DETERMINATION REPORT INSTITUTE FOR ENVIRONMENT AND ENERGY CONSERVATION

DETERMINATION OF THE INSTALLATION OF A NEW WASTE HEAT RECOVERY SYSTEM IN ALCHEVSK COKE PLANT, UKRAINE

REPORT NO. UKRAINE/0035/2009

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BUREAU VERITAS CERTIFICATION

DETERMINATION REPORT

Date of first issue: 23/09/2009	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Institute for Environment and Energy Conservation	Client ref.: Vasil Vovchak

Summary:
Bureau Veritas Certification has made the determination of the "Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine" project of Institute for Environment and Energy Conservation located in Alchevsk, 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 12 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Executive Board, as well as the host country criteria. The project is submitted under track1.

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

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

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0012 Version 03.1 to the project components 1 and 2, and JI specific approach to the project component 3, and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

On the behalf of determination team, Flavio Gomes, the Bureau Veritas Certification Holding SAS Global Product Manager for Climate Change, approved final version of the Determination Report and it is signed by Ivan Sokolov authorized Bureau Veritas Certification Holding SAS Local product manager for Climate Change in Ukraine.

Report No.: UKRAINE/0035/2009	Subject Group: JI	
Project title: Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine		
Work carried out by: Ivan Sokolov, Lead Verifier Oleg Skoblyk, Verifier		
Work verified by: Leonid Yaskin, Internal reviewer		
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Indexing terms

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Abbreviations

AISW	Alchevsk Iron and Steel Works
BV	Bureau Veritas
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDQ	Coke Dry Quenching
CWQ	Coke Wet Quenching
JI	Joint Implementation
ERU	Emission Reduction Unit
CL	Clarification Request
CO_2	Carbon Dioxide
DOE	Designated Operational Entity
GHG	Green House Gas(es)
I	Interview
IETA	International Emissions Trading Association
MoV	Means of Verification
NGO	Non Government Organization
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
WECM	Waste Energy Carrying Medium

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1 INTRODUCTION

The Institute for Environment and Energy Conservation has commissioned Bureau Veritas Certification to determinate its JI project “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” (hereafter called “the project”) at Alchevsk, 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 12 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Executive Board, 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 GHG Project Description

The project activity is to reduce greenhouse gas (GHG) emissions through the introduction of captive co-generation with waste heat recovery technology by using Coke Dry Quenching (CDQ) system – instead of conventional Coke Wet Quenching (CWQ) system—with 9.13 MW captive generator at Alchevsk Coke Plant (Alchevskkoks) when it expands its coke oven battery. The 75 t/h highly-efficient boiler firing coke oven gas

(COG) and blast furnace gas (BFG) and new steam turbine is also installed at Alchevskkoks as a part of establishing industrial synthesis in energy source with its neighbouring Steel Plant (Alchevsk Iron and Steel Works).

Pre-Project
Historically, Alchvskkoks generated around 1,100,000 t/y of steam by the existing boiler shop with three 50 t/h boilers and the old boiler shop 1 with five 50 t/h boilers which is about being abolished due to overage. Both boiler shops are firing COG from 6 existing coke battery ovens. As for the electricity, around 15,000 MWh of electricity has been generated by the existing two 2.15 MW captive power steam generators and around 130,000 MWh/y has been imported to meet internal electricity demand.

Project activity
The project activity is split into three stages, i.e. stage 1, 2 & F due to construction schedule.
In the stage 1 of the project activity, only the CDQ system with boilers (35 t/h x 3 units) is installed while a new boiler and a new generator are not in service although internal demands are increased to 1,680,000 t/y for steam and 181,200 MWh/y for electricity due to production capacity expansion by installing a new coke oven battery.
For steam demand, 390,000 t/y is generated with CDQ boilers, 941,000 t/y with the existing boiler shop and the old boiler firing all COG available. The rest 349,000 t/y is imported from AISW. In the stage 2, a new 75 t/h boiler will be put in service and BFG will be introduced from AISW. Then the new boiler will start to generate 588,000 t/y of steam firing about 10% of available COG and all BFG available. The remaining 90% of COG will be kept fired in the existing boiler as the old boiler is abolished and stops generating steam as it is planned. Total steam and electricity generation will maintain the same as that in the stage 1.
In the stage F which is the final stage of the project activity, in addition to the CDQ system and a new 75 t/h boiler, a new 9.13 MW captive generator will be put in service.
Internal demands for steam and electricity are the same as those in the stage 2 of the project activity, i.e. 1,680,000 t/y and 181,200 MWh/y respectively. For steam demand, 390,000 t/y of steam is generated with CDQ boilers, 588,000 t/y with new 75 t/h boiler firing COG and BFG, and 353,000 t/y with the existing boiler shop firing COG only. The rest 349,000 t/y is imported from AISW.
For electricity demand, 54,200 MWh of net electricity is to be generated from the new 9.13 MW captive generator connected to CDQ boilers and the new boiler shop, and 8,640 MWh from the one set of existing 2.15 MW, and the rest 118,360 MWh/y is imported from the national grid to meet total demand, annually.

In this stage, the project activity generates 1,330,000 t/y of steam and more electricity than that in the baseline so that electricity import from the national electricity grid is reduced by 30,830 MWh/y.
By putting a new boiler and captive generator in service, this reduction will be made without firing natural gas which would have been used in the baseline. The amounts of COG and BFG utilized are common for the baseline and the project.

Baseline
In the baseline, the same amount of steam import (349,000 t/y) and generation (1,331,000 t/y) as those in the project activity would have been occurred in the absence of the project activity.
Without the project activity, for quenching cokes, conventional Coke Wet Quenching (CWQ) technology would be applied without recovering the waste heat; in place of CDQ boiler, Alchevskkoks would installed the second boiler shop (fictious) consisting of two 50 t/h boilers firing only COG1 as the most economical solution to meet its steam demand, as old boiler shop is going to be abolished. This fictious boiler shop would generate 291,000 t/y of steam.
And also the existing boiler shop would increase its steam generation by firing all BFG from AISW and the balance of COG together with natural gas which is to make up COG firing. This boiler shop would generate 1,040,000 t/y of steam.
Since the existing boiler shop is connected to the two sets of captive power generators, 32,010 MWh/yr of electricity would be also supplied to Alchevskkoks for internal use. In order to meet internal electricity demand, around 149,190 MWh/y of electricity would be imported from the national electricity grid.

The other benefit from installing CDQ is to produce harder and drier coke compared with the conventional Coke Wet Quenching technology (CWQ), which would have installed without the project activity. It has been empirically proved that this quality improvement results in reducing coke input per unit of pig iron production at the blast furnace. Accordingly, CO2 emissions derived from burning coke is alleviated at the blast furnace of the Alchevsk Iron and Steel Works (AISW). The required volume of COG is supplied in prioritised rank to the neighbouring AISW to cover energy balances of the Steel Plant that belongs to the same owner (IUD) as Alchevskkoks.

In summary, the project activity comprises three components of GHG emissions reductions as follows:
1. GHG emissions reductions due to dismissing natural gas that would have been burnt at the
baseline boilers for steam generation by installing CDQ waste heat recovery technology
together with high-efficient boiler.

2. GHG emissions reductions due to replacing grid electricity by installing the power generator
with CDQ waste heat recovery technology together with high-efficient boiler by improving the
efficient use of COG and BFG.
3. GHG emissions reductions due to reducing coke input per unit of pig iron production at the
blast furnace by installing CDQ waste heat recovery technology.

1.4 Determination team

The determination team consists of the following personnel:

Ivan Sokolov
Bureau Veritas Certification Team Leader, Climate Change Verifier

Oleg Skolbyk
Bureau Veritas Certification Climate Change Verifier

Leonid Yaskin
Bureau Veritas Certification, Internal 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 Determination and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from determining the identified criteria. The determination protocol serves the following purposes:

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

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

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

Determination Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** or a **Clarification Request (CL)** of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Determination Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is determined. This is to ensure a transparent determination process.

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

Determination Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 4: Legal requirements				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

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

Figure 1 Determination protocol tables

2.1 Review of Documents

The Project Design Document (PDD) version 6 submitted by the Institute for Environment and Energy Conservation and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (JI-PDD), Approved methodology, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests Institute for Environment and Energy Conservation revised the PDD and resubmitted it on 16/11/2009 as version 6.
After completing the Internal Technical Review Institute for Environment and Energy Conservation revised PDD into version 7 dated 22nd of December 2009.

The determination findings presented in this report relate to the project as described in the PDD version 07.

2.2 Follow-up Interviews

On 17/06/2009 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of the Alchevsk Coke Plant were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Alchevsk Coke Plant	➢ Alchevsk Coke Plant coke production programme ➢ Project management organisation ➢ Evidence and records on reconstruction and new building and its operation ➢ Environmental Impact Assessment ➢ Project monitoring responsibilities ➢ Monitoring equipments ➢ Quality control and quality assurance procedures
LOCAL Stakeholder Alchevsk city Environmental inspection	➢ Environmental impacts affected ➢ Local authorities and public opinion
Institute for Environment and Energy Conservation	➢ Applicability of methodology ➢ Baseline and Project scenarios ➢ Barriers analysis ➢ Additionality justification ➢ Common practice analysis ➢ Monitoring plan ➢ Estimation of the leakage ➢ Conformity of PDD to JI requirements

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.

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

3 DETERMINATION FINDINGS

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

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Determination Protocol in Appendix A.
2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 7 Corrective Action Requests and 8 Clarification Requests.
3) The conclusions for determination subject are presented.

3.1 Project Design

The project is expected to be in line with host-country specific JI requirements because it is helping country fulfill its goals of promoting climate change prevention programme and sustainable development.

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

Implementation of the project met and faced a number of serious technological, operational and financial barriers. The decision to go forward with the project was taken by the company management in view of the existing opportunity to cover some of its costs and to offset project risks by selling GHG emission reductions. The project is clearly environment-oriented.

The project design is sound and the geographical (city of Alchevsk) and temporal (5 years) boundaries of the project are clearly defined.

Identified area of concern as to Project Design, project participants response and BV Certification conclusion is described in Appendix A Table 5 (refer to CAR1, CAR4–CAR5 and CL1-CL4).

The project has no approvals by the Parties involved, therefore CAR1 remains pending.

3.2 Baseline and Additionality

The “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” project activity consists of three components:
1. GHG emissions reductions due to dismissing natural gas that would have burnt at the baseline boilers by installing CDQ waste heat recovery technology together with high-efficient boiler.
2. GHG emissions reductions due to replacing grid electricity by installing the power generator with CDQ waste heat recovery technology together with high-efficient boiler.
3. GHG emissions reductions due to reducing coke input per unit of pig iron production at the blast furnace by installing CDQ waste heat recovery technology.

The project uses the approved consolidated baseline methodology ACM0012 (Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects, version 03.1) for the project components 1 and 2, and own JI specific methodology for the project component 3.

For the components of 1 and 2, the approved CDM methodology ACM0012 Version 03.1 (Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects) is fully applicable. The project activity falls on “Type-1”, i.e., all the waste energy in identified WECM stream/s that will be utilized in the project activity would be flared in the absence of the project activity at a new facility”. The waste energy is an energy source for cogeneration. The project activity reasonably satisfies the applicability conditions of ACM0012.

For the component 3 of emission reductions, newly established baseline and monitoring methodology is applied only for the calculation method of emission reductions in accordance with the Appendix B of the JI guidelines and further guidance on criteria for baseline setting and monitoring because no existing CDM methodology is relevant and applicable to this portion of the project activity. However, this portion of emissions reduction is taken place by use of the product of the project activity, i.e. coke, in blast furnace in AISW.
Therefore, the baseline for this component is to be the same as the one for the components 1 and 2, i.e. use of wet coke made by CWQ which is conventional practice and release WECM to atmosphere.

According to ACM0012, additionality of the project activity was demonstrated using the “Tool for the demonstration and assessment of additionality Version 5.2.

According to ACM0012, the baseline scenario was identified as the most plausible scenario among all realistic and credible alternatives. For the Project, the baseline scenarios was determined for

- Waste energy use in the absence of the project activity; and
- Power generation in the absence of the project activity; and
- Steam/heat generation in the absence of the project activity.

The alternatives considered for determination of the baseline scenario in the context of the project activity include the baseline options and combination for the use of waste energy, power generation, and heat generation.

(a) Proposed project activity without JI. It was validated that the project activity would not have taken place without the JI incentive, as it faces barriers associated with financial difficulty and the fact that it is the very first effort of installing state-of-the-art CDQ technology to recover waste heat for steam and electricity generation. An investment analysis had not been performed, but appropriate documents, scientific articles on dry quenching, and letters from Giprokoks and bank Societe Generale were analyzed to support this opinion.

(b) The possible alternative baseline scenarios are listed in the tables in the section B.1. of the PDD.

For the use of waste energy: WECM is released to the atmosphere (for example after incineration) or waste heat is released to the atmosphere or waste pressure energy is not utilized (Applicable. This is a current practice, and meets all current legal and regulatory requirements in Ukraine.)

For the power generation: Sourced Grid-connected power plants (Applicable. This is the current practice. For grid electricity, the baseline choice of energy source corresponds to the fuel mix of Ukrainian national grid. For natural gas, it is relatively abundant energy source with the 47% occupancy in primary energy supply in Ukraine, and no supply constraint is foreseen there).

For the heat generation: An existing or new fossil fuel based boilers (At the coke plant, an existing COG and BFG-fuelled boilers provides the steam, and new boiler shop is planned to be installed to cover the increased steam demand at the coke plant, which is technically and economically feasible).

The baseline options considered do not include those options that:

- do not comply with legal and regulatory requirements; or
- depend on key resources such as fuels, materials or technology that are not available at the project site.

The most economically attractive alternative among the alternatives mentioned above has been selected as the baseline scenario, since such alternative is not expected to face any prohibitive barriers that could have prevented it from being taken up as the project activity.

Identified area of concern as to Baseline and Additionality, project participants response and BV Certification conclusion is described in Appendix A Table 5 (refer to CAR2 and CAR3).

3.3 Monitoring Plan

The Project uses the approved consolidated monitoring methodology ACM0012 (Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects, version 03.1), and newly established baseline and monitoring methodology applied in accordance with the Appendix B of the JI guidelines and further guidance on criteria for baseline setting and monitoring. Refer discussions on the validity of the methodology at section 3.2 above.

The monitoring plan is defined on the basis of approach indicated above.

Collection of data required for estimation of GHG emission reductions is performed to high industry standard and the best practice of fuel and energy monitoring and environmental impact assessment.

An operational and management structure that the project participant will implement in order to monitor emission reduction is clearly described in the PDD.

The meeting with PDD developer, on-site interviews confirmed the availability and operationability of this structure. Monitored data quality assurance and quality control procedures are backed up by the Quality Management System certified to ISO 9001.

Identified area of concern as to Monitoring Plan, project participants response and BV Certification conclusion is described in Appendix A Table 5 (refer CL8).

A thorough analysis of the methodology applicability was performed in the PDD. To establish a baseline and demonstrate additionality the project activity three its components were considered:
1. GHG emissions reductions due to dismissing natural gas that would have burnt at the baseline boilers by installing CDQ waste heat recovery technology together with high-efficient boiler.

2. GHG emissions reductions due to replacing grid electricity by installing the power generator with CDQ waste heat recovery technology together with high-efficient boiler.
3. GHG emissions reductions due to reducing coke input per unit of pig iron production at the blast furnace by installing CDQ waste heat recovery technology.
They are in line with the methodology ACM00012. Arguments used in the PDD are accepted by the determination team and they are summarized as follows:
In the absence of the project activity, the waste heat from red hot coke can not be captured nor used as the conventional CWQ system is not equipped with any facility to capture waste heat.
All of the heat and electricity generated in the project activity will be used for the operation of the coke plant within the industrial facility. The electricity generated in the project activity will be used for captive purposes without exporting to the grid, while displacing the purchased electricity from grid.

3.4 Calculation of GHG Emissions

As per approved consolidated methodology ACM0012 (Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects, version 03.1), the baseline emission sources considered are: W2, WECM is released to the atmosphere (for example after incineration) or waste heat is released to the atmosphere or waste pressure; P6, Sourced Grid-connected power plants; H4: An existing or new fossil fuel based boilers. This is followed by a JI specific approach considering baseline emissions from coke processed by CWQ and used in blast furnace of AISW.

As required under approved consolidated methodology ACM0012 (Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects, version 03.1), the baseline emissions are calculated by:

$BE_y = BE_{En,y} + BE_{coke,y}$

Where,

BE_y = The total baseline emissions during the year y in tons of CO_2.

$BEE_{n,y}$= The baseline emissions from energy generated by the project activity during the year y in tons of CO_2.

$BE_{coke,y}$ = Baseline emissions from coke processed by CWQ used in blast furnace of AISW during the year y in tons of CO_2.

The baseline emissions from energy generated by the project activity, $BE_{En,y}$:

$$BE_{En,y} = BE_{Elec,y} + BE_{Ther,y}$$

Where,

$BE_{Elec.y}$ = Baseline emissions from electricity during the year *y* in tons of CO_2.

$BE_{Ther,y}$ = Baseline emissions from thermal energy (due to heat generation by element process) during the year *y* in tons of CO_2.

Baseline emissions from the electricity, $BE_{Elec.y}$:

$$BE_{Elec,y} = f_{cap} * f_{wcm} * (EG_y * EF_{elec,gr})$$

Where,

$BE_{elec,y}$ = Baseline emissions due to displacement of electricity during the year y in tons of CO_2.

EG_y = The quantity of electricity supplied to the recipient by the newly installed generator, that in the absence of the project activity would have been sourced from grid during the year *y* in MWh.

$EF_{elec.gr}$ = The CO_2 emission factor for the electricity source, national electric grid, displaced due to the project activity, during the project activity in tons CO_2/MWh. Apply 0.896 given in Annex 2 “Baseline information”.

f_{wcm} = Fraction of total electricity generated by the project activity using waste energy.

f_{cap} = Energy that would have been produced in project year *y* using waste energy generated in base year expressed as a fraction of total energy produced using waste source in year *y*.

Replaced grid-sourced electricity, $EG_{,y}$:

$$EG_y = EG_{PJ,y} – EC_{CDQ,y} – EG_{hist,BL} \cdot h_{PJ,y} / h_{hist,BL}$$

Where,

$EG_{pj,y}$ = Total amount of electricity generated in the project activity during the year y in MWh.

$EC_{CDQ,y}$ = Amount of electricity self-consumed by CDQ during the year y in MWh.

$EG_{hist,BL}$ = Average amount of electricity generated in the most recent three years prior to the project activity in MWh/y.

$h_{PJ,y}$ = CDQ system operation hours during the year y in hours.

$h_{hist,BL}$ = Average operating hours of existing captive power generators in the most recent three years prior to the project activity in hours/y.

Capping of baseline emissions f_{cap}:

$$f_{cap} = Q_{OE,BL} / Q_{OE,y}$$

Where,

$Q_{OE,BL}$ = Output/intermediate energy that can be theoretically produced (in appropriate unit), to be determined on the basis of maximum recoverable energy from the WECM, which would have been released (or WECM would have been flared or energy content of WECM would have been wasted) in the absence of CDM project activity. Apply 907,200 t/y given by manufacture's specification.

$Q_{OE,y}$ = Quantity of actual output/intermediate energy during year y (in appropriate unit).

Quantity of actual output/intermediate energy $Q_{OE,y}$:

$$Q_{OE,y} = SG_{PJ,CDQI,y}$$

Where,

$SG_{PJ,CDQ,y}$ = Amount of steam generated in CDQ boiler in the project activity during the year y in tonnes.

Baseline emissions from thermal energy $BE_{Ther,y}$:

$$BE_{Ther,y} = f_{cap} * f_{wcm} * HG_{CDQ,y} * EF_{heat,CDQ}$$

Where,

$BE_{Ther,y}$ = Baseline emissions from thermal energy (as steam) during the year y in tons of CO_2.

$HG_{CDQ,y}$ = Net quantity of heat supplied to the recipient plant by the project activity (CDQ boilers) during the year y in TJ (In case of steam this is expressed as difference of energy content between the steam supplied to the recipient plant and the condensate returned by the recipient plant(s) to element process of cogeneration plant.

f_{wcm} = Fraction of total heat generated by the project activity using waste energy. This fraction is 1 since the heat generation is purely from use of waste energy.

f_{cap} = Energy that would have been produced in project year *y* using waste energy generated in base year expressed as a fraction of total energy produced using waste source in year *y*.
EF_{cap} = The CO_2 emission factor of the element process supplying heat that would have supplied the recipient plant in absence of the project activity, expressed in tCO2/TJ.

Net quantity of heat supplied from CDQ boiler $HG_{j,y}$:

$$HG_{CDQ,y} = SG_{PJ,CDQI,y} * (H_{steam,CDQ,y} - H_{water,CDQ,y}) * 4.187 * 10^{-6}$$

Where,

$SG_{PJ,CDQ,y}$ = Amount of steam generated in CDQ boiler in the project activity during the year y in tonnes.

$H_{steam,CDQ,y}$ = Specific enthalpy of steam generated in CDQ boiler in the project activity during the year y in kcal/kg.

$H_{water,CDQ,y}$ = Specific enthalpy of feed water in CDQ boiler in the project activity during the year y in kcal/kg.

$4.187 * 10^{-6}$ = Conversion factor from kcal to TJ.

CO_2 emissions factors of natural gas combustion $EF_{heat,CDQ,y}$:

$$EF_{heat,CDQ} = ws_{Ex\text{-}Boiler} * EF_{CO2,NG} / \eta_{ExBoiler}$$

Where,

$EF_{CO2,NG}$ = The CO_2 emission factor per unit of energy of natural gas in the baseline used in the existing boiler used by Alchevskkoks in tCO2/TJ, in absence of the project activity.

$\eta_{ExBoiler}$ = Efficiency of the existing boiler that would have supplied heat to Alchevskkoks in the absence of the project activity.

$ws_{Ex\text{-}Boiler}$ = Fraction of total heat that is used by Alchevskkoks in the project that in absence of the project activity would have been supplied by the existing boiler

Baseline emissions from the blast furnace without the project activity, $BE_{coke,y}$;

$$BE_{coke,y} = Q_{coke,PJ,y} * (1 + F_{pigiron}) / (1 - F_{coke}) * 3.1$$

Where:

$BE_{coke,y}$	Baseline emissions from coke consumption
$Q_{coke,PJ,y}$	Amount of coke consumed in a blast furnace in year y (t/y)
$F_{pigiron}$	Increased pig iron production due to dry coke input in a blast furnace
F_{coke}	Decreased coke consumption due to dry coke input in a blast furnace
3.1	Conversion factor for ton-coke to ton CO

Where,

$$F_{pigiron} = [(M_{25,PJ} – M_{25,BL}) * 0.6 + (M_{10,PJ} – M_{10,BL}) * -2.8 + (M_{80,PJ} –M_{80,BL}) * -0.2]/100$$

$M_{25,PJ}$	Index for coke hardness of coke produced in the project activity
$M_{25,BL}$	Index for coke hardness of coke produced in the baseline activity
$M_{10,PJ}$	Index for reduced coke abrasion for coke produced in the project activity
$M_{10,BL}$	Index for reduced coke abrasion for coke produced in the baseline activity
$M_{80,PJ}$	Index for reduced coke faction content over 80mm for coke produced in the project activity
$M_{80,BL}$	Index for reduced coke faction content over 80mm for coke produced the baseline activity
0.6	Default value (Technical Directorate, USSR Ministry of Ferrous Metallurgy)
-2.8	Default value (Technical Directorate, USSR Ministry of Ferrous Metallurgy)
-0.2	Default value (Technical Directorate, USSR Ministry of Ferrous Metallurgy)

The detailed algorithms are described later under sections D.1.1.4. of the PDD. The verifiers checked the calculations presented in the PDD Version 7 and found them accurate.

With reference to approved consolidated methodology ACM0012, project does not lead to any leakage.
The estimated annual average of approximately 220,769 tCO2e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project.
Identified area of concern as to Calculation of GHG Emissions, project participants response and BV Certification conclusion is described in Appendix A Table 5 (refer to CAR6 and CL5-CL7).

3.5 Environmental Impacts

The project has been subject to a formal environmental impact assessments or OVOS undertaken in accordance with the applicable legislation and regulations of Ukraine. A project environmental impact assessment (EIA) has been prepared as a part of the Feasibility Study for the project. The results of the hard copy of the environmental assessment were presented in second volume of the Feasibility Study prepared by “Giprokoks”, the State Institute for Coke Plants’ Engineering, of the Ministry of Industrial Policy of Ukraine. It was prepared in 2004 and

marked as ПЗ-96424 (The document in Russian was reviewed onsite). The project will not have negative transboundary environmental impacts. CDQ would significantly improve sanitation work environment not only at the Project Company but also at the neighboring territories of the city of Alchevsk. Because of the project activity such substances as phenol, ammonia, sulfuric and cyanic compounds, hydrocarbons etc would not be discharged as in case of wet quenched coke treatment. Besides the CDQ would save fuel alternatively needed to be burnt for the steam production at the Plant. This would also lead to decrease of emissions into atmosphere.

Identified area of concern as to Environmental Impacts, project participants response and BV Certification conclusion is described in Appendix A Table 5 (refer to CAR7).

3.6 Comments by Local Stakeholders

Public Consultation and Disclosure process is prescribed as the Ukrainian project planning and permitting procedures as set out in the Ukrainian EIA implementation regulation (State Construction Standard ДБН А.2.2-1-20035). EIA denoted above is to include the rationale of the proposed project and assess the environmental effects on the natural, social and built environment. It should also describe possible alternatives, establish the environmental baseline, develop mitigation measures to minimize environmental effects, and ensure the project is compliant with environmental, sanitary and other relevant legislation. According to the national Ukrainian regulations before the project implementation the related information about the project as well as its intentions had to be made publicly available to invite public comments from the relevant stakeholders. The public was invited for comments through a number of announcements by means of local newspapers, Plant's website, local radio and television. Dedicated telephone line was also established for public consultation of the project.
The information on stakeholder's comments is given as part of the Feasibility Study prepared according to the Ukrainian legislation.
The Mayor of the city of Alchevsk has signed a letter supporting the realisation of the proposed JI project. The letter was addressed to all relevant authorities.
Local stakeholder consultation conference call to discuss stakeholder concerns on the proposed Joint Implementation (JI) project – "Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine" was held at time on 17/06/2009 at Alchevskkoks, Alchevsk, Ukraine. The Head of Alchevsk city Environmental inspection, Alchevskkoks Deputy Technical Director and Bureau Veritas Lead Verifier took part.

The stakeholders viewed “Installation of a new waste heat recovery system in Alchevsk Coke Plant” project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development.

No areas of concern as to Comments by Local Stakeholders are identified.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

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

Bureau Veritas Certification published the project documents on its website (http://www.bureauveritas.com/wps/wcm/connect/bv_com/group/home/about-us/our-business/certification/our_areas_of_expertise/environment_and_climate_change/) on 15/05/2009 and invited comments within 14/06/2009 by Parties, stakeholders and non-governmental organizations.

No comments from third parties have been received.

5 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” Project in Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

Project participant/s used the latest tool for demonstration of the additionality, as well as developed own JI specific approach. In line with this tool and approach, the PDD provides analysis technological and other barriers to determine that the project activity itself is not the baseline scenario.

By the introduction at Alchevsk Coke Plant of captive co-generation with waste heat recovery technology by using Coke Dry Quenching system — instead of conventional Coke Wet Quenching system, installation of highly-efficient boiler firing coke oven gas and blast furnace gas and new steam turbine, and due to enhanced coke quality the reduced coke input per unit of pig iron production at the blast furnace at neighboring Alchevsk Iron and Steel Works, the project is likely to result in reductions of GHG emissions. An analysis of the technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (version 7) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

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

6 REFERENCES

Category 1 Documents:
Documents provided by Type the name of the company that relate directly to the GHG components of the project.

/1/ PDD “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” version 2 of 22.04.2009

/2/ PDD “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” version 3 of 28/08/2009

/3/ PDD “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” version 4 of 24.09.2009

/4/ PDD “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” version 5 of 14.10.2009

/5/ PDD “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” version 6 of 16.11.2009

/6/ PDD “Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine” version 7 of 22.12.2009

/7/ Letter of endorsement from the Ukrainian government of 09.11.2006

/8/ LLC “Alchevskkoks”. Technical renovation. Feasibility study. Assessment of Environmental Impact ПЗ-96424.

Category 2 Documents:

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

/1/ Letter of GIPROKOKS to general director (V.V.Kryvonos) of OJSC "Alchevskkoks" dated 03.02.2009 # 05-3.

/2/ Letter of SOCIATE GENERALE Corporate and Investment Banking to general director (V.V.Kryvonos) of OJSC "Alchevskkoks" dated 25.02.2008.

/3/ Act of State acceptance committe of the acceptance to the operation finished constructional object dated 11.03.2008, 1 Krasnyh partyzan. Installation of Coke Dry Quenching (CDQ) with the quenching chamber # 1,2,3 with internal premises, the boiler shop premise,the premise of subsidiary trunk, the premise of the dust precipitator station, the reverse osmosis plant, the premise of the air-handling unit of the Coke Wet Quenching boiler, the premise of the coke dust-removing plant with the air-handling unit, gallery К-3Р with internal premises, the gallery К-4Р, the premise of overloading unit № 2к, interdepartment networks (electric cable, communication cable), ways of the coke-transporting car with improvement of territory and with underground networks of the coke battery complex #10-біс (the first stage), the second, third, fourth start-up facilities after technical reequipment of coke batteries ## 11-12.

/4/ Act of State acceptance committe of the acceptance to the operation finished constructional object dated 15.03.2007, 1 Krasnyh partyzan. The air-handling unit БВК with the unit of the bag filter ФРІР 2х1000, the collector and the aircompressor after technical Act of State acceptance committe of the acceptance to the operation finished constructional object dated 15.03.2007, 1 Krasnyh partyzan. Complex of the coke battery #10-біс (the first stage) is the first starting complex that consists: the coke battery #10-біс with prolonged servicing platforms (block "А" and "Б"), the inter-battery platform, the intermediate platform #4 "253", the premise of КВП blocks "А" and "Б" "248", the premise of footlight men "243", the coke footlight with strain stations "245", the intermediate platform of the coke battery # № 9-біс "249", the last platform apart from УСТК "256", equipment completed of smoke-stacks of blocks "А" and "Б", communicative tunnel with the household-domestic water pump "241", ТЗВМ ways with the cable tray, the coke car way, machines (МОВБ ДМ #3) after technical reequipment of coke batteries ##11-12.reequipment of coke batteries ## 11-12.

/5/ Act of Operational committee of the readiness-state of the finished constructional object dated 07.12.2007. OJSC "Alchevskkoks" 1 Krasnyh partyzan, Alchevsk, Luganska region. The coke battery complex #10-біс, 1 stage 3 start-up facility (ПЗ-96424-б).

/6/ Act of Operational committee of the readiness-state of the finished constructional object dated 07.12.2007. ВАТ "Alchevskkoks" 1 Krasnyh partyzan, Alchevsk, Luganska region. The coke battery complex #10-біс, 1 stage 4 start-up facility (ПЗ-96424-г).

/7/ Act of Operational committee of the readiness-state of the finished constructional object dated 07.12.2007. "Alchevskkoks" 1 Krasnyh partyzan, Alchevsk, Luganska region. The coke battery complex #10-біс, 1 stage 2 start-up facility (ПЗ-96424-б).

/8/ Opinion of state expertise dated 23.08.2005

/9/ Newspaper "Za metall" of the working staff of OJSC "Alchevsk metallurgical works" #40 dated 06.10.2005. Article "October. Qualification, responsibility, quality".

/10/ The newspaper "Nedelia" #11 dated 1.04.2009. pg. 4 the article "Management of "OJSC "Alchevskkoks" has implemented quality, occupational health and safety, and environmental policy".

/11/ Advertisement newspaper dated 12-18. 05.2005. Declaration about ecological consequences of activity.

/12/ General layout. OJSC "Alchevskkoks". Technical reequipment of coke batteries #11-12, the coke battery complex #10-біс, reg. # 1282804-ГП

/13/ General layout. Technical reequipment of "Komunarsk Coke Plant", complex of coke batteries #9-10, complex of the coke battery #9-біс registration #1131518-ГП

/14/ USSR government standard "COKE sieve analysis of size 20 mm and more ГОСТ 5954.1-91. (ИСО 728-81)."

/15/ Government standard of Ukraine, Intergovernmental standard "Coke with the size of pieces of coke of 20 mm and more. Determination of the mechanical strength ДСТУ 2206-93(ГОСТ 5953-93 (ISO 556:1980)"

/16/ Laureate diploma in the nomination of the products of technical and production purposes is for the best products "Blast-furnace coke from the blend compaction".

/17/ Contract #829/16-623/389ю dated 29.01.2005 with OJSC "Ukrenergochormet" for technical reeqiupment of the coke battery #11-12 (complex of the coke battery #10-біс). Expansion of the boiler shop #2 with installing of the boiler E-75-3,9/440ГМ, reconstruction of chemical water purification and installing of the reverse osmosis. Working documentation.

/18/ Contract #900/16-53/563ю dated 22.02.2007 with OJSC "Ukrenergochormet" for the reconstruction of boiler E-75 with transfering to the the burning of blast furnace gas. Working project.

/19/ Contract #957/16-62/642ю dated 08.04.2008 with OJSC "Ukrenergochormet" for correction of the working project of expansion of the boiler shop #2.

/20/ Contract #617/22-430-ю dated 05.04.2004 with External economic enterprise "Azovimpex for development of the feasibility study of the project and working documentation of the technical reequipment of the coke battery #11-12 (complex of the coke battery #10-біс)".

/21/ Annex to the attestation certificate dated 19.07.07 #№06544-2-4-104ВЛ Attestation scope ВТК OJSC "Alchevskkoks" on measurements inside and outside of the scope of state metrological supervision (3 sheets).

/22/ Blast-furnaces. Standarts of coke consumption. Guidance document. Ministry of black metallurgy of USSR. Moscow, 1987.

/23/ Additional agreement #2 to the contract № 969/16-69/694ю dated 11.06.2008. Kharkiv, 15.05.2009 "On the installation of turbogenerator 9,13 МВт SIEMENS. Working project"

/24/ Journal of operating practices УСТК (page 17.06.2009)

/25/ Report "Basic consumptive properties of production (products, works, services)". Registration #03-04-B-Lugansk, Form У-06.

/26/

/27/ OJSC "Alchevskcoke" technical reequipment of the coke battery #11-12 (the complex of coke battery #10-bis) Feasibility study. Environment impact assessment (Correction) ПЗ-97326а.

/28/ OJSC "Alchevskcoke" Technical reequipment. Feasibility study. Environment impact assessment ПЗ-96424.

/29/ OJSC "Alchevskcoke". Technical reequipment of the coke battery #11-12 (the complex of coke battery #10-bis). Objects of power management. Project "Expansion of the boiler shop #2. Reconstruction of the boiler E-75 with transfering to burning of blast-furnace gas", registration #014031-ПЗ.

/30/ Passport of measuring instrument №06.875. Metran 100 ДД 1442, # 279563 dated 12.10.2007

/31/ Passport of measuring instrument №06.884. Metran 100 ДД 1160, # 272545 dated 12.10.2007

/32/ Passport of measuring instrument №06.1002 ТХАУ-0198, #0706100 dated 10.10.2007

/33/ Passport of measuring instrument СПГК 5070.000.00 ПС Pressure indicator Metran 100 #279563 dated 06.04.2006

/34/ Quality, occupational health and safety, and environmental policy OJSC "Alchevskkoks" dated 21.11.2008

/35/ Protocol #63 dated 25.09.2007 of qualification commission meeting

/36/ Protocol of qualification commission meeting dated 19.09.2007

/37/ Verification (calibration) protocol of the device Metran 100 ДД №279563

/38/ Verification (calibration) protocol of the device Metran 100 ДІ №272545

/39/ Verification (calibration) protocol to the device ТХАУ-0198 №0706100

/40/ Working procedure "Occupational training in OJSC "Alchevskkoks" РП 6.2.2.02-04 ОПК dated 10.03.2009

/41/ Working procedure "Management of measuring equipment means" РП 7.6.02-03 КИП dated 06.03.2009

/42/ Quality Manual. Version 3. Alchevsk 02.02.2009

/43/ Award certificate of OJSC "Alchevsk coke plant" of "Regional level winner diploma of Ukrainian national competition of quality production (products, works, services) "100 the best products of Ukraine-2005" in the nomination of products of technical and production purposes for the best production of the blast-furnace coke from blend compaction.

/44/ Award certificate of OJSC "Alchevsk coke plant" of "Regional level winner diploma of Ukrainian national competition of quality production (products, works, services) "100 the best products of Ukraine-2008" in the nomination of products of technical and production purposes for the best production of the blast-furnace coke from blend compaction.

/45/ Internship acknowledgement letter dated 14.12.2007 #13/1/08/3180-19789

/46/ Internship acknowledgement letter dated 14.12.2007 #13/1/08/3181-13790

/47/ Article "Experience in the production of blast-furnace improved quality coke from Ukrainian coal and its testing in the blast-furnace with the use of hobbles". I.V. Filatov and others, 2006

/48/ Article " Efficacy of the use of blast-furnace improved quality coke (КД-1У) CJSC "Makiyivka steel works", I.V. Zolotarev and others, 2007

/49/ Photo "Boiler КСТК 35/40 - 100, reg. № 7819", inv. № 3268."

/50/ Photo "Boiler КСТК 35/40-100 reg. № 7820", inv. № 3269.

/51/ Photo "Boiler КСТК 35/40-100 reg. № 7821", inv. № 3270.

/52/ Photo - 1 remote control

/53/ Photo - 2 remote control

/54/ Photo - 3 remote control

/55/ Photo, sensor of Metran 100 - ДД № 313378

/56/ Photo, sensor of Metran 100 - ДМ № 272554

/57/ Photo, manometer ДМ 05100

/58/ Photo of building site.

/59/ Photo - 1 control parameters monitor.

/60/ Photo - 2 control parameters monitor.

/61/ Photo - 3 control parameters monitor.

/62/ Photo - 4 control parameters monitor.

Persons interviewed:

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

/1/ M.A. Soloviov, deputy technical director

/2/ I.M. Skorykh, chief power supply

/3/ F.V. Vatulin, chief metrologist

/4/ I.S. Ulianitskiy, deputy director on environment

/5/ O.B. Lozinskiy, quality manager

/6/ G.I. Stekhina, HR manager

/7/ V.A. Zhuchenko, environment protection manager

/8/ A.D. Mokrytskiy, coke shop #3 deputy manager

/9/ Yu.A. Bitsman, operator at the control post

/10/ V.I. Piankov, quality inspection manager

/11/ I.P. Sakhnesha, heat and power shop manager

/12/ N.P. Kusayko, head of the environmental inspection of the Alchevsk department

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ANNEX A: JI PROJECT DETERMINATION PROTOCOL

Table 1 Mandatory Requirements for Joint Implementation (JI) Projects

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
1. The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	Letters of approval will be issued by the Parties involved upon submission of Determination Report with CARs and CLs clarified except CAR1. Remaining CAR1 will be closed after the issuance of the LoA by the Parties involved.	Table 2, Section A.5
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur	Kyoto Protocol Article 6.1 (b)	OK	Table 2, Section B
3. The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	Article 5 requires "…Annex I Parties to having in place, no later than 2007, national systems for the estimation of greenhouse gas emissions by sources and removals by	--

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		sinks." Article 7 requires "… Annex I Parties to submit annual greenhouse gas inventories, as well as national communications, at regular intervals, both including supplementary information to demonstrate compliance with the Protocol". Japan has submitted its Initial Report on August 30th, 2006 (updated on June 13th, 2007).	
4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3	Kyoto Protocol Article 6.1 (d)	OK	-
5. Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects	Marrakech Accords, JI Modalities, §20 \	All countries have designated their Focal Points. National guidelines and procedures for approving JI projects have been published. Contact data in Ukraine:. National Environmental Investment Agency of Ukraine 35, Urytskogo str. 03035 Kiev Ukraine Phone: +380 44 594 9111 Fax: +380 44 594 9115	-

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		Email: info.neia@gmail.com; lupaltsov@ukr.net Ukrainian National guidelines and procedures for the approval of JI projects are available at http://ji.unfccc.int/JI_Parties/PartiesList.html#Ukraine http://ji.unfccc.int/UserManagement/FileStorage/X52UFID75AIJ8E4T1R8MLQQJBAYCC5 Contact data in Japan: **The Liaison Committee for the Utilization of the Kyoto Mechanisms** Japan Ministry of Foreign Affairs Climate Change Division, International Cooperation Bureau 2-2-1, Kasumigaseki, Chiyoda-ku 100-8919 Tokyo Phone: +81 3 5501 8245 Fax: +81 3 5501 8244 Email: kyomecha@mofa.go.jp	

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		Cabinet Secretariat Assistant Chief Cabinet Secretary 1-6-1 Nagata-cho, Chiyoda-ku 100-8968 Tokyo Phone: +81 3 3581 3688 Fax: +81 3 3581 5601 Email: kyomecha@cas.go.jp National guidelines and procedures for the approval of JI projects are available at http://www.kantei.go.jp/jp/singi/ondanka/2007/0221sisin.html	
6. The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities, §21(a)/24	The Ukraine is a Party (Annex I Party) to the Kyoto Protocol and has ratified the Kyoto Protocol at April 12th, 2004.	-
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts	Marrakech Accords, JI Modalities, §21(b)/24	In the Initial Report submitted by Ukraine on 29. Dec. 2006 the AAUs are quantified with: 925 362 174.39 (x 5) = 4 626 810 872 tCO2-e	-
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities,	The designed system of the national registry has been described in the Initial Report	-

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
	§21(d)/24	mentioned above.	
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Marrakech Accords, JI Modalities, §31	OK	-
10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	Marrakech Accords, JI Modalities, §32	The PDD has been made public available via Bureau Veritas Certification website at http://www.bureauveritas.com/wps/wcm/connect/bv_com/group/home/about-us/our-business/certification/our_areas_of_expertise/environment_and_climate_change/	-
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out	Marrakech Accords, JI Modalities, §33(d)	OK	Table 2, Section F
12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account	Marrakech Accords,	OK	Table 2, Section B

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
relevant national and/or sectoral policies and circumstances	JI Modalities, Appendix B		
14. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
15. The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	OK	Table 2, Section D
16. A project participant may be: (a) A Party involved in the JI project; or (b) A legal entity authorized by a Party involved to participate in the JI project.	JISC "Modalities of communication of Project Participants with the JISC" Version 01, Clause A.3	Refer to CAR1.	Table 2, Section A

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
A. General Description of the project					
A.1 Title of the project					
A.1.1. Is the title of the project presented?		DR	Installation of a new waste heat recovery system in Alchevsk Coke Plant, Ukraine.	OK	OK
A.1.2. Is the current version number of the document presented?		DR	Version 7	OK	OK
A.1.3. Is the date when the document was completed presented?		DR	Illegal Date. Please correct.	CL1	OK
A.2. Description of the project					
A.2.1. Is the purpose of the project included?		DR I	The project activity is to reduce greenhouse gas (GHG) emissions through the installation of captive cogeneration with waste heat recovery technology called Coke Dry Quenching (CDQ) system with 9.13 MW captive generator at Alchevsk Coke Plant (Alchevskkoks). The 75 t/h highly-efficient boiler firing coke oven gas (COG) and blast furnace gas (BFG) and new steam turbine is also going to be installed at Alchevskkoks as a part of establishing industrial synthesis in energy source with its neighbouring Steel Plant (Alchevsk Iron and Steel Works).	OK	OK
A.2.2. Is it explained how the proposed project reduces greenhouse gas emissions?		DR	In summary, the project activity comprises three components of GHG emissions	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			reductions as follows: 1. GHG emissions reductions due to dismissing natural gas that would have burnt at the baseline boilers by installing CDQ waste heat recovery technology together with high-efficient boiler. 2. GHG emissions reductions due to replacing grid electricity by installing the power generator with CDQ waste heat recovery technology together with high-efficient boiler. 3. GHG emissions reductions due to reducing coke input per unit of pig iron production at the blast furnace by installing CDQ waste heat recovery technology.		
A.3. Project participants					
A.3.1. Are project participants and Party(ies) involved in the project listed?		DR	Project participants and parties involved are listed in the Table in section A.3. of PDD version 7.	OK	OK
A.3.2. Are project participants authorized by a Party involved?		DR	See CAR1. Conclusion is pending until Letters of Approval authorizing the project participants by Parties involved will be issued.		
A.3.3. The data of the project participants are presented in tabular format?		DR	Project participants and parties involved are listed in the Table in section A.3. of PDD version 7.	OK	OK
A.3.4. Is contact information provided in annex 1 of the PDD?		DR	Yes, the information is provided in Annex 1	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			of the PDD version 7.		
A.3.5. Is it indicated, if it is the case, if the Party involved is a host Party?		DR	Yes, Ukraine as a party involved is indicated as a host party.	OK	OK
A.4. Technical description of the project					
A.4.1. Location of the project activity					
A.4.1.1. Host Party(ies)		DR	Ukraine	OK	OK
A.4.1.2. Region/State/Province etc.		DR	Luhanvsk Oblast	OK	OK
A.4.1.3. City/Town/Community etc.		DR	Alchevsk	OK	OK
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)		DR	See PDD A.4.1.4.	OK	OK
A.4.2. Technology(ies) to be employed, or measures, operations or actions to be implemented by the project					
A.4.2.1. Are all technical data and the implementation schedule included into project description?		DR	Yes, see PDD, Table in A.4.2..	OK	OK
A.4.2.2. Does the project design engineering reflect current good practices?		DR	The project design engineering reflects the brief explanation of the technology to be employed and reflect current good practices reflects current good practices.	OK	OK
A.4.2.3. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?		DR	The technology is not commonly used in Ukraine. By installing CDQ system, less heat is taken up by water evaporation since less amount of water is contained in coke. Also, coke is able to stay longer in the furnace due to increased hardness. It has been also empirically	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			proved that this improvement of coke quality results in reducing coke consumption per unit of pig iron production at the blast furnace. As a result, less amount of coke is burnt through CDQ installation, which leads to reduction of CO2 emissions.		
A.4.2.4. Is the project technology likely to be substituted by other or more efficient technologies within the project period?		DR	There is no clear indication whether the project is not likely to be substituted by other or more efficient technology within the project period. Please clarify.	CL2	OK
A.4.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?		DR	The installation of the CDQ technology under the project activity is "first-of its-kind in Ukraine because such state-of-the-art CDQ technology has been never installed. Therefore, it is foreseen that the project activity faces various difficulties due to the fact that it is the first case in the country, ranging from the non-availability of domestic technology and non-existence of trained personnel. See PDD D.3. Maintenance, and Training programs.	OK	OK
A.4.2.6. Does the project make provisions for meeting training and maintenance needs?		DR	See PDD D.3. Maintenance, and Training programs.	OK	OK
A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project,					

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
taking into account national and/or sectoral policies and circumstances					
A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)		DR	Yes. See PDD A.4.3.	OK	OK
A.4.3.2. Is it provided the estimation of emission reductions over the crediting period?		DR	The estimation of emission reductions over the crediting period is provided in the Table in the Section A.4.3.1. of the PDD version 7.	OK	OK
A.4.3.3. Is it provided the estimated annual reduction for the chosen credit period in tCO_2e?		DR	The estimation of emission reductions over the crediting period is provided in the Table in the Section A.4.3.1. of the PDD version 7.	OK	OK
A.4.3.4. Are the data from questions A.4.3.2 to A.4.3.4 above presented in tabular format?		DR	Yes. See PDD A.4.3.1.	OK	OK
A.5. Project approval by the Parties involved					
A.5.1. Are written project approvals by the Parties involved attached?		DR	There is no evidence of written project approvals by the Parties involved.	CAR1	
B. Baseline					
B.1. Description and justification of the baseline chosen					
B.1.1. Is the chosen baseline described?		DR	Please provide clear baseline description, especially for heat generation.	CL3	OK
B.1.2. Is it justified the choice of the applicable baseline for the project category?		DR	The choice of the applicable baseline scenario is justified with the help of describing existing alternatives and proving the barriers which do not prevent the chosen baseline scenario only.	OK	OK
B.1.3. Is it described how the methodology is applied in the context of the project?		DR	Yes, methodology ACM00012 Version 03.1 is applied for the part 1 and of the project,	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			and for the part 3 own baseline and monitoring methodology was developed.		
B.1.4. Are the basic assumptions of the baseline methodology in the context of the project activity presented (See Annex 2)?		DR	Yes, see PDD Annex 2	OK	OK
B.1.5. Is all literature and sources clearly referenced?		DR	Please provide full reference to literature sources ([2] on the page13, [b] on the page 42).	CL4	OK
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project					
B.2.1. Is the proposed project activity additional?		DR	a) Under Step1 there is no description why and how "Tool for the demonstration and assessment of additionality (version 05.2)" it is applicable. b) There is no reference or justification, nor description for a JI specific approach chosen and its applicability. c) Please clarify what means Step 1 after Step 2 on page 15? d) Please provide AIE with the copies of letters from a bank and from Giprokoks. e) Sub-steps 4a and 4b do no have any description.	CAR2	OK
B.2.2. Is the baseline scenario described?		DR	See B.1.1.	OK	OK
B.2.3. Is the project scenario described?		DR	The project scenario is clearly described and compared to the baseline one with the help of the "Tool for the demonstration and	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			assessment of additionality (version 05.2)".		
B.2.4. Is an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario included?		DR	See PDD B.1.	OK	OK
B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario?		DR	See PDD B.1. Table.	OK	OK
B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized?		DR	National policies and circumstances relevant to the baseline of the proposed project are not summarized.	CAR3	OK
B.3. Description of how the definition of the project boundary is applied to the project activity					
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?		DR	See PDD B.3.	OK	OK
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline					
B.4.1. Is the date of the baseline setting presented (in DD/MM/YYYY)?		DR	YES	OK	OK
B.4.2. Is the contact information provided?		DR	YES. See PDD B.4.	OK	OK
B.4.3. Is the person/entity also a project participant listed in Annex 1 of PDD?		DR	YES. See PDD Annex 1.	OK	OK
C. Duration of the small-scale project and crediting period					
C.1. Starting date of the project					
C.1.1. Is the project's starting date clearly defined?		DR	YES. See PDD C.1.	OK	OK
C.2. Expected operational lifetime of the project					

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
C.2.1. Is the project's operational lifetime clearly defined in years and months?		DR	The project's operational lifetime is not defined in months.	CAR4	OK
C.3. Length of the crediting period					
C.3.1. Is the length of the crediting period specified in years and months?		DR	The length of the crediting period is not specified in months.	CAR5	OK
D. Monitoring Plan					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?		DR	Approved consolidated monitoring methodology ACM0012 "Consolidated monitoring methodology for GHG emission reductions for waste gas or waste heat or waste pressure based energy system" is used for parts 1 and 2, and own methodology for the part 3. The monitoring plan is appropriate.	OK	OK
D.1.2. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario.		DR	Not applicable as there is no project emissions for the project activity.	OK	OK
D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived.		DR	Refer to D.1.2.	-	-
D.1.4. Description of the formulae used to estimate project emissions (for each gas, source etc,; emissions in units of CO2 equivalent).		DR	Refer to D.1.2. See PDD section D.1.1.2.	-	-
D.1.5. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and archived.		DR	Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary are presented in the Table D.1.1.3. in the PDD version 7.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
D.1.6. Description of the formulae used to estimate baseline emissions (for each gas, source etc,; emissions in units of CO2 equivalent).		DR	Formulae correspond to the methodology ACM0012. Formulae for the f_{cap} calculation (method 2) on the page 26 and 28 are only referenced, whereas for the method 3 are given fully. Please clarify.	CL5	OK
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)		DR	Option 2 is not chosen for the project activity.	OK	OK
D.1.8. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived.		DR	Refer to item D.1.7.	-	-
D.1.9. Description of the formulae used to calculate emission reductions from the project (for each gas, source etc,; emissions/emission reductions in units of CO2 equivalent).		DR	Refer to item D.1.7.	-	-
D.1.10. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project.		DR	No leakages are applicable under methodology ACM0012.	OK	OK
D.1.11. Description of the formulae used to estimate leakage (for each gas, source etc,; emissions in units of CO2 equivalent).		DR	Refer to item D.1.10.	-	-
D.1.12. Description of the formulae used to estimate emission reductions for the project (for each gas, source etc.; emissions in units of CO2 equivalent).		DR	ERy = BEy – PEy	OK	OK
D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided?		DR, I	The information on the collection and archiving of information on the environmental impacts of the project is not provided. During onsite visit documents	CL6	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			requiring environmental impact reporting were observed. Please state whether section D.1.5. is left blank on purpose.		
D.1.14. Is reference to the relevant host Party regulation(s) provided?		DR, I	Refer to item D.1.12.	-	-
D.1.15. If not applicable, is it stated so?		DR, I	Refer to item D.1.12.	-	-
D.2. Qualitative control (QC) and quality assurance (QA) procedures undertaken for data monitored					
D.2.1. Are there quality control and quality assurance procedures to be used in the monitoring of the measured data established?		DR	See PDD D.2. QC and QA manual and procedures were checked onsite and found adequate.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
D.3. Please describe of the operational and management structure that the project operator will apply in implementing the monitoring plan					
D.3.1. Is it described briefly the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project		DR	See PDD D.3.	OK	OK
D.4. Name of person(s)/entity(ies) establishing the monitoring plan					
D.4.1. Is the contact information provided?		DR	See PDD D.4.	OK	OK
D.4.2. Is the person/entity also a project participant listed in Annex 1 of PDD?		DR	See PDD Annex 1.	OK	OK
E. Estimation of greenhouse gases emission reductions					
E.1.Estimated project emissions					
E.1.1. Are described the formulae used to estimate anthropogenic emissions by source of GHGs due the project?		DR	See PDD E.1. As described in the section D.1.1.2, no project emission is considered in the project activity.	OK	OK
E.1.2. Is there a description of calculation of GHG project emissions in accordance with the formula specified in for the applicable project category?		DR	As described in the section D.1.1.2, no project emission is considered in the project activity.	OK	OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?		DR	See PDD Annex 2.	OK	OK
E.2.Estimated leakage					
E.2.1. Are described the formulae used to estimate		DR	As described in the section D.1.1.2, no project emission is considered in the project	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
leakage due to the project activity where required?			activity.		
E.2.2. Is there a description of calculation of leakage in accordance with the formula specified in for the applicable project category?		DR	Refer to item E.2.1.	-	-
E.2.3. Have conservative assumptions been used to calculate leakage?		DR	Refer to item E.2.1.	-	
E.3.The sum of E.1 and E.2.					
E.3.1. Does the sum of E.1. and E.2. represent the small-scale project activity emissions?		DR	Refer to item E.2.1.		
E.4.Estimated baseline emissions					
E.4.1. Are described the formulae used to estimate the anthropogenic emissions by source of GHGs in the baseline using the baseline methodology for the applicable project category?		DR	The formulae used to estimate baseline emissions is described in the section D.1.1.4 of the PDD version 7. The calculation of GHG project emissions is presented in the Table in the section E.4 of the PDD version 7.	OK	OK
E.4.2. Is there a description of calculation of GHG baseline emissions in accordance with the formula specified in for the applicable project category?		DR	There are no evidences of a description of calculation of GHG baseline emissions in accordance with the formula specified in for the applicable project category	CAR6	OK
E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?		DR	Refer to E.4.2.	-	
E.5.Difference between E.4. and E.3. representing the emission reductions of the project					
E.5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period?		DR	Difference between E.4. and E.3. could not be 0. Please clarify.	CL7	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
E.6. Table providing values obtained when applying formulae above					
E.6.1. Is there a table providing values of total CO_2 abated?		DR	See PDD E.6.	OK	OK
F. Environmental Impacts					
F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party					
F.1.1. Has an analysis of the environmental impacts of the project been sufficiently described?		DR, I	See PDD F.1.	OK	OK
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is and EIA approved?		DR, I	See PDD F.1. Approved EIA was seen onsite.	OK	OK
F.1.3. Are the requirements of the National Focal Point being met?		DR, I	The National Focal Point issued letter of endorsement. Letter of approval need to be received (see CAR1).	-	-
F.1.4. Will the project create any adverse environmental effects?		DR, I	The project does not create any adverse environmental effects.	OK	OK
F.1.5. Are transboundary environmental impacts considered in the analysis?		DR, I	Transboundary environmental impacts are not addressed.	CAR7	OK
F.1.6. Have identified environmental impacts been addressed in the project design?		DR, I	See PDD F.2.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
***G.* Stakeholders' comments**					
G.1. Information on stakeholders' comments on the project, as appropriate					
G.1.1. Is there a list of stakeholders from whom comments on the project have been received?		DR	See PDD G.1.	OK	OK
G.1.2. The nature of comments is provided?		DR	Positive comments were received. During onsite interview the local sanitary service officer supported positive environmental effect of the project.	OK	OK
G.1.3. Has due account been taken of any stakeholder comments received?		DR	Not negative comments to be treated.	OK	OK

Table 3a Baseline and Monitoring Methodologies: ACM00012

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1. 1. Applicability					
1.1.1. Does the project utilize waste gas and/or waste heat as an energy source to generate electricity in an industrial facility?	2	DR I	Two parts of the project activity will be monitored according ACM00012: 1. GHG emissions reductions due to dismissing natural gas that would have burnt at the baseline boilers by installing CDQ waste heat recovery technology together with high-efficient boiler. 2. GHG emissions reductions due to replacing grid electricity by installing the power generator with CDQ waste heat recovery technology together with high-efficient boiler.	OK	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
1.1.2. Does the energy generated in the project used within the industrial facility or may be exported to grid?	2	DR I	The energy generated in the project will be exported to the national grid.	OK	OK
1. 2. Project boundary					
1.2.1. Did the project participant include the industrial facility where waste gas/heat/pressure is generated?	2	DR	Refer to B.3.	OK	OK
1.2.2. Did the project participant include the equipment providing auxiliary heat to the waste heat recovery process?	2	DR	Refer to B.3.	OK	OK
1.2.3. Did the project participant include the facility where the process heat in element process/steam/electricity is used and/or grid where electricity is exported?	2	DR	Refer to B.3.	OK	OK
1.2.4. Does the spatial extent of the project boundary include the project site and all power plants connected physically to the electricity system that the project power plant is connected to?	2	DR	Refer to B.3.	OK	OK
1.3. Identification of alternative baseline scenarios					
1.3.1. Do the baseline scenario alternatives include all possible options that provide or produce electricity for in-house consumption and/or sale to grid and/or other consumers?	2	DR	Yes all options were analysed, see PDD section B.1.	OK	OK
1.4. Additionality					
1.4.1. Was the additionality of the project demonstrated and assessed using the latest version of the “Tool for demonstration and assessment of additionality”?	3	DR	Refer to item B.2. of PDD version 7.	OK	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
1.5 Project Emissions					
1.5.1. Are the project emissions determined according to the formula PEy = PEAF,y + PEEL,y?	2	DR	Refer to D.1.1.2 and E.1	OK	OK
1.5.2. Are the project emissions from on-site consumption of fossil fuel by the cogeneration plant determined?	2	DR	Refer to D.1.1.2 not applicable.	OK	OK
1.6. Baseline Emissions					
1.6.1. Did the baseline emissions were determined according to the formula BE y = BEEn, y + BE flst., y?	2	DR	Refer to D.1.1.4 and E.4	OK	OK
1.6.3. Were the Emissions Factor for displaced electricity calculated as in Tool to calculate the emission factor for an electricity system (Version 01)?	2	DR	Refer to Annex 2.	OK	OK
1.7. Leakage					
1.7.1. Are the leakage emissions determined?	2	DR	Not applicable.	OK	OK
1.8. Emission Reduction					
1.8.1. Are the emission reductions determined according to the formula ERy = BEy - PEy?	2	DR	Yes, refer to D.1.4. and E.5.	OK	OK
1.8.2. Were all values chosen in a conservative manner and was the choice justified?	2	DR I	Refer to E.5.	OK	OK
2. Monitoring Methodology					
2.1. Applicability					
2.1.1. Does the project utilize waste gas and/or waste heat as an energy source to generate electricity in an industrial facility?	2	DR I	Two parts of the project activity will be monitored according ACM00012: 1. GHG emissions reductions due to dismissing natural gas that would have burnt at the baseline	OK	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
			boilers by installing CDQ waste heat recovery technology together with high-efficient boiler. 2. GHG emissions reductions due to replacing grid electricity by installing the power generator with CDQ waste heat recovery technology together with high-efficient boiler.		
2.1.2. 1.1.2. Does the energy generated in the project used within the industrial facility or may be exported to grid?	2	DR I	The energy generated in the project will be exported to the national grid.	OK	OK
2.2. Monitoring Methodology					
2.2.1. Does the methodology require archiving of data collected electronically and be kept at least for 2 years after the end of the last crediting period?	2	DR	Yes, methodology requires archiving of data collected electronically and be kept at least for 2 years after the end of the last crediting period.	OK	OK
2.2.2. Does the methodology require monitoring data for quantity of fossil fuels used as supplementary fuel being monitored?	2	DR	None of the fossil fuels is used in the proposed project.	OK	OK
2.2.3. Does the methodology require monitoring of data of Net calorific value of fossil fuel?	2	DR	None of the fossil fuels is used in the proposed project.	OK	OK
2.2.4 Does project require monitoring of measuring volume of waste gas before the project?	2	DR	No.	OK	OK
2.2.5. Does the methodology require monitoring of data needed to calculate the emission factor of fossil fuel?	2	DR	None of the fossil fuels is used in the proposed project.	OK	OK
2.2.6. Does the methodology require monitoring of electricity generated?	2	DR	Refer to item D.1.3. of PDD	OK	OK
2.2.7. Does the methodology require monitoring of data needed to calculate the emission factor of captive power generation?	2	DR	No	OK	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
2.3. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.3.1 Did all measurements use calibrated measurement equipment that is maintained regularly and checked for its functioning?	2	DR	Refer to item D.2. of PDD version 7.	OK	OK

Table 3b Baseline and Monitoring Methodologies: Own format

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1. 1. General					
1.1.1. Does the baseline cover emissions from all gases, sectors and source categories listed in Annex A, and anthropogenic removals by sinks, within the project boundary?		DR I	The third part of the project activity will be monitored according developed methodology: 3. GHG emissions reductions due to reducing coke input per unit of pig iron production at the blast furnace by installing CDQ waste heat recovery technology. Section B.3 of the PDD establishes project boundaries. Only CO2 emissions are taken into account b y the project.	OK	OK
1.1.2. Is baseline established on a project-specific basis and/or using a multi-project emission factor?		DR I	Baseline is established on a project-specific basis.	OK	OK
1.1.3 Is baseline established in a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors?		DR I	The baseline is established in a transparent manner. Choice of approach was described, assumptions, methodologies, parameters, data sources are clearly indicated (Sections B.1. and B.2. and D1.1.1.4. of the PDD). Reference literature was checked onsite.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1.1.4 Is baseline established 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?		DR	Applicable local laws and regulations are taken into account. Economic situation in the project sector is taken into account (Sections B.1. and B.2. of the PDD)	OK	OK
1.1.5 Is baseline established in such a way that ERUs cannot be earned for decreases in activity levels outside the project activity or due to *force majeure?*		DR I	Baseline does not envisage earning ERUs for activity level decrease outside the project or due to *force majeure.*	OK	OK
1.1.6 Is baseline established taking account of uncertainties and using conservative assumptions?		DR I	Uncertainties and conservative assumptions are taken into account (section D.2. and Annex 2 of the PDD)	OK	OK
1.2. Additionality					
1.2.1. Was the additionality of the project activity demonstrated and assessed?		DR	Project is additional on the basis of justification and assessment.	OK	OK
2. Monitoring Methodology					
2.1. Monitoring plan					
2.1.1. Is a monitoring plan included?		DR I	Yes, monitoring plan is included.	OK	OK
2.1.2. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimating or measuring anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases occurring within the project boundary during the crediting period?		DR I	Not applicable	OK	OK
2.1.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining the baseline of anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases within the project boundary during the		DR I	Monitoring plan provides for the collection and archiving of all relevant data necessary for determining the baseline of anthropogenic emissions by sources of greenhouse gases within the project boundary during the crediting period	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
crediting period?			(see sections D.1.1.3. and D.1.1.4. of the PDD).		
2.1.4. Does the monitoring plan provide for the identification of all potential sources of, and the collection and archiving of data on increased anthropogenic emissions by sources and/or reduced anthropogenic removals by sinks of greenhouse gases outside the project boundary that are significant and reasonably attributable to the project during the crediting period?		DR	Increase of anthropogenic emissions outside the project boundary that are significant and reasonably attributable to the project during the crediting period is not anticipated.	OK	OK
2.1.5. Does the project boundary encompass all anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the JI project?		DR	Significant anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants are not envisaged by the project. Validated onsite.	OK	OK
2.1.6. Does the monitoring plan provide for the collection and archiving of information on environmental impacts, in accordance with procedures as required by the host Party, where applicable?		DR	No adverse environmental impacts are foreseen. Validated onsite.	OK	OK
2.1.7. Does the monitoring plan provide for quality assurance and control procedures for the monitoring process?		DR	Quality assurance is planned, see section D.2. of the PDD, that was validated onsite.	OK	OK
2.1.8. Does the monitoring plan provide for procedures for the periodic calculation of the reductions of anthropogenic emissions by sources and/or enhancements of anthropogenic removals by sinks by the proposed JI project, and for leakage effects, if any?		DR I	The monitoring plan provides formulae for the periodic calculation of the reductions of anthropogenic emissions (see section D.1.1.4.). Leakage is not applicable.	OK	OK
2.1.9. Does the monitoring plan provide for documentation of all steps involved in the calculations?		DR I	Please clarify how all the steps involved in the calculations will be documented.	CL8	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
2.2. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.2.1. Did all measurements use calibrated measurement equipment that is regularly checked for its functioning?		DR I	Control of the measuring equipment is implemented and followed, that was validated onsite.	OK	OK
A. 2.2.2 Is frequency of monitoring the parameters defined?		DR I	Frequency of monitoring the parameters is defined.	OK	OK

Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1. **Legal requirements**					
1.1. Is the project activity environmentally licensed by the competent authority?		DR, I	Yes, the project is licensed by the competent authority. This was checked on-site. Project activity is permitted by:	OK	OK
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?		DR, I	Environmental permits were presented onsite.	OK	OK
1.3. Is the project in line with relevant legislation and plans in the host country?		DR, I	Yes, the project is in line with legislation of the host Party	OK	OK

Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
CL1 30/09/2009 Illegal Date. Please correct.	Table 2, A.1.3.	The PDD was completed on 20th of April 2009. The relevant corrections were made in the text of PDD Version 7.	New version and date was indicated after the PDD revision. The CL1 is closed.
CL2 There is no clear indication whether the project is not likely to be substituted by other or more efficient technology within the project period. Please clarify.	Table 2, A.4.2.4.	The CDQ technology is considered to be the most up-to-date technology with outstanding environmental benefits which can be proved by the letter from Giprokoks dated 03.02.2009. Giprokoks is recognized as the authorized institute in Ukraine who has the right to make such conclusions. For today CWQ is a prevailing technology in Ukraine. Practical experience of CWQ utilization at majority coke plants shows there is a small probability that CDQ technology at Alchevsk coke plant will be replaced by other technology, especially when there are no indications that newer technology will appear in closest future. Besides, as it is proven by Giprokoks's letter, the proposed CDQ has been implemented for the first time since independency of Ukraine (1991).	The PDD was amended with the description and diagrams. The CL2 is closed.
CL3 Please provide clear baseline description, especially for heat generation.	Table 2, B.1.1.	Please see the modified version as per attached PDD, together with schematic drawings.	The PDD was amended with the description and diagrams. The CL3 is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
CL4 Please provide with full literature sources (2 on the page13, b on the page 42).	Table 2, B.1.5.	The report "Energy Balances of OECD Countries (IEA 2007)[*]" is the literature source 2 on page 13. The following document "Ukraine – Assessment of new calculation of CEF[†]", which was verified by TÜV SÜD in 2007, is considered to be the literature source b on page 42.	Referential sources are provided. The CL4 is closed.
CL5 Formulae correspond to the methodology ACM0012. Formulae for the calculation for method 2 on the page 26 and 28 are only referenced, whereas for the method 3 are given fully. Please clarify.	Table 2, D.1.6.	As Methods 1 & 2 are not going to be applied, we omit these two options.	Explanation given in the PDD is analysed and accepted. CL5 is closed.
CL6 The information on the collection and archiving of information on the environmental impacts of the project is not provided. During onsite visit documents requiring environmental impact reporting were observed. Please state whether section D.1.5. is left blank on purpose.	D.1.13	The information on the collection and archiving of information on the environmental impacts of the project was summarized in section F.1. of the PDD "Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party". This information is additionally added to section D.1.5. of the PDD. PDD Version 6 of 16/09/2009 was amended	The question is about information collection, not EIA. Please indicate legal reporting requirements on environmental impacts of the project (if any). Amendment was checked and found adequate. CL6 is closed.

[*] http://browse.oecdbookshop.org/oecd/pdfs/browseit/6107033E.PDF
[†] http://ji.unfccc.int/UserManagement/FileStorage/46JW2KL36KM0GEMI0PHDTQF6DVI514

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
		with the indication of approach to collect data on the environmental performance according legal requirements.	
CL7 Difference between E.4. and E.3. could not be 0. Please clarify.	Table 2, E.5.1	Please see the modified section E.5. of the PDD.	Figures are corrected. CL7 is closed.
CL8 Please clarify how all the steps involved in the calculations will be documented.	Table 3b, 2.1.9.	All initial data is received and stored at the Plants. It is stored in electronic database and in paper format. All data can be checked by the determination team. Calculations are done in Excel tables and are given to AIE. All data regarding initial data and calculations will be stored at Alchevsk Coke Plant for at least 3 year after the end of the first commitment period of Kyoto protocol.	Appropriate description is added. CL8 is closed.
CAR1 There is no evidence of written project approvals by the Parties involved.	Table 2, A.5.1.	The letter of endorsement (LoE) from the Ukrainian government was issued on 9th of November 2006. According to the national regulations in Ukraine, the letter of approval (LoA) for the proposed JI project activity can be issued only after completion of determination report. The LoA from the Japanese government is expected to be issued in September 2009.	Letters of approval will be issued by the Parties involved upon submission of Determination Report with CARs and CLs clarified except CAR1. Remaining CAR1 will be closed after the issuance of the LoA by the Parties involved.
CAR2 a) Under Step1 there is no description why and how "Tool for the demonstration and	Table 2, B.2.1.	In the section B.2. of the PDD, we have stated;	The amended explanation of the additionality approach selection

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
assessment of additionality (version 05.2)" it is applicable. b) There is no reference or justification, nor description for a JI specific approach chosen and its applicability. c) Please clarify what means Step 1 after Step 2 on page 15? d) Please provide AIE with the copies of letters from a bank and from Giprokoks. e) Sub-steps 4a and 4b do no have any description.		"According to ACM0012, additionality of the project activity is to be demonstrated using the latest version of the "Tool for the demonstration and assessment of additionality Version 5.2". Please specify what exactly do you request us to explain further. Refer to the revised PDD (attached PDD P16) Refer to the revised PDD (attached PDD P16 & 18) Letters from the bank and from Giprokoks are attached. Refer to the revised PDD (attached PDD P19)	described in the PDD is accepted. Corrections requested under b), c) and e) are checked in the PDD and found sufficient. Requested documents are presented. CAR 2 is closed.
CAR3 National policies and circumstances relevant to the baseline of the proposed project are not summarized.	Table 2, B.2.6.	National legal requirements and policies regarding coke production are summarized in the document called "Decree regarding	The summary is given in the PDD. CAR3 is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
		govern sanitary rules for crude steel producing plants (#38 from 01.12.1999[*])". According to this legal text, coke quenching can be realized either by wet or dry methods. However, there are no particular legislative requirements for implementing CDQ facility at Ukrainian Coke Plants. At the same time the document mentions that coke wet quenching can be carried out only by purified water and it is prohibited to use phenol water. The list of legal texts relevant to the baseline is also stated in the feasibility study. Information can be shown to AIE upon the request.	
CAR4 The project's operational lifetime is not defined in months.	Table 2, C.2.	Expected operational lifetime of the project is 240 months (20 years). Information is corrected in the PDD.	PDD was checked. CAR4 is closed.
CAR5 The length of the crediting period is not specified in months.	Table 2, C.3.	Length of the crediting period will take 60 months (01/01/2008 to 31/12/2012). Information is corrected in the PDD.	PDD was checked. CAR5 is closed.
CAR6 There are no evidences of a description of calculation of GHG baseline emissions in accordance with the formula specified in for	Table 2, E.4.2	Please see the modified section D and section E of the PDD.	Appropriate description is added. CAR6 is closed.

[*] www.uazakon.com/big/text1148/pg2.htm

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
the applicable project category			
CAR7 Transboundary environmental impacts are not addressed.	Table 2, F.1.5.	Transboundary environmental impacts are mentioned in the section F.1. Additional information is stated in the feasibility study and is added to the PDD.	The PDD is corrected appropriately. CAR7 is closed.

Appendix B: Verifiers CV's

Ivan G. Sokolov, Dr. Sci. (biology, microbiology)
Team Leader, Lead Verifier

Bureau Veritas Ukraine HSE Department manager, climate change Local Product Manager, Lead Auditor, Lead Tutor, Lead Verifier.

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 22000 FSMS Lead Auditor Training Course. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he was involved in the determination/verification of 15 JI and CDM projects.

Oleg Skoblyk, Specialist (Energy Management)
Climate Change Verifier
Bureau Veritas Ukraine HSE Department project manager.
He has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University" with specialty Energy Management. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). He performed over 10 audits since 2008. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 3 JI projects.

Leonid Yaskin, PhD (thermal engineering)
Internal Technical Reviewer, Lead Verifier
Bureau Veritas Certification Rus General Director- Lead Auditor, Lead Tutor, Verifier
He has over 30 years of experience in heat and power R&D, engineering, and management, environmental science and investment analysis of projects. He worked in Krzhizhanovsky Power Engineering Institute, All-Russian Teploelectroproject Institute, JSC Energoperspectiva. He worked for 8 years on behalf of European Commission as a monitor of Technical Assistance Projects. He is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). He performed over 250 audits since 2002. Also he is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered OHSAS 18001 Lead Auditor

Training Course. He is an Assuror of Social Reports. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in the determination of over 40 JI projects.