



BUREAU
VERITAS

VERIFICATION REPORT

OJSC “ALCHEVSK IRON AND STEEL MILL”

VERIFICATION OF THE

REVAMPING AND

MODERNIZATION OF THE

ALCHEVSK STEEL MILL

REPORT No. UKRAINE- VER#/0024/2008

REVISION No. 01

BUREAU VERITAS CERTIFICATION



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Client: Carbon Finance Unit (ENVCF), MSN MC 3-309 The World Bank Group	Client ref.: Kari Hamekoski

Summary:

Bureau Veritas Certification has made the verification of the “**Revamping and Modernization of the Alchevsk Steel Mill**” project of OJSC “Alchevsk Iron and Steel Mill” located in Alchevsk, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting, as well as the host country criteria under Track 1 procedure.

The verification scope is defined as a periodic independent review and post determination by the Accrediting Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the Monitoring Report, Project Design Document 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 Requests, 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 validated and registered 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 ready to generate GHG emission reductions. The GHG emission reduction is calculated without material misstatements.

Our opinion relates to the project’s GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on information seen and evaluated we confirm that the implementation of the project has resulted in 643006 t CO2e reductions during period from 01/01/2008 up to 31/12/2008.

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

Report No.: UKRAINE- VER#/0024/2008	Subject Group: JI	
Project title: Revamping and Modernization of the Alchevsk Steel Mill		
Work carried out by: Team Leader : Flavio Gomes Team Member : Ivan Sokolov Team Member : Nadiia Kaiun Specialist : Kateryna Zinevych		
Work verified by: Ashok Mammen		
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Indexing terms

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Abbreviations

AIE	Accrediting Independent Entity
BVCH	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CL	Clarification Request
CO ₂	Carbon Dioxide
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
IETA	International Emissions Trading Association
JI	Joint Implementation
JISC	JI Supervisory Committee
MoV	Means of Verification
MP	Monitoring Plan
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change



Table of Contents		Page
1	INTRODUCTION	4
1.1	Objective	4
1.2	Scope	5
1.3	GHG Project Description	5
2	METHODOLOGY	7
2.1	Review of Documents	11
2.2	Follow-up Interviews	11
2.3	Resolution of Clarification, Corrective and Forward Action Requests	12
3	VERIFICATION FINDINGS	12
3.1	Remaining issues CAR's, FAR's from previous determination/verification	13
3.2	Project Implementation	14
3.3	Internal and External Data	17
3.5	Management and Operational System	22
4	FIRST PERIODIC VERIFICATION FINDINGS	23
4.1	Completeness of Monitoring	23
4.2	Accuracy of Emission Reduction Calculations	24
4.3	Quality Evidence to Determine Emissions Reductions	25
4.4	Management System and Quality Assurance	25
5	PROJECT SCORECARD	27
6	INITIAL AND FIRST PERIODIC VERIFICATION STATEMENT	28
7	REFERENCES	29
	APPENDIX A: COMPANY JI PROJECT VERIFICATION PROTOCOL	31
	APPENDIX B: VERIFICATION TEAM	58
	APPENDIX C: DOCUMENTS CHECKED DURING VERIFICATION	59



1 INTRODUCTION

Carbon Finance Unit (ENVCF), MSN MC 3-309 The World Bank Group has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Revamping and Modernization of the Alchevsk Steel Mill" (hereafter called "the project") at Alchevsk, Ukraine, UNFCCC JI Reference Number 1000022.

This report summarizes the findings of the verification of the project, performed on the basis of criteria given to provide for consistent project operations, monitoring and reporting, and contains a statement for the verified emission reductions. The order includes the initial and first periodic verification of the project.

This report summarizes the findings of the initial and first periodic verification. It is based on the Initial Verification Report Template Version 3.0, December 2003 and on the Periodic Verification Report Template Version 3.0, December 2003, both part of the Validation and Verification Manual (VVM) published by International Emission Trading Association (IETA).

Initial and first periodic verification has been performed as one integrated activity. It consisted of a desk review of the project documents including PDD, monitoring plan, determination report, monitoring report and further documentation.

The results of the determination were documented by "Climate and Energy" of TÜV Süddeutschland in the report: "Revamping and Modernization of the Alchevsk Steel Mill, Ukraine" Report No. 947241 dated April 23d, 2008.

The reductions for period 2005-2007 were verified by Bureau Veritas Certification Holding SAS and verification report "Revamping and Modernization of the Alchevsk Steel Mill, Ukraine" Report No. 0007/2008 dated December 1st, 2008. Verification report contains initial verification and early credit verification (see Section 7).

Project is approved by the National Environmental Investment Agency of Ukraine and Ministry of Economical Affairs in Netherlands (Letters of approval are presented, see Section 7) and registered under Track 1.

1.1 Objective

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

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

Initial Verification: The objective of an initial verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions. A separate initial verification



VERIFICATION REPORT

prior to the project entering into regular operations is not a mandatory requirement.

Periodic Verification: The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; furthermore the periodic verification evaluates the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is free of material misstatements; and verifies that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records. If no prior initial verification has been carried out, the objective of the first periodic verification also includes the objectives of the initial verification.

The verification follows UNFCCC criteria referring to the Kyoto Protocol criteria, the JI/CDM rules and modalities, and the subsequent decisions by the JISC, 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 Designated Operational 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. Bureau Veritas Certification has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the verification, focusing on the identification of significant risks of the project implementation and the generation of ERUs.

The verification is not meant to provide any consulting towards the Client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

The audit team has been provided with a Monitoring Report version 1 and underlying data records, covering the period 01 January 2008 to 31 December 2008 inclusive (see Section 7).

1.3 GHG Project Description

OJSC Alchevsk Iron and Steel Works (AISW) is currently the 5th largest integrated iron and steel plant in Ukraine. It is located in the city of Alchevsk in Lugansk Oblast, Eastern Ukraine. It is part of the Industrial Union of Donbass (IUD), an industrial group that is a major shareholder in



VERIFICATION REPORT

a number of metallurgical enterprises in Ukraine as well as in Poland and Hungary.

While one of the more modern integrated steel works in Ukraine, AISW was fairly typical of the Ukrainian iron and steel sector up to 2004 in terms of the vintage of technologies. The current facilities are mainly built in the 1950s and 1960s with the exception of new Open Hearth Furnace (TSU 1,2) commissioned in 2005. The plant has high energy intensity. AISW has a Sinter Plant, Lime Kilns, four Blast Furnaces, four old Open Hearth Furnaces and one recent Tandem Open Hearth Furnace, Ingot Casting, Blooming Mill and several other mills.

IUD is implementing a US\$1.5 billion capital investment program to modernize operations in its two Ukrainian plants including AISW over the period of 2004 - 2010 with financing of currently committed components in part being supplied by IFC through a US\$100 million direct loan and participation in a syndicated loan facility in the amount of US\$250 million. The rest of the financing is being sourced from commercial banks.

Beginning in 2004 and now coming on stream, modernization program at AISW has the integrated objectives of applying more efficient technology, improving environmental performance, increasing capacity and therefore competitiveness (reducing costs per tonne of steel produced). This modernization program is planned to involve technology replacement or upgrade of all major components of the iron and steel making and finishing processes.

The program's initial focus at AISW has been on steel production with the replacement of the old OHFs with two modern basic oxygen furnaces (Converters) integrated with continuous Slab Casters to replace the existing Blooming Mill utilizing Joint Implementation with the total investment costs of US\$ 944 million as described in PDD.

Planned but as yet uncommitted due to lack of financing and other impediments are other upstream investments including replacement of the existing sinter machines and upgrading of Blast Furnaces on a progressive basis. These activities could be subject to additional JI projects. The overall capacity of the plant expressed as steel production will be increased approximately from 3.6 Mt/a to 6.9 Mt/a.

When the discussions concerning modernization and capacity increases at AISW were initiated in order to increase competitiveness, the business-as-usual choice would have been to base the project on the existing technology as occurred during a similar upgrade commissioned in 2005 as a result of an investment decision made in 2002. OHF technology was available, well known at the company and had considerably lower initial investment costs than other more efficient technologies. OHF, Ingot Casting, and Blooming Mills might not be state of art in some parts in the world, but it is still prevalent in Ukraine, i.e. competitiveness could have been increased with traditional technology.

As documented in minutes of Meeting of the Technical Council of the Plant, 26th May, 2003, possibility to utilize Kyoto mechanisms provided the incentive to invest in more energy efficient technology. In the baseline



VERIFICATION REPORT

scenario, the AISW would add new facilities using the recent OHF technology. The project, however, will replace the old OHF process by modern Linz-Donawitz Method (LD) Converters, as well as the substitution of the current Ingot Casting and Blooming Mill by a modern Slab Caster. Due to the improvement in technology, less fossil fuels and material inputs (pig iron) will be needed after implementation of the project compared to the baseline case and therefore carbon dioxide emissions are reduced.

Steel making process

Steel is a metal alloy whose major component is iron, with carbon content between 0.02% and 1.7% by weight. Carbon and other elements act as hardening agents. The first part of the process of producing steel is to combine the main ingredients of coal (coke), iron ore in the pelletized form of sinter and lime in Blast Furnaces to produce pig iron. Pig iron is the immediate product of smelting iron ore with coke and limestone in a blast furnace. It has a very high carbon content, typically 3.5%, which makes it very brittle and not useful directly as a material except for limited applications.

In the basic oxygen process proposed in this project, molten pig iron and some scrap steel are placed in a ladle, and 99% pure oxygen are blown onto the steel and iron, causing the temperature to rise to about 1700°C. This melts the scrap, lowers the carbon content of the molten iron and helps remove unwanted chemical elements. Fluxes (like lime) are fed into the vessel to form slag which absorbs impurities of the steelmaking process. Steel is further refined in the Ladle Furnace and cast into slabs in a Continuous Caster.

AISW has used a traditional steel making technology - Open Hearth Furnaces (OHF), Ingot Casting, and Blooming Mills to produce semi-finished products. The pig iron, limestone and iron ore go into an Open Hearth Furnace which has a wide, saucer-shaped hearth and a low roof. It is heated to about 1600 °F (871 °C). The limestone and ore forms a slag that floats on the surface. Impurities, including carbon, are oxidized and float out of the iron into the slag.

2 METHODOLOGY

The verification is as a desk review and field visit including discussions and interviews with selected experts and stakeholders.

In order to ensure transparency, a verification protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF) a verification protocol is used as part of the verification (see Section 7). 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 organises, details and clarifies the requirements the project is expected to meet; and



VERIFICATION REPORT

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 verification protocol consists of one table under Initial Verification checklist and four tables under Periodic verification checklist. The different columns in these tables are described in Figure 1.

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

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

Initial Verification Protocol Table 1			
Objective	Reference	Comments	Conclusion (CARs/FARs)
The requirements the project must meet	Gives reference to where the requirement is found.	Description of circumstances and further comments on the conclusion	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance of the stated requirements. Forward Action Request (FAR) indicates essential risks for further periodic verifications.

Periodic Verification Checklist Protocol Table 2: Data Management System/Controls		
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.	A score is assigned as follows: <ul style="list-style-type: none"> • Full - all best-practice expectations are implemented. • Partial - a proportion of the best practice expectations is implemented • Limited - this should be given if little or none of the system component is in place. 	Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non compliance with stated requirements. The corrective action requests are numbered and presented to the client in the verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications.

Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing
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VERIFICATION REPORT

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>Identify and list potential reporting risks based on an assessment of the emission estimation procedures, i.e.</p> <ul style="list-style-type: none"> ➤ the calculation methods, ➤ raw data collection and sources of supporting documentation, ➤ reports/databases/information systems from which data is obtained. <p>Identify key source data. Examples of source data include metering records, process monitors, operational logs, laboratory/analytical data, accounting records, utility data and vendor data. Check appropriate calibration and maintenance of equipment, and assess the likely accuracy of data supplied.</p> <p>Focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include:</p> <ul style="list-style-type: none"> ➤ manual transfer of data/manual calculations, ➤ unclear origins of data, ➤ accuracy due to technological limitations, ➤ lack of appropriate data protection measures? For example, protected calculation cells in spreadsheets and/or password restrictions. 	<p>Identify the key controls for each area with potential reporting risks. Assess the adequacy of the key controls and eventually test that the key controls are actually in operation.</p> <p>Internal controls include (not exhaustive):</p> <ul style="list-style-type: none"> ➤ Understanding of responsibilities and roles ➤ Reporting, reviewing and formal management approval of data; ➤ Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc. ➤ Controls to ensure the arithmetical accuracy of the GHG data generated and accounting records e.g. internal audits, and checking/ review procedures; ➤ Controls over the computer information systems; ➤ Review processes for identification and understanding of key process parameters and implementation of calibration maintenance regimes ➤ Comparing and analysing the GHG data with previous periods, targets and benchmarks. <p>When testing the specific internal controls, the following questions are considered:</p> <ol style="list-style-type: none"> 1. Is the control designed properly to ensure that it would either prevent or detect and correct any significant misstatements? 2. To what extent have the internal controls been implemented according to their design; 3. To what extent have the internal controls (if existing) functioned 	<p>Identify areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks</p> <p>Areas where data accuracy, completeness and consistency could be improved are highlighted.</p>



VERIFICATION REPORT

	<p>properly (policies and procedures have been followed) throughout the period?</p> <p>4. How does management assess the internal control as reliable?</p>	
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Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing		
Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
<p>List the residual areas of risks (Table 2 where detailed audit testing is necessary.</p> <p>In addition, other material areas may be selected for detailed audit testing.</p>	<p>The additional verification testing performed is described. Testing may include:</p> <ol style="list-style-type: none"> 1. Sample cross checking of manual transfers of data 2. Recalculation 3. Spreadsheet 'walk throughs' to check links and equations 4. Inspection of calibration and maintenance records for key equipment <ul style="list-style-type: none"> ➤ Check sampling analysis results ➤ Discussions with process engineers who have detailed knowledge of process uncertainty/error bands. 	<p>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties should be highlighted.</p> <p>Errors and uncertainty can be due to a number of reasons:</p> <ul style="list-style-type: none"> ➤ Calculation errors. These may be due to inaccurate manual transposition, use of inappropriate emission factors or assumptions etc. ➤ Lack of clarity in the monitoring plan. This could lead to inconsistent approaches to calculations or scope of reported data. ➤ Technological limitations. There may be inherent uncertainties (error bands) associated with the methods used to measure emissions e.g. use of particular equipment such as meters. ➤ Lack of source data. Data for some sources may not be cost effective or practical to collect. This may result in the use of default data which has been derived based on certain assumptions/conditions and which will therefore have varying applicability in different situations. <p>The second two categories are explored with the site personnel, based on their knowledge and experience of the processes. High risk process parameters or source data (i.e. those with a significant influence on the reported data, such as meters) are reviewed for these uncertainties.</p>



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

Figure 1 Verification protocol tables

2.1 Review of Documents

The Monitoring Report (MR) version 1 dated 18 of February 2009 submitted by OJSC „AISW” and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), applied methodology, Kyoto Protocol, Clarifications on Verification Requirements to be checked were reviewed.

The verification findings presented in this report relate to the project as described in the PDD version 4 and Monitoring Report version 1.

2.2 Follow-up Interviews

On 25/03/2009 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of OJSC „AISW” were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
OJSC „Alchevsk Steel Mill”	Organizational structure. Responsibilities and authorities. Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Metering equipment control. Metering record keeping system, database.
Local Stakeholder: District State Administration	Social impacts. Environmental impacts.
Consultant: Institute for Environment and Energy Conservation	Baseline methodology. Monitoring plan. Monitoring report.



	Deviations from PDD.
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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.

Findings established during the initial verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CAR) are issued, where:

- i) there is a clear deviation concerning the implementation of the project as defined by the PDD;
- ii) requirements set by the MP or qualifications in a verification opinion have not been met; or
- iii) there is a risk that the project would not be able to deliver (high quality) ERUs.

Forward Action Requests (FAR) are issued, where:

- iv) the actual status requires a special focus on this item for the next consecutive verification, or
- v) an adjustment of the MP is recommended.

The verification team may also use the term Clarification Request (CL), which would be where:

- vi) additional information is needed to fully clarify an issue.

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 FINDINGS

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

- 1) The findings from the desk review of the original project activity documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Verification Protocol in Appendix A.
- 2) The conclusions for verification subject are presented.

In the final verification report, the discussions and the conclusions that followed the preliminary verification report and possible corrective action requests are encapsulated in this section.



3.1 Remaining issues CAR's, FAR's from previous determination/verification

One task of the verification is to check the remaining issues from the previous determination and verification or issues which are clearly defined for assessment in the PDD. The determination report, prepared by TÜV Süddeutschland, Germany, notes following open issues.

Outstanding Issue No. 1:

According to the regulations established by the Joint Implementation Supervisory Committee (JI-SC) Letters of Approval (LoAs) for the project, from both involved countries (The Netherlands and Ukraine), have to be presented to the audit team before starting the official registration process for this project at the UNFCCC Joint Implementation Supervisory Committee (JI-SC).

A formal, written letter of Approval of the Ukraine and of the responsible regional/local authorities of the Alchevsk region should be provided until the date of the first (initial) verification.

Response

Letter of Approval № 540/23/07 was issued by the National Agency of Ecological Investments from 29-th of July 2008.

Conclusion of the Verification team

Evidencing documents were seen and found satisfactory.

Issues remaining from determination report have been addressed in verification report for early credits and are reported here for better understanding. The remaining open issues from early credits verification are presented below.

FAR 1

Analysis of the measuring equipment documentation (calibration data, technical data of the equipment, list of the equipment registration measures etc) showed the difficulties in proceeding the information on the measuring equipment since the marking of the measuring equipment is different through all documentation.

Response

The measuring equipment marking system was checked and updated, which gave the opportunity to provide the same information about the marking of the measuring equipment in all relevant documents.

Conclusion of the verification team



Issue is closed.

FAR 2

Analysis of the scales «Міксер-1 НІЗ» documentation showed the difference in the weight numbers in different documents.

Response

From 2008 the scales «Міксер-1 НІЗ» are defined in all metrological and technological documents as “carriage indicating scales 301П-200”, the passport #37 for the scales was presented to the verification team. The documentation was checked and fixed.

Conclusion of the verification team

Issue is closed.

3.2 Project Implementation

3.2.1 Discussion

Open Joint Stock Company “Alchevsk Iron and Steel Mill” (OJSC “AISW”) has implemented the JI project by revamping and modernization of the Steel Plant. The project activity aims to replace existing production line with Open Hearth Furnaces, Ingot Casting and Blooming Mills by new LD Converters, Ladle Furnace, Vacuumator and Slab Casting Machines (Slab Casters).

OJSC “AISW” has used a traditional steel making technology – Open Hearth Furnaces, Ingot Casting and Blooming Mill to produce semi-finished products. The produced ingots are conglomeration of cavities. Therefore around 20-21% of ingots have to be cut off at the exit of the Blooming Mills and put back to the Open Heath Furnaces.

Alternatively with introduction of new Slab Casters and Ladle Furnace only around 3% of slabs have to be cut and put back to Open Hearth Furnaces of LD Converters (when they are installed). So the difference between traditional and existing production line and new Slab Caster line in terms of material losses is around 17-18% leading to reduced GHG emissions.

The project category is energy efficiency that is serving the reduction of end-user energy consumption in industrial applications and processes.

The project was started in 2005 with introduction of the first Slab Caster. According to the investment plan, the following major stages of project implementation have been envisaged:

Phase 1: Installation of Slab Caster #1 along with Ladle-Furnace.

Phase 2: Installation of Slab Caster #2 along with Vacuumator.

Phase 3: Installation of LD Converter #2.



VERIFICATION REPORT

Phase 4: Installation of LD Converter #1.

There is no leakage of GHG emissions associated with the project.

By the end of 2007 only first two stages (Phases) were completed. The Slab Caster #1 as put into operation in August 2005 and Slab Caster # 2 - in March 2007. Phase 3 was completed in January 2008 when LD Converter #2 was launched. LD Converter #1 started operation in September 2008 (Phase 4 was completed).

The project has been completed with some delay. In the Project Design Document (PDD) it was mentioned that Phases 1, 2 and 3 would be completed by the end of 2007. However in practice Phase 3 was completed, as it was stated above, only in January 2008. However now project is fully implemented.

The project was operational for the whole monitoring period, and emission reduction was considered for the whole period. However in last quarter of the year 2008 because of impact of global crisis the pace of steel output decreased causing decrease of project emission reductions.

The monitoring procedures for the most part are straightforward in term of what AISW already does to collect energy consumption data and measure inputs and outputs. Three set of instructions at the AISW regulate the monitoring procedures and responsibilities. They are called Guiding Metrological Instructions:

- 1) "Metrological product quality assurance" (RMI-I-19.0.1-07)
- 2) "Metrological expertise of documentation" (RMI-I-19.0.2-07)
- 3) "Management of measurement technique" (RMI-I-19.1.1-07)

The procedures for calibration of all monitoring equipment are described in RMI.19.0.1-07 and RMI-I.19.1.1-07.

The above mentioned instructions also secure the traceability of monitoring/metering devices.

The instructions have been developed in accordance with ISO 9001 requirements. They secure required accuracy of all the measurements done using monitoring equipment.

Best available techniques are used in order to minimize uncertainties. Uncertainties are generally low, typically below 2% with as all parameters are or will be monitored. All the equipment used for monitoring purposes is in line with national legislative requirements and standards and also in line with ISO 9001 standards.

Details are given in Guiding Metrological Instructions.

3.2.2 Findings

Clarification Request 1

The project timeline stated in PDD version 4 in the section A.4.2. Table 1 includes seven stages of the project implementation while monitoring report version 1 describes and states implementation of first four stages and declares that the project implementation is complete. Please provide the explanation on the implementation of the stages 5,6 and 7.



Response

Stages 5,6 and 7 envisaged reconstruction of the existing oxygen unit and building two additional new oxygen units. Oxygen units are so called secondary metallurgical elements because they generate oxygen needed for the operation of main production facilities, first of all new ones such as LD Converters and Slab Casters. Therefore oxygen units are integrated into the whole production process and can not run without Converters and Slab Casters. Monitoring report indicated only the main and the most important stages of the project realization. However it should be noted that reconstruction of oxygen unit #4 was completed on 30th of September 2005, construction of oxygen unit #7 was completed on 19th of March 2008 and construction of oxygen unit #8 is at the last stage of completion.

Conclusion of the verification team

Issue is closed.

Clarification Request 2

Auditors' team on site found out that Converter#1 was launched in operation in August 2005 but stopped in September 2008 and only Converter#2 was in operation in 2008, which is not mentioned in the monitoring report version 1. Please provide an explanation of this fact.

Response

The monitoring report stated some delay with project implementation and indicated when major projects stages were completed. However indeed one of the Converters was launched and then stopped because of sudden aggravation of market situation caused by global economic and financial crisis. Technically it was risky or not possible to operate costly equipment such as a Converter if it works only partially and with minimum loading. Basically there was no sense in operating two Converters because in the standby mode it leads to the destruction of firebrick lining. Without impact of crisis Converter could continue its operation. Therefore one of the most important stages of project realization related to introduction of both Converters was technically complete in August 2008. However further stoppage of one of the Converters did not have any impact on monitoring period. The reduced volumes of steel Converter output were properly reflected in calculations for the emissions in the monitoring plan.

Conclusion of the verification team

Issue is closed.



Clarification Request 4

The List of Monitoring Equipment does not include the monitoring equipment for converters.

Response

Monitoring report does not contain the list of monitoring devices. The list of monitoring devices was included into PDD. However at the stage of PDD preparation it was not clear which exactly monitoring devices will be installed at LD-Converters. Nevertheless AISW has prepared the list of monitoring devices for LD Converters. This list is available upon request and is attached below.

Conclusion of the verification team

Issue is closed.

3.2.3 Conclusion

The project complies with the requirements.

3.3 Internal and External Data

3.3.1 Discussion

The monitoring approach in the Monitoring Plan of the PDD version 4 requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way.

The parameters that are determined to quantify the baseline and project emissions are presented in the Table 1.

Table 1. Baseline and projectline parameters

ID Number	Data variable	Units
	Baseline Emissions (BE), Project Emissions (PE)	Tonnes CO ₂
B-1, P-1	Total Steel Output (TSO)	Tonnes
B-2, P-2	Total CO ₂ of Pig Iron (TCPI)	Tonnes CO ₂
B-3, P-3	Total CO ₂ from Fuel Consumption in Pig Iron production (TCFCPI)	Tonnes CO ₂
B-4, P-4	Percentage of Total amount of Pig Iron Produced Used in project Steel Making Activity (PII)	share
B-5, P-5	Total Pig Iron Input into Steel Making Process (TPII)	Tonnes



 VERIFICATION REPORT

B-6, P-6	Total Pig Iron Produced (TPIP)	Tonnes
B-7, P-7	Quantity of each fuel (fpi) used in making Pig Iron (Q_{fpi})	m^3 , $1000 m^3$
B-8, P-8	Emission factor of each fuel (fpi) EF_{fpi}	Tonnes CO ₂ per m^3
B-9, P-9	Total CO ₂ from Electricity used in Pig Iron production (TCEPI)	Tonnes CO ₂
B-10, P-10	Electricity Consumed in producing Pig Iron (ECPI)	MWh
B-11, P-11	Emissions Factor for Electricity Consumption in making Pig Iron (EFECPI)	Tonnes CO ₂ /Mwh
B-12, P-12	Total CO ₂ from inputs into Pig Iron (TCIPI)	Tonnes CO ₂
B-13, P-13	Total Carbon from Fuel Consumption in Sintering (TCFIO)	Tonnes CO ₂
B-14, P-14	Quantity of each fuel (fio) used in Sintering (Q_{fio})	m^3
B-15, P-15	Emission factor of each fuel in Sintering (fio) EF_{fio}	m^3
B-16, P-16	Total CO ₂ from Electricity used in Sintering (TCEIO)	Tonnes CO ₂
B-17, P-17	Electricity Consumed in Sintering (ECIO)	MWh
B-18, P-18	Emissions Factor for Electricity Consumption in Sintering (EFECIO)	Tonnes CO ₂ /MWh
B-19, P-19	Total CO ₂ from Reducing Agents (TCRAPI)	Tonnes CO ₂
B-20, P-20	Total CO ₂ from limestone (TCLPI) in Pig Iron production	Tonnes CO ₂
B-21, P-21	Total CO ₂ from steam production in Pig Iron Production (TCSPI)	Tonnes CO ₂
B-22, P-22	Quantity of each fuel (fsp) used in steam production in Pig Iron Production (Q_{fsp})	m^3
B-23, P-23	Emission factor of each fuel in steam production (fsp) EF_{fsp}	Tonnes CO ₂ per m^3
B-24, P-24	Total CO ₂ emissions from the furnace process (TCFP)	
B-25, P-25	Total CO ₂ emissions from fuel consumptions in the furnace process (TCFCFP)	Tonnes CO ₂
B-26, P-26	Quantity of each fuel (ffp) used in furnace process (Q_{ffp})	m^3
B-27, P-27	Emission factor of each fuel in furnace process (ffp) EF_{ffp}	Tonnes CO ₂ per m^3
B-28, P-28	Total CO ₂ emissions from electricity	Tonnes CO ₂

VERIFICATION REPORT

	consumption in the furnace process (TCECFP)	
B-29, P-29	Electricity Consumed in furnace process (ECFP)	MWh
B-30, P-30	Emissions Factor for Electricity Consumption in furnace process (EFECFP)	Tonnes CO ₂ /MWh
B-31, P-31	Total CO ₂ emissions from inputs to the furnace process (TCIFP)	Tonnes CO ₂
B-32, P-32	Total CO ₂ from Argon entering the furnace (TCAFP)	Tonnes CO ₂
B-33, P-33	Total CO ₂ from steam production in furnace process (TCSFP)	Tonnes CO ₂
B-34, P-34	Quantity of each fuel (fsp) used in steam production in furnace process (Q _{fsp})	m ³
B-35, P-35	Emission factor of each fuel in furnace process (fsp) EF _{fsp}	Tonnes CO ₂ per m ³
B-36, P-36	Total CO ₂ from compressed air production in furnace process (TCCAFP)	Tonnes CO ₂
B-37, P-37	Quantity of each fuel (fca) used in compressed air production in furnace process (Q _{fca})	m ³
B-38, P-38	Emission factor for each fuel in furnace process (fca) EF _{fca}	Tonnes CO ₂ per m ³
B-39	Electricity Consumed in making compressed air for the furnace process in steel making (ECCA)	MWh
B-40	Emissions Factor for Electricity Consumption (EFECCA)	Tonnes CO ₂ /MWh
B-41, P-41	Total CO ₂ from oxygen production (TCOFP)	Tonnes CO ₂
B-42, P-42	Quantity of each fuel (fop) used in oxygen production (Q _{fop})	m ³
B-43, P-43	Emission factor of each fuel in oxygen production (fop) EF _{fop}	Tonnes CO ₂ per m ³
B-44, P-44	Electricity Consumed in making oxygen (ECOP)	MWh
B-45, P-45	Emissions Factor for Electricity Consumption in making oxygen (EFECOP)	Tonnes CO ₂ /MWh
B-46, P-46	Total CO ₂ from limestone for furnace process (TCLFP)	Tonnes CO ₂
B-47	Total CO ₂ from blooming (TCBM)	Tonnes CO ₂
B-48	Total CO ₂ from fuel consumption in blooming (TCFCBM)	Tonnes CO ₂



 VERIFICATION REPORT

B-49	Quantity of each fuel (fbm) used in blooming (Q_{fbm})	m^3
B-50	Emission factor of each fuel in blooming (fbm) EF_{fbm}	Tonnes CO_2 per m^3
B-51	Total CO_2 from electricity consumption in blooming (TCECBM)	Tonnes CO_2
B-52	Electricity Consumed in blooming (ECBM)	MWh
B-53	Emissions Factor for Electricity Consumption in blooming (EFECBM)	Tonnes CO_2 /MWh
P-39	Electricity Consumed in making compressed air for the furnace process (ECCA)	MWh
P-40	Emission Factor for Electricity Consumption in compressed air production (EFECCA)	Tonnes CO_2 /MWh
P-47	Total CO_2 from casting (TCBM)	Tonnes CO_2
P-48	Total CO_2 from fuel consumption in casting (TCFCBM)	Tonnes CO_2
P-49	Quantity of each fuel (fbm) used in casting (Q_{fbm})	m^3
P-50	Emission factor of each fuel used in casting (fbm) EF_{fbm}	Tonnes CO_2 per m^3
P-51	Total CO_2 from electricity consumption in casting (TCECBM)	Tonnes CO_2
P-52	Electricity Consumed in casting (ECBM)	MWh
P-53	Emissions Factor for Electricity Consumption in casting (EFECBM)	Tonnes CO_2 /MWh

According to the PDD version 4 during verification the AIE has to check the specific consumption of pig iron consumed during the monitoring period and compare it with the calculations provided in the Project Design Document. The amount of total pig iron input into steel making process stated in PDD version 4 is 4 514 805 t while the monitoring report version 1 states the number of 2 432 364 t. (The difference is explained by the sluggish situation on the steel market due to the global economic crisis.) The amount of total steel output calculated in PDD version 4 is 4 759 000 t while the monitoring report version 1 states the number of 2 460 922 t. The pig iron specific consumption in 2008 was 0,99 but initial calculations in the PDD gave specific consumption 0,95. The increase of the pig iron specific consumption was explained by the use of Convertors instead of the open hearth furnaces.



3.3.2 Findings

Clarification Request 6

Data presented in the Monitoring Report 01 section 6 differed from data seen onsite in the monitoring database by the auditor, the difference in figures was insignificant. Please provide an explanation.

Response

The mentioned difference is normal fluctuation between data in different documents where different approximation was used. In general the difference represents only less than one tens of percent. Besides data in the monitoring report were more conservative towards identified difference therefore monitoring report was not changed.

Conclusion of the verification team

Issue is closed.

Clarification Request 7

The external parameters are obtained according to the monitoring plan: monitoring report version 01, section 6 contains external parameters that are monitored. Please provide the sources of external data.

Response

The external parameters such as natural gas, coke, coal are purchased from the third parties. Quality of purchased energy sources is indicated in the products' certificates together with commercial supply. The laboratory of AISW according to sampling program performs tests of the quality of external energy sources. So the data can be found in the quality certificates and other accompanying documentation which are provided by suppliers.

Conclusion of the verification team

Issue is closed.

Clarification Request 8

The external parameters are obtained according to the monitoring plan: monitoring report version 01, section 6 contains external parameters that are monitored. Please provide the information considering access to external data.

Response



See CL7. The project entity has all the evidences (certificates and results of tests mentioned above) about the external parameters used for the purpose of monitoring plan preparation. Monitoring report also used carbon emission factor for electricity displacement based on standard national figures verified by AIE TUEV SUED (attached to the PDD version 4, see Section 7).

Conclusion of the verification team

Issue is closed.

3.3.3 Conclusion

The project complies with the requirements.

3.4 Environmental and Social Indicators

3.4.1 Discussion

The project activity is an energy efficient project which saves consumption of natural gas and coke oven gas as well as coal and coke. During the monitoring period, significant amount of fossil fuel and electricity, that would have been required if the project had not been implemented, has been saved.

This project, by reducing GHG emissions, contributes towards a better environment and hence works towards social well-being for all. Project implementation will lead to improvement of ecological climate of the region, increase of payments to the budgets of all levels for social needs, prevention of reduction of working places and better working conditions at Still Mill.

After modernization AISW became the most Integrated Steel Producer based on Converter Steel Making in Ukraine for the production of high quality steel grades. This has large demonstration effect for other Ukrainian Steel Mills.

1. 3.4.2 Findings

None

2. 3.4.3. Conclusion

The project complies with the JI requirements as well as with the local requirements.

3.5 Management and Operational System

3.5.1 Discussion



VERIFICATION REPORT

Data is collected into electronic database of OJSC “AISW” as well as in paper format. Data is further compiled in day-to-day records and annual records. All records are finally stored in Planning Department.

The performance of the measurements is being used by relevant services and technical personnel of the iron works. They will be considered in the technological instructions for the regimes of conducting the technological processes and in the revision of Guiding Metrological Instructions.

3.5.2 Findings

None.

3.5.2 Conclusion

The Monitoring Report and the Management and Operational Systems are eligible for reliable project monitoring.

4 FIRST PERIODIC VERIFICATION FINDINGS

4.1 Completeness of Monitoring

4.1.1 Discussion

The reporting procedures reflect the monitoring plan completely. It is confirmed that the monitoring report does comply with the monitoring methodology and PDD.

All parameters were determined as prescribed. The complete data is stored electronically and documented. The necessary procedures have been defined in internal procedures.

According to PDD version 4, emission reductions during 2008 monitoring period were expected to be 844 425 t CO₂ e. According to Monitoring Report version 1 emission reductions achieved are 643 006 t CO₂ e. The difference in the emission reductions is explained as follows. The project was operational for the whole monitoring period, and emission reduction was considered for the whole period. However in last quarter of the year 2008 because of impact of global crisis the pace of steel output decreased causing decrease of project emission reductions.

4.1.2 Findings

None.

4.1.3 Conclusion



The project complies with the requirements.

4.2 Accuracy of Emission Reduction Calculations

4.2.1 Discussion

The audit team confirms that emission reduction calculations have been performed according to the Monitoring Plan.

Possible uncertainties and errors for such type project may arise from two main reasons: measurement and stipulation. Measurement error is due to metering equipment inaccuracies. Stipulation occurs when some values are required to complete calculations, but these values cannot be measured directly. In these cases estimates are used in place of actual measurements, and therefore error may be introduced. The stipulation error itself may be estimated based on the expected accuracy of the stipulated values.

The project error can be calculated from the two error components described above. The total project error (Standard Error, SE) can be calculated by taking the square root of the sum of the squares of the individual error components, as below:

$$SE = \sqrt{[(\text{measurement error})^2 + (\text{stipulation error})^2]}$$

The monitoring plan developed for this project does not rely on any estimates and is therefore free of any stipulation errors.

$$\text{Thus, } SE = \sqrt{[(\text{measurement error})^2 + (0)^2]} = (\text{measurement error})$$

Project consists of the 53 monitoring parameters. Some of the parameters that are used in the calculation of the baseline and project emissions are measured directly with the use of special equipment while others are estimated with the use of appropriate coefficients.

4.2.2 Findings

Clarification Request 3

Please provide information on how the level of uncertainty is taken into account.

Response

During calculation of the GHG emissions the level of uncertainty is taken into account according to the Article 10 part 1 of “Law of Ukraine on Metrology and Metrological Activity”, which states the level of uncertainty. The data on measuring equipment, uncertainty and calibration etc for the period from 01/01/2008 to 31/12/2008 was presented to the verification team.

VERIFICATION REPORT

Calculation of the limestone and dolomite, defining the purity of the fraction etc is performed in accordance with TY Y 14.1-00191827-001-2003 "Limestone fluxing OJSC "Komsomolske rudoupravlinnya". The existing method of calculation includes measurement uncertainty in the finite data.

Level of uncertainty of data collected is established in the measuring equipment certificates and verified according established schedules.

Conclusion of the verification team

Issue is closed.

4.2.3 Conclusion

The project complies with the requirements. Data correction regarding accuracy of the meters was checked onsite and found to be adequate.

4.3 Quality Evidence to Determine Emissions Reductions**4.3.1 Discussion**

Concerning verification the calculation of emission reductions is based on internal data. The origin of those data was explicitly checked. Further on, entering and processing of those data in the monitoring workbook Excel sheet was checked where predefined algorithms compute the annual value of the emission reductions. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for key equipment was performed for all relevant meters.

Necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the various parameters on daily basis.

4.3.2 Findings

None

4.3.3 Conclusion

The project complies with the requirements.

4.4 Management System and Quality Assurance**4.4.1 Discussion**

The roles and responsibilities for monitoring of emission reductions are defined for the verification of measurement, data collection as well as for the preparation of monitoring report.

The Chief Metrological Specialist of the OJSC "AISW" is in charge for

VERIFICATION REPORT

maintenance of the monitoring equipment and installations as well as for their accuracy required Regulation PP 229-Յ-056-863/02-2005 “On metrological services of the iron works” and on Guiding Metrological Instructions. In case of defect is discovered in the monitoring equipment the actions are determined in Guiding Metrological Instructions. The measurements are conducted on continuous basis and automatically.

Data is collected into electronic database of OJSC “AISW” as well as in paper format. Data is further compiled in day-to-day records and annual records. All records are finally stored in Planning Department.

The data will be cross checked as well as internal audits and corrective actions are taken as defined in Instructions. For the project case, similar procedures will followed based on forthcoming Order of Director General of the Plant defining the exact JI monitoring procedures. Responsibilities for JI monitoring are indicated in table 6 of the PDD version 4.

4.4.2 Findings

Forward Action Request 1

Please include the information considering qualification and training of the staff to the next version of the Monitoring Report.

Response

The information considering qualification and training of staff is available now at the project site. However following the request from verifier next Monitoring report will incorporate the more detailed explanation about formation of staff training and qualification programs.

Conclusion of the verification team

The issue should be checked during next verification.

Clarification Request 5

Please provide more information on roles and responsibilities of people in charge of monitoring procedures as well as on the person who developed Monitoring report.

Response



 VERIFICATION REPORT

The monitoring report was prepared by project developer, Institute for Environment and Energy Conservation based on data provided by OJSC “AISW”.

The main people who handled the monitoring process at the OJSC “AISW” can be divided into 2 groups.

The first group includes people who responsible for the quantitative indicators:

- principal metrologist, control equipment supervisors and services of automatic control system in technological process;
- the head of the plant weight service and his designees;
- the head of raw materials and fuels and his deputies.

The second group includes people who responsible for qualitative data:

- the head of the technical department of the plant and his deputies;
- the head of central laboratory at the plant and his deputies;
- the head of planning and economical department and his deputies.

The general coordination of the monitoring procedures at the Plant for the purpose of the monitoring report preparation was done by Mr. Bremze, Deputy Chief Engineer.

Conclusion of the verification team

Issue is closed.

4.4.3 Conclusion

The project complies with the requirements.

5 PROJECT SCORECARD

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Accuracy	Physical Measurement and Analysis	✓	✓	✓	State-of-the-art technology is applied in an appropriate manner. Appropriate backup solutions are provided.
	Data calculations	✓	✓	✓	Emission reductions are calculated correctly
	Data management & reporting	✓	✓	✓	Data management and reporting were found to be satisfying.
Completeness	Source coverage/ boundary definition	✓	✓	✓	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently.



 VERIFICATION REPORT

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Consistency	Changes in the project	✓	✓	✓	Results are consistent to underlying raw data.

6 INITIAL AND FIRST PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification has performed a verification of the JI project “Revamping and Modernization of the Alchevsk Steel Mill”. The verification is based on the currently valid documentation of the United Nations Framework Convention on the Climate Change (UNFCCC).

The management of the OJSC “AISW” 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 4. 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 1 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered 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 calculated without material misstatements. Our opinion relates to the project’s GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated we confirm the following statement:

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

Baseline emissions : 6 240 733 t CO2 equivalents.
 Project emissions : 5 590 727 t CO2 equivalents.
 Emission Reductions : 643 006 t CO2 equivalents.



7 REFERENCES

Category 1 Documents:

Documents provided by Type the name of the company that relates directly to the GHG components of the project.

- /1/ Project Design Document, version 04 dated 30 of March 2008
- /2/ Monitoring Report version 01 , dated 18 of February 2009
- /3/ Verification Report on Early Credits by Bureau Veritas Certification Holding SAS, dated 1 December 2008
- /4/ Determination Report by the TÜV Süddeutschland, Germany, dated 25 of May 2004
- /5/ Letter of Approval of National Ecological Investment Agency of Ukraine, № 540/23/07 from 29.07.2008
- /6/ Approval of Voluntary participation in a Joint Implementation project of Ministry of Economical Affairs in Netherlands №2007JI03, dated 25 of October 2007

Category 2 Documents:

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

- /7/ Documents checked during the verification onsite are presented in Annex C

Persons interviewed:

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

- /1/ Ageeva Valentina, Deputy Head of Environmental Prc.
- /2/ Belakh Olga, Head of Planning & Economy Department
- /3/ Bremze Georgy, Deputy Energetic General
- /4/ Fokin Igor, Deputy Energetic General
- /5/ Kosenko Evgeniy, Chief Master
- /6/ Masula Vyacheslav, Acting Head engineer
- /7/ Menyailo Valentin, Head of Safety Department
- /8/ Pashenko Mykola, Engineer-metrologist
- /9/ Pavlonikov Valery, Capital Construction - Head of Unit
- /10/ Poyanov Maksym, Master of Measuring Systems Calculation



- /11/ Prutkov Genadiy, Human Resources Deputy Director
- /12/ Sidorov Pavel, Metrologist General, Shop PSI Head
- /13/ Zinovyev Aleksandr, Head of the bureau of metallurgic constructions, Production department.

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APPENDIX A: COMPANY JI PROJECT VERIFICATION PROTOCOL

Initial Verification Protocol Table 1

Objective	Reference	Comments	Conclusion (CARs/FARs)
1. Opening Session			
1.1. Introduction to audits	<i>/7/</i>	<p>The intention and the target of the audit were illustrated to the participants of the audit. Participants at the audit were the following persons: Verification team: Mr. Ivan Sokolov Lead Auditor, Bureau Veritas Ukraine, Mrs. Nadezhda Kaiiun, Auditor, Bureau Veritas Ukraine, Kateryna Zinevych, specialist, Bureau Veritas Ukraine.</p> <p>Interviewed persons: Alchevsk Iron & Steel Works:</p> <p>Ageeva Valentina, Deputy Head of Environmental Prc. Belakh Olga, Head of Planning & Economy Department Bremze Georgy, Deputy Energetic General Fokin Igor, Deputy Energetic General Kosenko Evgeniy, Chief Master Masula Vyacheslav, Acting Head engineer Menyailo Valentin, Head of Safety Department Pashenko Mykola, Engineer-metrologist Pavlonikov Valery, Capital Construction - Head of Unit Poyanov Maksym, Master of Measuring Systems Calculation</p>	OK



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VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Prutkov Genadiy, Human Resources Deputy Director Sidorov Pavel, Metrologist General, Shop PSI Head Zinovyev Aleksandr, Head of the bureau of metallurgic constructions, Production department.	
1.2. Clarification of access to data archives, records, plans, drawings etc.	/2/	The verification team got open access to all required plans, data, records, drawings and to all relevant facilities.	OK
1.3. Contractors for equipment and installation works	/2,7/	Project has been implemented as defined in the PDD version 4 and the implementation is evidenced by statements of work completion.	OK
1.4. Actual status of installation works	/2/	Implementation of Revamping and Modernization of the Alchevsk Steel Mill is realized with the deviations to the project timeline due to the financing issues caused by the difficult economical situation all over the world. By the end of 2007 only first two stages (Phases) were completed. The Slab Caster #1 was put into operation in August 2005 and Slab Caster # 2 - in March 2007. Phase 3 was completed in January 2008 when LD Converter #2 was launched. LD Converter #1 started operation in September 2008 (Phase 4 was completed).	OK
2. Open issues indicated in validation report			
2.1. Missing steps to final approval	/5,6/	Based on the validation report the verification team identified no missing steps. The project has been approved by NFP.	OK



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VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
3. Implementation of the project			
3.1. Physical components	/2/	<p>Four first stages of the project plan have been implemented with some deviations.</p> <p><u>Clarification Request 1</u> The project timeline stated in PDD version 4 in the section A.4.2. Table 1 includes seven stages of the project implementation while monitoring report version 1 describes and states implementation of first four stages and declares that the project implementation is complete. Please provide the explanation on the implementation of the stages 5,6 and 7.</p> <p><u>Clarification Request 2</u> Auditors' team on site found out that Converter#1 was launched in operation in August 2005 but stopped in September 2008 and only Converter#2 was in operation in 2008, which is not mentioned in the monitoring report version 1. Please provide an explanation of this fact.</p>	<p>CL1</p> <p>CL2</p>
3.2. Project boundaries	/1/, /2/, /3/, /4/	Yes, the project boundaries are as defined in the PDD version 4.	OK



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VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.3. Monitoring and metering systems	/2/	<p>The monitoring procedures for the most part are straightforward in term of what AISW already does to collect energy consumption data and measure inputs and outputs within certified to ISO 9001 Quality Management System. Three set of instructions at the AISW regulate the monitoring procedures and responsibilities. They are called Guiding Metrological Instructions:</p> <ol style="list-style-type: none"> 1) "Metrological product quality assurance" (RMI-I-19.0.1-07) 2) "Metrological expertise of documentation" (RMI-I-19.0.2-07) 3) "Management of measurement technique" (RMI-I-19.1.1-07) <p>The procedures for calibration of all monitoring equipment are described in RMII.19.0.1-07 and RMI-I.19.1.1-07.</p> <p>The above mentioned instructions also secure the traceability of monitoring/metering devices.</p>	OK
3.4. Data uncertainty	/2/	<p>Best available techniques are used in order to minimize uncertainties. Uncertainties are generally low.</p> <p><u>Clarification Request 3</u> Please provide information on how the level of uncertainty is taken into account.</p>	CL3



VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.5. Calibration and quality assurance	/2/	<p>All monitoring equipment is part of detailed calibration plan. The procedures for calibration of all monitoring equipment are described in RMII. 19.0.1-07 and RMI-I.19.1.1-07.</p> <p>On the date of verification, Calibration records of the measuring and monitoring equipment has been verified at site. All the meters have been found to be calibrated regularly as per determined calibration plan for each site.</p> <p><u>Clarification Request 4</u></p> <p>The List of Monitoring Equipment does not include the monitoring equipment for converters.</p>	CL4
3.6. Data acquisition and data processing systems	/2/	<p>Data is collected into electronic database of AISW as well as in paper format. Data is further compiled in day-to-day records and annual records. All records are finally stored in Planning Department.</p> <p>The results of the measurements are being used by relevant services and technical personnel of the iron works. They will be reflected in the technological instructions for the regimes of conducting the technological processes and in the revision of Guiding Metrological Instructions.</p>	OK
3.7. Reporting procedures	/2/	<p>The Monitoring Plan defines the responsibilities to consolidate the data required for emission reduction calculations. According to PDD version 4 the general coordination and reporting of the monitoring is</p>	OK



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VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
		responsibility of Chief Energy Specialist.	
3.8. Documented instructions	/2/	Section 8 of the Monitoring Report version 01. Data processing and archiving (including software used) of the Monitoring Report version 01 provides with the necessary information relating the procedures for the monitoring, measurements and reporting. These were verified onsite and found satisfactory.	OK
3.9. Qualification and training	/2/	<p>During interviews onsite training was checked and found adequate. Information considering qualification and training is not provided in the Monitoring Report version 01 however the list of employees training of the AISW was provided onsite.</p> <p><u>Forward Action Request 5</u></p> <p>Please include the information considering qualification and training of the staff to the next version of the Monitoring Report.</p>	FAR1
3.10. Responsibilities	/2/	<p>The Chief Metrological Specialist of the AISW is in charge for maintenance of the monitoring equipment and installations as well as for their accuracy required Regulation PP 229-9-056-863/02-2005 "On metrological services of the iron works" and on Guiding Metrological Instructions.</p> <p><u>Clarification Request 6</u></p>	



VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Please provide more information on roles and responsibilities of people in charge of monitoring procedures as well as on the person who developed Monitoring report version 01.	CL5
3.11. Troubleshooting procedures	/2/	In case of defect is discovered in the monitoring equipment the actions are determined in Guiding Metrological Instructions. The measurements are conducted on continuous basis and automatically.	OK
4. Internal Data			
4.1. Type and sources of internal data	/2/	The internal parameters are obtained according to the monitoring plan: monitoring report version 01, section 6 contains internal parameters that are monitored. <u>Clarification Request 7</u> Data presented in the Monitoring Report 01 section 6 differed from data seen onsite in the monitoring database by the auditor, the difference was insignificant. Please provide an explanation.	CL6
4.2. Data collection	/2/	Data is collected into electronic database of AISW as well as in paper format. Data is further compiled in day-to-day records and annual records. All records are finally stored in Planning Department. The results of the measurements are being used by relevant services and technical personnel of the iron works. They will be reflected in the	OK



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Objective	Reference	Comments	Conclusion (CARs/FARs)
		technological instructions for the regimes of conducting the technological processes and in the revision of Guiding Metrological Instructions.	
4.3. Quality assurance	/2/	Section 9 of the Monitoring Report version 01. The data will be cross checked as well as internal audits and corrective actions are taken as defined in Instructions. For the project case, similar procedures will followed based on forthcoming Order of Director General of the Plant defining the exact JI monitoring procedures. Responsibilities for JI monitoring are indicated in table 6 of the PDD version 4.	OK
4.4. Significance and reporting risks	/2/	In case of defect is discovered in the monitoring equipment the actions are determined in Guiding Metrological Instructions. The measurements are conducted on continuous basis and automatically.	OK
5. External Data			
5.1. Type and sources of external data	/2/	<u>Clarification Request 8</u> The external parameters are obtained according to the monitoring plan: monitoring report version 01, section 6 contains external parameters that are monitored. Please provide the sources of external data.	CL7



VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
5.2. Access to external data	/2/	<u>Clarification Request 9</u> The external parameters are obtained according to the monitoring plan: monitoring report version 01, section 6 contains external parameters that are monitored. Please provide the information considering access to external data.	CL8
5.3. Quality assurance	/2/	See chapter 5.1.	OK
5.4. Data uncertainty	/2/	See chapter 5.1.	OK
5.5. Emergency procedures	/2/	See chapter 5.1.	OK
6. Environmental and Social Indicators			
6.1. Implementation of measures	/2/	The environmental and social indicators are not defined in the monitoring plan. Hence the question is not applicable. But the client takes action on a voluntary basis regarding environmental and social issues: This project, by reducing GHG emissions, contributes towards a better environment and hence works towards social well-being for all. Project implementation will lead to improvement of ecological climate of the	OK



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VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
		<p>region, increase of payments to the budgets of all levels for social needs, prevention of reduction of working places and better working conditions at Still Mill.</p> <p>After modernization AISW became the most Integrated Steel Producer based on Converter Steel Making in Ukraine for the production of high quality steel grades. This has large demonstration effect for other Ukrainian Steel Mills.</p>	
6.2. Monitoring equipment	/2/	See chapter 6.1.	OK
6.3. Quality assurance procedures	/2/	See chapter 6.1.	OK
6.4. External data	/2/	See chapter 6.1.	OK
7. Management and Operational System			
7.1. Documentation	/2/	The company complies with all legal and statutory requirements of the Ukraine and the same were made available to the verification team. AISW has all the necessary permissions and licenses, issued by the State Inspection on Labor Safety.	OK
7.2. Qualification and training	/2/	See chapter 3.9 of this protocol.	OK
7.3. Allocation of responsibilities	/2/	The responsibilities and authorities are described for each individual in job descriptions as required statutorily. Persons working at sites are	OK



VERIFICATION REPORT

Objective	Reference	Comments	Conclusion (CARs/FARs)
		aware of their responsibilities, and relative records are maintained.	
7.4. Emergency procedures	/2/	The emergency procedures with respect to operation controls are available in data control	OK
7.5. Data archiving	/2/	Data are archived in the physical and electronic forms and then stored in Planning Department.	OK
7.6. Monitoring report	/2/	Data information is laid down in the monitoring report.	OK
7.7. Internal audits and management review	/2/	The data is cross checked as well as internal audits and corrective actions are taken as defined in Instructions. For the project case, similar procedures will followed based on forthcoming Order of Director General of the Plant defining the exact JI monitoring procedures. Responsibilities for JI monitoring are indicated in table 6 of the PDD version 4.	OK



VERIFICATION REPORT

Periodic Verification Checklist Protocol Table 2: Data Management System/Controls
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Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
1. Defined organizational structure, responsibilities and competencies		
1.1. Position and roles	Full	The Chief Metrological Specialist of the AISW is in charge for maintenance of the monitoring equipment and installations as well as for their accuracy required Regulation PP 229-Յ-056-863/02-2005 “On metrological services of the iron works” and on Guiding Metrological Instructions.
1.2. Responsibilities	Full	The Chief Metrological Specialist of the AISW is in charge for maintenance of the monitoring equipment and installations as well as for their accuracy required Regulation PP 229-Յ-056-863/02-2005 “On metrological services of the iron works” and on Guiding Metrological Instructions.
1.3. Competencies needed	Full	The responsibilities and authorities are described for each individual in job descriptions as required statutorily. Training needs were identified in advance and training was delivered that was checked onsite.
2. Conformance with monitoring plan		
2.1. Reporting procedures	Full	The monitoring plan is as per the registered PDD version 4. The applauded version of PDD version 4 is publicly available at the site http://ji.unfcc.int/JIITLProject/DB/V75OZ8TQOFTB325LEDMXE2628ZD548/details



VERIFICATION REPORT

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		<p>where it was placed during determination process.</p> <p>The monitoring methodology developed for specifically for this project was used in monitoring process.</p>
2.2. Necessary Changes	Full	<p>The project has been completed with some delay. In the PDD version 4it was mentioned that Phases 1, 2 and 3 would be completed by the end of 2007. However in practice Phase 3 was completed, as it was stated above, only in January 2008. However now project is fully implemented.</p> <p>The project was operational for the whole monitoring period, and emission reduction was considered for the whole period. However in last quarter of 2008 because of impact of global crisis the pace of steel output decreased causing decrease of project emission reductions comparatively to the anticipated in PDD version 4.</p>
3. Application of GHG determination methods		
3.1. Methods used	Full	<p>The reporting procedures reflect the monitoring plan content. The calculation of the emission reduction is correct.</p>
3.2. Information/process flow	Full	<p>Data is collected into electronic database of AISW as well as in paper format. Data is further compiled in day-to-day records and annual records. All records are finally stored in Planning Department.</p> <p>The results of the measurements are being used by relevant services and technical personnel of the iron works. They will be reflected in the technological instructions for the regimes of conducting the technological processes and in the revision of</p>



VERIFICATION REPORT

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		Guiding Metrological Instructions.
3.3. Data transfer	Full	The complete data is stored electronically and also the part of Management information system which is controlled by accounts
3.4. Data trails	Full	The necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the all the parameters listed in the monitoring plan
4. Identification and maintenance of key process parameters		
4.1. Identification of key parameters	Full	The critical parameters for the determination of GHG emissions are the parameters listed in section D of the approved PDD version 4.
4.2. Calibration/maintenance	Full	The company maintains the elaborate calibration plan for each of the equipment. The audit team verified the status for all the equipment at the sites sampled for the audit and found them to be complying with the plan.
5. GHG Calculations		



VERIFICATION REPORT

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
5.1. Use of estimates and default data	Full	Emission factor of each fuel in Pig Iron Production, Emissions Factor for Electricity Consumption in Pig Iron Production, Emission factor of each fuel in Sintering, Emissions Factor for Electricity Consumption in Sintering, Emission factor of each fuel in used in steam production, Emission factor of each fuel in the furnace process, Emissions Factor for Electricity Consumption in the furnace process, Emission factor of each fuel in the furnace process, Emission factor of each fuel in compressed air production, Emissions Factor for Electricity Consumption in compressed air production, Emission factor of each fuel in oxygen production, Emissions Factor for Electricity Consumption in making oxygen, Emission factor of each fuel used in casting, Emissions Factor for Electricity Consumption in casting are used as a predetermined default value which have been defined in the PDD version 4 and confirmed during validation of the project.
5.2. Guidance on checks and reviews	Full	The data is cross checked as well as internal audits and corrective actions are taken as defined in Instructions. For the project case, similar procedures will followed based on forthcoming Order of Director General of the Plant defining the exact JI monitoring procedures. Responsibilities for JI monitoring are indicated in table 6 of the PDD version 4.
5.3. Internal validation and verification	Full	Monitoring procedure for JI Project includes the responsibility and frequency for carrying out internal audits. Internal audits did not reveal any non-conformances. The audit team did verify all the parameters listed in monitoring report.



VERIFICATION REPORT

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
5.4. Data protection measures	Full	The necessary procedures relating to Information technology are in place to provide necessary data security, and also prevent the unauthorized use of the same.
5.5. IT systems	Full	Data is collected in electronic database.



Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>Potential reporting risks based on an assessment of the emission estimation procedures can be expected in the following fields of action:</p> <ul style="list-style-type: none"> ➤ the calculation methods, ➤ raw data collection and sources of supporting documentation, ➤ reports/databases/information systems from which data is obtained. <p>Key source data applicable to the project assessed are hereby:</p> <ul style="list-style-type: none"> ➤ metering records , ➤ process monitors, ➤ operational logs (metering records), ➤ laboratory/analytical data (for energy content of fuels), ➤ accounting records, <p>Appropriate calibration and maintenance</p>	<p>Regarding the potential reporting risks identified in the left column the following mitigation measures have been observed during the document review and the on site mission:</p> <p>Key source data for this parameter are:</p> <ul style="list-style-type: none"> • meter reading. • Invoices and record for Fuels (and coal) for consumption and purchase. <p>The metering equipments are installed appropriately in the enclosure panels and same are of reputed make.</p> <p>Calculation methods: The reporting procedures reflect the monitoring plan content and the calculation of the emission reduction is correct and also additionally deducting the project emissions caused by fossil fuel.</p>	<p>The issue remaining is the way the data obtained is used to calculate the emission reduction in a conservative manner according to the approach prescribed in the PDD version 4as well as the way data obtained is used to calculate the emissions reductions/</p>



VERIFICATION REPORT

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>of equipment resulting in high accuracy of data supplied should be in place.</p> <p>It is hereby needed to focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may include:</p> <ul style="list-style-type: none"> ➤ manual transfer of data/manual calculations, ➤ position of the metering equipment, ➤ unclear origins of data, ➤ accuracy due to technological limitations, ➤ lack of appropriate data protection measures (for example, protected calculation cells in spreadsheets and/or password restrictions). 		



Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
<p>The issue remaining is the way the data obtained is used to calculate the emission reduction in a conservative manner according to the approach prescribed in the PDD.</p>	<p>There has been a complete check of data transferred from daily consumption and generation readings to the calculation tool. There was no error in such transfer. The correct installation of the metering equipment can be confirmed.</p>	<p>Having investigated the residual risks, the audit team comes to the following conclusion: Immediate action is not needed with respect to the current emission reduction calculation. Those corrections have been considered during the verification process, so no residual risk is open.</p>


Verification Protocol Table 5: Resolution of Corrective Action and Clarification Requests

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
<u>Forward Action Request 1</u> Please include the information considering qualification and training of the staff to the next version of the Monitoring Report.	3.9	The information considering qualification and training of staff is available now at the project site. However following the request from verifier next Monitoring report will incorporate the more detailed explanation about formation of staff training and qualification programs.	Nonconformity does not have direct impact on quality of the measured results. The issue must be checked during next verification.
<u>Clarification Request 1</u> The project timeline stated in PDD version 4 in the section A.4.2. Table 1 includes seven stages of the project implementation while monitoring report describes and states	3.1	Stages 5,6 and 7 envisaged reconstruction of the existing oxygen unit and building two additional new oxygen units. Oxygen units are so called secondary metallurgical elements because they generate oxygen needed for the operation of main production facilities, first of all new ones such and LD Converters and Slab Casters. Therefore oxygen units are integrated into the whole	Review of the production scheme revealed that oxygen units are not involved in the GHG reductions measures directly. The exclusion is conservative. The issue is closed.



VERIFICATION REPORT

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
implementation of first four stages and declares that the project implementation is complete. Please provide the explanation on the implementation of the stages 5,6 and 7.		production process and can not run without Converters and Slab Casters. Monitoring report indicated only the main and the most important stages of the project realization. However it should be noted that reconstruction of oxygen unit #4 was completed on 30 th of September 2005, construction of oxygen unit #7 was completed on 19 th of March 2008 and construction of oxygen unit #8 is at the last stage of completion.	
<u>Clarification Request 2</u> Auditors' team on site found out that Converter#1 was launched in operation in August 2005 but stopped in September 2008 and only Converter#2 was in	3.1	The monitoring report stated some delay with project implementation and indicated when major projects stages were completed. However indeed one of the Converters was launched and then stopped because of sudden aggravation of market situation caused by global economic and financial crisis. Technically it was risky or not possible to operate costly	The explanation of stoppage of Converter # 1 was found satisfactory because it reflects current situation on the steel market of the Host party. The reduced volumes of steel Converter output were properly reflected in calculations for the emissions in the monitoring report. The issue is closed.



VERIFICATION REPORT

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
operation in 2008, which is not mentioned in the monitoring report 1. Please provide an explanation of this fact.		equipment such as a Converter if it works only partially and with minimum loading. Basically there was no sense in operating two Converters because in the standby mode it leads to the destruction of firebrick lining. Without impact of crisis Converter could continue its operation. Therefore one of the most important stages of project realization related to introduction of both Converters was technically complete in August 2008. However further stoppage of one of the Converters did not have any impact on monitoring period. The reduced volumes of steel Converter output were properly reflected in calculations for the emissions in the monitoring plan.	
<u>Clarification Request 3</u> Please provide information on how	3.4	During calculation of the GHG emissions the level of uncertainty is taken into account according to the Article 10 part 1 of "Law of Ukraine on	Uncertainty of measurements is taken into account during taking the data from the measuring equipment. Measuring equipment



VERIFICATION REPORT

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
the level of uncertainty is taken into account.		<p>Metrology and Metrological Activity”, which states the level of uncertainty. The data on measuring equipment, uncertainty and calibration etc for the period from 01/01/2008 to 31/12/2008 was presented to the verification team.</p> <p>Calculation of the limestone and dolomite, defining the purity of the fraction etc is performed in accordance with TY Y 14.1-00191827-001-2003 “Limestone fluxing OJSC “Komsomolske rudoupravlinnya”. The existing method of calculation includes measurement uncertainty in the finite data.</p> <p>Level of uncertainty of data collected is established in the measuring equipment certificates and verified according established schedules.</p>	certificates were seen on-site. Article 10 part 1 of “Law of Ukraine on Metrology and Metrological Activity” states that results of the measurements can be used in the condition if the characteristics of measuring uncertainty are known. This assures correct figures of measured parameters. The issue is closed.
<u>Clarification Request 4</u> The List of Monitoring	3.5	Monitoring report does not contain the list of monitoring devices. The list of monitoring devices was included into	Verification team checked prepared list of monitoring devices for LD Converters and



VERIFICATION REPORT

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
Equipment does not include the monitoring equipment for converters.		PDD. However at the stage of PDD preparation it was not clear which exactly monitoring devices will be installed at LD-Converters. Nevertheless AISW has prepared the list of monitoring devices for LD Converters. This list is available upon request and is attached below.	found it satisfactory. The issue is closed.
<p><u>Clarification Request 5</u> Please provide more information on roles and responsibilities of people in charge of monitoring procedures as well as on the person who developed Monitoring report.</p>	3.10	<p>The monitoring report was prepared by project developer, Institute For Environment and Energy Conservation based on data provided by AISW.</p> <p>The main people who handled the monitoring process at the AISW can be divided into 2 groups.</p> <p>The first group includes people who responsible for the quantitative indicators:</p> <ul style="list-style-type: none"> • principal metrologist, control equipment supervisors and services of automatic control system in technological process; • the head of the plant weight 	Verification team checked the roles and responsibilities of people in charge of monitoring procedures and found the results satisfactory. The information on the person who developed Monitoring report was presented to the verification team as well. The issue is closed.



VERIFICATION REPORT

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
		service and his designees; <ul style="list-style-type: none"> • the head of raw materials and fuels and his deputies. The second group includes people who responsible for qualitative data: <ul style="list-style-type: none"> • the head of the technical department of the plant and his deputies; • the head of central laboratory at the plant and his deputies; • the head of planning and economical department and his deputies. The general coordination of the monitoring procedures at the Plant for the purpose of the monitoring report preparation was done by Mr. Bremze, Deputy Chief Engineer.	
<u>Clarification Request 6</u> Data presented in the Monitoring Report 01 section 6 varies from	4.1	The mentioned difference is normal fluctuation between data in different documents where different approximation was used. In general the difference represents only less	Verification team compared the data on-site with data in the monitoring report version 1. Due to more conservative assumption made in the data from monitoring



VERIFICATION REPORT

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
data seen onsite by the auditing team. Please provide an explanation.		than one tens of percent. Besides data in the monitoring report were more conservative towards indentified difference therefore monitoring report was not changed.	report the numbers were stated the one that comply with the norms. The issue is closed.
<u>Clarification Request 7</u> Please provide the sources of external data.	5.1	The external parameters such as natural gas, coke, coal are purchased from the third parties. Quality of purchased energy sources is indicated in the products' certificates together with commercial supply. The laboratory of AISW sometimes tests the quality of external energy sources. So the data can be found in the quality certificates and other accompanying documentation which are provided by suppliers.	Verification team checked presented products' certificates, quality certificates and other accompanying documentation and found the results satisfactory. The issue is closed.
<u>Clarification Request 8</u> Please provide the information considering access to external data.	5.2	See CL7. The project entity has all the evidences (certificates and results of tests mentioned above) about the external parameters used for the purpose of monitoring plan preparation. Monitoring report also	All the requested documents were presented to verifier. The issue is closed.



VERIFICATION REPORT

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
		used carbon emission factor for electricity displacement based on standard national figures verified by AIE TUEV SUED.	



APPENDIX B: VERIFICATION TEAM

The verification team consists of the following personnel:

Flavio Gomes, M.Sci. (civil engineering)

Team Leader

Bureau Veritas Certification, Climate Change Verifier

Flavio Gomes is a Chemical and Safety Engineer graduated from «UNICAMP – Universidade Estadual de Campinas», with a MSc title in Civil Engineer (Sanitation). He spent four years at RIPASA Pulp and Paper as Environmental Process Engineer. He is, since 2006 the Global Manager for Climate Change. Previously and since 1997, he was senior consultant for Bureau Veritas Consulting in fields of Environment, Health, Safety, Social Accountability and Sustainability audit and management systems. He also acted as Clean Development Mechanism verifier, and Social/Environmental Report auditor, in the name of Bureau Veritas Certification. Flavio is pursuing his PhD on Energy Management at the Imperial College – London.

Ivan G. Sokolov, Dr.Sci (biology, microbiology)

Team member

Bureau Veritas Ukraine HSE Department manager.

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 130 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 6 JI projects.

Nadiya Kaiiun, M.Sci. (environmental science)

Team member

Bureau Veritas Ukraine HSE Department manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed over 15 audits since 2008. She has undergone intensive training on Clean



VERIFICATION REPORT

Development Mechanism /Joint Implementation and she is involved in the validation of 6 JI projects.

Kateryna Zinevych, M.Sci. (environmental science)

Team member

Bureau Veritas Ukraine HSE Department manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed 6 audits since March of 2009. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 3 JI projects.

Ashok Mammen - PhD (Oils & Lubricants)

Bureau Veritas Certification Internal reviewer

Over 20 years of experience in chemical and petrochemical field. Dr. Mammen is a lead auditor for environment, safety and quality management systems and

a lead verifier for GHG projects. He has been involved in the validation

and verification processes of more than 60 CDM/JI and other GHG projects.



APPENDIX C: DOCUMENTS CHECKED DURING VERIFICATION

1. Temporary technological instruction ВТИ 229-СТ ККП-0118-138-2007 on steel smelting in the 300 t converter dated 03.09.09
2. Summary report on the material expenditure in the OCD for August 2008
3. Summary data for January-December 2008 Marten department
4. Summary data for January-December 2008 Oxygen-converter department
5. Passport of converter melting # 09K10184
6. Act of calibration of the overflow stand #1 scales of the maren department dated 19.03.2009
7. Permission 90451 on polluting emissions to the atmosphere by the stationary sources dated 28.12.2007 valid till 31.12.2008
8. Passport #182 of the scales and weights electronic TB4-1000 #3390 dated 09.01.2009
9. Passport #183 of the scales and weights electronic 4BDU-1500 №64800 dated 09.01.2009
10. Passport #038 of the scales and weights carriage 763П-160 #18 dated 05.06.2000
11. Passport #179 of the scales and weights mechanic platform BA`7214 #1 dated 18.08.2008
12. Passport of the scales and weights tensometric ВСТВ-400 СД #215 dated 19.03.2007
13. Passport of the scales and weights converter tensometric 04BKT #67 dated June 2001
14. Passport #034 of the scales and weights carriage dialing levered 250B-250 #1 dated 04.08.2000
15. Passport #037 of the scales and weights carriage schaled 301П-200 #09775 dated 07.02.2008
16. Passport #036 of the scales and weights carriage 216П-200 #12
17. Passport of the scales and tensometric 2361BB-80Э/1Д #61 dated 12.03.2007
18. Passport of the scales and weights tensometric 2315DD-150 Э/2СД #15 dated 09.03.2007
19. Passport #016 of the scales and weights electronic tensometric rollcanted ВЭТР-20 dated 25.06.1999



VERIFICATION REPORT

20. Passport of the scales and weights tensometric ВЭТБ-50Д #213 dated 07.03.2007
21. Passport of the scales and weights tensometric DGW-U-200-SD(3) #08002 (northern) dated 17.03.2008
22. Passport of the scales and weights tensometric DGW-U-200-SD(3) #08001 (southern) dated 17.03.2008
23. Information on equipment that is used during the monitoring of the industrial emissions on OJSC "AISW" dated 25.03.2009
24. Plan of the specialists training for working with new equipment.
25. Photo, act №44 State acceptance committee of the acceptance to the operation finished constructional object dated 22.08.2005
26. Photo, act working committee of the acceptance to the operation finished constructional object dated 06.06.2007
27. Photo, act working committee of the acceptance to the operation finished constructional object dated 21.11.2007
28. Photo, act working committee of the acceptance to the operation finished constructional object dated 21.08.2008
29. Photo, OJSC "AISW" converter department EIA
30. Photo, statement on environmental consequences of the project activity of the converter department OJSC "AISW"
31. Photo, statement of intentions
32. Photo, methodical recommendations on formation of the production cost price in the manufacture dated 09.07.2007
33. Photo, form of calculation productional cost price
34. Photo, passport of the measuring channel that measures expenditure of the natural gas for the department. Equipment: Yokogawa 91 FC04555, Metran 222932. date of the last calibration 28.01.2009
35. Photo, passport of the measuring channel that measures expenditure of the natural gas for the department. Equipment: Yokogawa 91 FC04556, Metran 222965. date of the last calibration 28.01.2009
36. Photo, passport of the measuring channel that measures expenditure of the natural gas for the department. Equipment: Yokogawa 916627710, Yokogawa 916627690. date of the last calibration 05.02.2009
37. Photo, passport of the measuring channel that measures expenditure of the natural gas for the department. Equipment: Yokogawa 916627699, Yokogawa 916627685. dated 26.01.2009
38. Photo, passport for expenditure meter EJA 276709699, Disk 0076. Date of the last calibration 21.11.2008



VERIFICATION REPORT

39. Photo, passport for expenditure meter Yokogawa 709699, Disk 250M. Date of the last calibration 12.03.2009
40. Photo, state to the general metrologist of OJSC "AISW" on the request to withdraw the equipment for calibration due to lack of necessity to measure some parameters and not proper condition of part of equipment dated 02.12.2008
41. Photo, passport for expenditure meter Yokogawa 18357, Disk 77474. Date of the last calibration 27.11.2008
42. Photo, passport for expenditure meter Yokogawa 18354, Disk 77473. Date of the last calibration 27.11.2008
43. Photo, passport for expenditure meter Metran 161519 date of the last calibration 31.03.2008, Disk 85016 date of the last calibration 06.03.2009
44. Photo, passport for expenditure meter Metran 161520 date of the last calibration 31.03.2008, Disk 84998 date of the last calibration 06.03.2009
45. Photo, data on gas expenditure by hour for 2008
46. Photo, passport on weight beam DWB 200# 22b7Z2 dated 23.04.06
47. Photo, technical passport on the Hot metal transfer car 1 SL1264AL11 dated 05.11.2008
48. Photo, technical passport on the Hot metal transfer car 2 SL1264BL21 dated 05.11.2008
49. Photo, technical passport steel ladle transfer car 1 SL2421AL18 dated 05.11.2008
50. Photo, technical passport steel ladle transfer ca2 SL2421BL28 dated 05.11.2008
51. Photo, act of checking tensometric scales hot metal transfer car №1, steel ladle transfer car №1,2, cranes №20, 21 dated 24.03.2009
52. Photo, act of checking tensometric scales steel ladle transfer car №2 dated 06.03.09
53. Photo, act of checking tensometric scales hot metal transfer car №2 dated 06.03.09