VERIFICATION REPORT
JSC "YASYNIVSKYI COKE PLANT"

VERIFICATION OF THE UTLIZATION OF SURPLUS COKE OVEN GAS WITH THE ELECTRICITY GENERATION AT JSC "YASYNIVSKYI COKE PLANT"

INITIAL AND FIRST PERIODIC

REPORT NO. UKRAINE/0108/2010

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

Date of first issue: 13 July 2010	Organizational unit: Bureau Veritas Certification Holding SAS
Client: JSC "Yasynivskyi Coke Plant"	Client ref.: Viktor Chalenko

Summary:

Bureau Veritas Certification has made the verification of the "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant" project of Environmental (Green) Investments Fund LTD in Makiyivka, Donetsk region, Ukraine on the basis of UNFCCC criteria for the JI except for ERU's generating period, as well as criteria given to provide for consistent project operations, monitoring and reporting, as well as the host country criteria.

The verification scope is defined as a periodic independent review and post determination by the Accredited Independent 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.
One CAR remains open. CAR 1 is based on the finding that no documented approval is available from the Parties involved.

The verification is based on the Monitoring Report (covers January 1st 2006 – December 31st 2009), the monitoring plan, the determined PDD, version 4.0, and supporting documents made available to Bureau Veritas Certification by the project participant.

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 generating 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 224000 t CO_2e reductions during period from 01/01/2006 up to 31/12/2009.

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/0108/2010	Subject Group: JI
Project title: Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant"	
Work carried out by: Team Leader : Nadiia Kaiun; Team Member: : Iuliia Gumeniuk; Team Member : Svitlana Gariyenchyk	
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Indexing terms

Climate Change, Kyoto Protocol, JI, Emission Reductions, Verification

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Abbreviations

AIE	Accredited 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
IEEC	Institute for Environment and Energy Conservation
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

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1 INTRODUCTION

JSC "Yasynivskyi Coke Plant" has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant" (hereafter called "the project") in Makiyivka, Donetsk region, Ukraine.

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.

This report includes the findings of the 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).

The results of the determination were documented by SGS in the report: "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant" Report No. JI.VAL0243 dated January 26th, 2010 See Section 6).

The results of verification of early credits, initial and first periodic verification were documented by Bureau Veritas Certification Holding SAS in the report: "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant" Report No. UKRAINE/0108/2010 dated July 13th, 2010).

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 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 rules and modalities, and the subsequent decisions by the JISC , as well as the host country criteria except for ERU's generating period, which is in compliance only with the host country criteria.

1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and the determined project design document including the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations except for ERU's generating period. 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.
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 1.0 dated 29th of June 2010 and Monitoring Report, version 2.0 dated 13.07.2010, and underlying data records, covering the period 01 January 2006 to 31 December 2009 inclusive (see Section 6).

1.3 GHG Project Description

Joint Stock Company «Yasynivskyi Coke Plant» (JSC «YCP») – is one of the largest coke-chemical plants in Ukraine. The plant releases more than 1 mln. tons of carbonaceous coke of different types a year: blast-furnace coke, low-sulphur coke, casting coke, coke nut, rest and a wide range of cokechemical products: carbonaceous tar, ammonium sulphate, crude benzol, synthesizing benzol, toluol, solvent, low-sulphur flavour to motor oils etc. Products of the plant are of high quality and may be used both as finished goods and as raw material for other industry sectors. Major product types are: metallurgic coke (with quality rate corresponding to consumer requirements), casting coke, coke nut, coke rest, carbonaceous tar, ammonium sulphate, benzol rectification products (synthesizing benzol, solvent, toluol).
Nowadays, JSC «YCP» is a modern dynamically developing enterprise, with full coke-chemical production cycle with three acting coke oven batteries (№ 1, 5, 6), reconstructed chemical workshops and wide

material base. The company works stably and ensures more than 3000 working places.

The aim of the project is to ensure more full utilization of energy resources of the enterprise and obtaining self-produced electricity. On introduction of coke oven batteries №1 and № 4 the plants produce surpluse coke oven gas, which under conditions of project absence (utilization and waste electricity), will be flared. Under the project conditions, the surpluse coke oven gas will be burnt in the boilers and obtained steam will generate electricity. Thus, JSC «YCP» offers a joint implementation project on plant energy scheme improvement.

The project includes two implementation stages. Within the first stage, which was already implemented after reconstruction of coke oven battery №1, the PT-12 condensing turbine (with 12 MW capacity) was installed at combined heat power (CHP) plant for additional energy generation from surpluse coke oven gas.

The installation of condensing type turbine is imposed by the fact that the plant has experience of substantial fluctuations of heat energy consumption in warm and cold seasons. The amount of electricity generated by AR-6 backpressure type turbo-units is rigidly linked to the heat issued as technological steam at 0,5 MPa, 250 ºC. With the decrease of the demand for heat during the warm season the electricity generation by these units is also reduced. Thus, heating pressure decline is possible in warm seasons while the project turbine would work in condensation mode, generating waste energy. So, it ensures the most appropriate and flexible use of different modes of the installed equipment.

The second stage foresees reconstruction of coke oven battery №4. It will ensure possibility to additionally obtain of coke oven gas, which is planned to be combusted in boilers to generate the steam with further generation of electricity. Energy will be exported to other consumers aside of the enterprise. As of the time the decision on project implementation was taken by the top-management of the plant, Ukraine has signed Kyoto Protocol. Beginning of the project investment stage coincided with Kyoto Protocol ratification in Ukraine1. One of the core decision-making reasons for financing of JSC «YCP» project was the fact that representatives of the enterprise took part in a series of training seminars in the framework of the technical support program of the European Commission on «Technical assistance to Ukraine and Belarus with respect to their global climate change commitments (2004-2006). During the seminars all participants were presented the general principles of Kyoto Protocol and its flexible mechanisms. The industrial group “Donetskstal” that incorporates JSC “YCP along with several other companies CJSC “Donetskstal Metallurgical Plant”, “Donetsk Mettallurgical Plant, was among the first Ukrainian companies to have joined the realization of the Kyoto protocol flexible mechanisms In part, the project documentation for the Letter of Endorsement for the project “CMM utilisation on the Joint Stock Company “Coal Company Krasnoarmeyskaya Zapadnaya № 1 Mine” was prepared.

The performed calculations have shown that the electricity production at project CHP plant of JSC «YCP» through use of surpluse coke oven gas is economically non-effective. However, the possibility to involve additional financing sources for the installation of two turbogenerators at the cost of selling green gas emissions reduction units and prevention of CO2 emissions on power stations of energy system with electricity generation from surpluse coke oven gas at JSC «YCP», to some extent improves economic effectiveness of the mentioned project until the economy profit level.

Additional volumes of coke oven gas that were collected after reconstruction of the second coke oven battery №1, exceeded expectations and in the year 2006 JSC «YCP» started selling waste energy to other enterprises. Finances, which were saved on purchasing energy at the cost of its own production, and obtained from energy sales, were decided to invest into project development, i.e. into installation of the second turbogenerator with power of 12 MW.

With reference of uncertainty in JSC «YCP» production development the decision to construct the second turbogenerator with power of 12 MW was postponed. At present, the decision on coke oven battery №4 reconstruction is taken (exploitation is to be started in the year 2012) and top-management of the plant considers the possibility to order an execution plan for turbogenerator. The exploitation of the second turbogenerator is to be started in coincidence with the start of coke oven battery №4, after its reconstruction.

Description of the project environment.

Production of coke is executed by coke coal processing under anaerobic conditions with high temperatures (900-1100 ºC) with parallel coke oven gas, carbonaceous tar and other products receiving, in addition to coke itself. This technological process is called “coking”.

Major consumer of coke is blast-furnace production, which uses large coke in pieces («metallurgic» or «blast-furnace») sized 25-40 mm. Only large coke is used in casting production. Consuming small types of coke is appropriate for agglomerative production, for technological cycles where «coke rest» is used as fuel and partly as reducing agent. In ferrous alloy production “coke nut” is used as carbon reducing agent – sorted coke 10-15 mm size.

Coke products are also used in nonferrous-metals industry. Large coke is used as reducing agent and fuel reducing lead, tin and copper ores in mining stoves. Zinc is produced using coke rest. To make electrodes for ferrous alloy and to facilitate aluminium production low in mineral and low in sulphur types of coke are used. Coke is also used in burning limestone and cement clinker in mining stoves, and getting carbide of calcium in electric furnaces.

One of the most important carboning products is coke oven gas which is used as a raw material for chemical industry and, moreover, is a fuel energy source. As an energy source, the purified coke oven gas is used for getting heat and electricity. Besides, coke oven gas is used as

technological fuel for heating coke oven batteries, Martin furnaces (alongside with natural gas), heating wells and rolling-mill stoves.
There are quite significant resources of coking coal in Donbas region. By means of it, in metallurgic centers of Donbas and Prydniprovya, locate large coke-chemical plants (Makiyivka, Mariupol, Gorlivka, Stahanov, Dniprodzerzhynsk, Zaporizhzhya, Kryvyi Rig, Dnipropetrovsk). More than a half of coke volume is delivered from coke plants of Donbas, where the majority of coke-chemical plants of the country are situated, as their location mostly depends on coking coal deposits.
An economic crisis in Ukraine that arose after the split of the Soviet Union led to a significant decline in production in all economy sectors, including metallurgical industry. Following this process, the coke production declined as well. Under these conditions, coke production volumes in Ukraine shortened down to 57% in the year 1996 in comparison with the year 1990. In years 1996-1997 the country managed to stop production decline both through a general economic rally and by means of increasing demand on the market of iron industry inside and outside the country. Further on, the trends of world production and consumption of ferrous metals show the increase of coke production and consumption volumes. According to the International Institute of Steel and Iron (ISSI) estimation, production of steel in the year 2000 has reached outstanding level of 828,4 mln. tones, having increased up to 7,4% in comparison to the year 1999. Thus, for the first time the level of 800 mln. tones was exceeded. China is the largest steel producer in the world, second place belongs to Japan, the USA occupies the third place, and Russia is on the fourth. Ukraine occupies the seventh place in the world among coke producers, and its part in world production is constantly growing. The production volume of coke in 2007 accounted for 41% of production volume in 1990. There is an industrial potential and raw materials potential for the further increase of coke production.

Project compliance to the long-term sustainable development strategy.
From the mid 90-s, one of the most important tasks of the country external economy course was obtaining an associated membership status in the European Union with the prospective of getting actual membership.
The substantial step towards the EU was made by Ukraine by conclusion of agreement on «Partnership and Cooperation between Ukraine and European Communities and their member countries»4, the Article 61 of which declares intentions to cooperate in the frameworks of market economy principles and European Energy Charter under the conditions of evolutional integration of European energy markets. Moreover, the cooperation includes a range of issues aimed to increase energy efficiency and decrease negative effects for the environment.
European Parliament resolution of 13.01.2005 contains an appeal to the European Council and European Commission to «consider, except measures stipulated by Action Plan for European neighbourhood policy, other association forms for Ukraine, having provided the mentioned

country with the clear European prospective, which would finally lead Ukraine to entering the European Union».
To integrate the EU, Ukraine needs to accomplish certain requirements, declared on the highest interstate level. In particular the EU strategy for Ukraine, Action Plan «Ukraine – EU» were developed, cooperation spheres were outlined. Among cooperation priorities between Ukraine and EU in the sphere of energy nowadays there is the energy policy implementation, which facilitates approximating with the goals of EU energy policy and gradual transfer to principles of internal EU energy markets. Besides, it is important to achieve progress in effective use of energy and renewable energy sources. A lot of work is done to ensure implementation of conditions of Memorandum on understanding between Ukraine and EU in the energy sphere.
The Action Plan developed between Ukraine and European Union states the necessity to facilitate sustainable development by means of further actions on including issues of environmental protection into the policies of other spheres, in particular, in the spheres of industry and energy. In connection to this it is necessary to accept Action Plans regarding increase of energy efficiency, development of cooperation on energy safety projects.
In terms of above-mentioned, it is possible to state that requirements of Ukraine Ecological Legislation and the role of energy safety in prospective, accrording to the implementation of plans on integration into the EU, will increase. More and more state attention is delivered to the problems of energy resources effective use.
Ukraine belongs to the countries partly provided with traditional types of primary energy, and therefore it has to import them. Energy dependence of Ukraine from organic fuel supplies in the year 2004 was as high as 60,7% (to compare, energy dependence of EU countries is 51%).
Taking above-mentioned into consideration and under conditions of economic indexes growth in the year 2006, on 15.03.2006 the Cabinet of Ministers of Ukraine has adopted «Ukraine energy strategy for the period till 2030», which defines priorities in energy sector development. Among one of the most important ways of development there is integration of the national energy system of Ukraine into European one, the energy export increase, reduction of local energy-output ratio in production and optimization of own energy recourses exploitation.
Thus, implementation of the JSC «YCP» project with the energy production based upon useful consumption of surplus coke oven gas completely correlates with the long-term sustainable development strategy of Ukraine.

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 6). 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 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: • Full - all best-practice expectations are implemented. • Partial - a proportion of the best practice expectations is implemented • Limited - this should be given if	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.

	little or none of the system component is in place.	

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**
Identify and list potential reporting risks based on an assessment of the emission estimation procedures, i.e. ➢ the calculation methods, ➢ raw data collection and sources of supporting documentation, ➢ reports/databases/information systems from which data is obtained. 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. 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: ➢ 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.	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. Internal controls include (not exhaustive): ➢ 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. When testing the specific internal controls, the following questions are considered: 1. Is the control designed properly to ensure that it would either prevent	Identify areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks Areas where data accuracy, completeness and consistency could be improved are highlighted.

	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 properly (policies and procedures have been followed) throughout the period? 4. How does management assess the internal control as reliable?	

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)**
List the residual areas of risks (Table 2 where detailed audit testing is necessary. In addition, other material areas may be selected for detailed audit testing.	The additional verification testing performed is described. Testing may include: 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 ➢ Check sampling analysis results ➢ Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.	Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties should be highlighted. Errors and uncertainty can be due to a number of reasons: ➢ 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. 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.

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 1.0 dated 29 of June 2010 submitted by Environmental (Green) Investments Fund LTD 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. To address Bureau Veritas Certification corrective action and clarification requests, Environmental (Green) Investments Fund LTD revised the MR and resubmitted it on 13.07.2010 as final version 2.0.

The verification findings presented in this report relate to the project as described in the PDD version 4.0 and Monitoring Report versions 1.0 and 2.0.

2.2 Follow-up Interviews

On 13/07/2010 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of JSC "Yasynivskyi Coke Plant", developer and local stakeholders were interviewed (see 6 References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
JSC "Yasynivskyi Coke Plant"	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.
Consultant: Environmental (Green)	Baseline methodology. Monitoring plan.

Investments Fund LTD	Monitoring report. Deviations from PDD.

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

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 PERIODIC 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 SGS notes following open issues.

Corrective Action Request (CAR) 1

The letter of approval of both Parties involved is missing.

Conclusion of the Verification team

The issue remains open. The letters of approval from both NFPs are expected in July 2010.

Corrective Action Request (CAR) 8

The methodology ACM0012 requires the use of the "Tool to calculate the emission factor for an electricity system", Version 01.1. The PP does not use this tool, but applies a grid emission factor from a Study by Global Carbon B.V., that determines an EF for the Ukrainian grid of 0.807 t CO_2/MWh valid for the years 2006 to 2012. According to the PDD this value was accepted by the JISC for the Project "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" (UNFCCC project 0035). This was checked against the PDD of the project under http://ji.unfccc.int/UserManagement/FileStorage/Q5R65QBGA2B44Q2FUW5199HND2X0T1 and found to be correct.

At the same time this means, that for the calculation of emission reductions post 2012 the grid emissions factor for Ukraine needs to be re-evaluated.

Conclusion of the Verification team

The verification of the project "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant" is based on the Monitoring Report (covers January 1st 2006 – December 31st 2009). As the monitoring period is from 01.01.2006 to 31.12.2009, the issue will not be reviewed during this verification. The grid emissions factor for Ukraine will be re-evaluated for the period since the year 2012.

Request

To check means of the NCV determination and correspondent certificate of the laboratory that will be used.

Conclusion of the Verification team

Means of the NCV determination and correspondent certificate of the laboratory were checked onsite and found appropriate.

3.2 Project Implementation

Status of implementation

Activity	Date
Beginning of the project investment stage	2004
Launch of: - reconstructed coke oven battery №1, - installed first PT-12 turbogenerator	2006
Launch of: - reconstructed coke oven battery №4, - installed additional steam boiler BK-50, - installed second PT-12 turbogenerator	2012

According to ACM0012 methodology it is necessary to show that the amount of electrical power produced at the enterprise to cover own needs as a result of utilizing some coke oven gas on the existing pre-project equipment has not reduced as a result of project implementation (in order to increase export of electric power produced within the project for additional profit). Before implementing project activity the power generation on the enterprise using existing equipment satisfied only some of its in-house needs. This part can be reduced after implementing project activity as a result of load redistribution and substituting it with power generated by project turbo-units. Thus there is a need to isolate amount of power which was generated on existing pre-project equipment from the general amount of power generated after project activity implementation. This will eliminate possibility of counting electrical power generated as a result of project implementation as exported, the amount of power generated on the enterprise using existing pre-project equipment.

The project implementation leads to reduction of energy production from the emission sources (electricity and CHP plants in the energy system of Ukraine).

The identified areas of concern as to Project Implementation, project participants response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CL1, CL2, CL4).

3.3 Internal and External Data

3.3.1 Discussion

The monitoring for the current project is developed according to ACM0012 methodology. The monitoring plan of version 1 was chosen to carry out the monitoring activity. It requires formulas using to calculate greenhouse gas (GHG) anthropogenic emissions according to the baseline and JI project scenario as well as emissions reductions defining as difference between them. Reduced GHG emissions for any year are defined in accordance with results of monitoring.
Emission monitoring according to the project and baseline scenario for the current project (activity related to the collection and archiving data to evaluate or measure anthropogenic GHG emissions within project boundaries during the credit period) is carried out by the emission reductions owner according to the project – JSC «YCP».

Internal and external data of this project are presented by data from project activity emissions and data from baseline activity emissions (see Table 1 and Table 2).

Table 1. Data to be collected in the project scenario

Vari-able	Descrip-tion	Unit	Value			
			1.01.2006-31.12.2006	1.01.2007-31.12.2007	1.01.2008-31.12.2008	1.01.2009-31.12.2009
$FF_{A,i,y}$	Consumption of coal by CHP plant boilers after project imple-menta-tion	*ths.tons*	1,04	1,04	1,92	1,84
Q_{WCM}	Quantity of coke oven gas used for energy generation by CHP plant boilers	*mln. m^3*	225,626	262,372	253,869	263,231

Table 2. Data collected in the baseline scenario

Variable	Description	Unit	Value			
			1.01.2006-31.12.2006	1.01.2007-31.12.2007	1.01.2008-31.12.2008	1.01.2009-31.12.2009
$EG_{gen,1,y}$	Energy generation by the enterprise's AR-6 generator 1	*MWh*	0	0	22810,5	30787,2
$EG_{gen,2,y}$	Energy generation by the enterprise's AR-6 generator 2	*MWh*	34955,87	41949,00	11735,1	0
$EG_{gen,3,y}$	Energy generation by the enterprise's PT-12 generator 1	*MWh*	52064,46	84769,74	88453,62	81153,72
$EG_{gen,4,y}$	Energy generation by the enterprise's PT-12 generator 2	*MWh*	0	0	0	0

Employees responsible for the carrying out of the monitoring plan

The vice-chief of heat and power sector of the plant is responsible for the carrying out of the monitoring. The chief metrologist of the plant is responsible for the timely conduction of the scheduled meters calibration. Quality assurance of collected data that directs to the vice-chief of heat and power sector of the plant is conducted by chief engineer of the CHP. At JSC "Yasynivskyi Coke Plant" was introduced and applied a quality management system ISO 9001:2000. This fact is evidenced by a certificate issued by TÜV CERT GmbH. The registration number is

№78100061035. Audit of the processes of CHP quality management system conducts at the JSC «Yasynivskyi Coke Plant» with accordance to ISO 9001:2000.
In case any inconsistencies among the data are identified, the source of them will be investigated in collaboration with the specialists of “Environmental (Green) Investments Fund". If any inappropriateness of monitored data is revealed, corrective measures will be conducted either on the monitoring system for the item specified above. In such case, monitored data will be corrected in a conservative manner. All the information of corrective measures taken on the monitoring system and monitored data itself will be archived along with original monitored data for future verification of emission reductions. Responsibility and scheme of the monitoring is presented above.
Employees of the metrological service of JSC «Yasynivskyi Coke Plant» were passed through Refresher trainings. Education was held in Kiev Research and Training Centre of Standardization, Certification and Quality of Gospotrebstandart of Ukraine.
Monitoring report and corresponding calculations are carried out by the specialists of “Environmental (Green) Investments Fund" based on data received from the central office of JSC «YCP».

The identified areas of concern as to Internal and External Data, project participants response and BV Certification’s conclusion are described in Appendix A Table 5 (refer to FAR2, CL3, CL5, CL6, CL7).

3.4 Environmental and Social Indicators

The project improved efficiency of use of coke oven gas at the enterprise and thus lead to decrease of harmful emissions. The installation of PT-12 turbine will secure more reliable work of power plant in whole. Reliability consists in more rational exploitation of the installed equipment taking into account seasonable changes in heat loadings and the possibility of stable electric power production for complete provision of JSC “YCP” needs in electric power.
The analysis of the environmental impacts of the project in the places where project objects are situated and the territories adjoined to them, at JSC “YCP” at the site of installation of turbine PT-12 and generator T-12-2U3 was made in accordance wit acting guidelines, regulations, procedures and state standards including demands for fire and explosion safety and secures safe exploitation of buildings and constructions on condition that project measures are followed.
Among factors of potentially negative environmental impacts of the project there are:
• Emissions of pollutants into atmosphere;
• Water consumption and draining;
• Noise impact of turbogenerator;
• Other factors such as electromagnetic and ionizing radiation, ultrasound, etc. are absent.

Resuming social impacts of the project, it is possible to define the following impacts on social state of local community as a result of JI project at JSC "YCP":
• Dependency on electric power purchases will decrease substantially;
• The possibility of getting profit from sales of surplus electric power will appear;
• The reliability of electric power supply in the settlement of Khimik, Donetsk region will increase;
• The number of work places will increase during construction and exploitation, as well in the contiguous industrial sectors;
• The implementation of projects on energy infrastructure modernization will be simplified;
• The experience of designing and implementation of the projects in accordance with demands of JI standards will be received.

3.5 Management and Operational System

Emission monitoring according to the project and baseline scenario for the current project (activity related to the collection and archiving data to evaluate or measure anthropogenic GHG emissions within project boundaries during the credit period) is carried out by the emission reductions owner according to the project – JSC «YCP».

Accounting of energy production. Reading of meters for the produced energy is conducted on unit-to-unit basis every 12 hours and is entered into the log book. The data is aggregated into the monthly and annual reports and is stored in paper and electronic formats.
Data collection is carried out by a shift caretaker of the Main control board. The responsible person for the collection and archiving of the data is the head of the electricity area.
Meters check is conducted according to the verification methodology certified by the Ukrainian state scientific-production center for standardization, metrology and certification (UkrCSM). The Electrotechnical laboratory of the enterprise is responsible for meeting the meters checks deadlines.
The amount of electricity consumed for the PT-12 own needs is determined by monthly calculations in consideration of the working auxiliary equipment load factor, as well as its capacity. The data is archived and stored in paper and electronic formats. The responsible person for the collection and archiving of the data is the head of the electricity area.
Accounting of coal consumption of CHP boilers. The amount of coal, consumed by the boilers, is determined when coal is supplied to the CHP by using the electro-mechanical scales. Data on the amount of coal is entered into the logbook. The responsible person is the head of the production department.
The NCV of coal supplied to the CHP and combusted in the boilers is

determined according to the technical specifications У 10.1-23472138-161:2005 for coal sort G, belonging to which was established by state enterprise “Luganskstandardmetrology”.

Accounting of the coke oven gas consumption in CHP boilers. Accounting of the coke oven gas consumption in CHP is determined by the meter on gas-flow inlet to the boiler house (pie chart). The pie chart readings is conducted manually every 24 hours by shift caretaker of Control, Measurement and Automation department and entered into logbooks and electronic data base.
The responsible person for the collection and archiving of the data is the head of Control, Measurement and Automation department.
Coke oven gas NCV is determined monthly by the Central plant laboratory. The results are entered into the logbook.

The list of monitoring equipment, which is used in the project, is present in the Monitoring Report version 1.0 Section B.1. All the monitoring equipment is to be checked and calibrated according calibration plans.

The control and monitoring system includes electrical measurements, coal weight measurements, and coke oven measurements. Electrical part of monitoring system is consist of measurements of such parameters as energy generation by the AR-6 generator 1 after project activity implementation, energy generation by the AR-6 generator 2 after project activity implementation, and energy generation by the PT-12 generator 1 after project activity implementation. Coal weight measurements consist in measuring amount of consumed by CHP after project activity implementation. Coke oven gas part of control and monitoring system includes measurements of amount of coke oven gas consumed by CHP after project activity implementation and of temperature of coke oven gas consumed by CHP.

All data necessary for the CO_2 emission reductions calculation are collected by the vice-chief of heat and power sector of the plant and forwarded to the Environmental (Green) Investments Fund ltd. The specialists of the fund are making calculations on a monitoring period duration basis.
For this monitoring period the names of the personnel involved is as follows:

- Vice-chief of heat and power sector of the plant: Alexander Sevastianov
- Head of Control, Measurement and Automation dpt.: Maxim Rusanov
- Head of the electricity area: Dmitry Bogdanov
- Head of the production dpt.: Alexey Shevchenko
- Chief metrologist of the plant: Larisa Krivaya

Trainings.
Employees of the metrological service of JSC «Yasynivskyi Coke Plant» were passed through Refresher trainings. Education was held in Kiev Research and Training Centre of Standardization, Certification

and Quality of Gospotrebstandart of Ukraine.

Internal audits and control measures.
At JSC "Yasynivskyi Coke Plant" was introduced and applied a quality management system ISO 9001:2000. This fact is evidenced by a certificate issued by TÜV CERT GmbH. The registration number is №78100061035. Procedures for dealing with data gaps and uncertainty conducts with accordance to this standard.

The identified areas of concern as to Management and Operational System, project participants response and BV Certification's conclusion are described in Appendix A Table 5 (refer to FAR1).

3.6 Completeness of Monitoring

Monitoring plan is a system of requirements for carrying out monitoring as integral part of project documentation.

Monitoring plan for the current project is developed according to ACM0012 methodology.

The monitoring plan of version 1 was chosen to carry out the monitoring activity. It requires formulas using to calculate greenhouse gas (GHG) anthropogenic emissions according to the baseline and JI project scenario as well as emissions reductions defining as difference between them.

Reduced GHG emissions for any year are defined in accordance with results of monitoring.

The complete data is stored electronically and documented.
According to the PDD version 4.0 the amount of emission reduction units in the years 2006 - 2009 is stated as 224 200 t CO_2. According to the Monitoring Report version 1.0 the amount of ERU's for this period is 213 480,5 t CO_2.

The identified areas of concern as to Completeness of Monitoring, project participants response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CL1).

3.7 Accuracy of Emission Reduction Calculations

Donetsk center for standartization, metrology and certification (Makeevskiy branch) is a subsidiary of the "Ukrainian Centre for Standardization and Metrology", has been involved for the regular calibration of the weighting machines and coke oven gas meters.
At JSC "Yasynivskyi Coke Plant" was introduced and applied a quality management system ISO 9001:2000. This fact is evidenced by a certificate issued by TÜV CERT GmbH. The registration number is №78100061035. Procedures for dealing with data gaps and uncertainty conducts with accordance to this standard.
If any inappropriateness of monitored data is revealed, corrective measures will be conducted either on the monitoring system for the item specified above. In such case, monitored data will be corrected in a

conservative manner. All the information of corrective measures taken on the monitoring system and monitored data itself will be archived along with original monitored data for future verification of emission reductions.

Risks and uncertainties.
Risk factors that can lead to the loss or revision (decreasing) of the expected amount of emission reduction units in the crediting period:
• technologic risks;
• performance risks.
Technologic risks. The type of equipment installed in the result of project implementation (condensing turbines) differs from the existing equipment at the start of the project (back pressure turbines). To mitigate this risk there were conducted appropriate trainings among technical staff of power plant. The conducting of major overhaul intends the application of specialists from corresponding specialized organizations.
Operational activity risks. Operational activity include a risk of drop in demand for the end product of JSC "YCP" in terms of economic crisis, and as a result there is a risk of similar level – volume decrease in coke oven gas production. Thereupon while developing JI project the review of economic analytic data was made to clarify the economic stability of the enterprise.

According to the Article 10 paragraph 1 of the Ukrainian Law "On Metrology and Metrological Activity" measurement results can be used in case if appropriate characteristics of errors and uncertainty are known. Characteristics of errors are presented in the passports of the equipment. The level of uncertainty is considered as low which is why it can be neglected in the calculations.
Project consists of the 7 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.
The identified areas of concern as to Accuracy of Emission Reduction Calculations, project participants response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CL1, CL2).

3.8 Quality Evidence to Determine Emissions Reductions

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.

3.9 Management System and Quality Assurance

The general project management is implemented by the Chairman of the Board JSC "YCP" through the appointment of the person responsible for the supervising and coordinating activities of the monitoring. For the considered monitoring period the vice-chief of heat and power sector of the plant is responsible for the carrying out of the monitoring. On-site day-to-day management is implemented by the Head of Control, Measurement and Automation dpt., the head of the electricity area and the head of the production department. Data collection is carried out by shift caretakers (operators). The facility is in 24 hours operation. Three shifts by eight hours have been introduced. The chief metrologist of the plant is responsible for the timely conduction of the scheduled meters calibration.

All data necessary for the CO_2 emission reductions calculation are collected by the vice-chief of heat and power sector of the plant and forwarded to the Environmental (Green) Investments Fund ltd. The specialists of the fund are making calculations on a monitoring period duration basis.

GHG emission reductions due to the project implementation are calculated according to ACM0012 methodology.

Monitoring report and corresponding calculations are carried out by the specialists of "Environmental (Green) Investments Fund" based on data received from the central office of JSC "YCP".

The identified areas of concern as to Management System and Quality Assurance, project participants response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CL4, CL5, CL7, CL8).

4 PROJECT SCORECARD

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
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.

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.
Consistency	Changes in the project	✓	✓	✓	Results are consistent to underlying raw data.

5 PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification has performed a verification of the JI project "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant". The verification is based on the currently valid documentation of the United Nations Framework Convention on the Climate Change (UNFCCC).

After the verification of the project "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant" CAR 1 (absence of letters of approval from both NFPs) remains open.

Bureau Veritas Certification can confirm that the management of JSC "Yasynivskyi Coke Plant" 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 4.0. 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 1.0 and version 2.0 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:

Period	Emissions reductions, $tCO_{2eq.}$
1.01.2006-31.12.2006	36413
1.01.2007-31.12.2007	62643
1.01.2008-31.12.2008	60821
1.01.2009-31.12.2009	53604
Total 2006-2009	**213481**

6 REFERENCES

Category 1 Documents:
Documents provided by Project Participants that relates directly to the GHG components of the project.

/1/ Monitoring Report version 1.0, dated 29th of June 2010

/2/ Monitoring Report version 2.0 dated 13.07.2010

/3/ Determination Report by SGS United Kingdom Limited dated 26.01.2010

/4/ Project Design Document, version 2.0 dated 3 of August 2009

/5/ Project Design Document, version 4.0 dated 11 of December 2009

/6/ Letter of Endorsement from Environmental Investment Agency for Ukraine (Focal Point), dated 11 of September 2008

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/ E.L. Okhrymenko – head of the Central plant laboratory,

/2/ D.M. Bogdanov – head of the electricity area,

/3/ L.V. Krivaya – chief metrologist of the plant,

/4/ O.V. Gonchar – head of the Electrotechnical laboratory,

/5/ M.M. Kritsyn – electrician of CHP,

/6/ M.L. Rusanov – head of control, measurements and automation department

/7/ M.Y.Trush – acting assistant of chairman of QMS

/8/ A.M. Birchenko – technical director,

/9/ S.I. Skybyk – consultant, Environmental (Green) Investments Fund LTD

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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	1	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: Mrs. Nadiia Kaiun, Lead Auditor, Bureau Veritas Ukraine, Mrs. Iuliia Gumeniuk, Auditor, Bureau Veritas Ukraine, Mrs. Svitlana Gariyenchyk, Auditor, Bureau Veritas Ukraine. Interviewed persons: E.L. Okhrymenko – head of the Central plant laboratory, O.V. Gonchar – head of the Electrotechnical laboratory, D.M. Bogdanov – head of the electricity area, L.V. Krivaya – chief metrologist of the plant, M.M. Kritsyn – electrician of CHP, M.L. Rusanov – head of control, measurement and automation department, M.Y. Trush – quality manager, A.M. Birchenko – technical director.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
1.2. Clarification of access to data archives, records, plans, drawings etc.	1	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	1	Project has been implemented as defined in the PDD version 4.0 and the implementation is evidenced by statements of work completion.	OK
1.4. Actual status of installation works	1	In 2006 there was launch of coke oven battery #1 reconstruction, and launch of first PT-12 turbogenerator installation. There are no delays in the implementation of the project.	OK
2. Open issues indicated in validation report			
2.1. Missing steps to final approval	1	The Letter of Endorsement was received from National Environmental Investment Agency of Ukraine (NEIA), dated 11.09.2009. The Letters of Approval from both NFPs will be received. Corrective Action Request (CAR) 1 There are no Letters of Approval from both NFPs.	CAR 1
3. Implementation of the project			
3.1. Physical components	1	Monitoring equipments types are described in the section B.1 of the Monitoring Report, version 1.0, dated 29.06.2010. There are no delays in the implementation of the project.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		In 2004 the project investment stage began. In 2006 there was launch of coke oven battery #1 reconstruction, and launch of first PT-12 turbogenerator installation. In 2012 there will be launch of coke oven battery #4 reconstruction, launch of additional steam boiler BK-50 installation, and second PT-12 turbogenerator installation.	
3.2. Project boundaries	1	Description of how the definition of the project boundary applied to the project is provided in the section B.3 of the PDD, version 4.0, dated 11.12.09.	OK
3.3 Emission reductions achieved	1, 2	In the PDD version 4.0 the amount of emission reduction units in the years 2006 - 2009 is stated as 224 200 t CO_2 while in the Monitoring Report version 1.0 the amount of ERU's for this period is 213 480,5 t CO_2. Clarification Request (CL) 1 Please, provide the clarification on the difference of the amount of emission reductions in PDD and Monitoring Report.	CL 1 closed
3.4. Monitoring and metering systems	1	Key monitoring activities are the following: **Accounting of energy production.** Reading of meters for the produced energy is conducted on unit-to-unit basis every 12 hours and is entered into the log book. The data is aggregated into the monthly and annual reports and is stored in the paper format.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Data collection is carried out by a shift caretaker of the Main control board. The responsible person for the collection and archiving of the data is the head of the electricity area. Monitoring scheme for electrical power generation is provided in Annex 1 of the Monitoring report, version 1.0, dated 29.06.2010. Meters check is conducted according to the verification methodology certified by the Ukrainian state scientific-production center for standardization, metrology and certification (UkrCSM). The Electotechnical laboratory of the enterprise is responsible for meeting the meters checks deadlines. The amount of electricity consumed for the PT-12 own needs is determined by monthly calculations in consideration of the working auxiliary equipment load factor, as well as its capacity. The data is archived and stored in the paper format. The responsible person for the collection and archiving of the data is the head of the electricity area. **Accounting of coal consumption of CHP boilers**. The amount of coal, consumed by the boilers, is determined when coal is supplied to the CHP by using the electro-mechanical scales. Data on the amount of coal is entered into the logbook. The responsible person is the head of the production department. The net caloric value of coal supplied to the CHP and	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		combusted in the boilers is determined according to the technical specifications У 10.1-23472138-161:2005 for coal sort G, belonging to which was established by state enterprise “Luganskstandardmetrology”. **Accounting of the coke oven gas consumption in CHP boilers.** Accounting of the coke oven gas consumption in CHP is determined by the meter on gas-flow inlet to the boiler house (pie chart). The pie chart readings is conducted manually every 24 hours by shift caretaker of Control, Measurement and Automation department, reduced to the normal conditions (readings of the gas temperature are also performed manually from the similar diagram) and entered into logbooks and electronic data base. The responsible person for the collection and archiving of the data is the head of Control, Measurement and Automation department. Coke oven gas NCV is determined monthly by the Central plant laboratory. The results are entered into the logbook. The control and monitoring system may be divided into an electrical part, a coke oven gas part and a coal weight part. In the Monitoring report, version 1.0, dated 29.06.2010, it is stated that there are no deviations to the determined monitoring plan.	

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.5. Data uncertainty	1, 2	Clarification Request (CL) 2 Please, provide information on how the level of uncertainty is taken into account, and define if the level of uncertainty is taken into account in the final emission reductions calculations. Please, include this information in the Monitoring Report.	CL 2 closed
3.6. Calibration and quality assurance	1	Calibration procedures are described in the section B.1.3 of the Monitoring report, version 1.0, dated 29.06.2010. On the date of verification (13.07.2010), calibration records of the measuring and monitoring equipment have been verified on site. The list of all monitoring equipment with all the serial numbers and calibration dates is presented in the Monitoring Report version 1.0.	OK
3.7. Data acquisition and data processing systems	1	Emission monitoring according to the project and baseline scenario for the current project (activity related to the collection and archiving data to evaluate or measure anthropogenic GHG emissions within project boundaries during the credit period) is carried out by the emission reductions owner according to the project – JSC «YCP». Collection and storage of the initial GHG emission reduction monitoring information according to the project involves: • recording of meters indications and collecting of analysis	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		results as often as specified in the monitoring plan; • entering of the recorded data into the GHG Emission Reduction Monitoring Register is carried out by the unit supervised by Cheif Electrician of JSC «YCP». The GHG Emission Reduction Monitoring Register is maintained annually in electronic form (as an EXCEL table) separately for Stage 1 and Stage 2 of the project. The first day of every month the Register for the previous month is to be printed in two copies and signed by two authorized persons. One copy is stored at the PT-12 turbine operator's workplace. The other copy is given to the authorized person responsible for GHG emissions reduction monitoring according to the project in the central office of JSC «YCP». Besides this the electronic file with month data is given to authorized person. The authorized person responsible for GHG emission reduction monitoring according to the project in the central office is assigned by the order of JSC «YCP» chairmen of board. All monitoring information for both turbines is archived on this person's computer and as a hard copy.	
3.8. Reporting procedures	1	The authorized person responsible for GHG emission reduction monitoring according to the project in the central office is assigned by the order of JSC «YCP» chairmen of board. All monitoring information for both turbines is archived as a hard copy. Besides, this authorized person is responsible for	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		organizing annual GHG emission reduction verification according to the project, preparing annual monitoring report (providing information for GHG emission reduction calculation). All data necessary for the CO_2 emission reductions calculation are collected by the vice-chief of heat and power sector of the plant and forwarded to the Environmental (Green) Investments Fund ltd. Monitoring report and corresponding calculations are carried out by the specialists of "Environmental (Green) Investments Fund" based on data received from the central office of JSC «YCP». Net calorific value of the fossil fuel (coal) (once a year) and coke gas (once a month) defining should be carried out in the laboratory of the project owner - JSC «YCP».	
3.9. Documented instructions	1, 2	Section B of the Monitoring Report 1.0. on key monitoring activities provides with the necessary information relating the procedures for the monitoring, measurements and reporting. Clarification Request (CL) 3 Please, clarify what inplant instructions are used for calculation of energy consumption for own needs of PT-12 generator 1, and include this information in the Monitoring report, Section B.2.2, Table 9.	CL 3 closed

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.10. Qualification and training	1, 2	Employees of the metrological service of JSC «Yasynivskyi Coke Plant» were passed through Refresher trainings. Education was held in Ukrainian Research and Training Centre of Standardization, Certification and Quality of Gospotrebstandart of Ukraine. Clarification Request (CL) 4 Please, include information considering qualification of the stuff to the Monitoring Report.	CL 4 closed
3.11. Responsibilities	1	The general project management is implemented by the Chairman of the Board JSC "YCP" through the appointment of the person responsible for the supervising and coordinating activities of the monitoring. For the considered monitoring period the vice-chief of heat and power sector of the plant is responsible for the carrying out of the monitoring. On-site day-to-day management is implemented by the Head of Control, Measurement and Automation dpt., the head of the electricity area and the head of the production department. Data collection is carried out by shift caretakers (operators). The facility is in 24 hours operation. Three shifts by eight hours have been introduced. The chief metrologist of the plant is responsible for the timely conduction of the scheduled meters calibration. All data necessary for the CO_2 emission reductions calculation are collected by the vice-chief of heat and power sector of the plant and forwarded to the Environmental	FAR 1

Objective	Reference	Comments	Conclusion (CARs/FARs)
		(Green) Investments Fund ltd. The specialists of the fund are making calculations on a monitoring period duration basis. On the date of verification, the monitoring instruction (with description of key monitoring activities and people responsible for these activities) has been seen on site. In this instruction, names and surnames of the people responsible are not indicated. Forward Action Request (FAR) 1 Please, indicate names and surnames of people responsible for key monitoring activities and acquaint the people with their responsibilities.	
3.12. Troubleshooting procedures	1, 2	See section C.4 of the Monitoring report, version 1.0, dated 29.06.2010. Clarification Request (CL) 5 Please, clarify whether there are possibilities of redundant data monitoring in case of having problems with the used monitoring equipment.	CL 5 closed
4. Internal Data			
4.1. Type and sources of internal data	1, 2	The control and monitoring system can be divided into an electrical part, a coke oven gas part and a coal weight part.	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Electrical measurements For the purpose of monitoring the emission reductions the following parameters are measured: • Energy generation by the AR-6 generator 1 after project activity implementation; • Energy generation by the AR-6 generator 2 after project activity implementation; • Energy generation by the PT-12 generator 1 after project activity implementation. **Coal weight measurements** For the purpose of monitoring the emission reductions the following parameters are measured: • Amount of coal consumed by CHP after project activity implementation. **Coke oven gas measurements** For the purpose of monitoring surplus coke oven gas consumption the following parameters are measured: • Amount of coke oven gas consumed by CHP after project activity implementation; • Temperature of coke oven gas consumed by CHP (to recalculate amount of coke oven gas consumed from m^3 to the Nm^3).	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Clarification Request (CL) 6 Please, specify how the temperature of coke oven gas consumed by CHP is being measured.	CL 6 closed
4.2. Data collection	1	See section D.3 of the PDD, version 4, dated 11.12.09. Emission monitoring according to the project and baseline scenario for the current project is carried out by the emission reductions owner according to the project – JSC «YCP». *Accounting of energy production.* Reading of meters for the produced energy is conducted on unit-to-unit basis every 12 hours and is entered into the log book. The data is aggregated into the monthly and annual reports and is stored in paper and electronic formats. Data collection is carried out by a shift caretaker of the Main control board. The responsible person for the collection and archiving of the data is the head of the electricity area. Meters check is conducted according to the verification methodology certified by the Ukrainian state scientific-production center for standardization, metrology and certification (UkrCSM). The Electrotechnical laboratory of the enterprise is responsible for meeting the meters checks deadlines. The amount of electricity consumed for the PT-12 own needs is determined by monthly calculations in	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		consideration of the working auxiliary equipment load factor, as well as its capacity. The data is archived and stored in paper and electronic formats. The responsible person for the collection and archiving of the data is the head of the electricity area. *Accounting of coal consumption of CHP boilers.* The amount of coal, consumed by the boilers, is determined when coal is supplied to the CHP by using the electro-mechanical scales. Data on the amount of coal is entered into the logbook. The responsible person is the head of the production department. The NCV of coal supplied to the CHP and combusted in the boilers is determined according to the technical specifications У 10.1-23472138-161:2005 for coal sort G, belonging to which was established by state enterprise “Luganskstandardmetrology”. *Accounting of the coke oven gas consumption in CHP boilers.* Accounting of the coke oven gas consumption in CHP is determined by the meter on gas-flow inlet to the boiler house. The pie chart readings is conducted manually every 24 hours by shift caretaker of Control, Measurement and Automation department and entered into logbooks and electronic data base. The responsible person for the collection and archiving of the data is the head of Control, Measurement and Automation department.	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Coke oven gas NCV is determined monthly by the Central plant laboratory. The results are entered into the logbook. *Employees responsible for the carrying out of the monitoring plan.* The vice-chief of heat and power sector of the plant is responsible for the carrying out of the monitoring. The chief metrologist of the plant is responsible for the timely conduction of the scheduled meters calibration. Quality assurance of collected data that directs to the vice-chief of heat and power sector of the plant is conducted by chief engineer of the CHP. At JSC "Yasynivskyi Coke Plant" was introduced and applied a quality management system ISO 9001:2000. This fact is evidenced by a certificate issued by TÜV CERT GmbH. The registration number is №78100061035. Audit of the processes of CHP quality management system conducts at the JSC «Yasynivskyi Coke Plant» with accordance to ISO 9001:2000. In case any inconsistencies among the data are identified, the source of them will be investigated in collaboration with the specialists of “Environmental (Green) Investments Fund". If any inappropriateness of monitored data is revealed, corrective measures will be conducted either on the monitoring system for the item specified above. In such case, monitored data will be corrected in a conservative manner. All the information of corrective measures taken on	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		the monitoring system and monitored data itself will be archived along with original monitored data for future verification of emission reductions. Responsibility and scheme of the monitoring is presented above. Employees of the metrological service of JSC «Yasynivskyi Coke Plant» were passed through Refresher trainings. Education was held in Kiev Research and Training Centre of Standardization, Certification and Quality of Gospotrebstandart of Ukraine. Monitoring report and corresponding calculations are carried out by the specialists of "Environmental (Green) Investments Fund" based on data received from the central office of JSC «YCP».	
4.3. Quality assurance	1	See section C of the Monitoring report, version 1.0, dated 29.06.2010.	OK
4.4. Significance and reporting risks	1, 2	Clarification Request (CL) 7 Please, provide information considering reporting risks and include this information in the Monitoring Report.	CL 7 closed
5. External Data			
5.1. Type and sources of external data	1	See section B.2 of the Monitoring report, version 1.0, dated 29.06.2010.	OK
5.2. Access to external data	1	See section B.2.1. of the MR version 1.0 dated 29.06.2010.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
5.3. Quality assurance	1	See section C of the Monitoring report, version 1.0, dated 29.06.2010.	OK
5.4. Data uncertainty	1	The hand readings of the meters cause additional uncertainties. In case of obvious errors occurred, monitored data will be corrected in a conservative manner. All the information of corrective measures taken on the monitoring system and monitored data itself will be archived along with original monitored data for future verification of emission reductions. See section D.2 of the Monitoring report, version 1.0, dated 29.06.2010.	OK
5.5. Emergency procedures	1	If any inappropriateness of monitored data is revealed, corrective measures will be conducted either on the monitoring system for the item specified above. In such case, monitored data will be corrected in a conservative manner. All the information of corrective measures taken on the monitoring system and monitored data itself will be archived along with original monitored data for future verification of emission reductions.	OK
6. Environmental and Social Indicators			
6.1. Implementation of measures	1	The project improved efficiency of use of coke oven gas at the enterprise and thus leaded to decrease of harmful emissions. Now, there are no delays in the implementation of the	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		project. In 2004 the project investment stage began. In 2006 there was launch of coke oven battery #1 reconstruction, and launch of first PT-12 turbogenerator installation.	
6.2. Monitoring equipment	1	Monitoring equipment types: 1. Electricity meters “SAZU-I 687” 2. Electricity meters “Indigo+” 3. Electromechanical railway carriage scales “VV-150E-1” 4. Coke oven gas flow meter “KSD-3”, modification 1010. See section B.1 of the Monitoring report, version 1.0, dated 29.06.2010.	OK
6.3. Quality assurance procedures	1	See section B.1.3 and C.1.1 of the Monitoring report, version 1.0, dated 29.06.2010.	OK
6.4. External data	1	See section B.2 of the Monitoring report, version 1.0, dated 29.06.2010.	OK
7. Management and Operational System			
7.1. Documentation	1	The company complies with all legal and statutory requirements of the Ukraine. JSC «YCP» has all the necessary permissions and licenses.	OK
7.2. Qualification and training	1, 2	See CL 4 in the chapter 3.10 of this protocol.	CL 4
7.3. Allocation of responsibilities	1	See section C.1 of the Monitoring report, version 1.0 dated 29.06.2010.	FAR 1 is pending.

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Also, see FAR 1 in the chapter 3.11 of this protocol.	
7.4. Emergency procedures	1	See the chapter 5.5 of this protocol.	OK
7.5. Data archiving	1	On the date of verification (13.07.2010), the verification team found that not all the logbooks with readings of electric meters are kept within the proper period of time. Forward Action Request (FAR) 2 Please, let all the departments of JSC «YCP» know that according to section D of Guidelines for Users of the JI PDD Form, version 04, data monitored and required for determination are to be kept for two years after the last transfer of ERUs for the project	FAR 2
7.6. Monitoring report	1	Data information is laid down in the Monitoring report version 1.0 dated 29.06.2010.	OK
7.7. Internal audits and management review	1, 2	At JSC "Yasynivskyi Coke Plant" was introduced and applied a quality management system ISO 9001:2000. This fact is evidenced by a certificate issued by TÜV CERT GmbH. The registration number is №78100061035. Procedures for dealing with data gaps and uncertainty conducts with accordance to this standard. Clarification Request (CL) 8 Please, include more detailed information concerning internal audits in the Monitoring report. Also, please,	CL 8 closed

Objective	Reference	Comments	Conclusion (CARs/FARs)
		indicate people who are responsible for the internal audits.	

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
1. Defined organizational structure, responsibilities and competencies		
1.1. Position and roles	Full	For this monitoring period the names of the personnel involved is as follows: • Vice-chief of heat and power sector of the plant: Alexander Sevastianov • Head of Control, Measurement and Automation dpt.: Maxim Rusanov • Head of the electricity area: Dmitry Bogdanov • Head of the production dpt.: Alexey Shevchenko • Chief metrologist of the plant: Larisa Krivaya

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
1.2. Responsibilities	Full	See section C.1.1 of the Monitoring report, version 1.0, dated 29.06.2010. The general project management is implemented by the Chairman of the Board JSC "YCP" through the appointment of the person responsible for the supervising and coordinating activities of the monitoring. For the considered monitoring period the vice-chief of heat and power sector of the plant is responsible for the carrying out of the monitoring. On-site day-to-day management is implemented by the Head of Control, Measurement and Automation dpt., the head of the electricity area and the head of the production department. Data collection is carried out by shift caretakers (operators). The facility is in 24 hours operation. Three shifts by eight hours have been introduced. The chief metrologist of the plant is responsible for the timely conduction of the scheduled meters calibration. All data necessary for the CO_2 emission reductions calculation are collected by the vice-chief of heat and power sector of the plant and forwarded to the Environmental (Green) Investments Fund ltd. The specialists of the fund are making calculations on a monitoring period duration basis.
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		

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
2.1. Reporting procedures	Full	The monitoring plan is as per the registered PDD version 2.0. The applauded version of PDD version 2.0. is publicly available at the site http://ji.unfccc.int/UserManagement/FileStorage/MRUAQE80DJZ16WCINXK4T9SHYBGFP5 where it was placed during determination process. The approved consolidated methodology ACM0012/ Version 03.1 "Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects" has been used to monitor the proposed JI project.
2.2. Necessary Changes	Full	There are no delays in the implementation of the project. No essential changes are necessary.
3. Application of GHG determination methods		
3.1. Methods used	Full	The reporting procedures reflect the monitoring plan content. The calculation of the emission reduction is correct.
3.2. Information/ process flow	Full	All data will be archived electronically and to handwritten journals. See section 3.4 of the Table 1 of this protocol.
3.3. Data transfer	Full	The complete data is stored electronically.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
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 4.0.
4.2. Calibration/ maintenance	Full	The company maintains the elaborate calibration plan for each of the equipment. The audit team verified the status of all the equipment at the sites sampled for the audit and found them to be complying with the plan.
5. GHG Calculations		
5.1. Use of estimates and default data	Full	See section B.2.1. of the Monitoring report, version 1.0, dated 29.06.2010.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
5.2. Guidance on checks and reviews	Full	All data necessary for the CO_2 emission reductions calculation are collected by the vice-chief of heat and power sector of the plant and forwarded to the Environmental (Green) Investments Fund ltd. The specialists of the fund are making calculations on a monitoring period duration basis. Also, see Section 7.7 of this protocol, table 1.
5.3. Internal validation and verification	Full	Monitoring procedure for JI Project includes the responsibility and frequency for carrying out internal audits.
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
Potential reporting risks based on an assessment of the emission estimation procedures can be expected in the following fields of action: ➢ the calculation methods, ➢ raw data collection and sources of supporting documentation, ➢ reports/databases/ information systems from which data is obtained. Key source data applicable to the project assessed are hereby: ➢ metering records, ➢ process monitors, ➢ operational logs (metering records), ➢ laboratory/analytical data (for energy content of fuels), ➢ accounting records.	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: Key source data for this parameter are: • meter reading. •invoices and record for fuels (and coal) for consumption and purchase. The metering equipments are installed appropriately in the enclosure panels and same are of reputed make. Calculation methods: The reporting procedures reflect the monitoring plan content and the calculation of the emission reduction is correct and also	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 4.0 as well as the way data obtained is used to calculate the emissions reductions.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
Appropriate calibration and maintenance of equipment resulting in high accuracy of data supplied should be in place. 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: ➢ 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).	additionally deducting the project emissions caused by fossil fuel.	

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)
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 4.0.	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.	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.

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
Corrective Action Request (CAR) 1 There are no Letters of Approval from both NFPs.	2.1	The Letters of Approval from both NFPs are expected in July 2010.	The issue remains open.
Forward Action Request (FAR) 1 Please, indicate names and surnames of people responsible for key monitoring activities and acquaint the people with their responsibilities.	3.11	At the JSC “Yasynivskyi coke plant” the order concerning indication of the names of the personnel involved in the monitoring will be issued.	Will be verified during next verification.
Forward Action Request (FAR) 2 Please, let all the departments of JSC «YCP» know that according to section D	7.5	At the JSC “Yasynivskyi coke plant” the order concerning appointment of vice-chief of heat and power sector of the plant responsible for the keeping of the monitoring data.	Will be verified during next verification.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
of Guidelines for Users of the JI PDD Form, version 04, data monitored and required for determination are to be kept for two years after the last transfer of ERUs for the project.			
Clarification Request (CL) 1 Please, provide the clarification on the difference of the amount of emission reductions in PDD and Monitoring Report.	3.3	The main reasons for the difference in the amount of the ERUs are the following: • difference between the amount of electric energy generated actually and the amount that was planed to generate in PDD; difference between the amount of coal consumed by CHP boilers actually and the amount that was planed to consume in PDD.	Clarification is accepted. CL is closed.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
Clarification Request (CL) 2 Please, provide information on how the level of uncertainty is taken into account, and define if the level of uncertainty is taken into account in the final emission reductions calculations. Please, include this information in the Monitoring Report.	3.5	The data received directly from meters is taken with the level of uncertainty taking into account. During calculation of the GHG emissions the level of uncertainty is taken into account according to the Article 10 of "Law of Ukraine on Metrology and Metrological Activity", which states about the results of measurements usage.	Clarification is accepted. CL is closed.
Clarification Request (CL) 3 Please, clarify what inplant instructions are used for calculation of energy consumption for own	3.9	For calculation of energy consumption for own needs of PT-12 generator is used "Instruction on monitoring of the project "Utilization of surplus coke oven gas with the electricity generation at JSC "Yasynivskyi Coke Plant" dated 6.05.2006.	Clarification is accepted. CL is closed.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
needs of PT-12 generator 1, and include this information in the Monitoring report, Section B.2.2, Table 9.			
Clarification Request (CL) 4 Please, include information considering qualification of the stuff to the Monitoring Report.	3.10	After installation of project turbogenerator PT-12, CHP staff underwent training at the manufacturer of the turbines (Kaluga turbine works). Also, employees of the metrological service of JSC «Yasynivskyi Coke Plant» were passed through Refresher trainings. Education was held in Kiev Research and Training Centre of Standardization, Certification and Quality of Gospotrebstandart of Ukraine. At the JSC “YCP” for the personnel of the plant periodically are conducting inner refresher trainings “Terms of design and safe operation	Clarification is closed due to the amendments in Monitoring report.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
		of pressure vessels" and "Electrical and work technology fundamentals".	
Clarification Request (CL) 5 Please, clarify whether there are possibilities of redundant data monitoring in case of having problems with the used monitoring equipment.	3.12	In case of any meter failure, data discrepancy will be found within one day. The meter will be substituted by working one. CO2 emissions reduction will be calculated by cross-checking method for this period. In case of having problems with the used monitoring equipment cross-checking data can be achieved: • for electric meters – from commercial meters of imported and exported electric energy data; • for coke oven gas meter – from individual boilers' coke oven gas meters data; for coal weighting machine – from reserve coal weighting machine data.	Clarification is accepted. CL is closed.
Clarification Request (CL) 6 Please, specify how	4.1	Temperature of coke oven gas consumed by CHP indicated by the KSMz-P meter. This meter's data is	Clarification is accepted. CL is closed.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
the temperature of coke oven gas consumed by CHP is being measured.		used to recalculate amount of coke oven gas consumed from m^3 to the Nm^3.	
Clarification Request (CL) 7 Please, provide information considering reporting risks and include this information in the Monitoring Report.	4.4	Every day persons responsible for "Instruction on monitoring" fulfillment reports to the Vice-chief of heat and power sector of the plant about any malfunctioning. So, in case of any meter failure, data discrepancy will be found within one day. The meter will be substituted by working one. CO_2 emissions reduction will be calculated by cross-checking method for this period.	Clarification is closed due to the amendments in Monitoring report.
Clarification Request (CL) 8 Please, include more detailed information concerning internal audits in the Monitoring report. Also, please, indicate	7.7	Audit of the processes of CHP quality management system conducts at the JSC «Yasynivskyi Coke Plant» with accordance to ISO 9001:2000". N.Trush, the assistant chairman of the quality, is responsible for the internal quality audit conducting.	Clarification is closed due to the amendments in Monitoring report.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
people who are responsible for the internal audits.			

APPENDIX B: VERIFICATION TEAM

The verification team consists of the following personnel:

Nadiya Kaiiun, M.Sci. (environmental science)
Team Leader, Climate Change Lead Verifier
Bureau Veritas Ukraine HSE Department Project Manager

Nadiya Kaiiun 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 Systems. She has performed over 15 audits since 2008. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and is involved in the determination/verification of 10 JI projects.

Iuliia Gumeniuk, Master of Ecology
Team member, Climate Change Verifier
Bureau Veritas Ukraine HSE Department Project Manager

Iuliia Gumeniuk has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems. Iuliia has undergone an intensive training course on Clean Development Mechanism /Joint Implementation, and she has also been involved in the determination/verification of 6 JI projects.

Svitlana Gariyenchyk, Ecology Specialist

Team member, Climate Change Verifier
Bureau Veritas Ukraine HSE Department Project Manager.

She has 8 year working experience as a Project Manager, Head of Investment, Environmental Programs and Training Department in the company operating in the sphere of ecological audit, management and certification. She is experienced in European Union programs as an environmental protection expert.
She followed study and training course within TACIS program on training of managers in the sphere of environmental protection. She has completed intensive training course “Lead verifier of JI projects”. She is involved in the determination/verification of 7 JI projects.

The verification report was reviewed by:

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

Internal Technical Reviewer, Climate Change Lead Verifier, Bureau Veritas Certification Holding SAS Local Climate Change Product Manager for Ukraine

Acting CEO Bureau Veritas Black Sea District

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He is Lead Tutor of the Clean Development Mechanism /Joint Implementation Lead Verifier Training Course and he was involved in the determination/verification over 60 JI/CDM projects.

APPENDIX C: DOCUMENTS CHECKED DURING VERIFICATION

/1/ Photo. Device for determining caloric value of coke.

/2/ Consolidated journal of component composition of coke oven gas. Started 02.01.2009. Period of storage 5 years.

/3/ Attestation certificate of Central plant laboratory #06544-2-4-11/3 ГОМС. Annex to the attestation certificate dated 07.10.2009 #06544-5-1-125-ВЛ. Certification sector: Central plant laboratory of JSC “Yasynivskyi coke plant” for conducting of measurements within and out of the sphere of distribution of state metrological supervision.

/4/ Schedule of departmental, and periodic verification of electrical appliances and electric meters.

/5/ Photo. CHP. JSC “YCP”.

/6/ Photo. Turbine, inv. #104101855.

/7/ Photo. Electronic recorder МТМ-РЭ-160.

/8/ Photo. Electric meter “Indigo+”.

/9/ Photo. Wh. Counter input to the generator.

/10/ Passport. Electric multifunctional meters Indigo+.

/11/ Acceptance certificate. Electric meter of type of Indigo+, ser. #UA015673.

/12/ Logbook of accounting of electricity CHP JSC “YCP” for 2007.

/13/ Daily flow diagram of coke oven gas consumption.

/14/ Daily flow diagram of coke oven gas pressure.

/15/ List of dangerous and harmful production factors dated 05.01.2009.

/16/ Policy of JSC “Yasynivskyi coke plant” in the quality sphere dated 01.04.2009.

/17/ Eight principles of quality management at JSC “Yasynivskyi coke plant”.

/18/ Passport for the flow meter (variable drop). ДКО ser. #1411. КСДЗ ser. #299048 dated 23.06.2008. Date of the last verification: 23.06.2010.

/19/ Certificate #48 issued for Rusanov Maksim Leonidovich as he was participating from 15.01 to 26.01.2007 in training course for working with “Complex of technical means of control systems, management and diagnostics ИТ12/ИТ14” dated 26.01.2007.

/20/ Consolidated journal of component composition of coke oven gas. Started 01.01.2006. Finished 29.12.2007.

/21/ Journal of coke oven gas consumption for January 2006.

/22/ Journal of coke oven gas consumption for February 2006.

/23/ Journal of coke oven gas consumption for December 2006.

/24/ Journal of coke oven gas consumption for January 2007.

/25/ Journal of coke oven gas consumption for December 2007.

/26/ Logbook for registration of occupational safety issues.

/27/ The certificate of conformance of management system with requirements of the standard EN IO 9001:2008.

/28/ Certificate of the introduction and application of quality management system in the following areas. Manufacture of coke. Verification audit, # report 8000 329 07 on conformation of meeting the requirements of EN ISO 9001:2000. 15.01.2009. Certificate Registration #. 78 100 0610 35.

/29/ The investment project “Reconstruction of benzene-scrubber department of Trapping of chemical coking products” (as a coke oven battery № 4). The beginning of project implementation – January 2008, date of commissioning – June 2008, the period of development of design parameters – 6 months.

/30/ Protocol #2 of meeting of the commission for verification of the knowledge on occupational safety and health dated 22 April 2009.

/31/ Protocol #3 of meeting of the commission for verification of the knowledge on occupational safety and health dated 24 April 2009.

/32/ Scheme of installation of counters in the power supply system at JSC “YCP”.

/33/ Letter of Endorsement for the JI project “Utilization of surplus coke oven gas with the electricity generation at JSC “Yasynivskyi Coke Plant”. #1070/23/7 dated 11.09.2009.

/34/ Certificate on conformation of quality management #08.706.026 dated 05.12.2008 ISO 9001:2000 for the following field of activities: development, production and servicing of steam turbines, turbogenerators, sepators for cleaning oil and fuels, pumps, heat exchanging apparatus, vessels operating under pressure, steam and hot water pipelines, sedimentation centrifuges, car- and furniture accessories.

/35/ Report on internal audit #1, conducted 20.09.2007. dated 21.03.2008.

/36/ Report on internal audit #2, conducted 20.09.2007. dated 26.09.2008.

/37/ Attestation certificate of Electrotechnical laboratory. Registration date: 02.11.2006., reg. #06544-2-4-152-ВЛ, valid to 02.11.2012.

/38/ Form #19087 on alingement of the contract JSC “YCP”. Contract #24/3143 dated 22.12.08.

/39/ Passport Ат-022 ПС 3. Electromechanical railway carriage scales “VV-150E-1”. Date of the last state verification: April 2009.

/40/ Passport for the flow meter (variable drop) dated 23.06.2008.

/41/ Accreditation certificate #ПК 010-2004. Issued 20 July 2004, valid to 20 July 2009.

/42/ The facts and forecast on the production of coke and electricity at JSC “Yasinovskyi Coke Plant” 2003-2006.

/43/ Instructions for project “Utilization of surplus coke oven gas with the electricity generation at JSC “Yasynivskyi Coke Plant” dated 06.05.2006

/44/ Annex 1. Data on equipment which is used for calculating the amount of production electricity.

/45/ Annex 2. Data on equipment which is used for calculating the amount consumed by CHP boiler shop unit.

/46/ Report on the results of usage of fuel, heat and electricity for January-December 2006.

/47/ Report on the results of usage of fuel, heat and electricity for January-December 2007.

/48/ Report on the results of usage of fuel, heat and electricity for January-December 2008.

/49/ Balance of coke oven gas for the years 2003-2009.

/50/ Permit for the start of implementation of high-risk № 3505.09.30-74.30.0. Issue Date: November 20, 2009.

/51/ Report on research-scientific work. “Development of cost estimates for technical and economic proposals for the production of additional electricity at the CHP of JSC “Yasinovskyi coke plant” by installing a steam boiler and turbine of 12 MW capacity with ensuring maximum economy of resources from the July 29, 2009

/52/ Tasks for the design of “Yasinovskyi coke plant.” Reconstruction of CHP. Technical and commercial proposal.

/53/ Form #22040 on alingement of the contract JSC “YCP”. Contract #24/11/47/58 dated 12.01.10.

/54/ Minutes of approval of the works (services) SE “Donetsk Scientific-Production Center of Standardization, Metrology and Certification” to the contract #24/11 dated 12.01.2010.

/55/ Approval of JSC “Yasinovka Coke Plant. Protocol to the contract. # 24/11/47/58 from 12.01.2010, the State Enterprise “Donetsk Scientific-Production Center of Standardization, Metrology and Certification.

/56/ Authorization certificate #ПК 010-2009 of metrological units of SE “Donetskstandartmetrolohiya” on verification (calibration) of measuring devices dated 17 July 2009. Valid to 17 July 2014.