



# DETERMINATION REPORT

## CLOSED JOINT STOCK COMPANY “NATIONAL CARBON SEQUESTRATION FOUNDATION” (NCSF)

DETERMINATION OF THE  
ENERGY EFFICIENCY INCREASE IN  
STEELMAKING AND SINTER PLANTS JSC  
“ZAPORIZHSTAL”, UKRAINE

REPORT No. UKRAINE-DET/0208/2011  
REVISION No. 02

BUREAU VERITAS CERTIFICATION



DETERMINATION REPORT

Date of first issue: 15/04/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: CJSC "National Carbon Sequestration Foundation" (NCSF)	Client ref.: Yuriy Fedorov

**Summary:**  
Bureau Veritas Certification has made the determination of the JI project "Energy efficiency increase in steelmaking and sinter plants JSC "Zaporizhstal", Ukraine" of Closed Joint Stock Company "National Carbon Sequestration Foundation" (NCSF) located in Zaporizhzhya, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

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

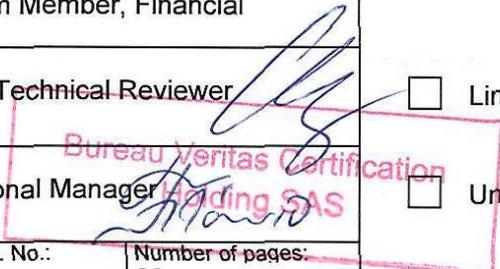
The first output of the determination process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

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

Report No.: UKRAINE-det/0208/2011	Subject Group: JI
Project title: Energy efficiency increase in steelmaking and sinter plants JSC "Zaporizhstal", Ukraine	
Work carried out by: Oleg Skoblyk – Team Leader, Lead Verifier Vera Skitina – Team Member, Verifier Olena Manziuk - Team Member, Verifier Denis Pishchalov - Team Member, Financial specialist	
Work reviewed by: Ivan Sokolov – Internal Technical Reviewer	
Work approved by: Flavio Gomes - Operational Manager	
Date of this revision: 26/04/2011	Rev. No.: 02
Number of pages: 69	

Indexing terms

- No distribution without permission from the Client or responsible organizational unit
- Limited distribution
- Unrestricted distribution





<b>Table of Contents</b>	<b>Page</b>
1 INTRODUCTION.....	3
1.1 Objective	3
1.2 Scope	3
1.3 Determination team	3
2 METHODOLOGY .....	4
2.1 Review of Documents	4
2.2 Follow-up Interviews	5
2.3 Resolution of Clarification and Corrective Action Requests	5
3 PROJECT DESCRIPTION.....	6
4 DETERMINATION CONCLUSIONS.....	7
4.1 Project approvals by Parties involved (19-20)	7
4.2 Authorization of project participants by Parties involved (21)	8
4.3 Baseline setting (22-26)	8
4.4 Additionality (27-31)	9
4.5 Project boundary (32-33)	10
4.6 Crediting period (34)	11
4.7 Monitoring plan (35-39)	12
4.8 Leakage (40-41)	18
4.9 Estimation of emission reductions or enhancements of net removals (42-47)	18
4.10 Environmental impacts (48)	20
4.11 Stakeholder consultation (49)	21
4.12 Determination regarding small scale projects (50-57)	21
4.13 Determination regarding land use, land-use change and forestry (LULUCF) projects (58-64)	21
4.14 Determination regarding programmes of activities (65-73)	21
5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES .....	21
6 DETERMINATION OPINION.....	21
7 REFERENCES .....	23
APPENDIX A: COMPANY PROJECT DETERMINATION PROTOCOL.....	29



## 1 INTRODUCTION

CJSC “National Carbon Sequestration Foundation” (NCSF) has commissioned Bureau Veritas Certification to determine its JI project “Energy efficiency increase in steelmaking and sinter plants JSC “Zaporizhstal” (hereafter called “the project”) at Zaporizhzhya, Ukraine.

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

### 1.1 Objective

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

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

### 1.2 Scope

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

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

### 1.3 Determination team

The determination team consists of the following personnel:

Oleg Skoblyk

Bureau Veritas Certification Team Leader, Climate Change Verifier

Vera Skitina

Bureau Veritas Certification Climate Change Verifier



Olena Manziuk  
Bureau Veritas Certification Climate Change Verifier

Denis Pishchalov  
Bureau Veritas Certification Financial Specialist

This determination report was reviewed by:

Ivan Sokolov  
Bureau Veritas Certification, Internal technical reviewer

## **2 METHODOLOGY**

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

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

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

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

### **2.1 Review of Documents**

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

To address Bureau Veritas Certification corrective action and clarification requests, CJSC NCSF revised the PDD and resubmitted it on 12.04.2011.



The determination findings presented in this report relate to the project as described in the PDD version(s) 01 dated 17.11.2010. As a result Version: 02 dated 15/03/2010 was presented.

## 2.2 Follow-up Interviews

On 22/02/2011 Bureau Veritas Certification during site visit performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of CJSC NCSF and JSC “Zaporizhstal” were interviewed (see References). The main topics of the interviews are summarized in Table 1.

**Table 1 Interview topics**

Interviewed organization	Interview topics
JSC “Zaporizhstal”	<ul style="list-style-type: none"> <li>➤ Implementation schedule</li> <li>➤ Project management organisation</li> <li>➤ Environmental Impact Assessment</li> <li>➤ Project monitoring responsibilities</li> <li>➤ Measurement equipment</li> <li>➤ Quality control and quality assurance procedures</li> <li>➤ Environmental impacts affected</li> <li>➤ Local authorities and public opinion</li> </ul>
CJSC “National Carbon Sequestration Foundation”	<ul style="list-style-type: none"> <li>➤ Applicability of methodology</li> <li>➤ Baseline and Project scenarios</li> <li>➤ Barriers analysis</li> <li>➤ Additionality justification</li> <li>➤ Common practice analysis</li> <li>➤ Monitoring plan</li> <li>➤ Conformity of PDD to JI requirements</li> </ul>

## 2.3 Resolution of Clarification and Corrective Action Requests

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

Corrective Action Request (CAR) is issued, where:

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The JI requirements have not been met;



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

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

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

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

### **3 PROJECT DESCRIPTION**

The project design document provides summarized description of the JI project. According to the PDD, the JSC “Zaporizhstal” is one of the largest metallurgical works in Ukraine. The JSC “Zaporizhstal” is a manufacturer of high-quality metal products – pig iron, steel, flat products of carbon, low-alloyed, alloyed and stainless steel, joist webs, tinplate, construction materials and consumer goods. The main metallurgical plants at the JSC “Zaporizhstal” are sinter plant, blast-furnace plant, steelmaking (open-hearth) plant, foundry plant, slabbing mill, hot-rolling mill and cold-rolling mill.

As a matter of fact, JSC “Zaporizhstal” is implementing project for energy efficiency increase in steelmaking and sinter plants by introduction of new gas burners with spray and niche technology (SNT). Project implementation provides to the decrease of natural gas consumption for steel and sinter production and as a result to GHG emissions reductions.

In the project design document there is clearly identified situation existing prior to the starting date of the project. Actually, natural gas is used in steelmaking plant for metal heating by steel smelting and in sinter plant for firing of sinter charge by sinter production. Efficiency of fuel burning depends on technological parameters and fuel burners. Before project implementation the following burners were used: in steelmaking plant – gas burners with oxygen conversion designed by IChM, in sinter plant – twin-lead multiple-jet gas burners designed by PKO-0180.096.0 JSC “Zaporizhstal”.

Project scenario represents the following situation: project includes installation of gas burners with spray and niche technology designed by CJSC “ZPK “Specgazprom” on aggregates in steelmaking and sinter plant in amount of 58 pcs. The gas burners with spray and niche technology have same construction qualities that provide to more effective use of fuel



and less air pollutant emissions in comparison with other types of burners. Based on the information from the PDD, the project scenario has same significant investment and technological barriers that prevent the project implementation in the absence of additional financing from joint implementation mechanism of Kyoto protocol.

Baseline scenario is also identified in the documents. Namely, in the absence of the project the traditional gas burners are to be used in steelmaking and sinter plants at the JSC “Zaporizhstal” (the same as in the situation existing prior to the starting date of the project): in steelmaking plant – gas burners with oxygen conversion designed by IChM, in sinter plant – twin-lead multiple-jet gas burners designed by PKO-0180.096.0 JSC “Zaporizhstal”. The traditional burners are produced in the mechanical plant JSC “Zaporizhstal”, meet the technological requirements of steel and sinter production, have confirmed its reliability long-term use.

As project developers justified, GHG emission reductions are achieved by project implementation because of natural gas consumption decrease by production in steelmaking and sinter plant at JSC “Zaporizhstal” as result of gas burners with spray and niche technology installation. Thus, the estimated GHG emission reductions due to the energy efficiency increase in steelmaking and sinter plants JSC “Zaporizhstal” is about 461,300 t CO<sub>2</sub> equivalent in 2008-2012 or in average 92,260 t CO<sub>2</sub> equivalent per year.

#### **4 DETERMINATION CONCLUSIONS**

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

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

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 28 Corrective Action Requests and 07 Clarification Requests.

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

##### **4.1 Project approvals by Parties involved (19-20)**

After finishing JI project determination report, the PDD and Determination Report will be presented to State Environmental Investments Agency of Ukraine (SEIA) for receiving the Letter of Approval (LoA).

## 4.2 Authorization of project participants by Parties involved (21)

The participation of each of the legal entities listed as project participants in the PDD will be authorized by State Entity of Ukraine through Letter of Approval that should be issued after determination process. Also, refer to section 4.1 of this report.

## 4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline. Due to the fact that there is no approved CDM baseline and monitoring methodology which is applicable in its totality and without any revisions to steelmaking plant, the JI specific approach is applied.

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

- (a) By listing and describing the following plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one:
  1. Project implementation without registration as a JI project. Installation of gas burners with spray and niche technology on aggregates in steelmaking and sinter plants.
  2. Continuation of the current situation. Use of traditional gas burners on aggregates in steelmaking and sinter plants: in sinter plant - twin-lead multiple-jet gas burners, in steelmaking plant - gas burners with oxygen conversion.
  3. Installation of new gas burners in steelmaking and sinter plants different from traditional gas burners and from gas burners with spray and niche technology.
- (b) Taking into account relevant national and/or sectoral policies and circumstances, such as local fuel availability, power sector expansion plans, and the economic situation in the project sector. In this context, the following key factors that affect a baseline are taken into account:
  - a. The presence of a financial barrier for a specific scenario means that economic parameters of the scenario are not acceptable for the project participants. During financial barrier analysis the plausible future scenario 1 and the plausible future scenario 2 were regarded. In order to assess the impact of the financial barrier on the defined plausible future

scenarios, it is provided the economic efficiency analysis of the investment costs. The results of cost efficiency analysis provided in the section B of the PDD, there is shown that the plausible future scenario 2 is more attractive regarding the financial index than the plausible future scenario 1. Also, this issue is confirmed by performed sensitivity analysis. More detailed description provided in the PDD and Excel spreadsheets.

- b. Technological barrier is the application of technology and equipment for natural combustion on heating aggregates in metallurgical works that can provide to malfunction of basic technological processes of steel and sinter production. During technological barrier analysis the plausible future scenario 1 and the plausible future scenario 2 were regarded.

As a result of the performed by project developer analysis of the key factors affected the plausible future scenarios, in the PDD there is drawn conclusion that the most plausible future scenario is the plausible future scenario 2: Continuation of the current situation. Use of traditional gas burners on aggregates in steelmaking and sinter plants: in sinter plant – twin-lead multiple-jet gas burners, in steelmaking plant – gas burners with oxygen conversion. Thus, the plausible future scenario 2 is the baseline.

For estimation of greenhouse gases emissions according to the baseline project developer used following parameters: steel production in steel-smelting furnaces in steelmaking plant, sinter production in sinter plant, chemical composition of natural gas, specific natural gas consumption for steel production in i- steel-smelting furnace in the baseline scenario, and specific natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario.

#### **4.4 Additionality (27-31)**

JI specific approach is chosen for justification of additionality of considered JI project. The latest version of Guidance on criteria for baseline setting and monitoring (version 02) was used to provide traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions and that the project scenario is not part of the identified baseline scenario. According to the explanation from the project design document, the approved CDM methodologies and tools are not used for demonstration of additionality. The PDD provides a justification of the applicability of the identified approach. All explanations, descriptions and analyses are made in accordance with the Guidance on criteria for baseline setting and monitoring that is a good practice for additionality justification.

## DETERMINATION REPORT

Additionality proofs are provided. Two realistic and credible alternative scenarios to the project activity which are in compliance with mandatory legislation and regulations were identified for consideration. The credible barriers such as technological barriers and financial barriers would credibly prevent the implementation of the proposed project activity undertaken without being registered as a JI activity. According to the analysis provided in the PDD, the project without JI registration faces technological barrier that exist because of the technology and equipment application which were not used in other metallurgical works before the project implementation. Financial barrier also exists for the project without JI registration. For instance, the financial indexes of the project scenario considered without JI registration are worse than for the baseline scenario (more details presented in the section B of the PDD and in relevant Excel spreadsheets). In comparison with the proposed project activity undertaken without being registered as a JI activity, no barriers exist to the baseline alternative, the continuation of the situation prior to the implementation of the project activity. Thus, the proposed project is not the baseline scenario and is additional.

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

#### 4.5 Project boundary (32-33)

As stated in sections above, JI specific approach is used for considered JI project. The GHG emission sources are determined according requirements of the Guidance on criteria for baseline setting and monitoring, version 02.

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

- (i) Under the control of the project such as steelmaking plant and sinter plant that are under the control of the JSC "Zaporizhstal" as they are the property of the Company and are directly operated by the Company;
- (ii) Reasonably attributable to the project such as steel-melting furnaces, which are provided with natural gas for metal charge heating, and sinter furnaces, which are provided by firing of sinter charge with natural gas; and
- (iii) Significant, i.e., as a rule of thumb, would by each source account on average per year over the crediting period for more than 1 per cent of the annual average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tonnes of CO<sub>2</sub> equivalent, whichever is lower. According to the situation, CH<sub>4</sub> and



N<sub>2</sub>O emissions are not considered in the project boundaries as their total emissions are not significant in the project and baseline scenarios (less than 1 per cent of the annual average anthropogenic emissions and not exceed an amount of 2,000 t of CO<sub>2</sub> equivalent). The quantitative assumption of CH<sub>4</sub> and N<sub>2</sub>O emissions is presented in Excel spreadsheet.

Also, JI project boundary is presented using the principal scheme (refer to section B.3 of the project design document).

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

#### **4.6 Crediting period (34)**

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began, and the starting date is 11.08.2005, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 11 years or 132 months.

The PDD states the length of the crediting period in years and months, which is 11 years or 132 months (period 01.01.2006 – 31.12.2016), including:

- Period before the first commitment period: 2 years, 24 months (period 01.01.2006 – 31.12.2007);
- First commitment period: 5 years, 60 months (period 01.01.2008 – 31.12.2012); and
- Period after the first commitment period: 4 years, 48 months (period 01.01.2013 – 31.12.2016).

Starting date of the crediting period is determined since 01.01.2006 after installation of new gas burners on steelmaking furnaces ## 1, 5, 8, 11, which is after the date the first emission reductions or enhancements of net removals are generated by the project.

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

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

#### 4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that JI specific approach was the selected. Identified JI specific approach is applied in accordance with the Guidance on criteria for baseline setting and monitoring.

The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance, such as molar fraction of j-component of natural gas, natural gas consumption for steel production in steel-smelting furnaces, natural gas consumption for firing of sinter charge in sinter plant, steel production in i- steel-smelting furnace, and sinter production in sinter plant.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. be clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions or enhancements of net removals to be monitored such as number of the carbon moles per mole of natural gas j-component, CO<sub>2</sub> density under the standard conditions (i.e. 293 K, 101.3 kPa), and CO<sub>2</sub> emission factor from natural gas combustion.

The monitoring plan draws on the list of standard variables contained in appendix B of “Guidance on criteria for baseline setting and monitoring” developed by the JISC, as appropriate BE<sub>y</sub>, PE<sub>y</sub>, and EF<sub>NG</sub>.

The monitoring plan explicitly and clearly distinguishes:

(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination, such as specific natural gas consumption for steel production in steel-smelting furnaces in the baseline scenario, specific natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario, CO<sub>2</sub> density under the standard conditions, number of the carbon moles per mole of the gaseous fuel component, and conversion factor of natural gas into standard fuel.

(ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination, are absent in regarded JI project.

(iii) Data and parameters that are monitored throughout the crediting period, such as natural gas consumption for steel production in steel-smelting furnaces, natural gas consumption for firing of sinter charge in

## DETERMINATION REPORT

sinter plant, steel production in steel-smelting furnaces, sinter production in sinter plant, chemical composition of natural gas, and net calorific value of natural gas.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as the collection and archiving of all necessary data and information, the collection and archiving of information on environmental impacts due to the JI project, calculations with monthly recording frequency, etc. The respective information for each monitoring parameter is sufficiently described in the section D of the project design document.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions and project emissions from the project, and emission reduction, such as:

*Baseline emissions*

$$BE_y = BE_{STEELPLANT,y} + BE_{SINTERPLANT,y}$$

where,

- $BE_y$  - CO<sub>2</sub> baseline emissions, tCO<sub>2</sub>  
 $BE_{STEELPLANT,y}$  - CO<sub>2</sub> emissions from fuel combustion in steelmaking plant in the baseline scenario, tCO<sub>2</sub>  
 $BE_{SINTERPLANT,y}$  - CO<sub>2</sub> emissions from fuel combustion in sinter plant in the baseline scenario, tCO<sub>2</sub>  
 $y$  - year

Emissions from fuel combustion in steelmaking plant (baseline scenario)

$$BE_{STEELPLANT,y} = \sum (FC_{NG,F-i,BL,m} * EF_{CO_2,NG,m})$$

where,

- $BE_{STEELPLANT,y}$  - CO<sub>2</sub> emissions from fuel combustion in steelmaking plant in the baseline scenario, tCO<sub>2</sub>  
 $FC_{NG,F-i,BL,m}$  - natural gas consumption for steel production in i- steel-smelting furnace in the baseline scenario, t of standard fuel  
 $EF_{CO_2,NG,m}$  - CO<sub>2</sub> emission factor from natural gas combustion, tCO<sub>2</sub>/ t of standard fuel

Natural gas consumption for steel production in i- steel-smelting furnace in the baseline scenario

$$FC_{NG,F-i,BL,m} = P_{STEEL,F-i,PJ,m} * SFC_{NG,F-i,BL} * 10^{-3}$$

where,

- $FC_{NG,F-i,BL,m}$  - natural gas consumption for steel production in i- steel-

## DETERMINATION REPORT

- smelting furnace in the baseline scenario, t of standard fuel
- $P_{STEEL,F-i,PJ,m}$  - steel production in i- steel-smelting furnace in the project scenario, t
- $SFC_{NG,F-i,BL}$  - specific natural gas consumption for steel production in i- steel-smelting furnace in the baseline scenario, kg of standard fuel/t

Specific natural gas consumption for steel production in i-steel-smelting furnace (baseline scenario)

$$SFC_{NG,F-i,BL} = [\sum(FC_{NG,F-i,BL,m}) / \sum(P_{STEEL,F-i,BL,m})] * 10^3$$

where,

- $SFC_{NG,F-i,BL}$  - specific natural gas consumption for steel production in i-steel-smelting furnace in the baseline scenario, kg of standard fuel / t
- $FC_{NG,F-i,BL,m}$  - natural gas consumption for steel production in i-steel-smelting furnace in the baseline scenario, t of standard fuel
- $P_{STEEL,F-i,BL,m}$  - steel production in i- steel-smelting furnace in the baseline scenario, t

Emissions from fuel combustion in sinter plant (baseline scenario)

$$BE_{SINTERPLANT,y} = \sum (FC_{NG,SINTERPLANT,BL,m} * EF_{CO2,NG,m})$$

where,

- $BE_{SINTERPLANT,y}$  - CO<sub>2</sub> emissions from fuel combustion in sinter plant in the baseline scenario, tCO<sub>2</sub>
- $FC_{NG,SINTERPLANT,BL,m}$  - natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario, t of standard fuel
- $EF_{CO2,NG,m}$  - CO<sub>2</sub> emission factor from natural gas combustion, tCO<sub>2</sub>/ t of standard fuel

Natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario

$$FC_{NG,SINTERPLANT,BL,m} = P_{SINTER,PJ,m} * SFC_{NG,SINTER,BL} * 10^{-3}$$

where,

- $FC_{NG,SINTERPLANT,BL,m}$  - natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario, t of standard fuel
- $P_{SINTER,PJ,m}$  - sinter production in sinter plant in the project scenario, t

## DETERMINATION REPORT

$SFC_{NG,SINTER,BL}$  - specific natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario, kg of standard fuel/t

Specific natural gas consumption for firing of sinter charge in sinter plant (baseline scenario)

$$SFC_{NG,SINTER,BL} = [\sum(FC_{NG,SINTERPLANT,BL,m}) / \sum(P_{SINTER,BL,m}) * k_{NG}] * 10^3$$

where,

$SFC_{NG,SINTER,BL}$  - specific natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario, kg of standard fuel/t

$FC_{NG,SINTERPLANT,BL,m}$  - Natural gas consumption for firing of sinter charge in sinter plant in the baseline scenario, th.  $m^3$

$P_{SINTER,BL,m}$  - sinter production in sinter plant in the baseline scenario, t

$k_{NG}$  - conversion factor of natural gas into standard fuel, t of standard fuel/thousand  $m^3$

$CO_2$  emission factor from natural gas combustion (baseline scenario)

$$EF_{CO_2,NG,m} = \sum (W_{j,NG,m} * n_{C,j} * \rho_{CO_2}) / NCV_{NG,m} * 7000$$

where,

$EF_{CO_2,NG,m}$  -  $CO_2$  emission factor from natural gas combustion,  $tCO_2/t$  of standard fuel

$W_{j,NG,m}$  - molar fraction of j-component of natural gas, fraction

$n_{C,j}$  - number of the carbon moles per mole of natural gas j-component

$\rho_{CO_2}$  -  $CO_2$  density under the standard conditions (293 K, 101.3 kPa),  $kg/m^3$

$NCV_{NG,m}$  - net calorific value of natural gas,  $kcal / m^3$

7000 - calorific value of standard fuel,  $kcal / kg$

### Project emissions

$$PE_y = PE_{STEELPLANT,y} + PE_{SINTERPLANT,y}$$

where,

$PE_y$  -  $CO_2$  project emissions,  $tCO_2$

$PE_{STEELPLANT,y}$  -  $CO_2$  emissions from fuel combustion in steelmaking plant in the project scenario,  $tCO_2$

$PE_{SINTERPLANT,y}$  -  $CO_2$  emissions from fuel combustion in sinter plant in the project scenario,  $tCO_2$

y - year

## DETERMINATION REPORT

## Emissions from fuel combustion in steelmaking plant (project scenario)

$$PE_{STEELPLANT,y} = \sum (FC_{NG,F-i,PJ,m} * EF_{CO2,NG,m})$$

where,

$PE_{STEELPLANT,y}$  - CO<sub>2</sub> emissions from fuel combustion in steelmaking plant in the project scenario, tCO<sub>2</sub>

$FC_{NG,F-i,PJ,m}$  - natural gas consumption for steel production in i- steel-smelting furnace in the project scenario, t of standard fuel

$EF_{CO2,NG,m}$  - CO<sub>2</sub> emission factor from natural gas combustion, tCO<sub>2</sub>/ t of standard fuel

## Natural gas consumption for steel production in i-steel-smelting furnace (project scenario)

$$FC_{NG,F-i,PJ,m} = \{[(FC'_{NG,STEELPLANT,PJ,m} - \sum FC'_{NG,F-i,PJ,m}) / (\sum P_{STEEL,F-i,PJ,m}) * P_{STEEL,F-i,PJ,m}] + FC'_{NG,F-i,PJ,m}\} * k_{NG}$$

where,

$FC_{NG,F-i,PJ,m}$  - natural gas consumption for steel production in i-steel-smelting furnace in the project scenario, t of standard fuel

$FC'_{NG,STEELPLANT,PJ,m}$  - total natural gas consumption in steel plant in the project scenario, thousand m<sup>3</sup>

$FC'_{NG,F-i,PJ,m}$  - natural gas consumption in i-steel-smelting furnace in the project scenario, thousand m<sup>3</sup>

$P_{STEEL,F-i,PJ,m}$  - steel production in i-steel-smelting furnace in the project scenario, t

$k_{NG}$  - conversion factor of natural gas into standard fuel, t of standard fuel/thousand m<sup>3</sup>

## Emissions from fuel combustion in sinter plant (project scenario)

$$PE_{SINTERPLANT,y} = \sum (FC_{NG,SINTERPLANT,PJ,m} * k_{NG} * EF_{CO2,NG,m})$$

where,

$PE_{SINTERPLANT,y}$  - CO<sub>2</sub> emissions from fuel combustion in sinter plant in the project scenario, tCO<sub>2</sub>

$FC_{NG,SINTERPLANT,PJ,m}$  - natural gas consumption for firing of sinter charge in sinter plant in the project scenario, thousand m<sup>3</sup>

$EF_{CO2,NG,m}$  - CO<sub>2</sub> emission factor from natural gas combustion, tCO<sub>2</sub>/ t of standard fuel

$k_{NG}$  - conversion factor of natural gas into standard fuel, t of standard fuel/thousand m<sup>3</sup>

---

 DETERMINATION REPORT
 

---

CO<sub>2</sub> emission factor from natural gas combustion (project scenario)

$$EF_{CO_2,NG,m} = \sum (W_{j,NG,m} * n_{C,j} * \rho_{CO_2}) / NCV_{NG,m} * 7000$$

where,

EF<sub>CO<sub>2</sub>,NG,m</sub> - CO<sub>2</sub> emission factor from natural gas combustion, tCO<sub>2</sub>/t of standard fuel

W<sub>j,NG,m</sub> - molar fraction of j-component of natural gas, fraction

n<sub>C,j</sub> - number of the carbon moles per mole of natural gas j-component

ρ<sub>CO<sub>2</sub></sub> - CO<sub>2</sub> density under the standard conditions (293 K, 101.3 kPa), kg/m<sup>3</sup>

NCV<sub>NG,m</sub> - net calorific value of natural gas, kcal / m<sup>3</sup>

7000 - calorific value of standard fuel, kcal / kg

### *Emission reductions*

$$ER_y = BE_y - PE_y$$

where,

ER<sub>y</sub> - CO<sub>2</sub> emission reductions, tCO<sub>2</sub>

BE<sub>y</sub> - CO<sub>2</sub> baseline emissions, tCO<sub>2</sub>

PE<sub>y</sub> - CO<sub>2</sub> project emissions, tCO<sub>2</sub>

y - year

As a fact, more detailed information about formulas used for calculations provided in Annex 3 to the PDD.

The monitoring plan presents the quality assurance and control procedures for the monitoring process. As PDD describes, measuring devices are calibrated in compliance with the state regulation, in-plant standards and approved methodologies. This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. As a matter of fact, department of automatization and metrology of the JSC "Zaporizhstal" is responsible for calibration and verification of measurement equipment. Furthermore, the initial data for calculation of GHG emission reductions will be prepared monthly by the chief power engineer department, open-hearth plant and sinter plant based on primary data collected by department of product-weighting systems (DPWS), control equipment and automatization (CEA) department and supplier of natural gas. The Laboratory for environmental protection of the JSC "Zaporizhstal" collects all monitoring data and calculates the GHG emission reductions. The detailed scheme of the



monitoring data collection, delivery and processing is provided in section D.2 of the project design document.

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

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

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

#### **4.8 Leakage (40-41)**

The PDD appropriately describes an assessment of the potential leakage of the project and appropriately explains which sources of leakage are to be calculated, and which can be neglected, such as emissions arising from natural gas use (e.g. extraction, processing, and transport) for steelmaking and sinter plants at the JSC “Zaporizhstal” and emissions arising from energy resources production used in sinter and steelmaking plant at the JSC “Zaporizhstal” as electricity, compressed air, technical water and oxygen.

According to the provided information in the PDD, the project implementation provides to the natural gas consumption decrease in steelmaking and sinter plants at JSC “Zaporizhstal”. Therefore, the emissions from natural gas use (e.g. extraction, processing, and transport) will be also decreased. The leakage from natural gas use can be excluded from consideration. This is a conservative approach for emission reductions calculation as that provides to less emission reductions.

Moreover, the change of the energy resources consumption in sinter and steelmaking plant and potential leakage are assessed and presented by project developer in Excel spreadsheets. The estimation shows that leakage is insignificant and can be neglected.

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

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



The PDD provides the ex ante estimates of:

(a) Emissions of the project scenario (within the project boundary), which are 2,060,766 tons of CO<sub>2</sub> eq for the first commitment period (2008-2012), 992,940 tons of CO<sub>2</sub> eq resulted due to the project before the first commitment period (2006-2007), and 1,804,668 tons of CO<sub>2</sub> eq that will be achieved after the first commitment period (2013-2016).

(b) The leakage is negligible in the frame of regarded JI project.

(c) Emissions of the baseline scenario (within the project boundary), which are 2,522,066 tons of CO<sub>2</sub> eq for the first commitment period (2008-2012), 1,218,679 tons of CO<sub>2</sub> eq resulted due to the project before the first commitment period (2006-2007), and 2,195,596 tons of CO<sub>2</sub> eq that will be achieved after the first commitment period (2013-2016).

(d) Emission reductions adjusted by leakage (based on (c)-(a) above), which are 461,300 tons of CO<sub>2</sub> eq for the first commitment period (2008-2012), 225,739 tons of CO<sub>2</sub> eq resulted due to the project before the first commitment period (2006-2007), and 390,928 tons of CO<sub>2</sub> eq that will be achieved after the first commitment period (2013-2016).

The estimates referred to above are given:

(a) On a annual basis;

(b) From 01/01/2006 to 31/12/2016, covering the whole crediting period;

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

(d) For GHG gas, such as CO<sub>2</sub>;

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

The formula used for calculating the estimates referred above, which are for baseline emissions, project emissions, and emission reductions, are consistent throughout the PDD.

Data sources used for calculating the estimates referred to above, such as technical reports, certificate of physical and chemical parameters of natural gas, IPCC, scientific literature etc. are clearly identified, reliable and transparent.

Emission factor, such as CO<sub>2</sub> emission factor from natural gas combustion, are to be calculated according to the formulae that selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The estimation referred to above is based on conservative assumptions and the most plausible scenarios in a transparent manner. Based on the document review, the estimates referred to above are consistent throughout the PDD.

The PDD, on version 02, includes an illustrative ex ante emissions calculation.

#### **4.10 Environmental impacts (48)**

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

- DBN A.2.2-1-2003 “Project making. Containing of environmental impact assessment (EIA) while project and construction of factories, buildings and facilities” approved by order of Gosstroy of Ukraine from 15.12.2003 # 214 and implemented since 01.04.2004;
- The law of Ukraine “About environmental expertise” № 45/95-BP dated on 09.02.1995; and
- Reports on air protection for 2004-2007. Form № 2-TP Air (annual).

The PDD states that the considered project of the JSC “Zaporizhstal” is not complying with mentioned area of an environmental impact assessment, therefore, the environmental impact assessment was not undertaken.

The data from the PDD shows that the project implementation provides to the decrease of negative environmental impact because of pollutant emission reductions from fuel combustion. In the documents regarded the following environmental impacts by project implementation: waste water, industrial waste, electro-magnetic, and ionizing radiation, etc. Take into consideration mentioned above possible environmental impacts, specific actions are undertaken for environment protection in steel and sinter plants at JSC “Zaporizhstal”.

According to the provided information, the project does not lead to negative transboundary effect.

The PDD provides conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party.



#### **4.11 Stakeholder consultation (49)**

Based on provided documentations, there is concluded that stakeholder consultation was not undertaken as it is not required by the host party legislation.

#### **4.12 Determination regarding small scale projects (50-57)**

Not applicable.

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

Not applicable.

#### **4.14 Determination regarding programmes of activities (65-73)**

Not applicable.

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

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

### **6 DETERMINATION OPINION**

Bureau Veritas Certification has performed a determination of the Project “Energy efficiency increase in steelmaking and sinter plants JSC “Zaporizhstal” 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 version of Guidance on criteria for baseline setting and monitoring for demonstration of the additionality. In line with this document, the PDD provides analysis of key factors affected future scenarios implementation, to determine that the project activity itself is not the baseline scenario.

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



---

DETERMINATION REPORT

---

The determination revealed pending issue (CAR01) related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant by the host Party. If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the project design document, version 02 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation (version 02) and the subsequent follow-up interviews during the site visit have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

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



## 7 REFERENCES

### Category 1 Documents:

Documents provided by CJSC "National Carbon Sequestration Foundation" that relate directly to the GHG components of the project.

- /1/ Project Design Document of JI project "Energy efficiency increase in steelmaking and sinter plants JSC "Zaporizhstal", Ukraine" version 01 dated 17.11.2010
- /2/ Project Design Document of JI project "Energy efficiency increase in steelmaking and sinter plants JSC "Zaporizhstal", Ukraine" version 02 dated 15.03.2011
- /3/ Guidelines for Users of the Joint Implementation Project Design Document Form, version 04, JISC
- /4/ Joint Implementation Project Design Document Form, version 01
- /5/ Glossary of JI terms, version 02, JISC.
- /6/ Guidance on Criteria for Baseline Setting and Monitoring, version 02, JISC.

### Category 2 Documents:

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

- /1/ Protocol of meeting of technical director on gas burners installation with spray and niche technology dated 19.05.2005.
- /2/ Information note #84/121 dated 20.02.2011 on pollutant emissions into the air from the open-hearth furnaces for 2010.
- /3/ Information note #84/165 dated 16.02.2009 on pollutant emissions into the air from the open-hearth furnaces for 2008.
- /4/ Information note #84/20 dated 15.02.2007 on pollutant emissions into the air from the open-hearth furnaces for 2006.
- /5/ Information note #84/63 dated 12.01.2006 on pollutant emissions into the air from the open-hearth furnaces for 2005.
- /6/ Information note #84/73 dated 20.01.2008 on pollutant emissions into the air from the open-hearth furnaces for 2007.
- /7/ Information note #84/75 dated 18.01.2005 on pollutant emissions into the air from the open-hearth furnaces for 2004.
- /8/ Information note #84/92 dated 25.01.2010 on pollutant emissions into the air from the open-hearth furnaces for 2009.
- /9/ Journal of agglomerate overbalancing for 22.02.2011; invoice #1472.
- /10/ Letter #08/11-01 dated 08.11.2010 of LLC "Production plant "Spetsgasprom" to deputy technical director and main power engineering specialist A. Lykov at OJSC "Zaporizhstal".
- /11/ License AA #486268 on building activity dated 30.01.2003. It is valid from 30.01.2003 to 30.01.2006.



## DETERMINATION REPORT

- /12/ Passport of gas burner with spray and niche technology and with module CHГМ, gas burner with spray and niche technology CHГ-55BC #0386.
- /13/ Passport of gas burner with spray and niche technology and with module CHГМ.
- /14/ Passport of MM parameters and characteristics of environment, ser. #4713, ser. #224123, OJSC "Zaporizhstal", steelmaking plant; Results of state verification dated 21.05.2010.
- /15/ Passport of MMU parameters and characteristics, ser. #08147118, ser. #82828, OJSC "Zaporizhstal", steelmaking plant dated 05.05.2009; Calibration results dated 06.05.2010.
- /16/ Passport of MMU parameters and characteristics, ser. #82670, OJSC "Zaporizhstal", section of KBПiA, sinter plant dated 01.04.2010. Calibration results dated 01.04.2010.
- /17/ Passport of MMU parameters and characteristics, ser. #82670, OJSC "Zaporizhstal", section of KBПiA, sinter plant dated 03.03.2008. Calibration results dated 26.03.2010.
- /18/ Permit #224.03.30-29.56.4 for production and application of production devices dated 26.02.2003; issued by LLC "SC Flogiston". It is valid to 26.02.2006.
- /19/ Permit #2310136600-39 for pollutant emissions into the air by stationary sources, issued to OJSC "Zaporizhstal" dated 30.12.2009. Permit is valid 10 years, from 30.12.2009 to 29.12.2019.
- /20/ Photo - Device for natural gas pressure defining, steelmaking plant.
- /21/ Photo - Gas burner with spray and niche technology in steelmaking plant.
- /22/ Photo - Lever and mechanic track scales #359 BB-200, inventory #10600137.
- /23/ Photo - Natural gas device for pressure defining, sinter plant of OJSC "Zaporizhstal".
- /24/ Photo - Natural gas flowmeter CHГ left, two-bath steel melting aggregate #1 of steelmaking plant.
- /25/ Photo - Natural gas flowmeter CHГ right, two-bath steel melting aggregate #1 of steelmaking plant.
- /26/ Photo - Natural gas flowmeter, sinter plant of OJSC "Zaporizhstal".
- /27/ Photo - Natural gas general flowmeter, open-hearth furnace.
- /28/ Program of specific courses for steelmaking plant personnel training (masters of furnaces unit, steel founders, steel founders assistant, casting masters, steel casting masters) device and operation of gas burners with spray and niche technology of type CHГ at open-hearth furnaces, stirrers and for drying of steel casting buckets, approved on 05.01.2006.
- /29/ Protocol #20 of qualification commission meeting dated 02.02.2006 on graduation of completed education of K3H shop under the



- Contract #9 dated 11.01.2006.
- /30/ Protocol #44 of qualification commission meeting dated 13.02.2006 on graduation of completed education of H<sub>2</sub> shop under the Contract #8 dated 11.01.2006.
  - /31/ Protocol #45 of qualification commission meeting dated 10.02.2006 on graduation of completed education of K<sub>2</sub> shop under the Contract #8 dated 10.01.2006.
  - /32/ Protocol #46 of qualification commission meeting dated 20.02.2006 on graduation of completed education of K<sub>2</sub> shop under the Contract #5 dated 10.01.2006.
  - /33/ Protocol #74 of qualification commission meeting dated 14.03.2006 on graduation of completed education of K<sub>2</sub> shop under the Contract #7 dated 10.01.2006.
  - /34/ Protocol #75 of qualification commission meeting dated 14.02.2006 on graduation of completed education of K<sub>2</sub> shop under the Contract #10 dated 11.01.2006.
  - /35/ Protocol of technical meeting with the leaders of open-hearth shop dated 09.08.2005.
  - /36/ Protocol on assessment of work of gas burners with spray and niche technology that were installed at stirrer # 1 of stirrer department at OJSC "Zaporizhstal" dated 30.03.2005.
  - /37/ Report of atmospheric air protection for 2004. Form №2-tp (air) of OJSC "Zaporizhstal".
  - /38/ Report of atmospheric air protection for 2010. Form №2-tp (air) of OJSC "Zaporizhstal".
  - /39/ Schedule of verification of measurement equipments.
  - /40/ Statement of acceptance and commissioning of adjustment and alignment. Facility: OJSC "Zaporizhstal", sinter plant. Works were performed in the period from 29.09.2007 to 05.12.2007.
  - /41/ Statement of acceptance and commissioning of adjustment and alignment. Facility: open-hearth furnaces # 2, 5, 6, 7, 8, 10, 11, 12 of steelmaking plant of OJSC "Zaporizhstal".
  - /42/ Statement of commissioning and acceptance of completed construction facility: Steelmaking plant OHFs-2, 5, 7, 8, 10. Installation of gas burners type CHГ-55BC on the ends of the furnace dated 07.05.2009.
  - /43/ Statement of technical documentation delivery of LLC "SC Flogiston" and LLC "Zaporizhza production plant "Spetsgasprom".
  - /44/ Office memorandum #1024972 dated 01.03.2011 on residual value.
  - /45/ Data of natural gas consumption at sinter plant.
  - /46/ Report of gas shop work for December 2004 (natural gas).
  - /47/ Report of gas shop work for November 2004 (natural gas).
  - /48/ Report of gas shop work for April 2005 (natural gas).
  - /49/ Report of gas shop work for March 2005 (natural gas).
  - /50/ Data of thermal and energy resources consumption at sinter plant and steelmaking plant for 2004-2010.



## DETERMINATION REPORT

- /51/ Cpecific actual consumption of electricity at oxygen-converter plant per 1m<sup>3</sup> of compressed air.
- /52/ Consumption of fuel and oxygen considering own needs dated 11.02.2005. Estimation for January 2005.
- /53/ Consumption of fuel and oxygen considering own needs dated 02.03.2005. Estimation for February 2005.
- /54/ Consumption of fuel and oxygen considering own needs dated 04.04.2005. Estimation for March 2005.
- /55/ Consumption of fuel and oxygen considering own needs dated 02.06.2005. Estimation for April 2005.
- /56/ Consumption of fuel and oxygen considering own needs dated 04.07.2005. Estimation for June 2005.
- /57/ Consumption of fuel and oxygen considering own needs. Estimation for July 2005.
- /58/ Consumption of fuel and oxygen considering own needs dated 06.09.2005. Estimation for August 2005.
- /59/ Consumption of fuel and oxygen considering own needs dated 05.10.2005. Estimation for September 2005.
- /60/ Consumption of fuel and oxygen considering own needs dated 04.11.2005. Estimation for October 2005.
- /61/ Consumption of fuel and oxygen considering own needs dated 07.12.2005. Estimation for November 2005.
- /62/ Consumption of fuel and oxygen considering own needs dated 09.01.2006. Estimation for December 2005.
- /63/ Consumption of fuel and oxygen considering own needs dated 03.03.2004. Estimation for February 2004.
- /64/ Consumption of fuel and oxygen considering own needs dated 02.04.2004. Estimation for March 2004.
- /65/ Consumption of fuel and oxygen considering own needs dated 06.05.2004. Estimation for April 2004.
- /66/ Consumption of fuel and oxygen considering own needs dated 03.06.2004. Estimation for May 2004.
- /67/ Consumption of fuel and oxygen considering own needs dated 05.07.2004. Estimation for June 2004.
- /68/ Consumption of fuel and oxygen considering own needs dated 03.08.2004. Estimation for July 2004.
- /69/ Consumption of fuel and oxygen considering own needs dated 02.09.2004. Estimation for August 2004.
- /70/ Consumption of fuel and oxygen considering own needs dated 05.10.2004. Estimation for September 2004.
- /71/ Consumption of fuel and oxygen considering own needs dated 02.11.2004. Estimation for October 2004.
- /72/ Consumption of fuel and oxygen considering own needs dated 08.12.2004. Estimation for November 2004.
- /73/ Consumption of fuel and oxygen considering own needs dated 04.01.2005. Estimation for December 2004.
- /74/ Consumption of fuel and oxygen considering own needs dated



## DETERMINATION REPORT

- 03.02.2003. Estimation for January 2003.
- /75/ Consumption of fuel and oxygen considering own needs dated 04.03.2003. Estimation for February 2003.
- /76/ Consumption of fuel and oxygen considering own needs dated 02.04.2003. Estimation for March 2003.
- /77/ Consumption of fuel and oxygen considering own needs dated 06.05.2003. Estimation for April 2003.
- /78/ Consumption of fuel and oxygen by furnaces from 01.01.2003 to 31.05.2003 dated 04.06.2003.
- /79/ Consumption of fuel and oxygen considering own needs dated 03.07.2003. Estimation for June 2003.
- /80/ Consumption of fuel and oxygen considering own needs dated 04.08.2003. Estimation for July 2003.
- /81/ Consumption of fuel and oxygen considering own needs dated 03.09.2003. Estimation for August 2003.
- /82/ Consumption of fuel and oxygen considering own needs dated 02.10.2003. Estimation for September 2003.
- /83/ Consumption of fuel and oxygen considering own needs dated 03.11.2003. Estimation for October 2003.
- /84/ Consumption of fuel and oxygen considering own needs dated 04.12.2003. Estimation for November 2003.
- /85/ Passport of melting dated 21.03.2011. Melting book from the beginning of the campaign #169.
- /86/ Monthly sinter production by sinter plant of OJSC "Zaporizhstal" from 2004 to 2010.
- /87/ Plant standard СТП 8.2-13-09. Integral management system. Monitoring of greenhouse gas emission reductions.
- /88/ Office memorandum #1042037 dated 08.04.2011.
- /89/ Information letter of open-hearth furnaces downtime due to burners ЧГ replacement during repairs.
- /90/ Information letter of the structure of production ton prime cost of main production shops in baseline year 2005.



**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/ S. Chernyshov - Deputy chief of furnaces and heat-and-power engineering of Marten shop at JSC "Zaporizhstal";
- /2/ P. Sidelnikov - Deputy chief of energy equipment of sinter plant at JSC "Zaporizhstal";
- /3/ R. Zemenkov - Chief of methodology and economic calculation bureau of economic planning department at JSC "Zaporizhstal";
- /4/ V. Yarysh - Deputy chief of chief power engineer department at JSC "Zaporizhstal";
- /5/ I. Holina - Chief of Laboratory of environmental protection at JSC "Zaporizhstal";
- /6/ M. Nechyporuk - Deputy chief of training department at JSC "Zaporizhstal";
- /7/ T. Starodub - Acceptor of sinter plant at JSC "Zaporizhstal";
- /8/ O. Lotenkov - Deputy chief of roughing shop at JSC "Zaporizhstal";
- /9/ S. Pshygodskij - Director of external trade department at JSC "Zaporizhstal";
- /10/ R. Kazakov - Principal specialist CJSC "NCSF".

o0o

## DETERMINATION REPORT

## APPENDIX A: COMPANY PROJECT DETERMINATION PROTOCOL

**Table 1 Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)**

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
<b>General description of the project</b>				
<b>Title of the project</b>				
-	Is the title of the project presented?	The title of the JI project is "Energy efficiency increase in steelmaking and sinter plants JSC "Zaporizhstal", Ukraine".	OK	OK
-	Is the sectoral scope to which the project pertains presented?	There are provided in the PDD sectoral scopes of the project, such as sectoral scope (3) Energy demand and sectoral scope (9) Metal production.	OK	OK
-	Is the current version number of the document presented?	The current version of the PDD is version 01 dated 17/11/2010.	OK	OK
-	Is the date when the document was completed presented?	The reviewed PDD is dated 17/11/2010.	OK	OK
<b>Description of the project</b>				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	The purpose of the project is energy efficiency increasing in steelmaking and sinter plants by introduction of new gas burners with spray and niche technology (SNT). Project implementation provides to the decrease of natural gas consumption for steel and sinter production and as a result to GHG emissions reductions. <u>Situation existing prior to the starting date of the project.</u> Before project implementation traditional types	OK	OK



BUREAU  
VERITAS

## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>of gas burners were used, such as: in steelmaking plant – gas burners with oxygen conversion designed by IChM, in sinter plant – twin-lead multiple-jet gas burners designed by PKO-0180.096.0 JSC “Zaporizhstal”.</p> <p><u>Baseline scenario.</u> In the absence of the project the traditional gas burners are to be used in steelmaking and sinter plants at the JSC “Zaporizhstal” (the same as in the situation existing prior to the starting date of the project).</p> <p><u>Project scenario.</u> Project includes installation of gas burners with spray and niche technology designed by CJSC “ZPK “Specgazprom” on aggregates in steelmaking and sinter plant in amount of 58 pcs. The gas burners with spray and niche technology have same construction qualities that provide to more effective use of fuel and less air pollutant emissions in comparison with other types of burners.</p>		
-	Is the history of the project (incl. its JI component) briefly summarized?	The history of the project is briefly summarized in the section A.2 of the PDD. The decision to the JI project implementation at the JSC “Zaporizhstal” was taken in 2005. The replacement of gas burners is implemented stepwise in 2005-2009. The final replacement of traditional burners in the burner with spray and niche technology is made in 2009. Refer to the document 1-3 in the list of documents Category 2 in section 7.	OK	OK
<b>Project participants</b>				
-	Are project participants and Party(ies)	Ukraine is the Host party.	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	involved in the project listed?	JSC "Zaporizhstal" is the project participant from Ukraine.		
-	Is the data of the project participants presented in tabular format?	In the PDD the data of the project participant is provided in tabular format.	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	In Annex 1 of the PDD there is provided contact information on project participant from Host Party (i.e. JSC "Zaporizhstal").	OK	OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	Yes, the Ukraine is indicated as a Host Party.	OK	OK
<b>Technical description of the project</b>				
<b>Location of the project</b>				
-	Host Party(ies)	Ukraine	OK	OK
-	Region/State/Province etc.	Zaporizhzhya region	OK	OK
-	City/Town/Community etc.	Zaporizhzhya	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	The project is being implemented within the integrated iron-and-steel works of the JSC "Zaporizhstal" located in the city of Zaporizhzhya, Zaporizhzhya region, Ukraine. The site co-ordinates are: 47°52' N, 35°09' E.	OK	OK
<b>Technologies to be employed, or measures, operations or actions to be implemented by the project</b>				
-	Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule described?	Project developer presented in the PDD description of the gas burners with spray and niche technology (SNT) including gas burners design, technology of fuel combustion, and technological features and benefits. Also refer to the Passports of burners with SNT provided to the verification team. <u>Corrective Action Request 02 (CAR02)</u> . Please, add to the PDD description of the situation connected with yearly replacement of gas burners with SNT in open-	CAR02	OK



BUREAU  
VERITAS

## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		hearth furnaces. <u>Corrective Action Request 03 (CAR03)</u> . Please, provide consistency to the name of aggregates in the implementation schedule (i.e. OHF #1). <u>Corrective Action Request 04 (CAR04)</u> . Through the PDD 6 sinter machines are considered. Please, explain why sinter machine #1 is not included to the implementation schedule.	CAR03  CAR04	
<b>Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances</b>				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	As stated in the PDD, GHG emission reductions are achieved in steelmaking and sinter plant at JSC "Zaporizhstal" as result of gas burners with spray and niche technology installation. The using of gas burners with SNT provides to more efficiency fuel burning in comparison with the situation in the absence of the project. Therefore are achieved the decrease of natural gas consumption and accordingly GHG emission reductions arising by natural gas combustion. Section A.4.3 of the PDD is not exceed one page. <u>Corrective Action Request 05 (CAR05)</u> . Please, revise the values of total CO2 emissions from baseline scenario, project scenario, and its charge in the Table A.4.3-1. There are mistakes connected with values of CO2 emissions in sinter plant for baseline scenario and project scenario as well as values of total CO2 emissions baseline scenario and project scenario.	CAR05	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Please, correct.		
-	Is it provided the estimation of emission reductions over the crediting period?	In section A.4.3 of the PDD provided the estimation of emission reductions over the commitment period 2008-2012 (461,300 t CO2 equivalent). Also, in section A.4.3.1 provided the estimation of emission reductions over the crediting period that divided into 3 periods (i.e. 2006-2007, 2008-2012, 2013-2016).	OK	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	It is presented the estimation of annual reduction for chosen crediting period (2006-2016) in CO2 t equivalent.	OK	OK
-	Are the data from questions above presented in tabular format?	The data of estimated emission reductions over the crediting period provided in the tabular format in section A.4.3.1 of the PDD.	OK	OK
<b>Estimated amount of emission reductions over the crediting period</b>				
-	Is the length of the crediting period Indicated?	The length of the crediting period is indicated in years and months.	OK	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	All requested information provided in section A.4.3.1 of the PDD. Also, please, see section above in this protocol.	OK	OK
<b>Project approvals by Parties</b>				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	Verifiers' Note: JISC Glossary of JI terms/Version 02 defines the following: a) At least the written project approval(s) by the host Party(ies) should be provided to the AIE and made available to the secretariat by the AIE when submitting the determination report regarding the PDD for publication in accordance with paragraph 34 of the JI guidelines;	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		(b) At least one written project approval by a Party involved in the JI project, other than the host Party(ies), should be provided to the AIE and made available to the secretariat by the AIE when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines, at the latest. After finishing of project determination report, the PDD and Determination Report will be presented to National Environmental Agency of Ukraine for receiving the Letter of Approval.		
19	Does the PDD identify at least the host Party as a "Party involved"?	In the PDD is identified Ukraine as a Host Party.	OK	OK
19	Has the DFP of the host Party issued a written project approval?	<u>Corrective Action Request 01 (CAR01)</u> . The project has no approval of the host Party. Please, provide the Letter of Approval.	CAR01	Pending
20	Are all the written project approvals by Parties involved unconditional?	Please, see section 19 of this protocol above.	-	-
<b>Authorization of project participants by Parties involved</b>				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: <ul style="list-style-type: none"> <li>- A written project approval by a Party involved, explicitly indicating the name of the legal entity? or</li> <li>- Any other form of project participant authorization in writing, explicitly indicating</li> </ul>	After finishing of project determination report, the PDD with supporting documents and Determination Report will be presented to National Environmental Agency of Ukraine for receiving the Letter of Approval that will authorized project participants. Also, see section 19 and section 20 of this protocol.	-	-





BUREAU  
VERITAS

## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>earned for decreases in activity levels outside the project or due to force majeure?</p> <p>(f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?</p>	<p>estimate and justify in the PDD whether new technology implementation does not lead to increasing of electricity consumption and water consumption.</p> <p><u>Clarification Request 01 (CL01)</u>. Please, give explanation why the value of specific natural gas consumption for steel production in i-open-hearth furnace in the baseline scenario of furnace #1 is more that four times lower than other ones.</p> <p><u>Corrective Action Request 08 (CAR08)</u>. Please, provide documents with historical data (i.e. technical reports) for 2003, 2004, and 2005.</p> <p><u>Corrective Action Request 09 (CAR09)</u>. In the PDD (i.e. Annex 2 and Annex 3) stated that calculating as average value of specific parameters is based on data for period 24 months before gas burners replacement. Please, specify in Annex 2 and Annex 3 for appropriate parameters concrete years for which data from technical reports were used.</p> <p><u>Clarification Request 02 (CL02)</u>. In table Sinter production in sinter plant JSC "Zaporizhstal" (<math>P_{\text{SINTER},y}</math>) in 2004-2009, t/year there are provided two values for 2006. Please, clarify whether value without parentheses includes or does not include the value in parentheses.</p>	<p>CL01</p> <p>CAR08</p> <p>CAR09</p> <p>CL02</p>	
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or	As stated in the project design documents, the approved CDM methodologies are not used for choice, justification and setting of the baseline.	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	combinations together with the elements supplementary developed by the project participants in line with 23 above?			
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	A multi-project emission factor is not used for given JI project. As a fact, for baseline and project emission calculation used CO2 emission factor from natural gas combustion that calculated by the formula.	OK	OK
<b>Approved CDM methodology approach only</b>				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	OK	OK
26 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	OK	OK
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	OK	OK
26 (c)	Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?	Not applicable	OK	OK
26 (d)	Is the baseline identified appropriately as a result?	Not applicable	OK	OK
<b>Additionality</b>				



BUREAU  
VERITAS

## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
<b>JI specific approach only</b>				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".	According to the information provided in the PDD, JI specific approach is used for demonstrating additionality. Additionality proofs provided based on "Guidance on criteria for baseline setting and monitoring" (version 02). As indicated in the document, the approved CDM methodologies and tools are not used for demonstration of additionality.	OK	OK
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	Applicability of the approach is justified via barrier analysis (i.e. technological barriers and financial barriers).	OK	OK
29 (b)	Are additionality proofs provided?	Please, see section 28 and section 29 (a) above.	-	-
29 (c)	Is the additionality demonstrated	Corrective Action Request 10 (CAR10). Financial	CAR10	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	appropriately as a result?	<p>analysis is placed in the wrong chapter of the PDD. Please move the relevant information from chapter B1 to B2.</p> <p><u>Clarification Request 03 (CL03)</u>. All costs are adjusted by 10% each year. I assume it is made in order to account for inflation but any explanation is missing unfortunately. Please provide the source for the inflation rate used if it is inflation of course.</p> <p><u>Corrective Action Request 11 (CAR11)</u>. If you are adjusting the costs for inflation, all costs and production numbers should be discounted basing on the proper discount rate. The discount rate may be derived from the average interest rate for UAH denominated loans for the project start. As of August 2005 it was 15,3%. Reference: <a href="http://bank.gov.ua/Fin_ryn/Pot_tend/2005.zip">http://bank.gov.ua/Fin_ryn/Pot_tend/2005.zip</a></p> <p><u>Corrective Action Request 12 (CAR12)</u>. Please indicate the date for which the prices and tariffs are fixed. Provide the references for the prices and tariffs where applicable as well.</p> <p><u>Clarification Request 04 (CL04)</u>. Please clarify whether the monetary inputs such as costs and investments are indicated with/without VAT included.</p> <p><u>Corrective Action Request 13 (CAR13)</u>. Please provide the explanation for the calculation of the costs referred as Затраты на покрытие технологических рисков. What is their nature, why they are accounted only during the first year of operation but the inflation difference is added during the following years (line 63</p>	<p>CL03</p> <p>CAR11</p> <p>CAR12</p> <p>CL04</p> <p>CAR13</p>	



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>of Excel calculation of the project scenario)?</p> <p><u>Clarification Request 05 (CL05)</u>. Please explain why indirect losses from stoppages are not counted in the baseline scenario every 5 years during the burners replacement. In case if only the difference in duration of stoppages between the baseline and the project scenarios is calculated why the figures are the same for all five years?</p> <p><u>Corrective Action Request 14 (CAR14)</u>. Please justify the forecasted steel production at 3900 kt yearly used for calculations. It does not agree either with historic values for 2004-2009 or with the average figures for that period.</p> <p><u>Corrective Action Request 15 (CAR15)</u>. The developer does not account for liquidating value of the project assets. Please deduct the liquidating value of the assets from the costs. It shall include the value of all benefits which may arise from reselling or scrapping the assets basing on existing market prices.</p> <p><u>Corrective Action Request 16 (CAR16)</u>. In section B.2 of the PDD the plausible future scenario #1 regarded as project scenario. This situation is not possible. Please, make amendments.</p> <p><u>Corrective Action Request 28 (CAR28)</u>. Please add the maintenance expenses for the burners in baseline scenario or clarify their absence.</p>	<p>CL05</p> <p>CAR14</p> <p>CAR15</p> <p>CAR16</p> <p>CAR28</p>	
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses	Refer to section 28-29 above and to the Table 2 of this Determination protocol.	-	-



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	made in accordance with the selected tool or method?			
<b>Approved CDM methodology approach only</b>				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	OK	OK
31 (b)	Does the PDD provide a description of why and how the referenced approved CDM methodology is applicable to the project?	Not applicable	OK	OK
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	Not applicable	OK	OK
31 (d)	Are additionality proofs provided?	Not applicable	OK	OK
31 (e)	Is the additionality demonstrated appropriately as a result?	Not applicable	OK	OK
<b>Project boundary (applicable except for JI LULUCF projects)</b>				
<b>JI specific approach only</b>				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	PDD describes project boundary of JI project. According to the description, main facilities (technological processes) where greenhouse gas emission and emission reduction occur as a result of the project implementation are steelmaking plant (i.e OHFs) and sinter plant (i.e. sinter machines). Project emission within the project boundary considered regarding three groups, such as: under the control of the project participant, reasonably attributable to the project, and significant.	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	The project boundary is defined on the basis of a case-by-case assessment. Please, see section 32 (a) above.	OK	OK
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	<u>Corrective Action Request 17 (CAR17)</u> . Please, provide a figure or flow chart of project boundary with description of the emitted gases and its sources.	CAR17	OK
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	In section B.3 of the PDD all gases and sources included are explicitly stated; the information presented in table B.3-1 and table B.3-2.	OK	OK
<b>Approved CDM methodology approach only</b>				
33	Is the project boundary defined in accordance with the approved CDM methodology?	Not applicable	OK	OK
<b>Crediting period</b>				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	The starting date of the project is 11/08/2005. The starting date of the project is determined as date on which the designing works for installation gas burners with SNT is beginning. The document that confirms the mentioned date was provided during site visit. Refer to the Documents of category 2 in section 7 of the Determination report.	OK	OK
34 (a)	Is the starting date after the beginning of 2000?	The JI project starts on 2005. Also, see section 34 (a) above.	OK	OK
34 (b)	Does the PDD state the expected	The expected operational lifetime provided in the PDD	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	operational lifetime of the project in years and months?	is 11 years or 132 months.		
34 (c)	Does the PDD state the length of the crediting period in years and months?	The length of the crediting period is stated in the PDD in years and months as following: 11 years or 132 months (period 01/01/2006-31/12/2016). The crediting period divided into three phases, such as: 1. 2 years or 24 months - period before the first commitment period (01/01/2006 – 31/12/2007); 2. 5 years or 60 months - first commitment period (01/01/2008 – 31/12/2012); 3. 4 years or 48 months - period after the first commitment period (01/01/2013 – 31/12/2016).	OK	OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	The starting date of the crediting period is on the date of the first emission reductions generated by the JI project.	OK	OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	The commitment period starts after the beginning of 2008, i.e. 01/01/2008 – 31/12/2012. Moreover, there are considered the period before the commitment period (01/01/2006 – 31/12/2007) and the period after the commitment period (01/01/2013 – 31/12/2016).	OK	OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented	According to the project design document, the crediting period extends beyond 2012. As a fact, the estimates of emission reductions are provided separately for three considered periods.	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	separately for those until 2012 and those after 2012?			
<b>Monitoring plan</b>				
35	Does the PDD explicitly indicate which of the following approaches is used? – JI specific approach – Approved CDM methodology approach	Based on the information stated in the PDD, JI specific approach is chosen for monitoring plan setting in accordance with “Guidance on criteria for baseline setting and monitoring” (version 02). The approved CDM baseline and monitoring methodologies are not used for monitoring.	OK	OK
<b>JI specific approach only</b>				
36 (a)	Does the monitoring plan describe: – All relevant factors and key characteristics that will be monitored? – The period in which they will be monitored? – All decisive factors for the control and reporting of project performance?	According to the project design document, monitoring will be carry out during the crediting period of the JI project. The monitoring plan describes all relevant factors and key characteristics that monitored. Some of parameters are to be monitored by measurement equipments, and some of data are defined in the official documents.	OK	OK
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	In the monitoring plan regarded constant values, e.g. CO2 density under the standard condition and conversion factor of natural gas into standard fuel.	OK	OK
36 (b)	If default values are used: – Are accuracy and reasonableness carefully balanced in their selection? – Do the default values originate from recognized sources?	In the monitoring plan regarded constant values, e.g. CO2 density under the standard condition and conversion factor of natural gas into standard fuel. These values are originated from official scientific sources that have quite high confidence levels. There	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<ul style="list-style-type: none"> <li>– Are the default values supported by statistical analyses providing reasonable confidence levels?</li> <li>– Are the default values presented in a transparent manner?</li> </ul>	are direct references to the sources of used default values consequently it is presented in a transparent manner.		
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	<p><u>Corrective Action Request 18 (CAR18)</u>. Please, describe in details procedure/algorithm of technical report completing and scheme of data monitoring in general.</p> <p><u>Corrective Action Request 19 (CAR19)</u>. Please, provide Certificates of melting for the latest period.</p>	CAR18  CAR19	OK
36 (b) (ii)	For other values, <ul style="list-style-type: none"> <li>– Does the monitoring plan clearly indicate the precise references from which these values are taken?</li> <li>– Is the conservativeness of the values provided justified?</li> </ul>	<p>In the PDD indicated some values that are calculated by formula and using default values and data from the official documents (e.g. Certificates of physical and chemical parameters of natural gas provided by gas supplier).</p> <p><u>Clarification Request 06 (CL06)</u>. Please, clarify whether during the project there is used other fuel types except the natural gas.</p>	CL06	OK
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	<u>Corrective Action Request 20 (CAR20)</u> . Please, specify the procedures to be followed if expected monitoring data are unavailable.	CAR20	OK
36 (b) (iv)	Are International System Unit (SI units) used?	International System Units are used partly.	OK	OK
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained	The monitoring plan does not note any parameters, coefficients, variables, etc. are to be obtained through monitoring in order to calculate baseline emissions.	OK	OK





## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		steelmaking plant the parameter ID-12 is out of the steelmaking plant boundary. Definitely, it is mistake. Please, correct.		
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	According to the monitoring plan, monitoring frequency for the majority of the parameters is monthly records. Refer to CAR18 of section 36 (b) (i) above.	-	-
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	Monitoring plan elaborates the formulae used for calculation and estimation of baseline emissions and project emissions due to the JI project implementation. <u>Corrective Action Request 23 (CAR23)</u> . Please, explain in more details the formula for CO <sub>2</sub> emission factor from natural gas combustion (i.e. the formulae 1.3 and the formula 2.3). <u>Clarification Request 07 (CL07)</u> . Please, explain why the values are transferred to the standard fuel.	CAR23  CL07	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	In general, provided formulae for CO <sub>2</sub> emission factor from natural gas combustion are clearly described in the section of monitoring plan.	OK	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	All variables, equation formats, and subscripts are used in appropriately way.	OK	OK
36 (f) (iii)	Are all equations numbered?	In the section Monitoring plan of the PDD all presented formulae are numerated.	OK	OK
36 (f) (iv)	Are all variables, with units indicated defined?	Units are provided for each variable from the formulae.	OK	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	The conservativeness of procedures are justified.	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key	Please, see table D.2 of the PDD.	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	parameters included?			
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	There is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions of the baseline scenario.	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	Please, refer to the section 36 (f) of this determination protocol.	-	-
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	In the PDD there are references to the national standards and technical procedures in the relevant sector. All these documents are followed.	OK	OK
36 (f) (vii)	Are references provided as necessary?	In section D the PDD there are references to the national standards and technical procedures in the relevant sector.	OK	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Please, refer to the section 36 (f) of this determination protocol.	-	-
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	In the project design document there is not stated any information about significant uncertainty level of assumptions and procedures.	OK	OK
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	In the PDD project developer described the uncertainty level of key parameters. Uncertainty level of concerned data was assessed as low. Measuring devices for monitoring of key parameters are calibrated/verified in compliance with the state regulation, in- plant standards and approved methodologies in order to assure quality control of monitoring data.	OK	OK
36 (g)	Does the monitoring plan identify a national	No national or international monitoring standard are		OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project?</p> <p>Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?</p>	<p>used for the JI project implementation. There is developed plant standard of environmental management and GHG emissions reduction monitoring at JSC "Zaporizhstal". The standard will be elaborated taken into account given JI project.</p> <p><u>Corrective Action Request 24 (CAR24)</u>. Please, provide document that confirms that the monitoring data will be archived during the crediting period and two years after the last transfer of ERUs for the project.</p>	CAR24	
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	As described in the PDD, the monitoring plan document statistical techniques are used in a conservative manner.	OK	OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	The information about the quality assurance and control procedures for the monitoring process, including, information on calibration and on how records on data and/or method validity and accuracy are kept is presented in section D.2 and section D.3 of the PDD. Also, refer to 36 (g) above.	-	-
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	Monitoring plan identified the responsible departments regarding monitoring activities of the JI project. Please, see section D of the PDD and Annex 3. <u>Corrective Action Request 25 (CAR25)</u> . In section D.3 of the PDD stated that the detailed scheme of monitoring data collection, delivery and processing is provided in the Annex 3. As a fact, such information is absent in Annex 3. Please, provide mentioned	CAR25	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		information in the PDD.		
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	In general, the monitoring plan reflects good monitoring practices to the considered JI project.	OK	OK
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources but not including data that are calculated with equations?	Presented in the PDD monitoring plan provides a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources. Data connected with baseline scenario are stated in table D.1.1 of the PDD and data of the baseline scenario are provided in table D.1.3 of the PDD.	OK	OK
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	Please, refer to section 36 (g) above.	-	-
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	The approved CDM baseline and monitoring methodologies are not used for consideration of this JI project monitoring plan.	OK	OK
<b>Approved CDM methodology approach only</b>				



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	OK	OK
38 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	OK	OK
38 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	OK	OK
38 (c)	Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with the referenced approved CDM methodology?	Not applicable	OK	OK
38 (d)	Is the monitoring plan established appropriately as a result?	Not applicable	OK	OK
<b>Applicable to both JI specific approach and approved CDM methodology approach</b>				
39	If the monitoring plan indicates overlapping monitoring periods during the crediting period: (a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently? (b) Can monitoring be performed independently for each of these	Not applicable	OK	OK



DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)?</p> <p>(c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met?</p> <p>(d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?</p>			
<b>Leakage</b>				
<b>JI specific approach only</b>				
40 (a)	<p>Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?</p>	<p>According to the PDD, leakage is assessed in compliance with “Guidance on criteria for baseline setting and monitoring” (version 02). In the document is stated that the main emissions potentially giving rise to leakage in the context of the project are emissions arising from natural gas use (e.g. extraction, processing, and transport) for steelmaking and sinter plants at the JSC “Zaporizhstal”.</p> <p>The assessment of leakage is provided in supporting documents to the PDD, i.e. in the Excel table Emission calculations of CH4 and N2O. As a result of estimation,</p>	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		the leakage is negligible.		
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	Not applicable. Please, see section 40 (a) above.	OK	OK
<b>Approved CDM methodology approach only</b>				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	Not applicable	OK	OK
<b>Estimation of emission reductions or enhancements of net removals</b>				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	In the PDD clearly indicated that estimation of GHG emissions in the project and baseline scenario and GHG emission reductions is made based on actual data for 2006-2009 and forecasted data for 2010-2016 using the formulae presented in section D of the project design document.	OK	OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	There were estimated emissions of the project scenario within the project boundary, emissions of the baseline scenario within the project boundary, and emission reductions. All estimated values provided in the tabular format and is separated into three periods. According to the information from the PDD, leakage is negligible.	OK	OK
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of:	Not applicable	OK	OK



BUREAU  
VERITAS

## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?			
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink basis? (iv) For each GHG? (v) In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as	The estimation of baseline emissions and project emissions, and emission reductions are made on a periodic basis. Namely, the emissions are assessed for the whole crediting period that divided into three periods: before the first commitment period, the first commitment period, and after the first commitment period. Calculations concern the CO2 that is greenhouse gas. All values are provided in t CO2 equivalent. All formulae described in section D of the PDD are consistent throughout the project design document of JI project. In the considered JI project no factors are taken into account that can influence to the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project. Data sources of used parameters are identified. Also, please, see CAR18 in section 36 (b) (i) of this determination protocol. The estimation of the values is based on conservative assumptions and the most plausible scenarios in a transparent manner. Moreover, all values are		OK





BUREAU  
VERITAS

## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
<b>Approved CDM methodology approach only</b>				
47 (a)	Is the estimation of emission reductions or enhancements of net removals made in accordance with the approved CDM methodology?	Not applicable	OK	OK
47 (b)	<p>Is the estimation of emission reductions or enhancements of net removals presented in the PDD:</p> <ul style="list-style-type: none"> <li>– On a periodic basis?</li> <li>– At least from the beginning until the end of the crediting period?</li> <li>– On a source-by-source/sink-by-sink basis?</li> <li>– For each GHG?</li> <li>– In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?</li> <li>– Are the formula used for calculating the estimates consistent throughout the PDD?</li> <li>– Are the estimates consistent throughout the PDD?</li> <li>– Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or</li> </ul>	Not applicable	OK	OK



BUREAU  
VERITAS

## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
<b>Environmental impacts</b>				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	In the PDD there is described the environmental impact assessment of the project. It is performed in accordance with national procedure. The environmental documents are listed in section F of the PDD and some of them were provided during site visit. According to the assessment documents, the JI project does not lead to negative impacts on the environment and transboundary effect.	OK	OK
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	Please, refer to section F of the project design document and section 48 (a) above.	-	-
<b>Stakeholder consultation</b>				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been	The stakeholder' comments on the project at the JSC "Zaporizhstal" were not held on the basis of the requirements of the Ukrainian legislation about the stakeholder' comments (a list of the documents is stated in the PDD section G).	OK	OK



## DETERMINATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?			
<b>Determination regarding small-scale projects (additional elements for assessment)</b>				
<b>Applicable to bundled JI SSC projects only</b>				
<b>Applicable to all JI SSC projects</b>				
<b>Determination regarding land use, land-use change and forestry projects (additional/alternative elements for assessment)</b>				
<b>Determination regarding programmes of activities (additional/alternative elements for assessment)</b>				

**Table 2 Resolution of Corrective Action and Clarification Requests**

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
<u>Corrective Action Request 01 (CAR01)</u> . The project has no approval of the host Party. Please, provide the Letter of Approval.	Table 1, 19	The Letter of Approval will be provided after the project determination. This is in consistent with Host Party legislation. The necessary clarification is provided in the section A.5 of the PDD.	Pending.
<u>Corrective Action Request 02 (CAR02)</u> . Please, add to the PDD description of the situation connected with yearly replacement of gas burners with SNT in open-hearth furnaces.	Table 1	The section A.4.2 of the PDD is completed with description of the situation connected with yearly replacement of gas burners with SNT in open-hearth furnaces.	Issue is closed based on provided additional information.



BUREAU  
VERITAS

## DETERMINATION REPORT

<p><u>Corrective Action Request 03 (CAR03)</u>. Please, provide consistency to the name of aggregates in the implementation schedule (i.e. OHF #1).</p>	Table 1	The consistent names and abbreviation of metallurgical aggregates are provided through the PDD.	Amendments were made in the PDD. Issue is closed.
<p><u>Corrective Action Request 04 (CAR04)</u>. Through the PDD 6 sinter machines are considered. Please, explain why sinter machine #1 is not included to the implementation schedule.</p>	Table 1	<p>The gas burners with spray and niche technology (SNG-22AG) were not installed on the sinter machine #1 because the sinter machine #1 is to replace with a new sinter machine.</p> <p>The monitoring of GHG emission covers all sinter machines in sinter plant as there is only one natural gas flow meter for sinter plant. This approach for monitoring is conservative as including in the monitoring sinter machine #1 without gas burners with spray and niche technology provides to less emission reductions.</p> <p>The necessary explanations are provided in the sections A.4.2 and D.1 of the PDD.</p>	Issue is closed due to additional information that was included in the PDD.
<p><u>Corrective Action Request 05 (CAR05)</u>. Please, revise the values of total CO2 emissions from baseline scenario, project scenario, and its charge in the Table A.4.3-1. There are mistakes connected with values of CO2 emissions in sinter plant for baseline scenario and project scenario as well as values of total CO2 emissions baseline scenario and project scenario. Please, correct.</p>	Table 1	The table A.4.3-1 of the PDD is corrected.	The values were recalculated, and based on the corrected information, issue is closed.
<p><u>Corrective Action Request 06 (CAR06)</u>. Please, make agree of plausible future scenario #1 described in paragraph The list of the future scenarios and in paragraph Description of the future scenarios of section B.1.</p>	Table 1, 23	The consistent data of plausible future scenario #1 are provided in the section B of the PDD.	Information was revised and corrected. Issue is closed.



**BUREAU  
VERITAS**

## DETERMINATION REPORT

<p><u>Corrective Action Request 07 (CAR07)</u>. Please, estimate and justify in the PDD whether new technology implementation does not lead to increasing of electricity consumption and water consumption.</p>	<p>Table 1, 23</p>	<p>The assessment of energy resources consumption with project technology implementation is undertaken. The results of the analysis demonstrate that there are no the significant change in energy resources consumption and GHG emissions by their production because of the project implementation.</p> <p>The corresponding clarification is provided in the section B.3 of the PDD.</p>	<p>Additional assessment and explanation are provided. According to the additional information, issue is closed.</p>
<p><u>Corrective Action Request 08 (CAR08)</u>. Please, provide documents with historical data (i.e. technical reports) for 2003, 2004, and 2005.</p>	<p>Table 1, 23</p>	<p>The technical reports for the period 2003, 2004 and 2005 are attached to the PDD.</p>	<p>Requested documents were provided. Based on analysis of provided documents, issue is closed.</p>
<p><u>Corrective Action Request 09 (CAR09)</u>. In the PDD (i.e. Annex 2 and Annex 3) stated that calculating as average value of specific parameters is based on data for period 24 months before gas burners replacement. Please, specify in Annex 2 and Annex 3 for appropriate parameters concrete years for which data from technical reports were used.</p>	<p>Table 1, 23</p>	<p>The concrete dates for which data from technical reports were used for parameters of specific natural gas consumption determination are provided in the Annex 2, Annex 3 and Section B of the PDD.</p>	<p>The specification was given in the PDD. Issue is closed.</p>



## DETERMINATION REPORT

<p><u>Corrective Action Request 10 (CAR10)</u>. Financial analysis is placed in the wrong chapter of the PDD. Please move the relevant information from chapter B1 to B2.</p>	<p>Table 1, 29 (c)</p>	<p><u>Response 01</u>. The financial analysis is used for analysis of the key factors that affect the implementation of the plausible future scenarios. Therefore this information is to provide in the section B.1 of the PDD according to the GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM Version 04 and GUIDANCE ON CRITERIA FOR BASELINE SETTING AND MONITORING Version 02. The section B.2 contents data for demonstration of additionality based on a JI-specific approach.</p> <p><u>Response 02</u>.</p> <p>The additionality proofs are presented in the section B.2 of the PDD in the more detailed manner.</p>	<p><u>Conclusion 01</u>. Unfortunately B2 section of the PDD does not contain information regarding additionality proof based on financial analysis but just refers to it. Please note that the common practice is to place financial analysis and other data used for demonstration of additionality in the section B2. You may check a number of other PDD available at UN site and use them at your convenience.</p> <p><u>Final conclusion</u>. OK. The issue is closed.</p>
<p><u>Corrective Action Request 11 (CAR11)</u>. If you are adjusting the costs for inflation, all costs and production numbers should be discounted basing on the proper discount rate. The discount rate may be derived from the average interest rate for UAH denominated loans for the project start. As of August 2005 it was 15,3%. Reference: <a href="http://bank.gov.ua/Fin_ryn/Pot_tend/2005.zip">http://bank.gov.ua/Fin_ryn/Pot_tend/2005.zip</a></p>	<p>Table 1, 29 (c)</p>	<p>The inflation and discounting are not included in the calculation because of very short project period due to the very short lifetime of the burners. The simple average costs are used for plausible future scenarios comparison.</p>	<p>Taking into account the fact that costs are distributed very evenly, the simple average may be calculated without adjustment for inflation and discounting.</p> <p>OK. The issue is closed.</p>



## DETERMINATION REPORT

<p><u>Corrective Action Request 12 (CAR12)</u>. Please indicate the date for which the prices and tariffs are fixed. Provide the references for the prices and tariffs where applicable as well.</p>	<p>Table 1, 29 (c)</p>	<p>The date for the fixed prices and tariffs are provided in the calculation. The references are made.</p>	<p>OK. The issue is closed.</p>
<p><u>Corrective Action Request 13 (CAR13)</u>. Please provide the explanation for the calculation of the costs referred as Затраты на покрытие технологических рисков. What is their nature, why they are accounted only during the first year of operation but the inflation difference is added during the following years (line 63 of Excel calculation of the project scenario)?</p>	<p>Table 1, 29 (c)</p>	<p><u>Response 01</u>. The explanation of the cost calculation and necessary clarification are provided in the calculation.</p> <p><u>Response 02</u>.</p> <p>The calculation of financial losses in the project scenario is presented in more transparent manner.</p>	<p><u>Conclusion 01</u>. Please note that fixed costs are obviously the same in both scenarios as they do not depend on steel production figures. Thereby УПР, Потери на условно-постоянные расходы shall not be accounted as the losses.</p> <p>It is better to represent project losses due to stoppages in two major components:</p> <ol style="list-style-type: none"> <li>1. Losses resulting from under production (i.e. lost income) which can be estimated as the product of average marginal revenue by the tonnage underproduced.</li> <li>2. The process losses (in your table these are components listed as articles 4.1-4.4).</li> </ol> <p><u>Final conclusion</u>. OK. The issue is closed.</p>



DETERMINATION REPORT

<p><u>Corrective Action Request 14 (CAR14)</u>. Please justify the forecasted steel production at 3900 kt yearly used for calculations. It does not agree either with historic values for 2004-2009 or with the average figures for that period.</p>	<p>Table 1, 29 (c)</p>	<p><u>Response 01</u>. The average value of steel production in period 2006-2010 is used for calculation. The necessary corrections are made.</p> <p><u>Response 02</u>.</p> <p>The calculation is corrected taking into account the average steel production in 2003-2005 (4385 kt).</p>	<p><u>Conclusion 01</u>. Taking into account that calculation shall be based on the data available for the project decision date, I would recommend to base the production figures used for calculations on the information available not later than 2005.</p> <p>In addition if you are using production figures as low as 3883 kt/y it means that the production capacities are substantially under loaded so there is no significant losses from the underproduction of steel during the burners replacement.</p> <p><u>Final conclusion</u>. OK. The issue is closed.</p>
--	----------------------------	---	---



## DETERMINATION REPORT

<p><u>Corrective Action Request 15 (CAR15)</u>. The developer does not account for liquidating value of the project assets. Please deduct the liquidating value of the assets from the costs. It shall include the value of all benefits which may arise from reselling or scrapping the assets basing on existing market prices.</p>	<p>Table 1, 29 (c)</p>	<p><u>Response 01</u>. The liquidating value of the project assets is included in the calculation.</p> <p><u>Response 02</u>.</p> <p>The liquidating value of the pressured air collector is included in the calculation. The justification of the liquidating values is provided.</p>	<p><u>Conclusion 01</u>. Please indicate the liquidating values of pressured air collector and CMP. I assume their service period is much higher than 5 years.</p> <p>Please justify the negligible liquidating value of the burners in the project scenario.</p> <p>Liquidating value of the collector is corrected.</p> <p><u>Final conclusion</u>. OK. The issue is closed.</p>
<p><u>Corrective Action Request 16 (CAR16)</u>. In section B.2 of the PDD the plausible future scenario #1 regarded as project scenario. This situation is not possible. Please, make amendments.</p>	<p>Table 1, 29 (c)</p>	<p>The description of the plausible future scenario #1 is corrected in the section B.2 of the PDD.</p>	<p>Issue is closed.</p>
<p><u>Corrective Action Request 17 (CAR17)</u>. Please, provide a figure or flow chart of project boundary with description of the emitted gases and its sources.</p>	<p>Table 1, 32 (c)</p>	<p>The principle flow chart of the project boundary is provided on the fig. B.3-1 in the section B.3 of the PDD.</p>	<p>The principle flow chart of the project boundary was developed and given in the PDD. Issue is closed.</p>
<p><u>Corrective Action Request 18 (CAR18)</u>. Please, describe in details procedure/algorithm of technical report completing and scheme of data monitoring in general.</p>	<p>Table 1, 36 (b) (i)</p>	<p>The detailed description of the monitoring procedures including technical reports completing is provided in the section D.3 of the PDD.</p>	<p>Monitoring procedure was detailed in section D of the PDD. That's why issue is closed.</p>
<p><u>Corrective Action Request 19 (CAR19)</u>. Please, provide Certificates of melting for the latest period.</p>	<p>Table 1, 36 (b) (i)</p>	<p>The Certificate of melting is attached.</p>	<p>Passport of melting was provided. Issue is closed.</p>



BUREAU  
VERITAS

## DETERMINATION REPORT

<p><u>Corrective Action Request 20 (CAR20)</u>. Please, specify the procedures to be followed if expected monitoring data are unavailable.</p>	<p>Table 1, 36 (b) (iii)</p>	<p>The description of the procedures to be followed if expected monitoring data are unavailable is provided in the section D.2 of the PDD.</p>	<p>The procedure to be followed if expected monitoring data are unavailable presented in the project design document. Thus, issue is closed.</p>
<p><u>Corrective Action Request 21 (CAR21)</u>. Please, clearly indicate in the monitoring plan of the PDD division of the parameters into three groups, such as:</p> <p>(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination;</p> <p>(ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination;</p> <p>(iii) Data and parameters that are monitored throughout the crediting period.</p> <p>If any group is not applicable to parameters and data of given JI project, please, state so in the PDD.</p>	<p>Table 1, 36 (d)</p>	<p>The monitoring parameters are presented in three groups (i, ii, iii) in the section D.1 of the PDD.</p>	<p>According to presented information, issue is closed.</p>
<p><u>Corrective Action Request 22 (CAR22)</u>. In the figure D.1-1 Principal scheme of monitoring point location in steelmaking plant the parameter ID-12 is out of the steelmaking plant boundary. Definitely, it is mistake. Please, correct.</p>	<p>Table 1, 36 (d)</p>	<p>The parameter (ID-12) is shown out of the steelmaking plant boundary as the weighting of steel ingots is provided in other plant JSC "Zaporizhstal" - the slabbing mill shop.</p>	<p>OK. Issue is closed due to clarification.</p>



## DETERMINATION REPORT

<p><u>Corrective Action Request 23 (CAR23)</u>. Please, explain in more details the formula for CO2 emission factor from natural gas combustion (i.e. the formulae 1.3 and the formula 2.3).</p>	Table 1, 36 (f)	The clarification to the formulas 1.3 and 2.3 are provided in the PDD. The additional justification of the formulas correctness is provided in the attached excel file.	Additional description of formulas was stated in section D of the PDD. Issue is closed.
<p><u>Corrective Action Request 24 (CAR24)</u>. Please, provide document that confirms that the monitoring data will be archived during the crediting period and two years after the last transfer of ERUs for the project.</p>	Table 1, 36 (g)	The procedures of monitoring data archiving are included in the Standard JSC "Zaporizhstal" STP 8.2-13-10 "GHG emissions reduction monitoring". The Standard is attached.	The document was presented for revision. Thus, issue is closed.
<p><u>Corrective Action Request 25 (CAR25)</u>. In section D.3 of the PDD stated that the detailed scheme of monitoring data collection, delivery and processing is provided in the Annex 3. As a fact, such information is absent in Annex 3. Please, provide mentioned information in the PDD.</p>	Table 1, 36 (j)	The detailed scheme of monitoring data collection, delivery and processing is provided in the section D.3 of the PDD.	The requested information was added to the project design document, that's why issue is closed.
<p><u>Corrective Action Request 26 (CAR26)</u>. Please, provide the annual average of estimated emission reductions for every indicated period (i.e. emissions before the first commitment period, emissions during the first commitment period, and emissions after the first commitment period).</p>	Table 1, 45	The average values of estimated emission reductions for every indicated period (i.e. emissions before the first commitment period, emissions during the first commitment period, and emissions after the first commitment period) are provided in the section A.4.3 of the PDD. This is in accordance with GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM Version 04	Issue is closed.



## DETERMINATION REPORT

<p><u>Corrective Action Request 27 (CAR27)</u>. Please, make consistent of all digits in the PDD, e.g. without using full stops and commas or using commas.</p>	<p>Table 1, 45</p>	<p>The consistent data are provided through the PDD.</p>	<p>Issue is closed due to appropriate amendments made in the document.</p>
<p><u>Corrective Action Request 28 (CAR28)</u>. Please add the maintenance expenses for the burners in baseline scenario or clarify their absence.</p>	<p>Table 1, 29 (c)</p>	<p>The maintenance expenses for the burners in baseline scenario are added to the calculation.</p>	<p>The developer is following the norms employed by the enterprise for similar equipment.  The issue is closed.</p>
<p><u>Clarification Request 01 (CL01)</u>. Please, give explanation why the value of specific natural gas consumption for steel production in i-open-hearth furnace in the baseline scenario of furnace #1 is more that four times lower than other ones.</p>	<p>Table 1, 23</p>	<p>The requested clarifications are provided in the section B.1 and Annex 3 of the PDD.</p>	<p>Clarification was presented in the PDD. Issue is closed.</p>
<p><u>Clarification Request 02 (CL02)</u>. In table Sinter production in sinter plant JSC "Zaporizhstal" (<math>P_{\text{SINTER},y}</math>) in 2004-2009, t/year there are provided two values for 2006. Please, clarify whether value without parentheses includes or does not include the value in parentheses.</p>	<p>Table 1, 23</p>	<p>The clarification is provided in the Annex 2 of the PDD.</p>	<p>Clarified information was added in the Annex 2 to the PDD. Issue is closed.</p>
<p><u>Clarification Request 03 (CL03)</u>. All costs are adjusted by 10% each year. I assume it is made in order to account for inflation but any explanation is missing unfortunately. Please provide the source for the inflation rate used if it is inflation of course.</p>	<p>Table 1, 29 (c)</p>	<p>The inflation is not included in the calculation because of very short project period due to the very short lifetime of the burners. The simple average costs are used for plausible future scenarios comparison.  The necessary clarification is provided in the calculation file.</p>	<p>OK. The issue is closed.</p>



## DETERMINATION REPORT

<p><u>Clarification Request 04 (CL04)</u>. Please clarify whether the monetary inputs such as costs and investments are indicated with/without VAT included.</p>	<p>Table 1, 29 (c)</p>	<p>The monetary inputs are included in the calculation without VAT.</p>	<p>OK. The issue is closed.</p>
<p><u>Clarification Request 05 (CL05)</u>. Please explain why indirect losses from stoppages are not counted in the baseline scenario every 5 years during the burners replacement. In case if only the difference in duration of stoppages between the baseline and the project scenarios is calculated why the figures are the same for all five years?</p>	<p>Table 1, 29 (c)</p>	<p><u>Response 01</u>. The indirect losses are calculated as difference between the duration of stoppage in the project and baseline scenarios. Therefore the indirect losses are not included in the baseline calculation.</p> <p>The same figures are achieved for all years as the average value of steel production is used for calculation and inflation and discounting are not included in the calculation because of very short project period.</p> <p><u>Response 02</u>.</p> <p>The calculation of financial losses because of additional stoppage of furnaces is corrected taking into account the life time of the burners in baseline and project scenarios.</p>	<p><u>Conclusion 01</u>. I would recommend to distribute financial losses from additional stoppages for the proper years (i.e. years 2007-2010 in my understanding) for more exact presentation and better comprehension. I assume that in 2006 the stoppages will be the same for both scenarios as we are installing new burners in both cases and there are no additional losses from the project activity.</p> <p><u>Final conclusion</u>. OK. The issue is closed.</p>
<p><u>Clarification Request 06 (CL06)</u>. Please, clarify whether during the project there is used other fuel types except the natural gas.</p>	<p>Table 1, 36 (b) (ii)</p>	<p>The other fuel types are not used. The necessary clarification is provided in the section D.1 of the PDD.</p>	<p>Issue is closed.</p>



DETERMINATION REPORT

<p><u>Clarification Request 07 (CL07)</u>. Please, explain why the values are transferred to the standard fuel.</p>	<p>Table 1, 36 (f)</p>	<p>The values of standard fuels are used as the monitoring parameters of fuel consumption provided in the technical reports of the JSC "Zaporizhstal" in the corresponding format. The sample of technical reports are attached.</p>	<p>Issue is closed due to clarifications.</p>
---	----------------------------	--	---