



# VERIFICATION REPORT

## INSTITUTE FOR ENVIRONMENT AND ENERGY CONSERVATION

### VERIFICATION OF THE TECHNICAL UPGRADE OF OJSC DNIPROVSKY INTEGRATED IRON AND STEEL WORKS NAMED AFTER DZERZHYSKY BY INSTALLATION OF TWO BILLET CONTINUOUS CASTING MACHINES AND TWO LADLE FURNACES

Initial and first periodic  
for the period 01/10/2008-31/12/2010

REPORT NO. UKRAINE-VER/0258/2011

REVISION No. 02

BUREAU VERITAS CERTIFICATION



VERIFICATION REPORT

Date of first issue: 15/09/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Institute for Environment and Energy Conservation	Client ref.: Vasyl Vovchak

**Summary:**

Bureau Veritas Certification has made the initial and first periodic verification for the period from 01 October 2008 to 31 December 2010 of the "Technical Upgrade of OJSC Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky by Installation of Two Billet Continuous Casting Machines and Two Ladle Furnaces", ITL project ID UA1000280, the project of Institute for Environment and Energy Conservation located in the town of Dniprodzerzhynsk, Dnipropetrovsk region, Ukraine, and applying the JI specific approach, 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 verification scope is defined as a periodic independent review and ex post determination by the Accredited Entity of the monitored reductions in GHG emissions during defined verification period, 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 verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 1770205 tons of CO<sub>2</sub>eq for the monitoring period from 01/10/2008 to 31/12/2010 (139587 tons of CO<sub>2</sub>eq for the period 01/10/2008-31/12/2008, 802339 tons of CO<sub>2</sub>eq for the period 01/01/2009-31/12/2009, 828279 tons of CO<sub>2</sub>eq for the period 01/01/2010-31/12/2010).

Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents.

Report No.: UKRAINE-ver/0258/2011	Subject Group: JI
Project title: Technical Upgrade of OJSC Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky by Installation of Two Billet Continuous Casting Machines and Two Ladle Furnaces	
Work carried out by: Team Leader, Lead Verifier: Oleg Skoblyk Team Member, Lead Verifier: Vera Skitina Team Member, Verifier: Victoria Legka	
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Work approved by: Flavio Gomes – Operational Manager	
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## Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CCM	Continuous Casting Machines
CDM	Clean Development Mechanism
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
DFP	Designated Focal Point
DIISW	PJSC “Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky”
DVM	Determination and Verification Manual
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
LF	Ladle Furnace
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change



## 1 INTRODUCTION

Institute for Environment and Energy Conservation has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Technical Upgrade of OJSC Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky by Installation of Two Billet Continuous Casting Machines and Two Ladle Furnaces" (hereafter called "the project") at the at 18-B Kirova Street, Dniprodzerzhynsk, Dnipropetrovsk region, Ukraine.

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

The verification covers the period from the 1<sup>st</sup> October 2008 to 31<sup>st</sup> December 2010.

### 1.1 Objective

Verification is the periodic independent review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period.

The objective of verification can be divided in Initial Verification and Periodic Verification.

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

Verification scope is defined as an independent and objective review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and the determined project design document including 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 verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.



### **1.3 Verification Team**

The verification team consists of the following personnel:

Oleg Skoblyk

Team Leader, Bureau Veritas Certification Climate Change Lead Verifier

Vera Skitina

Team Member, Bureau Veritas Certification Climate Change Lead Verifier

Victoria Legka

Team Member, Bureau Veritas Certification Climate Change Verifier

This verification report was reviewed by:

Ivan Sokolov

Bureau Veritas Certification, Internal Technical Reviewer

Andrey Rodionov

Bureau Veritas Certification Technical Specialist

## **2 METHODOLOGY**

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

In order to ensure transparency, a verification 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 verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

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

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



## 2.1 Review of Documents

The Monitoring Report (MR) submitted by Institute for Environment and Energy Conservation and additional background documents related to the project design, baseline, and monitoring plan, i.e. country Law, Project Design Document (PDD), Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

The verification findings presented in this report relate to the Monitoring Report version 1 of 21/04/2011, version 2 of 25/08/2011 and version 3 dated 13/09/2011 and project as described in the determined PDD.

## 2.2 Follow-up Interviews

On 26/04/2011 Bureau Veritas Certification verification team conducted a visit to the project site (PJSC “Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky”) and performed (on-site) interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Institute for Environment and Energy Conservation and PJSC “Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky” were interviewed (see References). The main topics of the interviews are summarized in Table1.

**Table 1 Interview topics**

<b>Interviewed organization</b>	<b>Interview topics</b>
PJSC “Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky”	Organizational structure Responsibilities and authorities Roles and responsibilities for data collection and processing Installation of equipment Data logging, archiving and reporting Metering equipment control Metering record keeping system, database IT management Training of personnel Quality management procedures and technology Internal audits and check-ups
Consultant: Institute for Environment and Energy Conservation	Baseline methodology Monitoring plan Monitoring report Deviations from PDD



## **2.3 Resolution of Clarification, Corrective and Forward Action Requests**

The objective of this phase of the verification 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 GHG emission reduction calculation.

If the Verification Team, in assessing the monitoring report and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should raise these issues and inform the project participants of these issues in the form of:

- (a) Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;
- (b) Clarification request (CL), requesting the project participants to provide additional information for the Verification Team to assess compliance with the monitoring plan;
- (c) Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

The Verification Team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the 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 VERIFICATION CONCLUSIONS**

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

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

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project





resulted in 15 Corrective Action Requests, 4 Clarification Requests and 3 Forward Action Requests.

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

### **3.1 Remaining issues and FARs from previous verifications**

There are no remaining issues or FARs.

### **3.2 Project approval by Parties involved (90-91)**

The project was approved by the host Party, Ukraine, which is confirmed by the Letter of Approval No. 2077/23/7 dated 08/08/2011 issued by State Environmental Investment Agency of Ukraine. As to the other Party involved, although the PDD indicates it as Spain with “Endesa Carbono” company being a legal entity project participant, the written approval for the current JI project was issued by the Netherlands authorizing Endesa Carbono to participate in this Project for the purpose of article 6 of the Kyoto Protocol (Declaration of Approval ref. No 2011JI28 dated 05/07/2011 issued by NL Agency, implementing agency of the Ministry of Economic Affairs, Agriculture and Innovation of the Netherlands). This happened because of the fact that the Spanish company Endesa Carbono has its accounts in national registries of both Spain and the Netherlands.

Bureau Veritas Certification received written approvals from the project participants and does not doubt their authenticity.

The abovementioned written approvals are unconditional.

The identified area of concern as to the project approval by Parties involved, project participants response and BVC’s conclusion are described in Appendix A, Table 2 (refer to CAR 01).

### **3.3 Project implementation (92-93)**

The project which is being implemented at the PJSC “Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky” (DIISW), is aimed at achieving steel production with lower energy consumption per unit of output through reduction of furnace process time in LD-converters as the result of introduction of two ladle furnaces (LF1 and LF2) and stabilization of casting process at two new seven-strand billet continuous casting machines (CCM1 and CCM3), which would inter alia yield significant reduction of GHG emissions to the atmosphere.



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The project technology envisages that steel molten in converters are dressed in the new two LFs where ferroalloys and other required additives are fed. LFs additionally consume electricity compared to the baseline scenario, however they allow for shorter Furnace Process time and lower temperatures LD-Converters. Generally, energy saving in LD-Converters, as the result of LFs implementation, leads to reduction of overall energy intensity and stabilization of the furnace process. Thus, out-of-furnace treatment (secondary steelmaking) of steel at LFs saves time, energy, and produces higher quality steel on a consistent basis.

The project technology also envisages that steel treated at LFs are fed into new seven-strand billet CCMs allowing direct square billet production. This, compared to the baseline scenario, leads to lower amount of clippings and energy saving.

During the considered monitoring period of 01/10/2008-31/12/2010 only two out of four project units were operational, namely CCM1 and LF1. Implementation of CCM1 commenced in August 2007 and was fully completed in November 2008, although the first operations at CCM1 (first casting processes and, therefore production of the first volumes of square billets), leading to generation of the first emission reductions under the project, started in October 2008 but not at its full capacity. Implementation of LF1 began in April 2007 and was completed in June 2009. In respect of two other project facilities, CCM3 and LF2, their implementation started in May 2009 and August 2008 respectively and was not completed during this monitoring period. The implementation of CCM3 was finished in January 2011 and LF2 implementation is still in progress.

For the most part the project is implemented in accordance with implementation schedule provided in the determined PDD. The only difference concerns LF2 implementation starting date. At the stage of PDD development the starting date of LF2 implementation works (the end of 2009) was based on internal data of DIISW regarding some particular phases of LF 2 implementation, which were conducted after the first actions connected with implementation of LF2. Taking into account that the first actions connected with implementation of LF 2 began before the end of 2009 and in order to provide more precise information concerning project facilities implementation, the implementation schedule was modified accordingly. This can be considered as an insignificant deviation in comparison with the implementation schedule stated in the PDD.

The identified areas of concern as to the project implementation, project participants response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR 02, CAR 03, CAR 04, CAR 05, CAR 06).



### **3.4 Compliance of the monitoring plan with the monitoring methodology (94-98)**

The monitoring occurred in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website.

For calculating the emission reductions, key factors, such as actual amount of total steel output in the project scenario, specific fuel and energy resources consumption in production processes, specific electricity consumption etc., influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating emission reductions, such as appropriately calibrated measuring equipment, enterprise's records, national officially approved data on the emission factor for Ukrainian power grid published by National Environmental Agency of Ukraine, IPCC guidelines are clearly identified, reliable and transparent.

Emission factors, including default emission factors, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The identified areas of concern as to the compliance of the monitoring plan with the monitoring methodology, project participants response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR 07, CAR 08, CAR 09, CAR 10, CAR 11, CL 01, CL 02, FAR 02).

### **3.5 Revision of monitoring plan (99-100)**

Not applicable.

### **3.6 Data management (101)**

The data and their sources, provided in monitoring report, are clearly identified, reliable and transparent.

The implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures.

The monitoring of JI project indicators at DIISW is realized on regular basis where the system of data collection on fuel and energy resources



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consumption is being used. The data needed for the monitoring of the project is collected during the process of normal equipment use. The monitoring of the project is carried out according to standard operational practices established at the enterprise. The scheme of data collection is provided in the section 6 of the Monitoring Report.

The quality assurance procedures are based on the Plant's quality management system certified against the requirements of ISO 9001:2008 international standard. Moreover, the occupational health and safety management system in accordance with OHSAS 18000 standard and environmental management system in accordance with ISO 14000 were implemented at the Plant in 2009.

The roles and obligation within the project monitoring are presented under the section 9 of the Monitoring Report.

The function of the monitoring equipment, including its calibration status, is in order. The measurement equipment used for project monitoring is serviced, calibrated and maintained in accordance with the original manufacturer's instructions, industry standards and internal procedures; relevant records are kept as required. As to the internal procedures, the calibration and verification are regulated by internal standards of DIISW such as STP 230-35-07 Metrological Support of Measuring Equipment and Guideline on Plant's Metrology Department.

The evidence and records used for the monitoring are maintained in a traceable manner. Data is collected into electronic database of DIISW as well as in paper format. Data is further compiled in day-to-day records, quarterly records, and annual records. All records are finally stored in Planning-economic department. All necessary information for monitoring of GHGs emission reductions are stored in paper and electronic formats and will be saved till the end of the crediting period and for two years after the last operation with ERUs from the project.

The data collection and management system for the project is in accordance with the monitoring plan.

The Monitoring Report provides sufficient information on the assigning roles, responsibilities and authorities for implementation and maintenance of monitoring procedures including control of data. The verification team confirms effectiveness of the existing management and operational systems and found them eligible for reliable project monitoring.

The identified areas of concern as to the data management, project participants response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR 12, CAR 13, CAR 14, CAR 15, CL 03, CL 04, FAR 01, FAR 03).



### **3.7 Verification regarding programmes of activities (102-110)**

Not applicable.

## **4 VERIFICATION OPINION**

Bureau Veritas Certification has performed the initial and first periodic verification for the period from 01/10/2008 to 31/12/2010 of the “Technical Upgrade of OJSC Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky by Installation of Two Billet Continuous Casting Machines and Two Ladle Furnaces” Project in Ukraine, which applies JI specific approach. The verification 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 verification 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 verification report and opinion.

The management of the Institute for Environment and Energy Conservation is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 08. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report, version 3, for the reporting period from 01/10/2008 to 31/12/2010 as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is accurately calculated and is free of material errors, omissions, or misstatements. Our opinion relates to the project’s GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm, with a reasonable level of assurance, the following statement:



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Reporting period: From 01/10/2008 to 31/12/2010

## For the period from 01/10/2008 to 31/12/2008

Baseline emissions	: 644371	t CO <sub>2</sub> equivalents;
Project emissions	: 504784	t CO <sub>2</sub> equivalents;
Emission Reductions	: 139587	t CO <sub>2</sub> equivalents.

## For the period from 01/01/2009 to 31/12/2009

Baseline emissions	: 4073918	t CO <sub>2</sub> equivalents;
Project emissions	: 3271579	t CO <sub>2</sub> equivalents;
Emission Reductions	: 802339	t CO <sub>2</sub> equivalents.

## For the period from 01/01/2010 to 31/12/2010

Baseline emissions	: 4126339	t CO <sub>2</sub> equivalents;
Project emissions	: 3298060	t CO <sub>2</sub> equivalents;
Emission Reductions	: 828279	t CO <sub>2</sub> equivalents.

Total for the period from 01/10/2008 to 31/12/2010:

Baseline emissions	: 8844628	t CO <sub>2</sub> equivalents;
Project emissions	: 7074423	t CO <sub>2</sub> equivalents;
Emission Reductions	: 1770205	t CO <sub>2</sub> equivalents.



## 5 REFERENCES

### Category 1 Documents:

Documents provided by the project participants that relate directly to the GHG components of the project.

- /1/ Monitoring Report for the period from 01/10/2008 till 31/12/2010 version 1 dated 21/04/2011
- /2/ Monitoring Report for the period from 01/10/2008 till 31/12/2010 version 2 dated 25/08/2011
- /3/ Monitoring Report for the period from 01/10/2008 till 31/12/2010 version 3 dated 13/09/2011
- /4/ Calculation of emission reductions for the period 01/10/2008-31/12/2010, Excel file
- /5/ PDD "Technical Upgrade of OJSC Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky by Installation of Two Billet Continuous Casting Machines and Two Ladle Furnaces", version 8 dated 12/07/2011
- /6/ Determination Report "Technical Upgrade of OJSC Dniprovsky Integrated Iron and Steel Works named after Dzerzhynsky by Installation of Two Billet Continuous Casting Machines and Two Ladle Furnaces" No.UKRAINE-det/0170/2010, rev.05 of 12/07/2011 issued by Bureau Veritas Certification
- /7/ Letter of Approval No. 2077/23/7 dated 08/08/2011 issued by State Environmental Investment Agency of Ukraine
- /8/ Declaration of Approval ref. No 2011JI28 dated 05/07/2011 issued by NL Agency, implementing agency of the Ministry of Economic Affairs, Agriculture and Innovation of the Netherlands

### Category 2 Documents:

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

- /1/ Guidance on Criteria for Baseline Setting and Monitoring, version 02, JISC.
- /2/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 62 of 15/04/2011 on approval of specific carbon dioxide emission indicators for 2008
- /3/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 63 of 15/04/2011 on approval of specific carbon dioxide emission indicators for 2009
- /4/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 43 of 28/03/2011 on approval of specific carbon dioxide emission indicators for 2010



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- /5/ Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories
- /6/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- /7/ Production primary data on the basis of calculations of sinter, limestone, pig iron, converter steel, rolled steel, including slabs from CCM and secondary energy resources under the project for the period of 2008-2010
- /8/ State Committee Protocol on acceptance of finished object into operation dated 16.12.2008
- /9/ Protocol on object readiness for setting into operation #1 dated 07.09.2009
- /10/ Protocol on object readiness for setting into operation #2 dated 28.01.2011
- /11/ Permit for construction works #76 dated 22.08.2008
- /12/ Certificate № 0400000245 dated 16.09.2009 regarding compliance of the ready object with the design documentation, state requirements, construction norms and rules
- /13/ Resolution № 1008 dated 24.12.2008 concerning adoption of State Committee Protocol on acceptance of finished object into operation
- /14/ Statement #2 dated 28/01/2011 on object availability for exploitation
- /15/ Statement #7 dated 08/02/2011 on powered electric equipment CCM #3 commissioning
- /16/ Final acceptance certificate dated 03/02/2011 on 2\*7 billet CCM and 1 single ladle furnace
- /17/ Protocol dated 01/02/2011 of hot test on CCM #3
- /18/ Statement dated 01/02/2011 of commissioning on CCM #3
- /19/ Statement dated 01/10/2008 of working committee on continuous casting machine #1 construction completeness
- /20/ Certificate of conformity #ДП001081 dated 11.04.2011
- /21/ Certificate on attestation #06544-5-1-7-кп dated 01.02.2010
- /22/ Energy consumption results for 2008, 2009, 2010 at OJSC Dneprovsky Integrated Iron and Steel Works
- /23/ Certificate on natural gas physical and chemical characteristics for the period since 05/05/2009 till 31/05/2009, issued by Dnipropetrovs'k Chemical Analytical Laboratory
- /24/ Certificate on natural gas physical and chemical characteristics for the period since 01/11/2009 till 30/11/2009, issued by Dnipropetrovs'k Chemical Analytical Laboratory





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- /25/ Certificate on natural gas physical and chemical characteristics for the period since 01/03/2010 till 31/03/2010, issued by Dnipropetrovs'k Chemical Analytical Laboratory
- /26/ Certificate on natural gas physical and chemical characteristics for the period since 01/10/2008 till 31/10/2008, issued by Dnipropetrovs'k Chemical Analytical Laboratory
- /27/ Oxygen consumption logbook for the period from 11/2009 till 10/2010
- /28/ Excel spreadsheet on CCM #1, 2, 3 operation for 2009
- /29/ Power consumption from 16:00 a.m. till 16:00 p.m. for the period since 27/02/2010 till 01/04/2011
- /30/ Permit #1210400000-288 on stationary sources air pollution, valid from 11/06/2010 till 11/06/2015, issued by the Ministry of Environmental Protection of Ukraine
- /31/ Permit on harmful substances air pollution for 2010-2015
- /32/ List of meters at ETL of 01/01/2010
- /33/ Operating passport on track scales 2329BB-50Э/1Д
- /34/ Operating passport on track scales 2390BB-200Э/1С
- /35/ Operating passport on platform scales Т675П200
- /36/ Passport on strain-gauge balance 2370BB150Э/2С
- /37/ Passport on strain-gauge balance 2372BB150Э/2С
- /38/ Passport on strain-gauge balance CB150000BM2
- /39/ Passport on mechanical scales Т675П200
- /40/ Passport on pressure transducer №64
- /41/ Passport on universal № 532
- /42/ Passport on pressure transducer № 126
- /43/ Passport on pressure transducer № 160
- /44/ Passport on pressure transducer № 257
- /45/ Passport on pressure sensor № 63
- /46/ Passport on pressure transducer № 509
- /47/ Passport on pressure sensor № 167a
- /48/ Passport on pressure sensor № 142a
- /49/ Passport on transducer № 524
- /50/ Passport on pressure transducer № 118
- /51/ Passport on pressure transducer № 35



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- /52/ Passport on universal № 239
- /53/ Passport on ultrasonic meter № 314
- /54/ Passport on pressure transducer № 26
- /55/ Passport on universal № 56
- /56/ Passport on pressure transducer № 112
- /57/ Passport on electricity meter three-phase multifunctional ET (24260059.002 ПС-002d)
- /58/ Installation instruction and passport on electricity meter multifunctional EuroAlfa # 01132770
- /59/ Installation instruction and passport on electricity meter multifunctional EuroAlfa # 01132790
- /60/ Installation instruction and passport (ДЯИМ.411152.003 ПС) on electricity meter multifunctional EuroAlfa # 01132799
- /61/ Meter card: type И670, factory № 168282
- /62/ Meter card: type И670, factory № 193831
- /63/ Meter card: type ИТ, factory № 111336
- /64/ Meter card: type И43, factory № 113604
- /65/ Meter card: type И670, factory № 919893
- /66/ Meter card: type И670, factory № 225147
- /67/ Meter card: type И670, factory № 748236
- /68/ Meter card: type ИТ, factory № 690221
- /69/ Meter card: type И670, factory № 178238
- /70/ Meter card: type И670, factory № 119792
- /71/ Meter card: type И670, factory № 869032
- /72/ Meter card: type И670М, factory № 365024
- /73/ Meter card: type И670, factory № 192034
- /74/ Meter card: type И672, factory № 004173
- /75/ Meter card: type И43, factory № 126346
- /76/ Meter card: type 196, factory № 036792
- /77/ Meter card: type 196, factory № 036832
- /78/ Meter card: type И670М, factory № 866520
- /79/ Meter card: type И670, factory № 306134



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- /80/ Meter card: type И670Д, factory № 352685
- /81/ Meter card: type И670М, factory № 095620
- /82/ Meter card: type И673, factory № 004276
- /83/ Meter card: type И-43, factory № 047265
- /84/ Notice on equipment which calibration term is expiring in August of 2011 and abolished for use after calibration period expires in Sinter plant
- /85/ Notice on equipment which calibration term is expiring in August of 2011 and abolished for use after calibration period expires at Blast furnace shop
- /86/ Notice on equipment which calibration term is expiring in August of 2011 and abolished for use after calibration period expires at CCM
- /87/ License #159170, Series AB, dated 28/08/2006, valid from 22/06/2006 till 01/07/2011, on providing the services to educational establishments, issued by the Ministry of Education and Science of Ukraine
- /88/ Designated courses programme on device study and Siemens electric equipment exploitation, which is used for CCM-1 and converter #2 operation, approved of 03/04/2009, OJSC Dneprovsky Integrated Iron and Steel Works named after Dzerzhinsky
- /89/ Designated courses programme on study of technical operation recommendations on improvement of technical steel casting by billet CCM, approved of 16/02/2009, OJSC Dneprovsky Integrated Iron and Steel Works named after Dzerzhinsky
- /90/ Designated courses programme on unit equipment study and electric equipment exploitation, which is used for ladle furnace #1 installation devices, approved of 09/04/2009, OJSC Dneprovsky Integrated Iron and Steel Works named after Dzerzhinsky
- /91/ Designated courses programme on Steel Processing by Ladle Furnace temporary technological regulations VTI 230-C456-09, approved of 27/01/2009, OJSC Dneprovsky Integrated Iron and Steel Works named after Dzerzhinsky
- /92/ Working educational plans and training programmes collected book for out-of-furnace steel processing steel maker specialty, approved of 30/09/2008, 6, 7 categories, OJSC Dneprovsky Integrated Iron and Steel Works named after Dzerzhinsky
- /93/ Working educational plans and training programmes collected book for steel-casting operator specialty, approved of 25/06/2010, 5, 6, categories, OJSC Dneprovsky Integrated Iron and Steel Works named after Dzerzhinsky
- /94/ Certificates which attest taking part in the seminar "Sistemic course SIMATIC S7 ST-PRO1" (period 06.07.2009-10.07.2009) of



- following participants: Publika Valentine Volodimirovich; Kharkova Olga Illivna; Vasylenko Vyacheslav Mykolayovich
- /95/ Certificates which attest taking part in the seminar “Sistemic course SIMATIC S7 ST-PRO2” (period 13.07.2009-17.07.2009) of following participants: Publika Valentine Volodimirovich; Kharkova Olga Illivna; Vasylenko Vyacheslav Mykolayovich
- /96/ Certificates which attest taking part in the seminar «Scada - system SIMATIC WinCC» (period 10.08.2009-14.08.2009) of following participants: Publika Valentine Volodimirovich; Kharkova Olga Illivna
- /97/ Certificate of completion Cisco training course Part 1 (ICND1) dated 21.11.2008
- /98/ Certificate of completion Cisco training course Part 2 (ICND2) dated 28.11.2008
- /99/ Certificate of completion Cisco training course (BSCI) dated 12.12.2008
- /100/ Certificate issued by UkrSEPRO # 2.008.04188 dated 29/01/2010
- /101/ Certificate issued by TÜV SÜD # 12 100 37982 dated 22/03/2010
- /102/ Certificate #TIC1510410697 dated 02/03/2010, valid till 01/03/2013, on management system conformity to EN ISO 14001:2004 standard requirements, issued by TÜV Thüringen e. V. Management System and Personnel Certification Entity
- /103/ Certificate #TIC1511610202 dated 02/03/2010, valid till 01/03/2013, on management system conformity to BS OHSAS 18001:2007 standard requirements, issued by TÜV Thüringen e. V. Management System and Personnel Certification Entity
- /104/ Report on audit #3330/2ENV/B0 on ISO 14001 standard, issued by TÜV Thüringen e. V. Management System and Personnel Certification Entity
- /105/ Statement #51/oc dated 11/08/2010 on internal audit of Environmental Management System and Health and Safety Management System
- /106/ STP 230-35-07 Metrological Support of Measuring Equipment
- /107/ STP 230-18-03 Quality Management System Internal Audits

**Persons interviewed:**

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

- /1/ Antonov Y. H. – Head of the technical department of DIISW
- /2/ Hyryn Y. V. – Chief sintering worker of DIISW
- /3/ Krupyi V. H. – Chief blast furnace worker of DIISW
- /4/ Sudak V. A. – Chief power engineer of DIISW
- /5/ Turkyn M. B. – Deputy chief power engineer of DIISW
- /6/ Kryzhanivskyi – Head of the sintering plant #2 of DIISW
- /7/ Marchenko A. I. – Head of the blast furnace shop of DIISW
- /8/ Makhlai – Head of the converter shop of DIISW
- /9/ Iehorov Y. V. – Chief metrologist, Head of the control measuring equipment and facilities shop of DIISW
- /10/ Ievtushenko V. A. – Acting head of the metrological laboratory of DIISW
- /11/ Skrypchenko S. A. – Head of the technological weighting and measuring systems shop of DIISW
- /12/ Soletskyi V. M. – Chief engineer of the capital construction office of DIISW
- /13/ Motsnyi V. V. – Head of the technical department of DIISW
- /14/ Oliinyk N. A. – Head of the project development and construction department of DIISW
- /15/ Shabanova I. R. – head of the personnel technical education and training department of DIISW
- /16/ Hrytsan I. V. – Head of the planning and economical department of DIISW
- /17/ Bairak Y. M. – Acting head of the environmental protection service of DIISW
- /18/ Rudenko Y. R. – Deputy head of the sintering and blast furnace production technical department of DIISW
- /19/ Honcharenko S. H. – head of the technical department re-equipment of DIISW
- /20/ Karpenko N. L. – 1 category engineer of technical department blast furnace bureau of DIISW



- /21/ Seredyuk V.V. – Ecology department manager of Institute for Environment and Energy Conservation
- /22/ Khakimzyanov S. – Consultant of Institute for Environment and Energy Conservation
- /23/ Linnik Y. – Lead expert of the Ecology department of Institute for Environment and Energy Conservation



## APPENDIX A: PROJECT VERIFICATION PROTOCOL

### BUREAU VERITAS CERTIFICATION HOLDING SAS

**Table 1. Check list for verification, according to the JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)**

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
<b>Project approvals by Parties involved</b>				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	<p>The project has been approved by the Host Party, Ukraine, confirmed by the Letter of Approval No. 2077/23/7 dated 08/08/2011 issued by State Environmental Investment Agency of Ukraine.</p> <p>As to the other Party involved, the information is controversial: PDD stated that the Party involved is Spain; on the UNFCCC website the Netherlands is indicated as the other Party, the Letter of Approval provided by the project participants is issued by the Netherlands authorizing the company "Endesa Carbono" which is indicated as legal entity project participant for Spain in the PDD. Moreover, no information as to the project approval by Parties involved is available in the MR. Based on this the following request was raised:</p>	CAR 01	OK



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p><b>CAR 01.</b> Please, provide the information about the project approval by Parties involved in the MR, including project registration number. The information regarding sponsor Party must be clearly stated and explained in the MR.</p>		
91	Are all the written project approvals by Parties involved unconditional?	The provided written project approval by the host Party is unconditional. As to the written approval by the sponsor Party the conclusion is pending on the response to CAR 01.	Pending	OK
<b>Project implementation</b>				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	<p>So far the project is being implemented in accordance with the PDD which was positively determined by BVC. Two project units (CCM1 and LF1) have already been implemented; implementation of two more (CCM3 and LF2) was not completed during considered monitoring period.</p> <p>However, the 1<sup>st</sup> version of MR contains very little information as to the current JI project, thus the CAR was raised:</p> <p><b>CAR 02.</b> More detailed information on the project technology and installed equipment must be provided in the MR.</p> <p>In respect of the reported emission reductions, the comparison of achieved ERUs with estimates in the PDD is absent in the MR ver.1:</p> <p><b>CAR 03.</b> Please, provide a comparison of the expected amount of emission reduction units stated in the PDD</p>	CAR 02 CAR 03	OK OK





## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
93	What is the status of operation of the project during the monitoring period?	<p>and actually achieved ERUs and explain the deviation.</p> <p>During the monitoring period of 01/10/2008-31/12/2010 only two out of four project facilities were operational which are CCM1 and LF1. Implementation of CCM1 started in August 2007 and was fully completed in November 2008. Implementation of LF 1 began in April 2007 and was completed in June 2009. CCM3 and LF2 were in the process of implementation and were not operational during the monitoring period.</p> <p>The information on project implementation was not sufficiently described in the MR ver.1, therefore the CAR was raised:</p> <p><b>CAR 04.</b> Please, provide in the MR more detailed information as to the project's implementation status with exact dates, where possible (e.g. construction, commissioning, continued operation periods, etc.), and information regarding the activities/measures performed during considered monitoring period, including information on special events (e.g. overhaul times, downtimes of equipment, exchange of equipment, etc.). The comparison between implementation schedule in the PDD and actual project's implementation status and the starting date of operation of the project activity must be provided as well.</p> <p>According to the information provided in the MR ver.1, CCM1 was the first facility started its operation under</p>	CAR 04 CAR 05 CAR 06	OK OK OK



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>the project (implementation was completed in November 2008). However, the starting date of the crediting period, as indicated in the PDD, is 01/10/2008 which is before the actual project operation start (November 2008 according to the MR) and, consequently, before the date when 1<sup>st</sup> ERUs under the project were generated. Furthermore, the monitoring period, as it is stated in the MR, begins on 01/01/2008 which is before the crediting period start. Based on the above mentioned, the following requests were raised:</p> <p><b>CAR 05.</b> Please, indicate the starting date of the crediting period and state whether it was changed compared to PDD (please, note that it should be after the date when the first ERUs under the project were generated).</p> <p><b>CAR 06.</b> Please, correct the monitoring period starting date.</p>		
<b>Compliance with monitoring plan</b>				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	<p><b>CAR 07.</b> The project monitoring must be performed in accordance to the final version of the PDD (ver. 08 dated 12/07/11). Please, make the data/parameters and their values consistent with the monitoring plan in the final version of the PDD (this relates to the electricity emission factors for Ukrainian grid, emission factor for natural gas, exclusion of coke oven gas, etc.).</p> <p>The MR ver.1 contains no information as to the</p>	CAR 07 CAR 08	OK OK



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>baseline and monitoring “methodology” used in the project:</p> <p><b>CAR 08.</b> Please, clearly indicate the approach chosen for baseline setting and the approach chosen regarding the monitoring in the MR.</p>		
95 (a)	<p>For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?</p>	<p>Key factors, such as actual amount of total steel output in the project scenario, specific fuel and energy resources consumption in production processes, specific electricity consumption etc., influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account for calculating the emission reductions, as appropriate. Relevant national policies and sectoral circumstances were considered when setting the baseline.</p>	OK	OK
95 (b)	<p>Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?</p>	<p>The data sources used for calculating emission reductions are clearly identified, reliable and transparent. Data sources include calibrated measuring equipment, enterprise’s records, IPCC guidelines (1996 and 2006) etc.</p> <p>However, no information as to the data sources is available in the MR ver.1, therefore the CAR was raised:</p> <p><b>CAR 09.</b> Please, provide in the MR the information on the data and parameters used in the project monitoring including relevant data sources and references, data variables, units, values for fixed data etc. This should include parameters which are monitored throughout the</p>	CAR 09 CL 01	OK OK



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>crediting period and fixed parameters.</p> <p>Not all input data used for ERUs calculation were sufficiently supported by the relevant DIISW's documents and records, hence the CL was issued:</p> <p><b>CL 01.</b> Each monitoring parameter value indicated in the MR must be confirmed by the relevant DIISW's documents/reports/compilations. The correlation between each value in the MR and in the DIISW's reporting documents must be transparently demonstrated.</p>		
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Emission factors used for calculating the emission reduction by the project, such as CO <sub>2</sub> emission factors for each fuel (natural gas), reducing agent (coke, anthracite, coal electrodes), other input (limestone, dolomite, pellets) and electricity consumption, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice. However, values of some emission factors, e.g. emission factor for Ukrainian power grid, emission factor for natural gas combustions do not correspond to the monitoring plan included in the determined PDD (refer to CAR 07, cl. 94 of this check-list).	Pending	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	The performed calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in accordance with the methodology and formulas provided in the approved monitoring plan.	CL 02 CAR 10 CAR 11 FAR 02	OK OK OK FAR 02 will be checked



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>Still, some issues requiring clarification and corrections were identified:</p> <p><b>CL 02.</b> Please, provide the last version of Excel spreadsheet with emission reduction calculation for the verification team.</p> <p><b>CAR 10.</b> For transparency of the emission reduction calculation please include to the MR the formulas/algorithms used.</p> <p><b>CAR 11.</b> The total values of project and baseline emissions and emission reduction for the monitoring period (01/10/2008-31/12/2010) must be indicated in the MR.</p> <p><b>FAR 02.</b> In order to ensure the transparency of ERUs calculation the comprehensive expanded Excel ERU calculation format should be developed. This can be the compilation of the available summary Excel file and detailed Excel spreadsheet already used by the project developer for internal use.</p>		at the next periodic verification
<b>Applicable to JI SSC projects only</b>				
96	<p>Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis?</p> <p>If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring</p>	N/a	N/a	N/a



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	period determined?			
<b>Applicable to bundled JI SSC projects only</b>				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/a	N/a	N/a
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/a	N/a	N/a
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	N/a	N/a	N/a
<b>Revision of monitoring plan</b>				
<b>Applicable only if monitoring plan is revised by project participant</b>				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	The approved monitoring plan in the determined PDD ver.8 was not revised by the project participants.	N/a	N/a
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of	N/a	N/a	N/a



VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	monitoring plans?			
<b>Data management</b>				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	<p>The implementation of data collection procedures is in accordance with the monitoring plan.</p> <p>The monitoring of JI project indicators at DIISW is realized on regular basis where the system of data collection on fuel and energy resources consumption is being used. The data needed for the monitoring of the project is collected during the process of normal equipment use. The monitoring of the project is carried out according to standard operational practices established at the enterprise.</p> <p>The quality assurance procedures are based on the Plant's quality management system certified against the requirements of ISO 9001:2008 international standard. Moreover, the occupational health and safety management system in accordance with OHSAS 18000 standard and environmental management system in accordance with ISO 14000 were implemented at the Plant in 2009.</p> <p>Nevertheless, there are some issues which need to be addressed:</p> <p><b>CAR 12.</b> Please, provide the information on training conducted during the monitoring period in respect of project activity in the MR.</p> <p><b>CL 03.</b> Please, clarify if electronic monitoring systems are used in the project monitoring process for data</p>	CAR 12 CL 03	OK OK



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		collection or processing. The documentation for those systems must be provided.		
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	<p>The monitoring equipment used for project monitoring is in order; its calibration status complies with the requirements.</p> <p>However, the MR ver.1 does not contain information on measuring equipment used in the project monitoring:</p> <p><b>CAR 13.</b> Please, provide in the MR the list of measuring equipment used for monitoring of all the parameters during considered monitoring period. For each measuring device the type, function, serial number, frequency of measurement, level of uncertainty, calibration frequency, last calibration date should be stated.</p>	CAR 13	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	<p>The evidence and records used for the monitoring are maintained in a traceable manner. Data is collected into electronic database of DIISW as well as in paper format. Data is further compiled in day-to-day records, quarterly records, and annual records. All records are finally stored in Planning-economic department.</p> <p>The interviews conducted during site visit demonstrated that monitoring records storage time is not clearly established and known by all responsible personnel. So, the FAR was issued:</p> <p><b>FAR 01.</b> A documented instruction/decreed prescribing the storage of data monitored and required for ERUs calculation for two years after the last transfer of ERUs</p>	FAR 01	FAR 01 will be checked at the next periodic verification





VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		for the project should be issued and communicated to all responsible persons.		
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	<p>The data collection and management system for the project is in accordance with the monitoring plan. Roles and responsibilities in the project monitoring are described in the MR.</p> <p><b>CL 04.</b> Please, provide documentation confirming the allocation of roles and responsibilities for project monitoring.</p> <p>No scheme of monitoring data collection is presented in the MR, thus the CAR was issued:</p> <p><b>CAR 14.</b> Please, present in the MR a chart (diagram) of data flow describing the entire data collection process from raw data (primary data sources, measuring equipment) to reported totals (Monitoring Report) and data archiving.</p> <p>The project developer responsible for MR preparation is not indicated in the MR ver.1, therefore the CAR was raised:</p> <p><b>CAR 15.</b> Please, specify the information about the persons/organizations responsible for the preparation and submission of the monitoring report.</p>	<p>CL 04</p> <p>CAR 14 CAR 15</p>	<p>Based on the response to CL 04, the FAR 03 was issued that is be checked at the next verification</p> <p>OK OK</p>



## VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
<b>Verification regarding programs of activities (additional elements for assessment)</b>				
102	Is any JPA that has not been added to the JI PoA not verified?	N/a	N/a	N/a
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/a	N/a	N/a
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/a	N/a	N/a
104	Does the monitoring period not overlap with previous monitoring periods?	N/a	N/a	N/a
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/a	N/a	N/a
<b>Applicable to sample-based approach only</b>				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as:	N/a	N/a	N/a




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 VERIFICATION REPORT
 

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<ul style="list-style-type: none"> <li>- The types of JPAs;</li> <li>- The complexity of the applicable technologies and/or measures used;</li> <li>- The geographical location of each JPA;</li> <li>- The amounts of expected emission reductions of the JPAs being verified;</li> <li>- The number of JPAs for which emission reductions are being verified;</li> <li>- The length of monitoring periods of the JPAs being verified; and</li> <li>- The samples selected for prior verifications, if any?</li> </ul>			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/a	N/a	N/a
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?	N/a	N/a	N/a
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/a	N/a	N/a



VERIFICATION REPORT

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	N/a	N/a	N/a



## VERIFICATION REPORT

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

Draft report clarifications and corrective action requests by verification team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
<p><b>CAR 01.</b> Please, provide the information about the project approval by Parties involved in the MR, including project registration number. The information regarding sponsor Party must be clearly stated and explained in the MR.</p>	90	<p><i>Response #1:</i>            The project received the Letter of Approval (LoA) from the Government of Ukraine, acting through State Environmental Investment Agency of Ukraine (# 2077/23/7 dated 08/08/2011) and from the State of the Netherlands, acting through the Ministry of Economic Affairs, Agriculture and Innovation and its implementing agency “NL Agency” (# 2011JI28 dated 05/07/2011).            Such information is now included in the modified monitoring report (Please see Section 1 “Project Summary”).            The project is currently at the stage of obtaining the registration number. As soon as the number will be received the monitoring report will be modified.            Together with this, information regarding project participants is now included in the modified monitoring report.</p>	<p><i>Conclusion of response #1:</i></p> <ol style="list-style-type: none"> <li>1. Please, indicate the ITL project ID number in the MR which is already available on the UNFCCC JISC web-site;</li> <li>2. Please, include in the MR the clarification regarding sponsor Party of the project.</li> </ol> <p><i>Final conclusion:</i>            The ITL project ID was indicated in the updated MR.            The clarification regarding sponsor Party and legal entity project participant of this Party, as well as relevant amendments made to the MR were reviewed and found to be appropriate.            The issue is closed based on sufficient clarification provided and due corrections made to the MR.</p>



VERIFICATION REPORT

		<p><i>Response #2:</i></p> <ol style="list-style-type: none"><li>1. According to the request the ITL project ID number was indicated in the modified version of the monitoring report.</li><li>2. Usually European companies have several accounts in different national registries all around the world. Endesa Carbono S.L. has its account also in national registry of the State of the Netherlands and is authorized by the government to acquire emission reduction units. Therefore Endesa Carbono S.L. has received letter of approval by the State of the Netherlands legal entity.</li></ol>	
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VERIFICATION REPORT

<p><b>CAR 02.</b> More detailed information on the project technology and installed equipment must be provided in the MR.</p>	<p>92</p>	<p><i>Response #1:</i> As it is already stated in the Section 1 “Project summary” the proposed project activity envisages implementation (technology to be employed) of two ladle furnaces (LF 1 and LF 2) and two new seven-strand billet continuous casting machines (CCM 1 and CCM 3). The detailed description of the equipment (i.e. characteristics of the installed equipment) envisaged to be installed under the proposed project activity is provided in the PDD.</p> <p><i>Response #2:</i> More detailed information on project technology and installed equipment and measures taken to reduce GHG are now provided in the modified MR.</p>	<p><i>Conclusion of response #1:</i> Please, provide more detailed information on project technology and installed equipment and measures taken to reduce GHG.</p> <p><i>Final conclusion:</i> The issue is closed based on the appropriate information provided in the MR.</p>
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VERIFICATION REPORT

<p><b>CAR 03.</b> Please, provide a comparison of the expected amount of emission reduction units stated in the PDD and actually achieved ERUs and explain the deviation.</p>	<p>92</p>	<p><i>Response #1:</i>                  The amount of emission reductions that were actually generated in 2008 are equal to emission reductions stated in the PDD.                  The amount of emission reductions that were actually generated in 2009 is a bit lower than it was expected in PDD (824 526 CO<sub>2</sub>e for 2009 in PDD and 802 339 CO<sub>2</sub>e in 2009 actually). It was caused by some fluctuations of specific FER consumption indicators per 1 ton of steel output.                  The amount of emission reductions that were actually generated in 2010 is higher than it was expected in PDD (713 287 CO<sub>2</sub>e for 2010 in PDD and 828 279 CO<sub>2</sub>e in 2010 actually) because of the following reason. The baseline of the project is developed based on the real steel manufacturing process as well as projectline. Taking into account the implication of economy of scale and the fact that loading factor for baseline was much lower than for projectline, the emission reductions were more sensitive to change of specific energy consumption per 1 t of slabs produced than actually envisaged in the PDD. However this influence was beyond of project participants' control and fully based on market situation and requirements.                  Such information is now included in the modified MR.  <i>Response #2:</i>                  Values of expected ERU in accordance with PDD is now provided in the modified MR.</p>	<p><i>Conclusion on response #1:</i>                  Please, provide in the MR the amounts of expected ERUs from the PDD.</p> <p><i>Final conclusion:</i>                  The amounts of emission reduction estimates presented in the PDD and actually achieved ERUs were stated and compared in the updated MR. The adequate explanation of the difference of these values was included in the MR. The issue is closed.</p>
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VERIFICATION REPORT

<p><b>CAR 04.</b> Please, provide in the MR more detailed information as to the project's implementation status with exact dates, where possible (e.g. construction, commissioning, continued operation periods, etc.), and information regarding the activities/measures performed during considered monitoring period, including information on special events (e.g. overhaul times, downtimes of equipment, exchange of equipment, etc.). The comparison between implementation schedule in the PDD and actual project's implementation status and the starting date of operation of the project activity must be provided as well.</p>	<p>93</p>	<p><i>Response #1:</i> Data concerning the project implementation is now provided in the modified MR. Additional documents regarding project equipment implementation are now provided to the verifiers.</p> <p><i>Response #2:</i> 1. Taking into account that the first actions connected with implementation of LF2 began before the end of 2009 and also in order to provide more precise information concerning project facilities implementation at the stage of monitoring report development, the implementation schedule was accordingly corrected. This can be considered as an insignificant deviation in comparison with the implementation schedule stated in the PDD. The Permit for construction works # 76 dated 22.08.2008 states the actual date when construction works of LF2 have started. 2. Information that the CCM3 construction works were finished in January 2011 is now included in the modified monitoring report. 3. Starting date of the project is 5<sup>th</sup> of April 2007. Starting date of the project operation (when the first ERU were generated) is 1<sup>st</sup> of October 2008. Such information is now included in the modified monitoring report. 4. During the considered monitoring period such facilities as CCM1 and LF1 were operational. They facilitated emission reductions generation. Such information is now included in the modified monitoring report.</p>	<p><i>Conclusion on response #1:</i> 1. Please clarify in more details why the implementation status of LF2 in the MR does not correspond to the implementation schedule in the PDD. Also, a document confirming LF2 construction starting date must be provided. 2. For CCM3, please, state when construction works were finished. 3. Please indicate the starting date of the project's operation, when the first ERUs were generated. 4. Please, clearly state which of the project units were operational during the considered monitoring period and generated the emission reductions.</p> <p><i>Final conclusion:</i> The necessary information was provided as required. The issue is closed on the basis of relevant documentation provided and appropriate amendments made to the MR.</p>
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<p><b>CAR 05.</b> Please, indicate the starting date of the crediting period and state whether it was changed compared to PDD (please, note that it should be after the date when the first ERUs under the project were generated).</p>	93	<p>The MR was supplemented with the section 3 “Crediting period” where the information on the project’s crediting period is stated. The starting date of the crediting period defined in the PDD was not changed and remained 01/10/2008. It is the date when the project operation commenced and first ERUs were generated. The project operation began with CCM1 operation start. Although CCM1 was officially launched in November 2008, first casting processes on it were conducted starting from the 1st of October 2008 and therefore the first volumes of square billets were produced.</p>	<p>The issue is closed based on sufficient clarification provided and due amendments made to the MR.</p>
<p><b>CAR 06.</b> Please, correct the monitoring period starting date.</p>	93	<p>The starting date of the monitoring period was correct to 01/10/2008 which is the crediting period starting date.</p>	<p>The issue is closed based on correction made to the MR.</p>
<p><b>CAR 07.</b> The project monitoring must be performed in accordance to the final version of the PDD (ver. 08 dated 12/07/11). Please, make the data/parameters and their values consistent with the monitoring plan in the final version of the PDD (this relates to the electricity emission factors for Ukrainian grid, emission factor for natural gas, exclusion of coke oven gas, etc.).</p>	94	<p>The project monitoring is now performed in accordance with the Monitoring Plan described in the final version of PDD (ver. 8 dated 12/07/11). Please see modified MR.</p>	<p>The monitoring data and parameters are now consistent with the monitoring plan in the determined PDD ver.8. The issue is closed.</p>



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<p><b>CAR 08.</b> Please, clearly indicate the approach chosen for baseline setting and the approach chosen regarding the monitoring in the MR.</p>	<p>94</p>	<p>The baseline and monitoring for the proposed project were identified and justified following the Annex B to the JI Guidelines and the JISC <i>Guidance on Criteria for Baseline Setting and Monitoring</i>.</p> <p>The baseline scenario was determined based on JI-specific approach and refers to the DIISW project-specific conditions and parameters as they are described in the PDD.</p> <p>A two-step approach is used to identify and chose the baseline scenario for the project:</p> <ol style="list-style-type: none"> <li>1. Identifying and listing alternatives to the project activity on the basis of conservative assumptions and taking into account uncertainties.</li> <li>2. Identifying the most plausible alternatives considering relevant sectoral policies and circumstances, such as economic situation in the steel sector in Ukraine and other key factors that may affect the baseline. The baseline is identified by screening of the alternatives based on the technological and economic considerations for the project developer, as well as on the prevailing technologies and practices in Ukrainian steel industry at the time of the investment decision.</li> </ol>	<p>The baseline and monitoring approaches were indicated in the updated MR. The issue is closed.</p>
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		<p>The monitoring approach developed for this specific project is consistent with the assumptions and procedures adopted in the baseline approach. This monitoring approach requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way.</p>	
<p><b>CAR 09.</b> Please, provide in the MR the information on the data and parameters used in the project monitoring including relevant data sources and references, data variables, units, values for fixed data etc. This should include parameters which are monitored throughout the crediting period and fixed parameters.</p>	<p>95 (b)</p>	<p>Information concerning data and parameters used in the process of project monitoring including relevant data sources and references, data variables, units, values for fixed data is now provided in the modified MR. Detailed information regarding parameters which are fixed or monitored during the monitoring period is provided in the PDD. Taking into account that PDD includes information regarding parameters which are fixed or monitored the project developer did not include such information in the monitoring report.</p>	<p>The information regarding data sources for fixed parameters has been provided in the updated MR. Although the description of the project and baseline monitoring parameters in the MR would present monitoring process in more transparent, complete and consistent way, project developer decided not to include it in the MR. Nevertheless, the MR includes the list of all monitoring parameters and values of these parameters during the considered monitoring period. The issue can be considered closed.</p>



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<p><b>CAR 10.</b> For transparency of the emission reduction calculation please include to the MR the formulas/algorithms used.</p>	95 (d)	<p><i>Response #1:</i> The algorithms and formulas of the emission reduction calculations are now provided in the modified MR.</p> <p><i>Response #2:</i> Numbering for the formulas is now provided in the modified MR.</p>	<p><i>Conclusion on response #1:</i> Please, provide numbering for the formulas in the MR in accordance with the PDD.</p> <p><i>Final conclusion:</i> The issue is closed based on corrections made in the MR.</p>
<p><b>CAR 11.</b> The total values of project and baseline emissions and emission reduction for the monitoring period (01/10/2008-31/12/2010) must be indicated in the MR.</p>	95 (d)	The required information was provided in the MR under section 7.	The total ERUs for the monitoring period were indicated in the MR. The values are consistent with the ERU calculation Excel spreadsheets. The issue is closed.
<p><b>CAR 12.</b> Please, provide the information on training conducted during the monitoring period in respect of project activity in the MR.</p>	101 (a)	The information on staff training during the monitoring period is now provided in the modified MR.	The issue is closed based on the sufficient information on the conducted training provided in the updated MR.



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<p><b>CAR 13.</b> Please, provide in the MR the list of measuring equipment used for monitoring of all the parameters during considered monitoring period. For each measuring device the type, function, serial number, frequency of measurement, level of uncertainty, calibration frequency, last calibration date should be stated.</p>	<p>101 (b)</p>	<p><i>Response #1:</i> The list of monitoring equipment together with information regarding periodicity and last date of calibration/verification is now included in the modified MR (Please see Annex 1). The detailed list of monitoring equipment is additionally provided to the verifier. Such information as frequency of measurement and the level of uncertainty may be found in the detailed list of monitoring equipment or in passports for each monitoring equipment.</p> <p><i>Response #2:</i> The level of uncertainty of the used measuring equipment is now indicated in the modified MR.</p>	<p><i>Conclusion on response # 1:</i> No information as to the level of uncertainty of the used measuring equipment is indicated in the MR. Please, provide information as to the measurement uncertainty of all measuring devices used in the project monitoring during the considered monitoring period.</p> <p><i>Final conclusion:</i> The appropriate information has been provided. The issue is closed.</p>
<p><b>CAR 14.</b> Please, present in the MR a chart (diagram) of data flow describing the entire data collection process from raw data (primary data sources, measuring equipment) to reported totals (Monitoring Report) and data archiving.</p>	<p>101 (d)</p>	<p>The chart of data flow, which reflects the process of data collection, is now provided in the modified MR.</p>	<p>The scheme of data collection is provided in the section 6 of updated MR. The roles and obligation within the project monitoring are presented in the section 9. The issue is closed.</p>



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<p><b>CAR 15.</b> Please, specify the information about the persons/organizations responsible for the preparation and submission of the monitoring report.</p>	<p>101 (d)</p>	<p><i>Response #1:</i> The information regarding project developer and project owner is now included in the monitoring report (please see the front page of the monitoring report).</p> <p><i>Response #2:</i> The contact information of the person/entity responsible for MR development is now provided in the modified MR (Chapter 2).</p>	<p><i>Conclusion of response #1:</i> No information on project developer's organization is available in the MR. The front page contains the position and name of the persons, while the information on the organizations involved is absent. Please, provide the contact information of the person(s)/entity(ies) responsible for completing the MR.</p> <p><i>Final conclusion:</i> The issue is closed based on information provided together with corrections made to the MR.</p>
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<p><b>CL 01.</b> Each monitoring parameter value indicated in the MR must be confirmed by the relevant DIISW's documents/reports/compilations. The correlation between each value in the MR and in the DIISW's reporting documents must be transparently demonstrated.</p>	<p>95 (b)</p>	<p>Value of each monitoring parameter indicated in the MR can be confirmed by the data from compilations provided by DIISW. Excel files containing these compilations are now provided to the verifiers.</p>	<p>The compilation from DSIIW's Planning and economic department was provided to the verification team. The values of resources specific consumption, specific electricity consumption, total output of each production process under the project (sinter, pig iron, steel) and others in the submitted compilation were crosschecked with detailed ERUs calculation spreadsheet prepared by project developer. The available data were found to be consistent. The issue is closed.</p>
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<p><b>CL 02.</b> Please, provide the last version of Excel spreadsheet with emission reduction calculation for the verification team.</p>	<p>95 (d)</p>	<p><i>Response #1:</i> The last version of Excel-file with calculations of ERU is now provided to the verifier.</p> <p><i>Response #2:</i> The Excel spreadsheet with ERU calculation is now accordingly modified. The modified Excel file is now provided to the verifier.</p>	<p><i>Conclusion of response #1:</i> The last revision of Excel spreadsheet with ERUs calculation has been reviewed by the verification team. The values were cross-checked and confirmed by the DIISW's input data available to verifiers, and found to be consistent.</p> <p>Please, provide a title, version and date in the Excel file and reference to the relevant monitoring report.</p> <p>For the default emission factor used, please, specify for which material these factors are indicated.</p> <p>The formulas from the approved monitoring plan should be used for calculation of project and baseline emissions (P-1, B-1) to ensure transparency of the ERUs calculation spreadsheet. Please, indicate formulas rather than just values.</p> <p><i>Final conclusion:</i> The ERU calculation Excel file was modified appropriately. The issue is closed.</p>
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<b>CL 03.</b> Please, clarify if electronic monitoring systems are used in the project monitoring process for data collection or processing. The documentation for those systems must be provided.	101 (a)	Electronic monitoring systems are not applied under the project activity. All the data required is continuously collected at the plant during normal equipment use and stored in paper and electronic format (Excel files).	The clarification is accepted. The issue is closed.
<b>CL 04.</b> Please, provide documentation confirming the allocation of roles and responsibilities for project monitoring.	101 (d)	The DIISW's Order to organize working group responsible for the preparation and realization of JI projects is now provided to the verifiers.	The submitted Order establishes JI working group in general but do to allocate specific roles and responsibilities within the project monitoring. Therefore, the DSIIW management's decree (instruction/order or other document) on allocation of specific roles and obligations for JI project monitoring must be issued and provided to the AIE at the next periodic verification (see FAR 03 below).
<b>FAR 01.</b> A documented instruction/decreed prescribing the storage of data monitored and required for ERUs calculation for two years after the last transfer of ERUs for the project should be issued and communicated to all responsible persons.	101 (c)	The order concerning the procedure for keeping monitoring data regarding this JI project for two years after the last transfer of ERU will be provided to the verifier during the next verification.	The FAR will be checked during next periodic verification.



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<p><b>FAR 02.</b> In order to ensure the transparency of ERUs calculation the comprehensive expanded Excel ERU calculation format should be developed. This can be the compilation of the available summary Excel file and detailed Excel spreadsheet already used by the project developer for internal use.</p>	95 (d)	<p>The project developer will consider the possibility to develop the comprehensive expanded Excel ERU calculation format during the next periodic verifications.</p>	<p>The issue will be checked at the next verification.</p>
<p><b>FAR 03.</b> A special management's order (instruction, direction or other relevant document) on allocation of specific roles and responsibilities within JI project monitoring must be issued and communicated to the responsible personnel.</p>	101 (d)	<p>The order concerning allocation of specific roles and responsibilities within JI project monitoring will be provided to the verifier during the next verification.</p>	<p>The FAR will be checked at next verification.</p>