWh (t CO₂/MWh)

$$PE_{Diesel,y} = FC_{PJ,Diesel,y} / 1000 * NCV_{Diesel} * OXID_{Diesel} * k_{Diesel}^C * 44/12 \quad (\text{Equation 10})$$

where:

- $FC_{PJ,Diesel,y}$ - Amount of diesel fuel that has been used for the project activity in the period y , t.
- NCV_{Diesel} - Net Calorific Value of diesel fuel, GJ/t;
- $OXID_{Diesel}$ - Carbon Oxidation factor of diesel fuel, ratio;
- k_{Diesel}^C - Carbon content of diesel fuel, t C/TJ;
- $44/12$ - Ration between molecular mass of CO₂ and C. Reflect oxidation of C to CO₂.

The annual emission reductions are calculated as follows:

$$ER_y = BE_y - LE_y - PE_y \quad (\text{Equation 11})$$

where:

- ER_y - Emissions reductions of the JI project in period y (t CO₂eq)
- LE_y - Leakages in period y (t CO₂eq);
- BE_y - Baseline Emission in period y (t CO₂eq);
- PE_y - Project Emission in period y (t CO₂eq).

The monitoring plan presents the quality assurance and control procedures for the monitoring process, which are sufficiently described in tabular form in sections of the PDD D.1.1.1., D.1.1.3. and D.2. This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request.



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For monitoring, collection, registration, visualization, archiving, reporting of the monitored data and periodical checking of the measurement devices the management team headed by the Director of the company is responsible. A detailed structure of the team and team members will be established in the Monitoring Manual prior to initial and first verification.

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

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

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

The identified areas of concern as to the monitoring plan, project participants' response and Bureau Veritas Certification's conclusion are described in Appendix A to Determination Report (refer to CAR 09 – CAR 12, CAR 16, CAR 17 and CL 19).

4.8 Leakage (40-41)

The PDD appropriately describes an assessment of the potential leakage of the project and appropriately explains which sources of leakage are to be calculated, and which can be neglected.

This project will result in a net change in fugitive methane emissions due to the mining activities. As coal in the baseline scenario is only coming from mines it causes fugitive emissions of methane. These are calculated as standard country specific emission factor applied to the amount of coal that is extracted from the waste heaps in the project scenario (which is the same as the amount of coal that would have been mined in the baseline scenario). Source of the leakage is the fugitive methane emissions due to coal mining. These emissions are specific to the coal that is being mined. Coal produced by the project activity is not mined but extracted from the waste heap through the advanced beneficiation process. Therefore, coal produced by the project activity substitutes the coal would have been otherwise mined in the baseline. Coal that is mined in the baseline has fugitive methane emissions associated with it and the coal produced by the project activity does not have such emissions associated with it.



The PDD provides a procedure for estimation of leakage.

No outstanding issues were raised.

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

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

The PDD provides estimates of:

(a) Emissions in the project scenario (within the project boundary), which are:

- 797 tonnes of CO₂eq in 2008-2012;
- 1 960 tonnes of CO₂eq in 2013-2019.

(b) Leakage, which is:

- -196 195 tonnes of CO₂eq in 2008-2012;
- -481 985 tonnes of CO₂eq in 2013-2019.

(c) Emissions in the baseline scenario (within the project boundary), which are:

- 818 292 tonnes of CO₂eq in 2008-2012;
- 2 016 350 tonnes of CO₂eq in 2013-2019.

(d) Emission reductions adjusted by leakage (based on (a)-(c) above), which are:

- 1 013 690 tonnes of CO₂eq in 2008-2012;
- 2 496 375 tonnes of CO₂eq in 2013-2019.

The estimates referred to above are given:

- (a) On an annual basis;
- (b) From 31/05/2008 to 31/12/2019, covering the whole crediting period;
- (c) Based on primary sources;
- (d) For each GHG gas, such as CO₂;
- (e) In tonnes of CO₂ equivalent, using global warming potentials defined by decision 2/CP.3 or amended in accordance with Article 5 of the Kyoto Protocol.



Formulae for calculating the above estimations are given in section 4.7. All formulae are in the correct sequence and compliance across the PDD.

For calculating the estimates referred to above, key factors, e.g. energy prices and availability, market development influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.

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

Emission factors, such as emission factor for electricity consumption, emission factor for diesel fuel and coal, were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

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

The estimates referred to above are consistent throughout the PDD.

The average annual emission reduction estimations over the crediting period are calculated by dividing the total estimated emission reductions over the crediting period by the total number of months of the crediting period, and multiplying by twelve.

Detailed algorithms of calculations and their results are described in section D, E and supporting documents to the PDD.

The identified areas of concern as to the evaluation of emission reductions, project participants' response and Bureau Veritas Certification's conclusion are described in Appendix A to Determination Report (refer to CAR 13).

4.10 Environmental impacts (48)

Sections F.1. and F.2. of the PDD provide information about the documentation that contains the analysis of environmental impacts caused by the project, including the transboundary impact, in accordance with procedures defined by the Host Party.

The Host Party for this project is Ukraine. Environmental Impact Assessment (EIA) is the part of the Ukrainian project planning and permitting procedures. Implementation regulations for EIA are included in the Ukrainian State Construction Standard DBN A.2.2.-1-95 (amended

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2003) (Title: "Structure and Contents of the Environmental Impact Assessment Report (EIR) for Designing and Construction of Production Facilities, Buildings and Structures").

The identified areas of concern as to the environmental impacts, project participants' response and Bureau Veritas Certification's conclusion are described in Appendix A to Determination Report (refer to CAR 14).

4.11 Stakeholder consultation (49)

Since the project activities do not imply any negative environmental impact and negative social effect, special public discussions were not necessary.

The project has been introduced to the Ukrainian Government and local authorities with a PIN. The authorities analyzed the project and the Letter of Endorsement has been issued by the State Environmental Investment Agency of Ukraine.

All comments relating to the project implementation were positive. No negative comments were received.

The identified areas of concern as to the stakeholder consultation, project participants' response and Bureau Veritas Certification's conclusion are described in Appendix A to Determination Report (CL 18).

4.12 Determination regarding small scale projects (50-57)

Not applicable.

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

Not applicable.

4.14 Determination regarding programmes of activities (65-73)

Not applicable.

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



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

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the "Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere" Project in Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The determination consisted of the following three phases:

- i) a desk review of the project design and the baseline and monitoring plan;
- ii) follow-up interviews with project stakeholders;
- iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

The additionality of the project has been assessed through provision of traceable and transparent information showing that the same approach for additionality demonstration has already been taken in cases for which determination is deemed final and which can be regarded as comparable, as suggested in item "b)" of Paragraph 44 of "Guidance on criteria for baseline setting and monitoring" version 03. The PDD identifies a comparable project, demonstrates that the identified project is a comparable project (to be) implemented under comparable circumstances, and provides justification, that determination for a comparable project is relevant for the project at hand.

Emission reductions that occur due to the project are therefore additional to those that would have occurred without the project activity. On condition of the introduction and implementation of the project according to the design decision, the project is likely to reach the estimated amount of emission reductions.

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

The determination revealed one pending issue related to the current determination stage of the project: the written approval of the project by the host Country (Ukraine) wasn't obtained. If the written approval by the host Country is provided, it is our opinion that the project as described in the Project Design Document, version 3.0 dated 27/03/2012 meets all the



relevant UNFCCC requirements for the determination stage and the relevant host Country criteria as well as expectations of the stakeholders.

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



7 REFERENCES

Category 1 Documents:

Documents provided by Carbon Marketing and Trading Ltd. that relate directly to the GHG components of the project.

- /1/ Project Design Document "Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere." version 1.0 dated 15/02/2012
- /2/ Emission Reductions Calculation version 1.0 excel file dated 15/02/2012
- /3/ Project Design Document "Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere." version 2.0 dated 22/03/2012
- /4/ Emission Reductions Calculation version 2.0 excel file dated 21/03/2012
- /5/ LoE #746/23/7 dated 22/03/2012 issued by the State environmental Investment Agency of Ukraine
- /6/ Project Design Document "Waste Heaps Dismantling in Luhansk Region of Ukraine with the Aim of Decreasing the Greenhouse Gases Emissions into the Atmosphere." version 3.0 dated 27/03/2012
- /7/ Emission Reductions Calculation version 3.0 excel file dated 27/03/2012

Category 2 Documents:

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

- /1/ Photo-general view of the bunker of prepared for separation rock mass
- /2/ Photo-general view of the unit
- /3/ Photo-general view of the cribbles
- /4/ Photo-general view of the control panel
- /5/ Photo-power meter, fabrication # 442872
- /6/ Photo-power meter, fabrication # 0425097
- /7/ Certificate on vocational training 12СПК528564 issued to I. Kolesnikov
- /8/ Annex to the Certificate on vocational training 12СПК528564
- /9/ Certificate on vocational training 12СПК528566 issued to O. Driuchenko
- /10/ Annex to the Certificate on vocational training 12СПК528566
- /11/ Certificate on vocational training 12СПК528565 issued to V. Driuchenko
- /12/ Annex to the Certificate on vocational training 12СПК528565



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- /13/ Passport ОВП.468.150.ПС on power transformer with natural oil cooling # 501697
- /14/ Passport 400/6 integrated transformer substation
- /15/ Passport on active and reactive power meter EMS 132.10.1, fabrication # 442872
- /16/ Agreement # 978 on power supply dated 12/05/2008
- /17/ Protocol dated 15/12/2007 of finalization of installation of 1 ALLAIR JIG plant
- /18/ Protocol dated 31/05/2008 of conducting of final tests and commissioning of equipment
- /19/ Contract # 15/01 dated 15/01/2006 on production and delivery ALLAIR JIG plant (serial number 1850)
- /20/ Contract # 24112011 dated 07/12/2010 source of ionizing radiation supply
- /21/ Consignment agreement dated 15/05/2008
- /22/ Delivery agreement # 06-05/09 dated 06/05/2009 on coal selling
- /23/ Purchase agreement # 01/09/10 dated 01/09/2010
- /24/ Purchase agreement # 4/01/ dated 04/01/2010
- /25/ Letter # 12/6007 dated 16/12/2010 source of ionizing radiation supply
- /26/ License Series OB # 050247 on permission to conduct works using source of ionizing radiation
- /27/ Conclusion of the state sanitary and epidemiological study # 05.03.02-03/19862 dated 04/03/2011
- /28/ Agreement dated 29/04/2008 on providing services on tracks weighting by car strain gauge scales 60BA1П, fabrication # 13-036
- /29/ Passport B-036.09.ПС on car strain gauge scales 60BA1П
- /30/ Certificate # UA-MI/2-2073-2006 on measurement equipment conformity with the stated type
- /31/ Agreement # 98/05/08 dated 20/05/2008 on diesel fuel supply
- /32/ Agreement # 06/01/10 dated 05/01/2010 on diesel fuel supply



Persons interviewed:

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

- /1/ Brazhnikov Oleg – Director SPE «BIK»
- /2/ Karelin Aleksander - Deputy director of production SPE «BIK»
- /3/ Tahir Musayev - representative of the project Developer Carbon Capital Services ltd.
- /4/ Valentina Bubenok - representative of the project Developer Carbon Capital Services ltd.

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APPENDIX A: COMPANY PROJECT DETERMINATION PROTOCOL

DETERMINATION PROTOCOL

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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	Yes, the title of the project is presented	OK	OK
-	Is the sectoral scope to which the project pertains presented?	The sectoral scope for the project was set: 8. Mining/mineral production	OK	OK
-	Is the current version number of the document presented?	Current version of the PDD: 1.0	OK	OK
-	Is the date when the document was completed presented?	Date of the completed PDD is 15/02/2012	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	<p>The main idea of the project is to process waste heaps originated due to coal extraction from mines. Coal extraction from the mine's waste heap will prevent greenhouse gas emissions into the atmosphere as if in the case of spontaneous burning and will produce additional amount of coal instead of its mining.</p> <p><u>Corrective Action Request 01</u> Please briefly summarize the chosen baseline scenario in section A.2 of the PDD.</p> <p><u>Corrective Action Request 15</u> Please bring the PDD in accordance with the current version of PDD template.</p>	CAR 01 CAR 15	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Is the history of the project (incl. its JI component) briefly summarized?	The history of the project including JI component is briefly presented in the PDD.	OK	OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	The project participants and Party(ies) involved are listed	OK	OK
-	Is the data of the project participants presented in tabular format?	The data on project participants is presented in tabular format	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	The contact information about project participants is provided in Annex 1 of the PDD	OK	OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	The Host Party (Ukraine) is not a Party involved	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine	OK	OK
-	Region/State/Province etc.	Luhansk region	OK	OK
-	City/Town/Community etc.	Kodruche village, Sverdlovsk district	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	The project located in Luhansk Region. Its coordinates are 48°1'35.04"N, 39°37'46.92"E. <u>Corrective Action Request 02</u> Please provide the section A.4.1.4 that doesn't exceed one page.	CAR 02	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule described?	The measures which will be implemented are described in section A.4.2 of the PDD in full detail. <u>Corrective Action Request 03</u> Please specify grades "+50", "-50" mm. <u>Corrective Action Request 04</u> During the site visit it was found out that there is a need for	CAR 03 CAR 04 CAR 05 CAR 06 CL 01	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>the operation of the plant to use a source of ionizing radiation but in the PDD it is indicated «not require the use of hazardous materials», please adjust.</p> <p><u>Corrective Action Request 05</u> Please provide the schedule for the project implementation and commissioning of the equipment installed.</p> <p><u>Corrective Action Request 06</u> Please provide a brief procedure for determining the volume of output coal.</p> <p><u>Clarification Request 01</u> Please provide documented information on the commissioning of objects.</p>		
<p>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</p>				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	<p>Anthropogenic GHG emissions reductions are to be achieved by coal extraction from coal containing waste heaps in order to prevent CO₂e emissions into the atmosphere which are occurring as the result of waste heaps spontaneous burning and also to obtain additional quantities of coal.</p> <p>Coal extracted from the waste heaps will substitute the coal from the mines and will be used mainly for energy production purposes at coal-fired power plants. Coal mining is a source of the fugitive emissions of methane, electricity consumption from the grid, therefore, the project activity will reduce methane emissions and emission from electricity consumption by reducing the amount of coal required to be mined, carbon dioxide by reducing of burning of the waste heaps.</p>	CL 02 CL 03	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p><u>Clarification Request 02</u> Please provide, Supporting document 1 which is referenced on page 17 of the PDD.</p> <p><u>Clarification Request 03</u> Please specify a link to online resource where the information referred to in footnote 4 can be read.</p>		
-	Is it provided the estimation of emission reductions over the crediting period?	The estimation of emission reductions over the crediting period is provided by developer in the PDD	OK	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO ₂ e?	The estimated annual reduction for period 2008-2019 is provided in tonnes CO ₂ e	OK	OK
-	Are the data from questions above presented in tabular format?	<p>The estimation of emission reductions is provided in tabular format in section A.4.3.1 of the PDD.</p> <p><u>Clarification Request 04</u> Please explain the increased reductions in 2009 compared to 2008 and subsequent decline of reductions in 2010 to the level of reductions in 2011.</p>	CL 04	OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	<p>The length of the crediting period is 139 months.</p> <p><u>Clarification Request 05</u> Please clarify why 11 years and 7 months were chosen as the length of the crediting period.</p>	CL 05	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO ₂ equivalent provided?	Estimated emission reductions are provided in tonnes of CO ₂ equivalent.	OK	OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	No information was provided from DFPs of all Parties listed as "Parties involved" concerning the approval of the PDD or PIN.	CAR 07	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<u>Corrective Action Request 07</u> Please provide the Letter of Endorsement in the section A.5 of the PDD.		
19	Does the PDD identify at least the host Party as a "Party involved"?	The PDD identifies Ukraine as a Host Party. See also CAR 07	OK	OK
19	Has the DFP of the host Party issued a written project approval?	<u>Corrective Action Request 08</u> Please provide the Letter of Approval of the Host Party.	CAR 08	OK
20	Are all the written project approvals by Parties involved unconditional?	See paragraph 19 above	OK	OK
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: – A written project approval by a Party involved, explicitly indicating the name of the legal entity? or – Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	After finishing the project determination report, the PDD with supporting documents and Determination Report will be presented to the State Environmental Investment Agency of Ukraine for receiving the Letter of Approval that will authorize project participants. Also, see section 19 and section 20 of this protocol above.	OK	OK
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? – JI specific approach – Approved CDM methodology approach	It is indicated in the PDD that JI specific approach is used for identifying the baseline, since among the methodologies approved by the CDM Executive Board there is none fully matching the proposed JI project. The baseline was identified in accordance with "Guidance on criteria of baseline setting and monitoring" version 03. <u>Clarification Request 06</u> Please specify a link on "Guidance on criteria of baseline setting and monitoring" to online resource where the	CL 06 CL 07 CL 08 CL 09 CL 10 CL 11 CL 12 CL 13 CL 14 CL 15	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>information referred to in footnote 7 can be read.</p> <p><u>Clarification Request 07</u> Please provide link on the current version of the applicable "Tool for the demonstration and assessment of additionally".</p> <p><u>Clarification Request 08</u> Please correct the description of Scenario 2 on page 19.</p> <p><u>Clarification Request 09</u> Please correct the description of ρ_{CH4} on page 22.</p> <p><u>Clarification Request 10</u> Please explain the necessity of using the data (NCV_{coal}, $OXID_{coal}$, k^C_{coal}) for 2008 in Table 3.</p> <p><u>Clarification Request 11</u> Please correct the Equation 2, Equation 4, Equation 7, and Equation 9.</p> <p><u>Clarification Request 12</u> Please correct link 18.</p> <p><u>Clarification Request 13</u> Please explain the origin of ρ_{WHB} value, hence the value differs from the one in the referred projects.</p> <p><u>Clarification Request 14</u> The data for the parameter ρ_{WHB} is derived from the projects "Waste heaps dismantling with the aim of decreasing the greenhouse gases emissions into the atmosphere" and "Processing of waste heaps at Monolith-Ukraine" which in turn are taken from the report "Analysis on the fire risk of</p>	CL 20	



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>Luhansk Region's waste heaps", Scientific Research Institute "Respirator", Donetsk, 2010, please explain the need to use this double reference.</p> <p><u>Clarification Request 15</u> Please explain how the measurement "car weights for the commercial purposes on site" is performed for the parameter ($FR_{Coal, y}$)</p> <p><u>Clarification Request 20</u> Please provide an explanation of how moisture affects the amount of coal.</p>		
Jl specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	The PDD provides a detailed theoretical description of five plausible future scenarios in a complete and transparent manner. First plausible future scenario was chosen as baseline.	OK	OK
23	<p>Does the PDD provide justification that the baseline is established:</p> <p>(a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one?</p> <p>(b) Taking into account relevant national and/or sectoral policies and circumstance? – Are key factors that affect a baseline taken into account?</p> <p>(c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, date sources and key factors?</p>	<p>According to the information provided in the PDD, five plausible future scenarios are presented in a complete and transparent manner.</p> <p>First plausible future scenario was chosen as baseline. Identified possible scenarios were analysed taking into account key factors of national and/or sectoral policies that affect the implementation of the regarded scenarios.</p> <p>In section B.1 all baseline data and parameters are presented in a tabular format with detailed explanation of each.</p> <p><u>Clarification Request 16</u> Please make consistent the information about "the fugitive methane emissions" which is mentioned in section B1.</p>	CL 16	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?			
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements supplementary developed by the project participants in line with 23 above?	As indicated in the PDD no CDM methodologies or methodological tools are used for baseline choice, justification and settings, because among the methodologies approved by the CDM Executive Board there is none fully matching the proposed JI project.	OK	OK
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	Multi-project Carbon Emission Factor is not used for this project.	OK	OK
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	Not applicable	Not applicable
26 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	Not applicable	Not applicable
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	Not applicable	Not applicable
26 (c)	Are all explanations, descriptions and analyses	Not applicable	Not	Not



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?		applicable	applicable
26 (d)	Is the baseline identified appropriately as a result?	Not applicable	Not applicable	Not applicable
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".	Consideration that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions were performed by project developer and provided in section B.2 of the PDD. <u>Clarification Request 17</u> Please specify the applicable version of "Tool for demonstration and assessment of additionality".	CL 17	OK
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	The PDD provides the justification of the applicability of the approach reference on "Waste heaps dismantling with the aim of decreasing the greenhouse gas emissions into the atmosphere" project which was successfully implemented.	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
29 (b)	Are additionality proofs provided?	Approach for additionality demonstration already taken in comparable cases was used.	OK	OK
29 (c)	Is the additionality demonstrated appropriately as a result?	See section 29(b) of this protocol.	OK	OK
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	See section 29(b) of this protocol.	OK	OK
Approved CDM methodology approach only				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	Not applicable	Not applicable
31 (b)	Does the PDD provide a description of why and how the referenced approved CDM methodology is applicable to the project?	Not applicable	Not applicable	Not applicable
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	Not applicable	Not applicable	Not applicable
31 (d)	Are additionality proofs provided?	Not applicable	Not applicable	Not applicable
31 (e)	Is the additionality demonstrated appropriately as a result?	Not applicable	Not applicable	Not applicable
Project boundary (applicable except for JI LULUCF projects)				
JI specific approach only				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	The project boundary defined in the PDD encompasses all anthropogenic emissions by sources of GHGs under control of the project participants, reasonably attributable to the project and significant, such as GHG emissions from electricity consumed during the project activity, coal consumption, and diesel fuel consumption.	OK	OK
32 (b)	Is the project boundary defined on the basis of	See section 32(a) of this protocol.	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	a case-by-case assessment with regard to the criteria referred to in 32 (a) above?			
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	The delineation of the project boundary and sources included are described in the PDD by using figure 11 "Emission sources located within the project boundary".	OK	OK
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	In section B.3 of the PDD all gases and sources included are explicitly stated; the information is presented in table 5.	OK	OK
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	Not applicable	Not applicable	Not applicable
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	The PDD indicates that the starting date of the project is 15th of January 2006	OK	OK
34 (a)	Is the starting date after the beginning of 2000?	The starting date of the project is after the beginning of 2000.	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	The expected operational lifetime of the project is 13 years and 11 months or 167 months	OK	OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	The PDD states the length of the crediting period as 11 years and 7 months (139 months) from 31/05/2008 till 31/12/2019	OK	OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	It is not indicated in the PDD whether the starting date of the crediting period is before the date of the first emission reductions generated by the JI project.	OK	OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	The crediting period starts after the beginning of 2008 (01/01/2008) and doesn't extend beyond the operational lifetime of the project.	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	The estimation of emission reductions due to the JI project is provided for the period 2008-2019. The values of emission reductions during the period 2008-2012 are presented in table 1 of the PDD. The values of emission reductions after 2012 for the period 2013-2019 are presented separately in table 2 of the PDD.	OK	OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? – JI specific approach – Approved CDM methodology approach	The PDD explicitly indicates that JI specific approach was used for the monitoring plan in accordance with “Guidance on criteria for baseline setting and monitoring”, (Version 03).	OK	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: – All relevant factors and key characteristics that will be monitored? – The period in which they will be monitored? – All decisive factors for the control and reporting of project performance?	The project developer uses JI specific approach for establishing the monitoring plan in accordance with “Guidance on criteria for baseline setting and monitoring”. Monitoring plan for project was elaborated by JI specific approach with application of methodology “Waste heaps dismantling with the aim of decreasing the greenhouse gases emissions into the atmosphere”.	OK	OK
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	The monitoring plan describes relevant indicators, constants and variables such as amount of produced coal, amount of consumed electricity, emission factors of Ukrainian national grid, for fugitive methane emissions of coal mining etc. <u>Corrective Action Request 09</u> Constant density of methane was used for emission reductions monitoring. Please indicate the source of this value in the section D of the PDD. <u>Corrective Action Request 17</u> Factor of average electricity consumption per ton of coal,	CAR 09 CAR 17	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		produced in Ukraine was used for emission reductions monitoring. Please indicate the source of this value in the section D of the PDD.		
36 (b)	If default values are used: – Are accuracy and reasonableness carefully balanced in their selection? – Do the default values originate from recognized sources? – Are the default values supported by statistical analyses providing reasonable confidence levels? – Are the default values presented in a transparent manner?	Global warming potential of methane, net calorific values of diesel fuel and coal, oxidation factors, carbon factor of diesel fuel and coal, relevant emission factor for the electricity from the grid, factor of average electricity consumption per ton of coal produced in Ukraine, factor of average ash content of coal produced in Ukraine and factor of average moisture of coal produced in Ukraine are used as default values in the monitoring plan. The source of this value is clarified in table 3. <u>Clarification Request 19</u> Please provide, Supporting document 2 which is referenced on table 3 of the PDD.	CL19	OK
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	The monitoring plan indicates how the values are to be selected and justified.	OK	OK
36 (b) (ii)	For other values, – Does the monitoring plan clearly indicate the precise references from which these values are taken? – Is the conservativeness of the values provided justified?	The monitoring plan clearly indicates references from which these values are taken.	OK	OK
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	<u>Corrective Action Request 10</u> Please specify the procedures to be followed if expected monitoring data are unavailable.	CAR 10	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (b) (iv)	Are International System Unit (SI units) used?	International System Units aren't used, but some units are used.	OK	OK
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained through monitoring?	The monitoring plan doesn't note any parameters, coefficients, variables, etc that are to be obtained through monitoring in order to calculate baseline emissions.	OK	OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	According to the monitoring plan and the PDD, the use of the parameters and variables are consistent between the baseline and monitoring plan.	OK	OK
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"?	The monitoring plan is established taking into account the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring".	OK	OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period?	See the PDD section D.1. The data and parameters that are monitored throughout the crediting period are clearly indicated in the PDD (section D.1). <u>Corrective Action Request 16</u> Please clearly indicated 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.	CAR 16	OK
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	The section D.1 of the PDD describes the methods employed for data monitoring including its frequency and recording.	OK	OK
36 (f)	Does the monitoring plan elaborate all	All algorithms and formulae used for the estimation of	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	baseline and project emissions are indicated and explained in the PDD.		
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The underlying rationale for the formulae is presented.	OK	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	All variables and equation formats are consistent and used in appropriate way.	OK	OK
36 (f) (iii)	Are all equations numbered?	Equations needed for calculations described in section B and section D of the PDD. All equations are numbered.	OK	OK
36 (f) (iv)	Are all variables, with units indicated defined?	All variables with units indicated are defined	OK	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	The conservativeness of the procedures is justified	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	Uncertainty level in key parameters identified as low in table D.2 "Quality control and quality assurance procedures undertaken for data monitored".	OK	OK
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	There is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions of the baseline scenario.	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	Used algorithms and formulae are explained	OK	OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	In the PDD project developer describes procedures that are in compliance with technical procedures at Small Private Enterprise (SPE) «BIK»	OK	OK
36 (f) (vii)	Are references provided as necessary?	References for documents required for ERUs calculation are provided	OK	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Key assumptions presented a transparent manner and are explained in the PDD	OK	OK
36 (f) (vii)	Is it clearly stated which assumptions and	In the PDD there is not stated any information about	OK	OK



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	procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	significant uncertainty level of assumptions and procedures.		
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	In the PDD project developer described the uncertainty level of key parameters. Uncertainty level of concerned data was assessed as low. Measuring devices for monitoring of key parameters are calibrated/verified in compliance with the state regulation, SPE «BIK» procedures and approved methodologies in order to assure quality control of monitoring data.	OK	OK
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?	No national or international monitoring standards are used for monitoring of the JI project implementation.	OK	OK
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	Not applicable for given JI project.	OK	OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	The information on the quality assurance and control procedures, including information about calibration and how monitoring data are to be recorded and collected is presented in the monitoring plan section D.2 and D.3. <i>Corrective Action Request 11</i> Please provide the Calibration plan of JI project measurement equipment.	CAR 11	OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	Responsible departments and persons regarding monitoring activities of the JI project are clearly identified. <i>Corrective Action Request 12</i>	CAR 12	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Please bring Figure 12 "The management structure of the project" into compliance with the scheme approved in the order.		
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	According to the section B.2 of the PDD, no similar activity to this project is identified in Ukraine, so good monitoring practice to this type project is unavailable.	OK	OK
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources but not including data that are calculated with equations?	Presented in the PDD monitoring plan provides a complete compilation of the data that are need to be collected for its application, including data that are measured or sampled and data that are collected from other sources. Data concerning the baseline scenario and emission reductions calculation are stated in tabular format in section D of the PDD.	OK	OK
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	The monitoring plan indicates that the data monitored and required for emission reductions calculation will be kept for two years after the last transfer of ERUs.	OK	OK
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	There is no selected elements or combinations of approved CDM methodologies	OK	OK
Approved CDM methodology approach only				
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	Not applicable	Not applicable
38 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted	Not applicable	Not applicable	Not applicable



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



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?			
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	The PDD appropriately describes an assessment of the potential leakage of the project and appropriately explains which sources of leakage are to be calculated, and which can be neglected. Source of the leakage is the fugitive methane emissions due to coal mining. Please, refer to section B.3 of the PDD for detailed information.	OK	OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	The PDD provides a procedure for estimation of leakage. Please, refer to section B.3 of the PDD.	OK	OK
Approved CDM methodology approach only				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	Not applicable	Not applicable	Not applicable
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	The PDD indicates that assessment of emission reductions in baseline scenario and in the project scenario was chosen	OK	OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline	The PDD provides ex ante estimates for project and baseline scenarios. Leakages considered as absent.	OK	OK



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	scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?			
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	Not applicable	Not applicable	Not applicable
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink basis? (iv) For each GHG? (v) In tones of CO ₂ equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate? (d) Are data sources used for calculating the	<p>The estimation of baseline emissions and emission reductions is made on a periodic basis from beginning to the end of the crediting period for each year.</p> <p>Estimations of emission reductions are carried out for CO₂ as greenhouse gas. Calculations are regarded in t CO₂ equivalent.</p> <p>Formulae used for calculating the estimates stated in the section D and section E are consistent throughout the PDD.</p> <p>Data sources used for calculating the estimates are clearly identified.</p> <p>The key factors influencing the baseline emissions or the activity level of the project as well as risks associated with the project are taken into account.</p> <p>Conservative assumptions are taken into account while estimating emission reductions.</p> <p>The tables with calculation results of CO₂ emission reductions are provided in the PDD. As a fact, estimated total value of CO₂ emission reductions for the first crediting period is 1 013 690 tCO₂ equivalent; moreover, estimated total value of CO₂ emission reductions for the period 2013-2019 is 2 496 375 tCO₂ equivalent.</p> <p><u>Corrective Action Request 13</u></p>	CAR 13	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>estimates in 43 or 44 clearly identified, reliable and transparent?</p> <p>(e) Are emission factors (including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?</p> <p>(f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner?</p> <p>(g) Are the estimates in 43 or 44 consistent throughout the PDD?</p> <p>(h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?</p>	Please provide the annual average value of CO ₂ emission reductions in table 18 and table 19.		
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	The calculation of baseline emissions is to be performed ex post. Ex ante calculation of emissions is provided in the PDD. All estimated values are presented in section E of the PDD and Excel spreadsheets.	OK	OK
Approved CDM methodology approach only				
47 (a)	Is the estimation of emission reductions or enhancements of net removals made in accordance with the approved CDM methodology?	Not applicable	Not applicable	Not applicable
47 (b)	<p>Is the estimation of emission reductions or enhancements of net removals presented in the PDD:</p> <ul style="list-style-type: none"> - On a periodic basis? - At least from the beginning until the end of 	Not applicable	Not applicable	Not applicable



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	the crediting period? – On a source-by-source/sink-by-sink basis? – For each GHG? – In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? – Are the formula used for calculating the estimates consistent throughout the PDD? – Are the estimates consistent throughout the PDD? – Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	The PDD provides detailed description on environmental impacts in the section F.1. Transboundary impacts are not observed for this project. <u>Corrective Action Request 14</u> Please provide evidence whether identified environmental impacts have been addressed in the project design.	CAR 14	OK
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment	The PDD provides conclusion and references to supporting documentation of an environmental impact assessment in accordance with the procedures required by Ukrainian legislation	OK	OK


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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	undertaken in accordance with the procedures as required by the host Party?			
Environmental impacts				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?	The Host Party doesn't require stakeholders' consultation process for the JI project. No stakeholders' comments connected with JI project were obtained. Also, stakeholders' comments will be collected during the determination procedure. <u>Clarification Request 18</u> Please specify information to disclose information about the project through the local newspaper.	CL 18	OK

Determination regarding small-scale projects (additional elements for assessment)

Applicable to bundled JI SSC projects only

Applicable to all JI SSC projects

Determination regarding land use, land-use change and forestry projects (additional/alternative elements for assessment)

JI specific approach only

Approved CDM methodology approach only

Determination regarding programmes of activities (additional/alternative elements for assessment)

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
<u>Corrective Action Request 01</u> Please briefly summarize the chosen baseline scenario in section A.2 of the PDD.	-	Briefly summarize the chosen baseline scenario is presented in section A.2 of the PDD v3.0	Issue is closed.
<u>Corrective Action Request 02</u> Please provide the section A.4.1.4 that doesn't exceed one page.	-	Corrected. See PDD v 3.0	Issue is closed.



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<p><u>Corrective Action Request 03</u> Please specify grades "+50", "-50" mm.</p>	-	<p>Grades "+50", "-50" mm are coal fraction. "+50" means the size of the coal for more than 50mm, "-50" – from 0 to 50 mm. Corrected. See PDD v 3.0</p>	Issue is closed.
<p><u>Corrective Action Request 04</u> During the site visit it was found out that there is a need for the operation of the plant to use a source of ionizing radiation but in the PDD it is indicated «not require the use of hazardous materials», please adjust.</p>	-	Corrected. See PDD v 3.0	Issue is closed.
<p><u>Corrective Action Request 05</u> Please provide the schedule for the project implementation and commissioning of the equipment installed.</p>	-	<p>The schedule for the project implementation and commissioning of the equipment installed is given in section A.2 and A.4.2 PDD v.3.0. 15 th of January 2006 is the date of signing the purchase contract the main equipment. 31st of May 2008 is date of commissioning of the equipment .The operations at the facility have started on the 31st of May 2008.</p>	Issue is closed.
<p><u>Corrective Action Request 06</u> Please provide a brief procedure for determining the volume of output coal.</p>	-	<p>A procedure for determining the volume of output coal ($FR_{Coal,y}$) is provided in section B.1 and D.1. Amount of coal that has been mined in the baseline scenario and combusted for energy use, equivalent to the amount of coal extracted from the waste heaps in the project activity is measured by car weight. All amount of coal is transported from the factory by machines which are subject to mandatory weighing.</p>	Issue is closed.
<p><u>Corrective Action Request 07</u> Please provide the Letter of Endorsement in the section A.5 of the PDD.</p>	19	Letter of Endorsement is provided in the section A.5 of the PDD v.3.0.	Issue is closed.



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<p><u>Corrective Action Request 08</u> Please provide the Letter of Approval of the Host Party.</p>	19	To obtain the Letter of Approval the final Determination report must be submitted to the State Environmental Investment Agency of Ukraine that includes this determination Protocol to the list of sources of reference information.	Pending.
<p><u>Corrective Action Request 09</u> Constant density of methane was used for emission reductions monitoring. Please indicate the source of this value in the section D of the PDD.</p>	36 (b)	The source of density of methane data indicates in the section D of the PDD v.3.0.	Issue is closed.
<p><u>Corrective Action Request 10</u> Please specify the procedures to be followed if expected monitoring data are unavailable.</p>	36 (b) (iii)	To prevent the situations in which monitoring data are unavailable, all parameters are fixed and saved on paper and electronically in a database of the Project Owner and Project Developer separately. Procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting are given in section D.1. PDD v.3.0.	Issue is closed.
<p><u>Corrective Action Request 11</u> Please provide the Calibration plan of JI project measurement equipment.</p>	36 (i)	Calibration plan of JI project measurement equipment is provided in section D.1. in subsection "Setup of measurement installation". The measurement setup will be based on the following meters: for electricity consumed – new electronic meter which is installed 12/05/2008, calibration period 6 year; for coal produced - electronic automobile scales, calibration period 1 year, last calibration – 29/09/2011, next calibration – 29/09/2012.	Issue is closed.
<p><u>Corrective Action Request 12</u> Please bring Figure 12 "The management structure of the project" into compliance with the scheme approved in the order.</p>	36 (j)	Figure 12 "The management structure of the project" is brought into compliance with the scheme approved in the order. See section D.3. PDD v.3.0.	Issue is closed.



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<p><u>Corrective Action Request 13</u> Please provide the annual average value of CO₂ emission reductions in table 18 and table 19.</p>	45	<p>Table 18 and table 19 is a part of section E.6. Joint Implementation Project Design Document form Version 01 - in effect as of: 15 June 2006. This template shall not be altered. It shall be completed without modifying/adding headings or logo, format or font.</p>	Issue is closed.
<p><u>Corrective Action Request 14</u> Please provide evidence whether identified environmental impacts have been addressed in the project design.</p>	48 (a)	<p>Beneficiation plant is mobile and therefore for its activity is not required development of environmental impacts assessment, which is required for the construction of a new object. The proposed project in general has a positive impact on the environment so is not subject to special ecological examination. The detail analysis of the environmental impacts was presented in Section F.1. PDD. The contract for land reclamation will be given to the determinator/verificator via email.</p>	Issue is closed.
<p><u>Corrective Action Request 15</u> Please bring the PDD in accordance with the current version of PDD template.</p>	-	Corrected. See PDD v 3.0.	Issue is closed.



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<p><u>Corrective Action Request 16</u> Please clearly indicated 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.</p>	36 (d)	<p>In the section D.1. PDD v.3.0 are clearly indicated: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination; (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination; (iii) Data and parameters that are monitored throughout the crediting period.</p>	Issue is closed.
<p><u>Corrective Action Request 17</u> Factor of average electricity consumption per ton of coal produced in Ukraine was used for emission reductions monitoring. Please indicate the source of this value in the section D of the PDD.</p>	36 (b)	<p>The source of factor of average electricity consumption per ton of coal produced in Ukraine indicates in the section B and D of the PDD v.3.0.</p>	Issue is closed.
<p><u>Clarification Request 01</u> Please provide documented information on the commissioning of objects.</p>	-	<p>Documented information on the commissioning of objects was provided during determination site visit.</p>	Issue is closed.
<p><u>Clarification Request 02</u> Please provide, Supporting document 1 which is referenced on page 17 of the PDD.</p>	-	<p>Supporting document 1 is Excel file which was attached in email.</p>	Issue is closed.
<p><u>Clarification Request 03</u> Please specify a link to online resource where the information referred to in footnote 4 can be read.</p>	-	<p>A link to online resource where the information referred to in footnote 4 can be read is given of the PDD v.3.0.</p>	Issue is closed.



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<p><u>Clarification Request 04</u> Please explain the increased reductions in 2009 compared to 2008 and subsequent decline of reductions in 2010 to the level of reductions in 2011.</p>	-	<p>The main parameter calculation for the emission reductions is the amount of enriched coal concentrate. This parameter depends on the volume of purchase orders and limited capacity of the beneficiation plan. In 2008-2010 the volume of clean coal were similar and slightly varied by year (2.8-5%%). In 2011 the company took several large orders of the enrichment product(coal), and therefore worked at high capacity. Hence, in 2011 we see a significant increase of the reduction compared to 2010. In 2012, the planned to acquire another waste heaps. Hence, the increase in coal and, consequently, the increase level of reductions in 2012 and 2013.</p>	Issue is closed.
<p><u>Clarification Request 05</u> Please clarify why 11 years and 7 months were chosen as the length of the crediting period.</p>	-	<p>In accordance with "Glossary of joint implementation terms" version 3 crediting period is the period for which reductions in anthropogenic emissions by sources or enhancements of net anthropogenic removals by sinks may be determined by an AIE. Thus, considering that start of the crediting period is 31/05/2008, length of crediting period is 4 years and 7 month or 55 months. But if crediting period is extended beyond 2012 subject to the approval by the Host Party, will take this possible extension (The lifetime of the project is estimated to last until the end of 2019) into account the length of the crediting period will be 11 years and 7 month or 139 months.</p>	Issue is closed.



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<u>Clarification Request 06</u> Please specify a link on "Guidance on criteria of baseline setting and monitoring" to online resource where the information referred to in footnote 7 can be read.	22	A link on " Guidance on criteria of baseline setting and monitoring " version 3 is given in section B.1. of the PDD v 3.0.	Issue is closed.
<u>Clarification Request 07</u> Please provide link on the current version of the applicable "Tool for the demonstration and assessment of additionally".	22	A link on " Tool for the demonstration and assessment of additionally " version 6.0.0 is given in section B.1. and B.2. of the PDD v 3.0.	Issue is closed.
<u>Clarification Request 08</u> Please correct the description of Scenario 2 on page 19.	22	Corrected. See PDD v 3.0	Issue is closed.
<u>Clarification Request 09</u> Please correct the description of ρ_{CH_4} on page 22.	22	Corrected. See PDD v 3.0	Issue is closed.
<u>Clarification Request 10</u> Please explain the necessity of using the data (NCV_{coal} , $OXID_{coal}$, kC_{coal}) for 2008 in Table 3.	22	In accordance with National Inventory Report of Ukraine 1990-2009 which is source of these data (NCV_{coal} , $OXID_{coal}$, kC_{coal}), all parameters are set each year and are fixed in a new annual National Inventory Report. In the latest available approved report for the 1990-2009 years data were corrected for 2008 and 2009. For the baseline, we should use the latest data which clearly identified, reliable and transparent. This was done	Issue is closed.
<u>Clarification Request 11</u> Please correct the Equation 2, Equation 4, Equation 7, and Equation 9.	22	Corrected. See PDD v 3.0	Issue is closed.
<u>Clarification Request 12</u> Please correct link 18	22	Corrected. See PDD v 3.0	Issue is closed.



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<p><u>Clarification Request 13</u> Please explain the origin of ρ_{WHB} value, hence the value differs from the one in the referred projects</p>	22	<p>Scientific research was carried out for each separate region, so for the Donetsk region the study was conducted in the project "Waste heaps dismantling with the aim of decreasing the greenhouse gases emissions into the atmosphere", to the Lugansk region- in the project " Processing of waste heaps at Monolith-Ukraine". In our case, it is Lugansk region. Method and data of scientific research was verified and confirmed by accredited independent entities Bureau Veritas Certification Holding SAS and DNV Climate Change Services AS. Both projects are to prove the accuracy and transparency of data selection.</p>	Issue is closed.
<p><u>Clarification Request 14</u> The data for the parameter ρ_{WHB} is derived from the projects "Waste heaps dismantling with the aim of decreasing the greenhouse gases emissions into the atmosphere" and "Processing of waste heaps at Monolith-Ukraine" which in turn are taken from the report "Analysis on the fire risk of Luhansk Region's waste heaps", Scientific Research Institute "Respirator", Donetsk, 2010, please explain the need to use this double reference.</p>	22	See answer to CL 13.	Issue is closed.



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<p><u>Clarification Request 15</u> Please explain how the measurement “car weights for the commercial purposes on site” is performed for the parameter ($FR_{Coal, y}$)</p>	22	<p>Car weights of clean coal for the commercial purposes on site is carried out according to the agreement for weighing. Car scales are located at a distance of 80 km from the beneficiation plant. Buyers car is taken away clean coal, data about coal are fixed in the expenditure statements that have signed by the transporter and the representative of the buyer, then car goes to the weighing. Monthly total volume of weighed coal closes by the act with the company, which makes weighing, and after with the company-buyer. According to the data of the amount of transferred coal occurs payment transaction with buyer. Parameter ($FR_{Coal, y}$), y equals amount of clean coal which was cross-checked with Buyer.</p>	Issue is closed.
<p><u>Clarification Request 16</u> Please make consistent the information about “the fugitive methane emissions” which is mentioned in section B1.</p>	23	<p>The information about “the fugitive methane emissions” which was made consistent. See section B.1. of the PDD v 3.0.</p>	Issue is closed.
<p><u>Clarification Request 17</u> Please specify the applicable version of “Tool for demonstration and assessment of additionality”.</p>	28	<p>A link on "Tool for the demonstration and assessment of additionally" version 6.0.0 is given in section B.1. and B.2. of the PDD v 3.0.</p>	Issue is closed.
<p><u>Clarification Request 18</u> Please specify information to disclose information about the project through the local newspaper</p>	49	<p>Information about the project through the local newspaper was not published. For support of the project we applied to the Main Office of Derzhkomzem in the Luhansk region of the State Committee of Ukraine for Land Resources. Letter of support will be given to the determinator/verificator via email.</p>	Issue is closed.



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<p><u>Clarification Request 19</u> Please provide, Supporting document 2 which is referenced on table 3 of the PDD.</p>	<p>36(b)</p>	<p>Supporting document 2 is pdf file which is attached in email.</p>	<p>Issue is closed.</p>
<p><u>Clarification Request 20</u> Please provide an explanation of how moisture affects the amount of coal.</p>	<p>22</p>	<p>Moisture determines many qualities of coal and is essential for its production, transportation and use. Dust formation and flowability of the coal masses depend on the moisture content. High moisture is the reason of coal clumping, caking and freezing in the bunkers, stuck on the screens, regelation during transport in winter. Also, moisture plays an important role in the process of oxidation of coal: moisturized coal absorbs much more oxygen than dry matter. Increasing the concentration of oxygen accelerates the oxidation of coal. Increased moisture of coal during the long-term storage accelerates ignition. Moisture is the ballast of fuel, and it negatively affects the thermatechnical and economic performance of fuel consumption units. During the combustion of fuel, evaporation of moisture takes heat of combustion of coal resulting in significantly reduced its heating value and efficiency of thermal plants. Moisture significantly reduces the content of nutrients - such as carbon and hydrogen, therefore also increases overheads during transportation and loading. For a more clear calculation of coal volume moisture needs maximum to reduce using the additional measures.</p>	<p>Issue is closed.</p>