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VERIFICATION REPORT

ENERGY EFFICIENCY INVESTMENT PROGRAM AT OJSC ARCELORMITTAL STEEL KRYVIY RIH

ITL Project ID: UA1000258

Second Periodic Verification
for the period:
01.01.2010 – 31.12.2010

Report No. TRU016JI-VR2
Revision 02

TÜV Rheinland

VERIFICATION REPORT

Date of first issue: 18th of May 2011	Project No. UA1000258
	Organizational Unit: TUV Rheinland Ukraine LLC
Client: Global Carbon BV	Client Ref.: Denis Rzhanov

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Summary:

TUV Rheinland Ukraine LLC has performed the verification of emission reductions reported for the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" (ITL Project ID UA1000258) for the period from the 1st of January 2010 till the 31st of December 2010.

The purpose of verification is to assess the reductions in anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks generated by a JI project and reported by the project participants through the monitoring report in accordance with paragraph 37 of the JI guidelines.

In our opinion, the greenhouse gas (GHG) emission reductions reported for the project in the monitoring report (Version 2.0) dated 26th of May 2011 are fairly stated and are accurate and free of material errors, omissions, or misstatements.

During the monitoring period the project has been implemented in accordance with the Project Design Document Version 04 dated 4th of August 2009.

The GHG emission reductions were calculated correctly on the basis of the approved monitoring plan contained in the Project Design Document Version 04 dated 4th of August 2009 and previous monitoring reports.

TUV Rheinland Ukraine LLC is able to verify that the emission reductions from the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" during the period from the 1st of January 2010 till the 31st of December 2010 amount to 120 247 tonnes of CO_2 equivalent.

Report No: TRU016JI-VR2	Subject Group: JI
Report Title: ENERGY EFFICIENCY INVESTMENT PROGRAM AT OJSC ARCELORMITTAL STEEL KRYVIY RIH	
Work carried out by: Irina Danilkina, *Team Leader* Irina Nikolayeva, *JI Verifier*	
Work verified by: Valeriy Yakubovskiy, Technical Reviewer	

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Date of this revision:	Rev. No:	Number of Pages:
2nd of June 2011	02	30

TABLE OF CONTENTS

1. INTRODUCTION

Global Carbon BV (the Client) has commissioned TUV Rheinland Ukraine LLC (TUV Rheinland) to carry out the verification and emission reductions reported for the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" (the project) in the period from the 1st of January 2010 till the 31st of December 2010. This report contains the findings from the verification and conclusion on the verified amount of emission reductions (verification opinion).

1.1 Objective

Verification is the periodic independent review and *ex post* determination by an Independent Entity (IE) of the monitored reductions in GHG emissions that have occurred as a result of a Joint Implementation (JI) project activity during a defined verification period.

The purpose of verification is to assess the reductions in anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks generated by a JI project and reported by the project participants through the monitoring report in accordance with paragraph 37 of the JI guidelines[1].

The objective of this verification was to verify emission reductions reported for the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" for the period from the 1st of January 2010 till the 31st of December 2010.

TUV Rheinland is an accredited Designated Operational Entity (DOE) under the Clean Development Mechanism (CDM) and is a provisionally acting accredited independent entity under Joint Implementation (JI).

1.2 Scope

The scope of this verification is the assessment of:

- Project implementation in accordance with the Project Design Document (PDD);
- Compliance with the monitoring plan, including the revision of the monitoring plan;
- Calculation of emission reductions and expression of a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data are accurate and free of material errors, omissions, or misstatements;
- Quality and management of data and verification that reported GHG emission reductions data is sufficiently supported by evidence.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for corrective actions in order to provide for more accurate future monitoring and reporting.

1.3 Description of the project

The project activity details are summarized below:

[1] http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=2

Project Parties involved:	Ukraine (Host) and Luxembourg
Title of the project:	Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih
ITL Project ID:	UA1000258
Baseline and monitoring methodology:	JI Specific Approach based on PDD Version 04 dated 4th of August 2009
Project entity participant:	PJSC "ArcelorMittal Kryviy Rih" (former OJSC ARCELOR MITTAL STEEL KRYVIY RIH)
	1, Ordzhonikidze Street, Kryviy Rih, 50095, UKRAINE
Other project participants:	ArcelorMittal Flat Carbon Europe S.A.
	19 avenue de la Liberté L-2930 Luxembourg
	ArcelorMittal Long Carbon Europe S.A.
	19 avenue de la Liberté L-2930 Luxembourg
Location of the project:	Industrial site of the PJSC "ArcelorMittal Kryviy Rih" - 1, Ordzhonikidze Street, Kryviy Rih, 50095, UKRAINE
Crediting period of the project:	From 01/04/2008 to 31/12/2012
Period verified in this report:	From 01/01/2010 to 31/12/2010
Period verified in previous verification report:	From 01/04/2008 to 31/12/2009

The purpose of this project is an increase of energy efficiency in production process and energy infrastructure at the biggest Ukrainian full cycle metallurgical plant OJSC ArcelorMittal Kryviy Rih (AMKR). The plant being one of the most up-to-date in the country metallurgy sector, however has a potential for reduction of specific energy consumption. The proposed JI project envisages the implementation of eight sub-projects to increase the energy effectiveness of complex's operations. The estimated total investment is over 100 million USD.

The overall objective of this project is to generate Emission Reduction Units (ERUs) by reducing about 1.6 million tons of CO2 emissions before the end of 2012 by saving around 580 GWh of electricity and 35 Mln m3 of natural gas (NG) per year.

Only subproject 3 "Switch fuel from NG to Coke Oven Gas (COG) + Blast Furnace Gas (BFG) + NG mixtures" has been included in the monitoring report for the period indicated above. The sub-project #3 consists of the partial replacement of natural gas used in rolling shops of the plant with gas mixture of blast furnace gas/coke oven gas/natural gas (BFG+COG+NG) by replacing burners, installing and connecting system of gas mixing and installing boosting stations.

The project has been registered as Track 1 JI project with the PDD Version 04 dated 4th of August 2009 (the PDD). The documentation on the project including the PDD, Approvals by the Parties Involved, Determination Report, Initial and First Periodic Verification report is available at: http://ji.unfccc.int/JIITLProject/DB/JQ756K3VCDKV3E8T8G4GGFNP4C4IDC/details and at http://www.carbonunitsregistry.gov.ua/en/publication/content/917.htm

1.4 Methodology for the determination of Emission Reductions

The emission reductions are calculated as the difference between baseline emissions and project emissions. Project emissions are presented as the sum of the emissions from every rolling mill included into the subproject: Rolling mill # 3 (RM#3); Wire-rod rolling mill # 3 (WRRM # 3); Light section rolling mill № 5 (LSRM # 5).

For every rolling mill project emissions constitute actual emissions from combusting natural gas. These are determined by multiplying figures of total natural gas consumption in every rolling mill with natural gas NCV and emission factor. Total natural gas consumption is calculated as the sum of direct natural gas consumption which is monitored and natural gas consumption from the gas mix (NG+BFG+COG). Natural gas consumption from the mix is determined by multiplying total gas mix consumption which is monitored with volumetric share of natural gas in the mix. Volumetric share of natural gas in the mix is determined from the data of central gas mixing station (CGMS) where total consumption of all gas mix components is monitored.

The calculation of the baseline emissions is based on the JI specific approach in accordance with the registered PDD and rests on the assumptions that the equivalent amount of heat will be consumed in the baseline as in the project scenario. The baseline emissions are determined by multiplying figures of total baseline natural gas consumption in every rolling mill with natural gas NCV and emission factor. Total baseline natural gas consumption is determined based on the energy content of gases consumed in the project scenario which are monitored and recalculated to natural gas using NCVs of component gases.

No leakages were identified in accordance with the PDD.

2. METHODOLOGY

The verification process has been carried out using TUV Rheinland internal procedures. In order to ensure transparency, a check-list for verification was customized for the project, according to the Joint Implementation Determination and Verification Manual Version 01, issued by the Joint Implementation Supervisory Committee at its 19th meeting on 04/12/2009. The check-list for verification shows, in a transparent manner, criteria (requirements) for verification and the results from verifying the identified criteria. The check-list for verification serves the following purposes:

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

The completed check-list for verification is enclosed in Appendix A to this report.

The verification process (steps) taken include: desk review of the documentation, project site visit, interview with project participants, follow-up exchanges and resolution of outstanding issues.

2.1 Verification Team

The work for this verification has been carried out by the following team:

Role:	Name:	Country	Type of work					
			Desk Review	Site Visit	Reporting	Supervision	Technical Review	Expert Input
Team Leader/JI Verifier	Irina Danilkina	Ukraine	☑		☑	☑		
JI Verifier/Technical Expert	Irina Nikolaeva	Ukraine	☑	☑	☑			☑
Technical Reviewer	Valeriy Yakubovskiy	Ukraine					☑	

The duration of verification is as follows:

Preparations and desk review: From 04/05/2011 to 12/05/2011

Site visit and interviews: 13/05/2011

Reporting, Resolution of Issues, QA/QC: From 13/05/2011 to 02/06/2011

2.2 Review of Documentation

Project participants provided TUV Rheinland all needs document for document review. The monitoring report version 1.0 dated 04/05/2011 [3] has been assessed as part of the verification. In addition, the project's Project Design Document [1] and project's determination report [2] as well as first and initial verification report [4] were also reviewed. Supporting documents, such as, gas balances [26-31] of the AMKR, environmental impact assessments [12-14] and expert conclusions [16-25] etc. were available during the site visit.

Information and formulas provided in the monitoring report was compared with PDD and stated data sources.

To address TUV Rheinland corrective action and clarification requests, project participants revised the monitoring report and resubmitted it as version 2.0 dated 26/05/2011.

The verification findings presented in this report relate to the monitoring report versions 1.0 and 2.0 and project as described in the PDD Version 04 dated 4th of August 2009.

2.3 Site Visit

The industrial site of the PJSC "ArcelorMittal Kryviy Rih" has been visited on the 13th of May 2011 by the TUV Rheinland Verifier Irina Nikolaeva. Supporting documents related to the project were presented at the administrative offices of AMKRs Departments and Services on that date. During this site visit, representatives of TUV Rheinland have interviewed key personnel of the plant and verified that during the monitoring period project has been operating as planned.

The personnel interviewed are summarized in the table below:

Name	Organization and position	Topic of interview
Prusakov Denis	Global Carbon BV, Senior JI Consultant	QA/QC of the project, Project

Vladimirovich		management
Petruk Yuriy Vladimirovich	Global Carbon BV, Junior JI Consultant	Reporting and calculation of emission reductions, data sources
Shvager Sergiy Anatolievich	AMKR, Deputy head of the Energy Department	Project management, site visit
Gladyshev Denis Vyacheslavovych	AMKR, Acting head of energy technology section	QA/QC of the project, Project management, Project implementation
Vainer Arkadiy Iosiphovich	AMKR, Deputy Chief Engineer	Operational reporting, plant visit, monitoring equipment
Alenina Galina Anatolievna	AMKR, Head of Department in Environmental Service	Environmental licenses, project implementation
Harchenko Elena	AMKR, Head of Planimetric Bureau	Data processing, reporting
Drazhko V.A.	AMKR, Head of Instruments Department	Monitoring equipment
Telegin A.A.	AMKR, Chief Foreman for SCADA of RM#3	Operational reporting
Boichenko A.V.	AMKR, Head of SCADA for Steelmaking Department	Operational reporting
Bogutskiy A.A.	AMKR, Deputy head of department of gas pipelines	Operational reporting
Oleynik A.L.	AMKR, Chief Foreman for SCADA of WRRM#3	Operational reporting
Dupliy S.N.	AMKR, Chief Foreman for SCADA of LSRM#5	Operational reporting
Yova Vadim	AMKR, Energy department manager	Monitoring activity, Personnel training

2.4 Resolution of Clarification, Corrective and Forward Action Requests

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

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

The verification of the project resulted in 19 Corrective Action Requests and 6 Clarification Requests. There was 1 unresolved FAR from previous verification.

TUV Rheinland made an objective assessment as to whether the actions taken by the project participants and presented in Appendix B of this report satisfactorily resolve the issues raised and concluded its findings of the verification.

3. VERIFICATION FINDINGS

This section summarizes the findings from the verification of the emission reductions reported for the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" for the period from the 1st of January 2010 till the 31st of December 2010.

3.1 Remaining Issues, CARs, FARs from Previous Verification

Bureau Veritas Certification Holding SAS has identified one forward action request: "FAR1: Please, submit any documented instruction which indicates that the data monitored and required for ERUs calculation are to be kept for two years after the crediting period as per JI determination and verification manual, v.01." during previous verification.

Required AMKR internal Order #879 from 09/08/2010 [32] has been provided to the verification team on-site. The issue is closed.

3.2 Project Implementation

Brief information on implementation of subproject activities:

The subproject 1 "Modernization of Air Separating Unit" is partially implemented and operates in a commissioning mode. The performance of the unit is monitored separately.

In the subproject 2 "Modernization of Compressors Station" 1 compressor out of 8 intended was implemented, but due to unbalanced load no emission reduction units were generated. By the end of this year second compressor is due to be commissioned.

The subproject 4 "Refurbishment of Energy Distribution System" is still in the implementation stage. First stage installation is scheduled to be completed by the end of the year.

The subproject 5 "New Gas Burner Installation" was implemented in 2008 but due to the lack of coke gas and lower production level than anticipated in the project planning it didn't reach designed capacity.

The subproject 6 "Turbo Generators Installation" is at the stage of equipment supplier selection.

Subprojects 7 "BF top recovery turbine installation" and 8 "Heat recovery in Refractory and Lime Rotary Kilns" are still at the consideration stage.

Subproject 3 has been implemented and operational during the monitoring period: RM#3 has been connected to gas mixture supply and started using it 21/05/2008; WRRM#3 has been connected to gas mixture supply and started using it 27/05/2008; LSRM#5 has been connected to gas mixture supply and started using it 16/11/2009.

The total emission reductions amount reported for the period from the 1st of January 2010 till the 31st of December 2010 was verified to be 120 247 tCO2e. The emission reductions are higher than the emission reduction of 47 841 tCO2e predicted in the registered PDD for Sub-project 3. The higher emission reductions for the verification period are attributed to the expansion of Sub-project 3 that has not been possible to predict exactly at the time PDD has been drafted.

The verifiers can confirm, through the visual inspection that all physical features of the proposed JI project activity including data collecting and storage systems have been implemented, the project is completely operational and has been implemented as described in the PDD.

3.3 Project Approval by Parties Involved

Project approval by the Parties Involved is available:

1) Letter of Approval by the Ukraine ref. 1522/23/7 issued at 05.10.2010

2) Letter of Approval by the State of Luxembourg # 1 issued at 28th of May 2010

Evidence is available at: http://ji.unfccc.int/JIITLProject/DB/JQ756K3VCDKV3E8T8G4GGFNP4C4IDC/details and at http://www.carbonunitsregistry.gov.ua/en/publication/content/917.htm

3.4 Compliance of the monitoring plan with the monitoring methodology

The determined monitoring plan is contained in the registered PDD that is available on the UNFCCC JI website (See Section 1.3 of this report). Deviations from this monitoring plan have been discussed and verified during the previous monitoring period.

For calculating the emission reductions key factors influencing the baseline emissions as well as risks associated with the project were taken into account, as appropriate.

Such factors as:

- Sectoral reform policies and legislation;
- Forecast level of steel production;
- Natural gas prices and availability;

have been taken into account.

For more detailed information, please, refer to the determined and registered PDD version 04.

The daily reports of the service for control and operation of control and instrumentation devices of AMKR have been identified as the data source for the following monitoring parameters: Consumption of gases at rolling mills as well as volume of gases entering the CGMS. This data source is based on the existing reporting system of the company and is clearly identified, reliable and transparent.

Data from local gas supply company, coke oven production facility and blast furnace shop have been identified as the data source for the following monitoring parameters: NCV of natural gas, NCV of BFG, NCV of COG. This data source is based on the existing reporting system of the company and is clearly identified, reliable and transparent.

The emission factors used to calculate emission reductions are selected in accordance with the registered PDD ver. 04. The choice of these emission factors is appropriately justified in the PDD ver. 04 and in general accuracy and reasonableness are carefully balanced. The calculation of emission reductions rests on a single emission factor for carbon emissions due to combustion of natural gas. This emission factor is correctly referenced to the 2006 IPCC Guidelines and represents default factor.

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

The initial finding of the Verification Team, resolution of any CARs, CLs and FARs raised and review of such resolution is provided in the Appendixes A and B to this report.

3.5 Data Management and Quality

Data collection procedure is carried out in accordance with the monitoring plan, including the quality control and quality assurance procedures and has been checked by the Verification Team on-site. The monitoring plan is presented in the section D of the registered PDD. The data and their sources, provided in monitoring report, are clearly identified, reliable and transparent.

The monitoring equipment employed by the project has functioned in accordance with the monitoring plan and in general is in order. The verification team has verified that the reported metering devices are in fact installed and operational. Calibration has been performed in accordance with the procedures of the Host Party and company standards evidence of these calibrations has been provided (calibration certificates and/or evidence of calibration in the passports of the devices or on the device itself). It has been verified that the calibration did occur at the correct calibration intervals for all metering devices.

All metering equipment is controlled by the Instrument department. It makes periodical checking and calibration of metering equipment as per approved schedule and equipment manual. In total, AMKR uses about 70,000 measurement and instrumentation devices. This number includes thermometers, manometers, data recorders/loggers as well as power and flow meters of different type used for both, commercial and process measurement/control. To run, maintain and calibrate this large massive of devices, AMKR keeps an electronic device database with electronic passport for every device. This passport has information on type and number of the device, its location, calibration schedule, needs for maintenance etc. Verification team has verified proper functioning of this database and device management system during the monitoring period on-site.

The evidence and records used for the monitoring are maintained in a traceable manner. Verification Team has got access to all necessary data on monitoring system and emission reductions and received necessary evidence on site.

The data collection and management system for the project is in accordance with the monitoring plan as described in the registered PDD ver. 04. Roles and responsibilities of the technical staff in the framework of the monitoring are described in the monitoring report. The general project management is implemented by the Director for Environment of AMKR through supervising and coordinating activities of his subordinates and other plant divisions. Her work is supported by the assistance the head of energy management bureau belonging to the Energy department of AMKR headed by Director for energy. He is responsible for routine preparation and keeping the performance forms, which record the project variables. Within this responsibility he interacts with plant divisions in getting necessary performance data for subprojects included in the monitoring report. The management of the personnel training and retraining at the plant is carried out by the Technical Director, and the control of implementation thereof − by the Head of the enterprise.

Quality management system of AMKR is ISO 9003, 9002 and 9001 certified since September 1994. Last re-certification visit was conducted during March-to May 2010 and in the result the TNO Certification, Netherlands has confirmed the compliance of quality management system to the requirement of ISO 9001:2008 “Quality management system-requirements”.

4. VERIFICATION OPINION

TUV Rheinland Ukraine LLC (TUV Rheinland) has performed the verification of the emission reductions that have been reported for the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" (ITL Project ID UA1000258) for the period from the 1st of January 2010 till the 31st of December 2010.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project.

It is TUV Rheinland's responsibility to express an independent verification opinion - conclusion on the verified amount of emission reductions from the project.

TUV Rheinland has conducted the verification on the basis of the monitoring plan contained in the registered Project Design Document Version 04 dated 4th of August 2009 and the Monitoring Report Version 2.0 dated 26th of May 2011.

The verification included the assessment of:

- Project implementation in accordance with the Project Design Document (PDD);
- Compliance with the monitoring plan;
- Calculation of emission reductions and expression of a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data are accurate and free of material errors, omissions, or misstatements;
- Quality and management of data and verification that reported GHG emission reductions data is sufficiently supported by evidence.

TUV Rheinland's verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. TUV Rheinland planned and performed the verification by obtaining evidence and other information and explanations that TUV Rheinland considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated, accurate and free of material errors, omissions, or misstatements.

In our opinion the GHG emissions reductions of the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" (ITL Project ID UA1000258) for the period from the 1st of January 2010 till the 31st of December 2010 are fairly stated, accurate and free of material errors, omissions, or misstatements in the Monitoring Report Version 2.0 dated 26th of May 2011.

The GHG emission reductions were calculated correctly on the basis of the monitoring plan contained in the registered Project Design Document Version 04 dated 4th of August 2009.

TUV Rheinland Ukraine LLC is able to verify that the emission reductions from the "Energy Efficiency Investment Program at OJSC ArcelorMittal Steel Kryviy Rih" (ITL Project ID UA1000258) for the period from the 1st of January 2010 till the 31st of December 2010 amount to 120 247 tonnes of CO_2 equivalent.

Kiev, 2nd of June 2011

APPENDIX A – CHECK LIST FOR VERIFICATION

DVM paragraph	Check Item	Initial Finding	Action requested to project participants	Review of project participants' action	Conclusion
Project approvals by Parties Involved					
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	Project approval by the Parties Involved is available: 1) Letter of Approval by the Ukraine ref. 1522/23/7 issued at 05.10.2010 2) Letter of Approval by the State of Luxembourg # 1 issued at 28th of May 2010 However, relevant information is missing from the Monitoring Report.	CAR 01: Please add information about project approval to the monitoring report.	See Appendix B	OK
91	Are all the written project approvals by Parties involved unconditional?	All the written project approvals by Parties involved are unconditional. "ArcelorMittal Flat Carbon Europe S.A.", "ArcelorMittal Long Carbon Europe S.A." and "OJSC "ArcelorMittal Kryviy Rih" are legal entities authorized by the designated focal points of the Parties Involved to participate in the JI project.	-	-	OK
Project implementation					
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The project has been implemented in accordance with the registered PDD ver. 04. This JI project is registered as Track 1 project and information is available (See Section 1.3 of this report). However, presented information in the PDD lists sub-project #3 as being implemented on the Rolling Mill #3 and Lime Shop rotary kilns. As was found on site the project is implemented within Rolling Mill #3, wire-rod rolling mill #3 and light section rolling mill #5. Changes implemented in last	CAR 02: Provide information and references about changes to the registered PDD as such changes were obviously implemented as discussed in previous monitoring report. Add this information to Section A.7. of the monitoring report.	See Appendix B	OK

		monitoring period are not mentioned in this monitoring report.			
93	What is the status of operation of the project during the monitoring period?	The project is aimed at increase of energy efficiency in production process and energy infrastructure at the full cycle metallurgical plant OJSC ArcelorMittal Kryviy Rih (AMKR). The energy efficiency assessment conducted at AMKR had identified eight key measures which have been planned for implementation. These measures will contribute in reduction of specific energy consumption and importantly will lead to reduction of CO2 emissions. During the monitoring period that covers time period between the 01/01/2010 and 31/12/2010 only the sub-project 3 "Switch fuel from NG to COG+BFG+NG mixtures" has been generating emission reductions. It is stated in the monitoring report that other subprojects are either in implementation stage like subproject 4 "Refurbishment of Electricity Distribution System" or the implementation of them is postponed and will start at later stage. Subprojects 1 "Modernization of Air Separating Unit", 2 "Modernization of Compressors station", and 5 "New gas burner Installation" have been partially implemented but their capacity did not reach expected level and the ERUs generated by them will be claimed at later stage, upon reaching their design capacity. The sub-project 3 that has been included into the monitoring report involves three interventions that have been described in the PDD and previous monitoring report. This sub-	CL 01: Clarify in more detail the status of implementation of other sub-projects that are included in this JI project. For example, sub-project 2 has been included into the previous monitoring report but is not included into this monitoring report.	-	OK

		project consists of the partial replacement of natural gas used in rolling shops of the plant with gas mixture of blast furnace gas/coke oven gas/natural gas (BFG+COG+NG) by replacing burners, installing and connecting system of gas mixing and installing boosting stations. It has been verified on site that the project is operating and has been operating during the whole monitoring period. Other sub-projects have not been included into the monitoring report. It has been stated in the monitoring report that other subprojects are either in implementation stage like subproject 4 or the implementation of them is postponed and will start at later stage. Subprojects 1, 2, and 5 have been partially implemented but their capacity did not reach expected level and the ERUs generated by them will be claimed at later stage, upon reaching their design capacity. However in the previous monitoring report sub-project 2 has also been included. This requires more clarification.			
Compliance with monitoring plan					
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The determined monitoring plan is contained in the registered PDD ver. 04 that is available on the UNFCCC JI website. There were no open issues since last verification. However, following changes during project implementation the monitoring plan has been revised during the last monitoring period and information about this should be added to the relevant section of the monitoring report for transparency. It is also evident that different amount of sub-	CAR 03: Provide information and references about changes to the registered monitoring plan as such changes were obviously implemented as discussed in previous monitoring report. Add this information to Section A.8. of the monitoring report.	See Appendix B	OK

		projects has been included in this monitoring period into the report. This constitutes a significant change since the last verification and information about it should be added to the monitoring report. Description of the methodology provided in the monitoring report lacks transparency and contains unexplained and unreferenced document names.	CAR 04: Provide information about changes since the last verification (e.g. inclusion of sub-projects into the monitoring report etc.) in Section A.9. of the monitoring report. CAR 05: Provide reference to the "JISC Guidance" mentioned in the Section A.5.1 of the monitoring report. CL 02: Clarify what is meant by the necessity to collect and monitor parameters "according to the monitoring period" as stated at the beginning of Section B. of the monitoring report.		
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	For calculating the emission reductions key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions as well as risks associated with the project were taken into account, as appropriate. For more detailed information, please, refer to Section B.2. of the determined and registered PDD version 04.	-	-	OK

95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	The daily reports of the service for control and operation of control and instrumentation devices of AMKR have been identified as the data source for the following monitoring parameters: Consumption of gases at rolling mills as well as volume of gases entering the CGMS. This data source is based on the existing reporting system of the company and is clearly identified, reliable and transparent. However, during the verification site-visit it has been found that the volumes of the gases reported by the service are recalculated to the default NCVs (in particular BFG and COG). The monitoring report uses actual average NCVs of these gases to calculate the amount of energy contained in the gas. Data from local gas supply company, coke oven production facility and blast furnace shop have been identified as the data source for the following monitoring parameters: NCV of natural gas, NCV of BFG, NCV of COG. This data source is based on the existing reporting system of the company and is clearly identified, reliable and transparent. However, the monitoring report uses inconsistent measurement units for NCVs of various gases: kcal/1000m3 and GJ/1000m3. This should be checked and corrected.	CAR 06: Please correct the values of NCV for blast furnace gas and coke oven gas to be in accordance with the values used by the project owner to report volumes of gases. Provide updated calculation of emission reductions. CAR 07: Correct measurement units of values (e.g. NCVs) to be in consistency between Sections B and D of the monitoring report.	See Appendix B	OK
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and	The emission factors used to calculate emission reductions are selected in accordance with the registered PDD ver. 04. The choice of these emission factors is appropriately justified in the PDD ver. 04 and in general accuracy and reasonableness are	CL 03: Explain why it is necessary to include “Annex 2 Standardized emission factors for the Ukrainian electricity grid” into the monitoring report	See Appendix B	OK

	reasonableness, and appropriately justified of the choice?	carefully balanced. The calculation of emission reductions rests on a single emission factor for carbon emissions due to combustion of natural gas. This emission factor is correctly referenced to the 2006 IPCC Guidelines and represents default factor. It is unclear, though, why monitoring report contains Annex 2 - Standardized emission factors for the Ukrainian electricity grid as this emission factor is not used for monitoring of the emission reductions associated with this project. Some minor discrepancies in the description of the monitoring methodology such as unexplained abbreviations are also present and should be explained.	when there are no monitored or fixed parameters in the monitoring report that rely on it. CL 04: Clarify what is the meaning of "DG" abbreviation in the section A.5.2. of the monitoring report.		
95 (d)	Is the calculation of emission reductions or enhancements of net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent manner?	The calculation of emission reductions is done based on conservative assumptions and the most plausible scenarios in a transparent manner. Project emissions are presented as the sum of the emissions from every rolling mill included into the subproject: 1) Rolling mill # 3 2) Wire-rod rolling mill # 3 3) Light section rolling mill # 5 For every rolling mill project emissions constitute actual emissions from combusting natural gas. These are determined by multiplying figures of total natural gas consumption in every rolling mill with natural gas NCV and emission factor. Total natural gas consumption is calculated as the sum of direct natural gas consumption which is monitored and natural gas consumption from the gas mix (NG+BFG+COG). Natural gas consumption	CAR 08: Correct indexes in equations 2 and 8 in Section D.1.1 and D.1.2 of the monitoring report. Check Section D.1.1. for consistency (English language only text, explanation of equation 3). CAR 09: Correct conversion factor from kcal to GJ in the formulas and explanations of Section D.1.1 and D.1.2 of the monitoring report.	See Appendix B	OK

		from the mix is determined by multiplying total gas mix consumption which is monitored with volumetric share of natural gas in the mix. Volumetric share of natural gas in the mix is determined from the data of central gas mixing station where total consumption of all gas mix components is monitored. There is a need to update equations in Section D of monitoring report to correct minor mistakes. The calculation of the baseline emissions is based on the JI specific approach in accordance with the registered PDD and rests on the assumptions that the equivalent amount of heat will be consumed in the baseline as in the project scenario. The baseline emissions are determined by multiplying figures of total baseline natural gas consumption in every rolling mill with natural gas NCV and emission factor. Total baseline natural gas consumption is determined based on the energy content of gases consumed in the project scenario which are monitored and recalculated to natural gas using NCVs of component gases. It is necessary to correct energy conversion factors in the text of the monitoring report. The calculation of emission reductions is done by subtracting the project emissions from the baseline emissions. No leakages were identified in accordance with the PDD.			
Data management					
101 (a)	Is the implementation of data collection procedures in	Data collection procedure is carried out in accordance with the monitoring plan,	CAR 10: Provide information about different	See Appendix B	OK

	accordance with the monitoring plan, including the quality control and quality assurance procedures?	including the quality control and quality assurance procedures and has been checked by the verification team on-site. The monitoring plan is presented in the section D of the registered PDD ver. 04. However, the monitoring report states that all parameters are recorded with circular diagrams while on site it has been verified that for some parameters electronic recorders are used.	type of measurement recorders in Section B.1. of the monitoring report as not all of the recorders use circular diagrams.		
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	The monitoring equipment employed by the project has functioned in accordance with the monitoring plan and in general is in order. The verification team has verified that the reported metering devices are in fact installed and operational. The metering devices have appropriate documentation, such as passports and calibration certificates. Calibration has been performed in accordance with the procedures of the Host Party and company standards evidence of these calibrations has been provided (calibration certificates and/or evidence of calibration in the passports of the devices or on the device itself). It has been verified that the calibration did occur at the correct calibration intervals for all metering devices. All metering equipment is controlled by the Instrument department. It makes periodical checking and calibration of metering equipment as per approved schedule and equipment manual. In total, AMKR uses about 70,000 measurement and instrumentation devices. This number includes thermometers, manometers, data recorders/loggers as well	CAR 11: Add information on flow recorder, pressure sensor and recorder, temperature sensor and recorder for natural gas consumption at the central gas mixing station. CAR 12: Add information on pressure sensor and recorder, temperature sensor and recorder for coke oven gas consumption at the central gas mixing station. CAR 13: Add information on pressure sensor and recorder, temperature sensor and recorder for blast furnace gas consumption at the central gas mixing station. Correct information in table B.1.2. of the monitoring report as	See Appendix B	OK

		as power and flow meters of different type used for both, commercial and process measurement/control. To run, maintain and calibrate this large massive of devices, AMKR keeps an electronic device database with electronic passport for every device. This passport has information on type and number of the device, its location, calibration schedule, needs for maintenance etc. Verification team has verified proper functioning of this database and device management system during the monitoring period on-site. However information on some sensors and recorders used in the monitoring is missing from the monitoring report. It is also important to clarify authorization for the Instrument Department of AMKR to perform calibrations.	"Disk 250" is not a sensor. CAR 14: Correct information in table B.1.2 of the monitoring report to differentiate between sensors, recorders and meters. CAR 15: Add information on the temperature sensor for direct natural gas consumption at RM#3. CAR 16: Add information on the temperature sensor for gas mix consumption at RM#3. CAR 17: Add information on pressure sensor and recorder, temperature sensor and recorder for direct natural gas consumption and gas mix consumption at LSRM#5. CAR 18: Add information on pressure sensor and recorder, temperature sensor and recorder for direct natural gas consumption and gas mix consumption at WRRM#5.		

			CAR 19: Provide information about certification and authorization of the internal plant metrology service to conduct calibrations in the monitoring report.		
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	The evidence and records used for the monitoring are maintained in a traceable manner. Verification team has got access to all necessary data on monitoring system and emission reductions and received necessary evidence on site. Necessary data storage and archiving procedure is in place and data are available as reports from the Energy department of AMKR. Monitoring report states that all data archived will be kept for at least two years after the last transfer of ERUs to the client.	-	-	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The data collection and management system for the project is in accordance with the monitoring plan as described in the registered PDD ver. 04. Roles and responsibilities of the technical staff in the framework of the monitoring are described in the monitoring report. The general project management is implemented by Mrs Liana Maksimenko, the Director for Environment of AMKR through supervising and coordinating activities of his subordinates and other plant divisions. Her work is supported by the assistance of Mr Vadim Yova, the head of energy management	CL 05: Clarify if any new certification visits occurred since March-May 2010 indicated in the Section C.3. of the monitoring report. CL 06: Clarify if troubleshooting procedures for electricity meters are necessary in Section C.4. of the monitoring report.	See Appendix B	OK

		bureau belonging to the Energy department of AMKR headed by Director for energy, Mr Alexander Kamenev. He is responsible for routine preparation and keeping the performance forms, which record the project variables. Within this responsibility he interacts with plant divisions in getting necessary performance data for subprojects included in the MR. The processing of metered data of consumption, pressure and temperature of gases, including of NG, COG and BFG is performed on daily basis by service for operation of control and instrumentation, headed by Mr Alexander Omelyanets. His service is responsible for processing the circular diagrams containing daily curves of respective parameters and obtains the normalized consumption in Normalized m3. These data are transferred to respective process department and to energy department where are stored. The plant laboratory is responsible for measurement of NCV of fuels used, except for natural gas. The NCV of NG is obtained regularly from gas supplier. The process flow of data collection is provided in the monitoring report in a form of a flowchart. The management of the personnel training and retraining at the plant is carried out by the Technical Director, and the control of implementation thereof – by the Head of the enterprise. Quality management system of AMKR is ISO 9003, 9002 and 9001 certified since			

		September 1994. Last re-certification visit was conducted during March-to May 2010 and in the result the TNO Certification, Netherlands has confirmed the compliance of quality management system to the requirement of ISO 9001:2008 “Quality management system-requirements”. It is necessary to provide information if any subsequent certification visits have taken place during the monitoring period. The troubleshooting is made by maintenance mechanics or on-duty electrician/operator. The internal system requires that a broken meter has to be replaced in few hours by the Instrument department. The Chief of Instrument dpt., M-r V.A Drazhko is in charge with the above activities. Also, Section C.4. of the monitoring report contains information on troubleshooting for electric meters which are not used in the monitored sub-project. This requires clarification and correction.			

APPENDIX B – RESOLUTION OF CARs, CLs, FARs

Action requested to project participants	Project participants' action	Conclusion
CAR 01: Add information about project approval to the monitoring report.	The following information was provided in Section A.6. of MR002 version 2.0 from 26.05.2011: "Letters of Approval were issued by both parties: Letter of Approval from NEIA of Ukraine #1522/23/7 from 05.10.2010 Letter of Approval from Luxembourg Departement de l'environnement #1 from 28.05.2010 Letters of Approval are available at: http://ji.unfccc.int/JIITLProject/DB/JQ756K3VCDKV3E8T8G4GGFNP4C4IDC/details"	Corrections to the MR are satisfactory. CAR is closed.
CAR 02: Provide information and references about changes to the registered PDD as such changes were obviously implemented as discussed in previous monitoring report. Add this information to Section A.7. of the monitoring report.	The following information was provided in Section A.7. of MR002 version 2.0 from 26.05.2011: "Changes during project implementation that have taken place at AMKR during last monitoring period were stated in the initial and first monitoring report ver2.0 and have been verified by AIE according to the procedures regarding changes during project implementation (…) Thus more emission reduction units than was planned in PDD were achieved due to expansion of Subproject 3."	Corrections to the MR are satisfactory. CAR is closed.
CAR 03: Provide information and references about changes to the registered monitoring plan as such changes were obviously implemented as discussed in previous monitoring report. Add this information to Section A.8. of the monitoring report.	Next information was provided in Section A.8. of MR002 version 2.0 from 26.05.2011: "Deviations to the registered monitoring plan have been reflected in an updated monitoring plan (MP) used for previous monitoring period (01.01.2008 – 21.12.2009). The monitoring report for this period (stated in Section A.4.) has been prepared in accordance with that updated monitoring plan. There were no deviations to this monitoring plan."	Corrections to the MR are satisfactory. Monitoring plan is in accordance with previous monitoring report. CAR is closed.
CAR 04: Provide information about changes since the last verification (e.g. inclusion of sub-projects into the monitoring report etc.) in Section A.9. of the monitoring report.	Next information was provided in Section A.9. of MR002 version 2.0 from 26.05.2011: "Subproject #2 Modernization of Compressor Station did not reach intended capacity and was not considered in the current monitoring report. No other changes took place since the last verification."	Corrections to the MR are satisfactory. CAR is closed.
CAR 05: Provide reference to the "JISC Guidance" mentioned in the Section A.5.1 of the monitoring report.	The name "JISC Guidance" was corrected to "JISC Guidance on Criteria for Baseline Setting in Section A.5.1 of MR002 version 2.0 from 26.05.2011. Next information was provided:	Corrections to the MR are satisfactory. CAR is closed.

	"The JI specific approach regarding baseline setting and monitoring has been developed for the subprojects in accordance with Appendix B of the JI Guidelines and with the JISC Guidance on Criteria for Baseline Setting and Monitoring ."	
CAR 06: Please correct the values of NCV for blast furnace gas and coke oven gas to be in accordance with the values used by the project owner to report volumes of gases. Provide updated calculation of emission reductions.	The values were corrected in the EXCEL calculation model to MR002 version 2.0 from 26.05.2011. The values were corrected in tables 13, 14, and Section D.3. of MR002 version 2.0 from 26.05.2011: "NCV of BFG was corrected to 1000 kcal/m^3 NCV of CG was corrected to 4000 kcal/m^3 "	Corrections to the MR are satisfactory. Excel file has been updated and calculation has been checked. CAR is closed.
CAR 07: Correct measurement units of values (e.g. NCVs) to be in consistency between Sections B and D of the monitoring report.	All measurement units were checked and corrected. NCV measurement units from [kcal/1000m^3] were brought to correct unit [kcal/m^3]. MR002 version 2.0 from 26.05.2011 was corrected.	Corrections to the MR are satisfactory. CAR is closed.
CAR 08: Correct indexes in equations 2 and 8 in Section D.1.1 and D.1.2 of the monitoring report. Check Section D.1.1. for consistency (English language only text, explanation of equation 3).	Information in Section D.1.1 and Section D.1.2 of MR002 version 2.0 from 26.05.2011 was corrected. The corrections were: Non-English characters were removed $PE_{SP3,\,y}$ was corrected to $PE_{SP3,\,i\,,y}$ $BE_{SP3,\,y}$ was corrected to $BE_{SP3,\,i\,,y}$	Corrections to the MR are satisfactory. CAR is closed.
CAR 09: Correct conversion factor from kcal to GJ in the formulas and explanations of Section D.1.1 and D.1.2 of the monitoring report.	Section D.1.1 and Section D.1.2 of MR002 version 2.0 from 26.05.2011 were corrected. The correction was: Explanation "4.187/1000 is unit conversion factor from kcal to GJ" changed to ""4.187/1000 is unit conversion factor from kcal/m^3 to GJ/1000m^3"	Corrections to the MR are satisfactory. CAR is closed.
CAR 10: Provide information about different type of measurement recorders in Section B.1. of the monitoring report as not all of the recorders use circular diagrams.	The following information was provided in Section B.1. of MR002 version 2.0 from 26.05.2011: "Consumption of gases at rolling mills as well as volume of gases entering the CGMS is metered the following way: every metering point is equipped with flow sensor with recorder, logging the daily consumption in form of a circular diagram, linear diagram or electronic memory. Similar to the flow metering, the pressure and temperature of gases are metered and recorded. The diagrams and electronic records are processed on a daily basis in the planimetric group belonging to the service for control and operation of control and instrumentation devices of AMKR. The obtained normalized daily consumptions are logged and reported to the energy department. This allows continuous monitoring and logging of 100% data of consumption of NG, COG, BFG	Corrections to the MR are satisfactory. CAR is closed.

	and gas mix at CGMS and the rolling mills. “	
CAR 11: Add information on flow recorder, pressure sensor and recorder, temperature sensor and recorder for natural gas consumption at the central gas mixing station.	The information was provided in the table 11 of Section B.1.2 of MR002 version 2.0 from 26.05.2011	Corrections to the MR are satisfactory. CAR is closed.
CAR 12: Add information on pressure sensor and recorder, temperature sensor and recorder for coke oven gas consumption at the central gas mixing station.	The information was provided in the table 11 of Section B.1.2 of MR002 version 2.0 from 26.05.2011	Corrections to the MR are satisfactory. CAR is closed.
CAR 13: Add information on pressure sensor and recorder, temperature sensor and recorder for blast furnace gas consumption at the central gas mixing station. Correct information in table B.1.2. of the monitoring report as “Disk 250” is not a sensor.	The information was provided in the table 11 of Section B.1.2 of MR002 version 2.0 from 26.05.2011	Corrections to the MR are satisfactory. CAR is closed.
CAR 14: Correct information in table B.1.2 of the monitoring report to differentiate between sensors, recorders and meters.	The word “meter” was excluded as every parameter is being detected by a sensor and recorded by a recorder. The information in Section B.1.2 of MR002 version 2.0 from 26.05.2011 was corrected.	Corrections to the MR are satisfactory. CAR is closed.
CAR 15: Add information on the temperature sensor for direct natural gas consumption at RM#3.	The information was provided in the table 12 of Section B.1.2 of MR002 version 2.0 from 26.05.2011	Corrections to the MR are satisfactory. CAR is closed.
CAR 16: Add information on the temperature sensor for gas mix consumption at RM#3.	The information was provided in the table 12 of Section B.1.2 of MR002 version 2.0 from 26.05.2011	Corrections to the MR are satisfactory. CAR is closed.
CAR 17: Add information on pressure sensor and recorder, temperature sensor and recorder for direct natural gas consumption and gas mix consumption at LSRM#5.	The information was provided in the table 13 of Section B.1.2 of MR002 version 2.0 from 26.05.2011	Corrections to the MR are satisfactory. CAR is closed.
CAR 18: Add information on pressure sensor and recorder, temperature sensor and recorder for direct natural gas consumption and gas mix	The information was provided in the table 14 of Section B.1.2 of MR002 version 2.0 from 26.05.2011	Corrections to the MR are satisfactory. CAR is closed.

consumption at WRRM#5.		
CAR 19: Provide information about certification and authorization of the internal plant metrology service to conduct calibrations in the monitoring report.	The following information on certification was provided in the Section C.3 of MR002 version 2.0 from 26.05.2011: "All metering equipment is controlled by the Instrument department of OJSC ArcelorMittal. According to the attestation certificate #06544-2-4-25/2 GOMS from 12.11.2010 issued by Ukrainian Centre for Standardization and Metrology, the Instrument department is accredited for performing of calibration of metering devices for internal needs. The certificate is valid until 12.11.2013. The service makes periodical checking and calibration of metering equipment as per approved schedule and equipment manual." The attestation certificate is attached as supporting document SD1_AMKR laboratory certificate.	Corrections to the MR are satisfactory. Evidence of laboratory certification has been provided [33]. CAR is closed.
CL 01: Clarify in more detail the status of implementation of other sub-projects that are included in this JI project. For example, sub-project 2 has been included into the previous monitoring report but is not included into this monitoring report.	The following information on implementation of other subprojects was provided in the Section A.3 of MR002 version 2.0 from 26.05.2011: "The subproject 1 "Modernization of Air Separating Unit" is partially implemented and operates in a commissioning mode. The performance of the unit is monitored separately. In the subproject 2 "Modernization of Compressors Station"1 compressor out of 8 intended was implemented, but due to unbalanced load no emission reduction units were generated. By the end of this year second compressor is due to be commissioned. (…) Subprojects 7 and 8 are still at the consideration stage."	Clarifications have been provided. Corrections to the MR are satisfactory. CL is closed.
CL 02: Clarify what is meant by the necessity to collect and monitor parameters "according to the monitoring period" as stated at the beginning of Section B. of the monitoring report.	The sentence was excluded from the text of MR002 version 2.0 from 26.05.2011 as it was redundant.	Clarifications have been provided. Corrections to the MR are satisfactory. CL is closed.
CL 03: Explain why it is necessary to include "Annex 2 Standardized emission factors for the Ukrainian electricity grid" into the monitoring report when there are no monitored or fixed parameters in the monitoring report that rely	The "Annex 2 Standardized emission factors for the Ukrainian electricity grid" A was excluded from the text of MR002 version 2.0 from 26.05.2011 as it was redundant.	Clarifications have been provided. Corrections to the MR are satisfactory. CL is closed.

on it.		
CL 04: Clarify what is the meaning of "DG" abbreviation in the section A.5.2. of the monitoring report.	The word "DG" was corrected to "BFG" (Blast furnace gas) in the section A.5.2. of MR002 version 2.0 from 26.05.2011	Clarifications have been provided. Corrections to the MR are satisfactory. CL is closed.
CL 05: Clarify if any new certification visits occurred since March-May 2010 indicated in the Section C.3. of the monitoring report.	The following information on the next certification visit was provided in the Section C.3 of MR002 version 2.0 from 26.05.2011: "Next certification visit was conducted from 16 to 18 of May 2011."	Clarifications have been provided. Corrections to the MR are satisfactory. CL is closed.
CL 06: Clarify if troubleshooting procedures for electricity meters are necessary in Section C.4. of the monitoring report.	All mentions of electricity meters were excluded from the text of MR002 version 2.0 from 26.05.2011 as they were redundant.	Clarifications have been provided. Corrections to the MR are satisfactory. CL is closed.

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2. Determination Report NO. 1155637 Rev. 2.0 dated 16/09/2009.
3. Second Periodic Annual JI Monitoring Report Version 1.0 dated 04 May 2011.
4. Initial and First Periodic Verification Report No UKRAINE/0129/2010 Rev.02 dated 15.09.2010.
5. Letter of Approval by the Ukraine ref. 1522/23/7 issued at 05.10.2010.
6. Letter of Approval by the State of Luxembourg # 1 issued at 28th of May 2010.
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8. Passport of physical and chemical characteristics of Natural Gas – April 2011.
9. Instruction for accounting of gaseous fuels for Minchermet entities – 1986.
10. Allowance # 1211000000-38 for hazardous emissions for AMKR – issued by Ministry of Environmental Protection of Ukraine on 05/05/2011.
11. Report on air protection for 2010.
12. Environmental Impact Assessment – Switch of heating furnaces #1 and #2 to COG+BFG+NG gas mix – 2006 (OVOS-119).
13. Environmental Impact Assessment – Rolling Mill #3 Heating Furnace with walking beam. Switch to COG+BFG+NG gas mix – 2006 (OVOS-120).
14. Environmental Impact Assessment – Rolling mill 250-3. Switch of heating furnaces #1 and #2 to COG+BFG+NG gas mix – 2006 (OVOS-118).
15. Conclusion # 466 of the State Environmental Expertise for designs of Switch of some metallurgical production of AMKR to COG+BFG+NG gas mix – March 2007.
16. Conclusion of the State Sanitary and Epidemiology Expertise # 05.03.02-07/10629 – 03/03/2007.
17. Conclusion of the State Labor Protection Expertise # 12.2-01-05-0305.07 – 28/03/2007.
18. Expert Conclusion of the State Fire Protection Squad #4 –No. 619.
19. Declaration of Intention MC 250-5 – AMKR – 2006.
20. Conclusion of the State Sanitary and Epidemiology Expertise # 05.03.02-07/10626 – 03/03/2007.
21. Conclusion of the State Labor Protection Expertise # 12.2-01-05-0296.07 – 28/03/2007.
22. Expert Conclusion of the State Fire Protection Squad #4 –No. 616.
23. Conclusion of the State Sanitary and Epidemiology Expertise # 05.03.02-07/10628 – 03/03/2007.
24. Conclusion of the State Labor Protection Expertise # 12.2-01-05-00312.07 – 29/03/2007.
25. Expert Conclusion of the State Fire Protection Squad #4 –No. 605.
26. Daily and Monthly Balance of Blast Furnace Gas – 11/05/2011.
27. Balance of Natural Gas – 12/05/2011.
28. CGMS#1 – Circular diagram of Natural Gas Flow for 12/05/2011.
29. Daily balance of coke oven gas – 12/05/2011.
30. Report for coke oven gas utilization 12/05/2011.
31. Report for utilization of gas mix and gas mix balance 12/05/2011.
32. Order # 879 dated 09/08/2010 on terms of data and information storage with annexes.
33. Attestation certificate for metrology service of AMKR – 12/11/2010.
34. Calculation Spreadsheet ver.1.0 dated 04 May 2011.
35. Calculation Spreadsheet ver.2.0 dated 26 May 2011.