VERIFICATION REPORT
JSC "POBUZHSKIY FERONIKELEVIY COMBINAT"

VERIFICATION OF THE MODERNISATION OF AN ENTERPRISE REGARDING FUEL SWITCHING FROM FUEL OIL TO NATURAL GAS AT PFC, LTD

(SECOND PERIODIC FOR THE PERIOD 2009)

REPORT NO. UKRAINE/0107/2010
REVISION NO. 03

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE/0107/2010

VERIFICATION REPORT

Date of first issue: 17 March 2010	Organizational unit: Bureau Veritas Certification Holding SAS
Client: JSC "Pobuzhskiy feronikeleviy combinat"	Client ref.: Victor Khalabuzar

Summary:
Bureau Veritas Certification has made the verification of the "Modernization of an enterprise regarding fuel switching from fuel oil to natural gas at PFC, LTD" project of JSC "Pobuzhskiy feronikeleviy kombinat" located in Urban settlement Pobugskoye, Golovanivskyi District of Kirovohrad region, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting, as well as the host country criteria.
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.

The verification is based on the Monitoring Report (covers January 1st 2009 – December 31st 2009), the Monitoring Plan, the determined PDD, version 5 of 27/01/2010, and supporting documents made available to Bureau Veritas Certification by the project participant.
In summary, Bureau Veritas Certification confirms that the project is implemented according to determinated 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 61866 tCO2e reductions during period from 01/01/2009 up to 31/12/2009.
On 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/0107/2010	Subject Group: JI	**Indexing terms**
Project title: "Modernization of an enterprise regarding fuel switching from fuel oil to natural gas at PFC, LTD"		Climate Change, Kyoto Protocol, JI, Emission Reductions, Verification
Work carried out by: Team Leader, Lead verifier: Nadiia Kaiiun Team Member, verifier: Kateryna Zinevych		☒ No distribution without permission from the Client or responsible organizational unit
Work verified by: Ivan Sokolov – Internal Technical Reviewer		☐ Limited distribution
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Bureau Veritas Certification Holding SAS

Abbreviations

AIE	Accrediting Independent Entity
BVCH	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CDQ	Coke Dry Quenching
CL	Clarification Request
CO_2	Carbon Dioxide
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
IETA	International Emissions Trading Association
JI	Joint Implementation
JISC	JI Supervisory Committee
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

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1 INTRODUCTION

JSC “Pobuzhskiy feronikeleviy kombinat”, has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Modernization of an enterprise regarding fuel switching from fuel oil to natural gas at PFC, LTD" (hereafter called “the project”) at Urban settlement Pobugskoye, Golovanivskyi District of Kirovohrad region, Ukraine.

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

The report 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 contained in the Validation and Verification Manual (VVM) published by International Emission Trading Association (IETA).

The verification for 2009 was based on analysis of project documents including PDD, monitoring plan, determination report, monitoring report and further documentation. Project determination was performed by Bureau Veritas Certification Holding SAS. Determination results are given in the report: “Determination of the project “Modernization of an enterprise regarding fuel switching from fuel oil to natural gas at PFC, LTD”, #UKRAINE/0068/2009 as of February 15, 2010. The verification of early credits results are given in the verification report “Verification of the project “Modernization of an enterprise regarding fuel switching from fuel oil to natural gas at PFC, LTD”, #UKRAINE/0091/2010 as of March 21, 2010. The results of initial and first periodic verification are presented in the verification report “Verification of the project “Modernization of an enterprise regarding fuel switching from fuel oil to natural gas at PFC, LTD”, #UKRAINE/0106/2010 as of March 21, 2010. The project is approved by the National Environmental Investments Agency of Ukraine and Ministry of Economic Affairs of Netherland (Letters of Approval are attached).

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/CDM rules and modalities, and the subsequent decisions by the JISC, as well as the host country criteria.

1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by the 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. Bureau Veritas Certification has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the verification, focusing on the identification of significant risks of the project implementation and the generation of ERUs.
The verification is not meant to provide any consulting towards the Client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.
The audit team has been provided with a Monitoring Report version 2 and underlying data records, covering the period 01 January 2009 to 31 December 2009 inclusive (see Section 6).

1.3 GHG Project Description

PFC, LTD is the first enterprise in the former Soviet Union, which produces ferronickel from oxidised base in production quantities.

The principal activity of PFC, LTD is provision of services for processing of nickel raw materials produced on commission, production of ferronickel,

solid furnace and granulated slag. Ferronickel is produced for the needs of enterprises in Ukraine and abroad.

The proposed project is related to the Fuel Combustion category and includes emissions from carbon fossil fuel combustion. Fuel combustion includes fuel oxidation processes for electric power generation for its further direct use or for transformation into mechanical power.

The main sources of emissions in this category in Ukraine are the Energy sector, Industry and Construction, and Transport, the share of which is nearly 85%[2] of the total emissions in the Fuel Combustion category. Chemical industry is among the biggest industrial fuel consumers in Ukraine after heat energy and iron-and-steel industry. Chemical industry differs by a greater percentage of use of raw fuel.

The technology of production of product on PFC, LTD includes roasting of ore charge in the tubular furnaces, melting the hot cinder on a ferronickel and refining an electro ovens ferronickel. Fuel oil was used for the production purposes according to the baseline scenario. The main consumers of fuel are 4 tubular furnaces of roasting workshop that require the use of substantial volumes of fuel. The emissions of greenhouse gases in the atmospheric air take place due to the incineration of fuel oil in stoves.

Project was initiated in 2004. The primary purpose of the project is to reduce greenhouse gas emissions by switching from fuel oil to natural gas. Reduction of greenhouse gas emissions can be achieved by modernisation of a fuel system.

To fulfill this project the enterprise constructed a gas pipeline connected to the public gas transmission system, which provided use of natural gas instead of fuel oil for combustion in the respective production. To increase efficiency of natural gas using the enterprise replaced gas burners.

Due to the absence of the project for production at the enterprise fuel oil was used as fuel, and the main greenhouse gas emissions from fuel combustion are CO_2 emissions. The proposed project allowed the enterprise to switch from oil fuel to another one – natural gas. Greenhouse gas emissions will be reduced at the expense of the fact that carbon content in fuel oil is much higher than in natural gas, and the lower combustion value of fuel oil is much higher compared to natural gas.

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 little or none of the system component is in	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.

	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 or detect and correct any significant misstatements? 2. To what extent have the internal controls been implemented	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.

	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? 5.	

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 submitted by JSC "Centre TEST" 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, JSC "Centre TEST" revised the MR and resubmitted it as version 2 dated 5th of March 2010.

The verification findings presented in this report relate to the project as described in the PDD version 5 of 27/01/2010 and Monitoring Report versions 1 and 2.

2.2 Follow-up Interviews

On 17/02/2010 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of JSC "Pobuzhskiy feronikeleviy kombinat", JSC "Centre TEST" and local stakeholders were interviewed (see 7 References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
JSC “Pobuzhskiy feronikeleviy kombinat”	Organizational structure. Responsibilities and authorities. Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Metering equipment control. Metering record keeping system, database.
Local Stakeholder: District State Administration	Social impacts. Environmental impacts.
Consultant: JSC “Centre TEST”, "RAIDEN VENTURES LIMITED"	Baseline methodology. Monitoring plan. Monitoring report. Deviations from PDD.

2.3 Resolution of Clarification, Corrective and Forward Action Requests

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

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

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

Forward Action Requests (FAR) are issued, where:
iv) the actual status requires a special focus on this item for the next consecutive verification, or
v) an adjustment of the MP is recommended.

The verification team may also use the term Clarification Request (CL), which would be where:
vi) additional information is needed to fully clarify an issue.

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

3 VERIFICATION FINDINGS FOR 2009

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

The issue determination performed is remaining.

Corrective Action Request (CAR) 1:

There is no evidence of written project approvals by the Parties involved.

Response

Letter of Approval #188/23/7 was issued by the National Environmental Investments Agency of Ukraine from 5th of March 2010. Letter of Approval from the other Party is still not received.
Letter of Approval #2010 JI08 was issued by the Ministry of Economic Affairs of the Netherland from 13th of April 2010.

Conclusion of the verification team

Issue is closed.

3.2 Project Implementation

3.2.1 Discussion

The main project purpose is to reduce greenhouse gas (GHG) emission due to fuel switching from fuel oil to natural gas. GHG emission reduction can be achieved by modernization of a fuel system.

To fulfill this project the enterprise constructed a gas pipeline connected to the public gas transmission system, which provided use of natural gas instead of fuel oil for combustion in the respective production. Also, in

order to increase efficiency of natural gas using the enterprise replaced gas burners.
Due to the absence of the project for production at the enterprise fuel oil was used as fuel, and the main greenhouse gas emissions from fuel combustion are CO2 emissions. The proposed project allowed the enterprise to switch from oil fuel to another one – natural gas. Greenhouse gas emissions will be reduced at the expense of the fact that carbon content in fuel oil is much higher than in natural gas, and the lower combustion value of fuel oil is much higher compared to natural gas.
Project implementation status is presented in the Table 1.

Table 1

Activity	Starting date
Construction of the gas pipeline that connected to the public gas transmission system, which allowed to switch from oil fuel to natural gas	12 July 2005
Installation of redesigned gas burners	11 December 2008

Status of implementation is according to the PDD version 05.

3.2.2 Findings
None.

3.2.3 Conclusion

Project complies with requirements.

3.3 Internal and External Data
3.3.1. Discussion

The monitoring approach in the Monitoring Plan of the PDD version 5 requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way.
The parameters that are determined to quantify the baseline and project emissions are presented in the Table 1 and Table 2 below.

Table 1. Baseline and project measurable variables

Title	Symbol	Value and Data unit
Volume of natural gas consumed	$FF_{project, NG, y}$	50 539 million m^3
Energy efficiency of the system	ε_{NG}	73,5%

working on the natural gas		

Table 2 Baseline and project default values

Title	Symbol	Value and Data unit	Source of data
Lower combustion temperature of natural gas	NCV_{NG}	33,85 TJ/million m^3	National Cadastre of Anthropogenic Emissions and Greenhouse Gas Absorption of Ukraine
CO_2 equ emission factor for natural gas	$EF_{NG, co2}$	55,82 t CO_2/TJ	National Cadastre of Anthropogenic Emissions and Greenhouse Gas Absorption of Ukraine
Lower combustion temperature of fuel oil	NCV_{BO}	40,5 TJ/thousand t	National Cadastre of Anthropogenic Emissions and Greenhouse Gas Absorption of Ukraine
CO_2 equ emission factor for fuel oil	$EF_{BO, co2}$	76,59 t CO_2/TJ	National Cadastre of Anthropogenic Emissions and Greenhouse Gas Absorption of Ukraine
Energy efficiency of a system fired with fuel oil	ε_{BO}	61,2%	This value was estimated on the basis of statistics of system working that fired with fuel oil

SE "Ukrmetrteststandart" is authorized to conduct of verification and calibration of the measurement devices.

The calculation of energy efficiency of the system is performed by JSC “UkrTEST”, which is accredited for the above mentioned services.

3.3.2. Findings

Related CAR3 is presented in the Table 5 of verification protocol and closed satisfactorily.

3.3.3 Conclusion

Project complies with requirements.

3.4 Environmental and Social Indicators

3.4.1. Discussion

The proposed interference into the existing production scheme has a positive environmental impact owning to switching of PFC, LTD from fuel

oil to natural gas and will correspondingly lead to greenhouse gas emissions reduction into the air.

Emissions reduction will occur as a result of realization of this project, namely: at the expense of the fact that carbon content in fuel oil is much higher than in natural gas and lower calorific value of fuel oil is higher than in natural gas.

Emissions reduction, achieved as a result of implementation of this project, has environmental impact in Ukraine and does not impact greenhouse gas emissions abroad Ukraine.

Environment Impact Assessment (EIA) has been conducted for the proposed JI project. The environmental characteristics and impact evaluation in compliance with EIA has been presented in the PDD version 05. According to the EIA opinion, fuel switch on the enterprise will lead to the significant pollutant emissions reductions of the fuel system that will have positive effect on the population of the nearby area.

3.4.2. Findings

None.

3.4.3 Conclusion

Project complies with requirements.

3.5 Management and Operational System

3.5.1. Discussion

PFK, LTD general director assigns the responsible personnel, who are obliged to provide exploitation and maintenance of the fuel system as well as providing stability and effectiveness of system work. These functions are as well foreseeing all necessary for monitoring data registration. Personnel are also responsible for maintaining optimal exploitation level.

Functions and responsibilities of monitoring team determined by the Order of General Director of PFC, LTD #294 dated 23.11.2009. Monitoring staff identified by the Order of General Director of PFC, LTD #300 dated 30.11.2009.

The fuel system performance monitoring group is headed by Chief Engineer of PFC, LTD. Monitoring is conducted in close contact with the exploitation team and include monitoring, as well as analysis and archiving of all monitoring data. Calculation of the emission reduction volume is also an obligation of the monitoring team. Periodical data on natural gas consumption is analyzed in respect of the respective registered factors provided by the exploitation team to confirm their

consistency. In case of discrepancies between the data their origin may be established in cooperation with the exploitation team. If any discrepancy is detected in monitoring data, respective adjustment shall be made in the monitoring system of a respective factor or the monitoring system of the fuel system.

The Chief Engineer is responsible for preparation and archiving of monitoring reports. The General Director regularly analyses the consolidated monitoring data and respective documentation.

Measurement performance and measurement data archiving is envisaged to the exploitation team.

The measurement results are given to the monitoring team for the estimation of emission reductions. The monitoring team responsibilities are collection of the data that can not be measured, but need to be monitored. Measurement results of natural gas consumption are registered as Statement of transferring-acceptance of services of natural gas transportation that signed by representatives of PFC, LTD and an enterprise that supplies natural gas. Estimation results of energy efficiency of the system working fired with natural gas are registered as a regime card.

Monitoring data is kept during all crediting period and for 2 years after the last estimation of emissions reduction units.

3.5.2. Findings

All related CAR2 and CAR4 are presented in the Table 5 of the verification protocol and closed satisfactorily.

3.5.3 Conclusion

Project complies with requirements.

3.6 Completeness of Monitoring

3.6.1 Discussion

The reporting procedures reflect the monitoring plan completely. It is confirmed that the monitoring report does comply with the monitoring methodology and PDD.
All 10 parameters were determined as prescribed. All reported parameters were determined. The complete data is stored electronically and documented. The necessary monitoring procedures defined in internal procedures and additional internal documents have been submitted for determination.

According to PDD version 05, emission reductions during 2009 monitoring period were expected 97407 t CO2 e. According to Monitoring Report version 01 emission reductions achieved are 61866 t CO2 e. The difference in the emission reductions are explained in the Table 5 of the verification protocol.

3.6.2. Findings

Related CL1 is presented in the Table 5 of the verification protocol and adequately closed.

3.6.3. Conclusion

Project complies with requirements.

3.7 Accuracy of Emission Reduction Calculations

3.7.1. Discussion

Possible uncertainties and errors for such type project may arise from two main reasons: measurement and stipulation. Measurement error is due to metering equipment inaccuracies. Stipulation occurs when some values are required to complete calculations, but these values cannot be measured directly. In these cases estimates are used in place of actual measurements, and therefore error may be introduced. The stipulation error itself may be estimated based on the expected accuracy of the stipulated values.
At PFK, LTD the best available techniques are used in order to minimize uncertainties. Uncertainties are generally low. All monitoring equipment that is used for monitoring purposes is in line with national legislative requirements and standards; this ensures that uncertainties are accounted in data collected.

The verification team received access to all relevant documentation needed to verify the emission reduction calculation. All used information was traceable and appropriately archived.

The verification team confirms that emission reduction calculations have been performed according to the monitoring plan with some insignificant deviations appropriately justified and to the calculation methodology reported in the final MR in accordance with the PDD. The verification team checked the transfer of monitored data sets to spreadsheets used by PP, correctness of the formulae versus the PDD, programming of formulae and connections, as well as calculations of emission reductions. No inaccuracies in calculations were detected by the verifiers.

3.7.2. Findings

Related CL2 is presented in the Table 5 of the verification protocol and closed adequately.

3.7.3 Conclusion

Project complies with requirements.

3.8 Quality Evidence to Determine Emissions Reductions

3.8.1. Discussion

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

3.8.2. Findings

None.

3.8.3 Conclusion

Project complies with requirements.

3.9 Management System and Quality Assurance

3.9.1. Discussion

PFK, LTD general director assigns the responsible personnel, who are obliged to provide exploitation and maintenance of the fuel system as well as providing stability and effectiveness of system work. These functions are as well foreseeing all necessary for monitoring data registration. Personnel are also responsible for maintaining optimal exploitation level.

Functions and responsibilities of monitoring team determined by the Order of General Director of PFC, LTD #294 dated 23.11.2009. Monitoring staff identified by the Order of General Director of PFC, LTD #300 dated 30.11.2009.

The fuel system performance monitoring group is headed by Chief Engineer of PFC, LTD. Monitoring is conducted in close contact with the

exploitation team and include monitoring, as well as analysis and archiving of all monitoring data. Calculation of the emission reduction volume is also an obligation of the monitoring team. Periodical data on natural gas consumption is analyzed in respect of the respective registered factors provided by the exploitation team to confirm their consistency. In case of discrepancies between the data their origin may be established in cooperation with the exploitation team. If any discrepancy is detected in monitoring data, respective adjustment shall be made in the monitoring system of a respective factor or the monitoring system of the fuel system.

The Chief Engineer is responsible for preparation and archiving of monitoring reports. The General Director regularly analyses the consolidated monitoring data and respective documentation.

Measurement performance and measurement data archiving is envisaged to the exploitation team.

The measurement results are given to the monitoring team for the estimation of emission reductions. The monitoring team responsibilities are collection of the data that can not be measured, but need to be monitored. Measurement results of natural gas consumption are registered as Statement of transferring-acceptance of services of natural gas transportation that signed by representatives of PFC, LTD and an enterprise that supplies natural gas. Estimation results of energy efficiency of the system working fired with natural gas are registered as a regime card.

Monitoring data is kept during all crediting period and for 2 years after the last estimation of emissions reduction units.

3.9.2. Findings

All related CL3 and CL4 are presented in the Table 5 of the verification protocol and closed respectively.

3.9.3 Conclusion

Project complies with requirements.

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.
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 SECOND PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification has performed a verification of the JI project "Modernization of an enterprise regarding fuel switching from fuel oil to natural gas at PFC, LTD". The verification is based on the currently valid documentation of the United Nations Framework Convention on the Climate Change (UNFCCC).

The management of the JSC “Pobuzhskiy Feronikeleviy Combinat” 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 5. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 3 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in determinated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated we confirm the following statement:

Reporting period: From 01/01/2009 to 31/12/2009
Baseline emissions : 157360 t CO2 equivalents.
Project emissions : 95494 t CO2 equivalents.
Emission Reductions : 61866 t CO2 equivalents.

6 REFERENCES

Category 1 Documents:
Documents that relate directly to the GHG components of the project.

/1/ Project Design Document, version 05 dated 27/01/2010

/2/ Monitoring Report version 01 sent 01/03/2010

/3/ Monitoring Report version 02 sent 05/03/2010

/4/ Determination Report by Bureau Veritas Certification Holding SAS No UKRAINE/0068/2009 of 15/02/2010

/5/ Verification Report by Bureau Veritas Certification Holding SAS No UKRAINE/0091/2010 of 21/03/2010

/6/ Verification Report by Bureau Veritas Certification Holding SAS No UKRAINE/0106/2010 of 21/03/2010

/7/ Letter of Approval of National Environmental Investment Agency of Ukraine No 188/23/7 of 05/03/2010

/8/ Letter of Approval of the Ministry of Economic Affairs of the Netherlands No 2010JI08 of 13/04/2010

Category 2 Documents:

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

/9/ 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/ Khalabuzar Victor – financial management, "RAIDEN VENTURES LIMITED"

/2/ Kolesnikov Victor – consultant-specialist JSC “Centre TEST”

/3/ Beznoshchenko Sergiy – head of the village hall v.Pobuzke

/4/ Victor Romanenko – Chief engineer PFK

/5/ Aleksandr Lisnevskiy – Head of the gas service PFK

/6/ Inna Sokolova – engineer ecologist PFK

/7/ Lidiia Linishevska – Head of the training departement PFK

/8/ Lyudmila Moroz – Human Resources PFK

/9/ Oleg Sergeyev – Head energetic PFK

/10/ Ivan Kapran – Head of the professional technical department PFK

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APPENDIX A: "MODERNISATION OF AN ENTERPRISE REGARDING FUEL SWITCHING FROM FUEL OIL TO NATURAL GAS AT PFC, LTD" VERIFICATION PROTOCOL

Initial Verification Protocol Table 1

Objective	Reference	Comments	Conclusion (CARs/FARs)
1. Opening Session			
1.1. Introduction to audits	/7/	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. Kateryna Zinevych Verifier, Bureau Veritas Ukraine, Mrs. Nadiia Kaiiun Lead Verifier, Bureau Veritas Ukraine. Interviewed persons LTD PFC: Victor Romanenko – Chief engineer Aleksandr Lisnevskiy – Head of the gas service Inna Sokolova – engineer ecologist Lidiia Linishevska – Head of the training departement Lyudmila Moroz – Human Resources Oleg Sergeyev – Head energetic Ivan Kapran – Head of the professional technical departement Sergey Beznoshchenko – Head of the City Hall	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
1.2. Clarification of access to data archives, records, plans, drawings etc.	/2/	The verification team got open access to all required plans, data, records, drawings and to all relevant facilities.	OK
1.3. Contractors for equipment and installation works	/2,7/	Project has been implemented as defined in the PDD version 5 and the implementation is evidenced by the statements of work completion.	OK
1.4. Actual status of installation works	/2/	12 July 2005 – construction of the gas pipeline, which is connected to the nationa; gas pipeline, which let the enterprise to switch from using fuel oil to natural gas. 11 December 2008 – installation of gas burners	OK
2. Open issues indicated in validation report			
2.1. Missing steps to final approval	/5,6/	Project is still waiting to be approved by NFP's. Corrective Action Request (CAR)1 Letters of Approval from both sides are not received yet.	CAR1
3. Implementation of the project			
3.1. Physical components	/2/	To fulfill this project the enterprise constructed a gas pipeline connected to the public gas transmission system, which provided use of natural gas instead of fuel oil for combustion in the respective production. To increase efficiency of natural gas using the enterprise replaced gas burners.	OK
3.2. Project boundaries	/1/, /2/, /3/, /4/	Yes, the project boundaries are as defined in the PDD version 5.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.3. Emission reductions achieved	/2/	In the PDD version 5 it is stated that emission reduction units over 2009 period are supposed to be 97407 tCO_2 while the Monitoring Report says the amount of ERU's achieved in 2009 is 61866 tCO_2. Clarification Request (CL) 1 Please clarify the difference.	CL1
3.4. Monitoring and metering systems	/2/	The methodology ACM0009 "Consolidated methodology for industrial fuel switching from coal or petroleum fuels to natural gas" (Version 3.2) was used for the baseline defining and development of the monitoring plan. Key monitoring activities: - measuring of fuel consumption (natural gas) of the PFK LTD gas system for the production needs; - estimation of energy efficiency of the system working on the natural gas. Natural gas consumption is measured directly with the help of gas flue meters. Gas flue meter is connected to the gas pipeline and is providing the measurement of natural gas consumption entering the system. The estimation of energy efficiency is performed on the basis of the meters data, passport data of the burners and ГОСТ 21204.	OK
3.5. Data uncertainty	/2/	Best available techniques are used in order to minimize uncertainties. Uncertainties are generally low.	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Clarification Request (CL) 2 Please provide information on how the level of uncertainty is taken into account. And please define if the level of uncertainty is taken into account in the final emission reductions calculations.	CL2
3.6. Calibration and quality assurance	/2/	All monitoring equipment is part of detailed calibration plan. On the date of verification, Calibration records of the measuring and monitoring equipment has been verified on-site. All the meters have been found to be calibrated regularly as per determined calibration plan for each site. SE "Ukrmetrteststandart" is authorized to conduct checking and calibration of the measuring equipment.	OK
3.7. Data acquisition and data processing systems	/2/	Measurement performance and data collection is envisaged to the exploitation team. The measurement results are then given to the monitoring team for the estimation of emission reductions. The monitoring team responsibilities are collection of the data that can not be measured but need to be monitored. All the monitoring data is subjected to the analysis and collection in the paper way. Measurement performance and results archivation is the task of the exploitation team. The Chief engineer is responsible for preparation and archivation of the monitoring reports.	OK
3.8. Reporting procedures	/2/	The Monitoring Plan defines the responsibilities to	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		consolidate the data required for emission reduction calculations. According to PDD version 5 the general coordination and reporting of the monitoring is responsibility of Chief Engineer.	
3.9. Documented instructions	/2/	Corrective Action Request (CAR) 2 Please provide information concerning the documented instructions regarding the monitoring, archiving and reporting procedures.	CAR2
3.10. Qualification and training	/2/	Exploitation team of the PFK LTD has completed the training from exploitation and performance of the corresponding warning measures of the gas pipeline. This was verified on-site.	OK
3.11. Responsibilities	/2/	PFK LTD general director assigns the responsible personnel, who are obliged to provide exploitation and maintenance of the gas pipeline as well as providing stability and effectiveness of system work. These functions are as well foreseeing all necessary for monitoring data registration. Personnel are also responsible for mainaining optimal exploitation level. The fuel system performance monitoring group will be headed by Chief Engineer of PFC, LTD. Monitoring will be conducted in close contact with the operating group and will include monitoring itself, as well as analysis and archiving of all data defined in the previous section. Calculation of the	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		emission reduction volume will also be an obligation of the monitoring group. Periodical data on natural gas consumption will be analysed in respect of the respective registered factors provided by the operating group to confirm their consistency. In case of discrepancies between the data their origin may be established in cooperation with the operating group. If any discrepancy is detected in monitoring data, respective adjustment shall be made in the monitoring system of a respective factor or the monitoring system of the fuel system. The Chief Engineer is responsible for preparation and archiving of monitoring reports. The Director General regularly analyses the consolidated monitoring data and respective documentation. Measurement performance and data collection is envisaged to the exploitation team. The measurement results are then given to the monitoring team for the estimation of emission reductions. The monitoring team responsibilities are collection of the data that can not be measured but need to be monitored.	
3.12. Troubleshooting procedures	/2/	In case of gas flue meters usage the exploitation requirements stated in the meter's passport must be met. Gas flue meters don't need special technical maintenance according to the passport. In case of the gas flue meter	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		repair the gas flue meter has to be sent to the enterprise-producer on address stated in the passport. In case of the gas flue meter being repaired the required monitoring data is being collected through the gas supplier. The gas supplier enterprise is measuring gas quantity supplied to the PFK LTD constantly.	
4. Internal Data			
4.1. Type and sources of internal data	/2/	The internal parameters are obtained according to the monitoring plan: Monitoring report, section 2 contains the internal parameters that are monitored as well tables with the relevant data of these parameters. Also PFK LTD provided all the necessary information on these parameters to the verification team, which was precisely checked.	OK
4.2. Data collection	/2/	All monitoring data is required to be saved in a paper way. Measurement performance and data collection is envisaged to the exploitation team. The measurement results are then given to the monitoring team for the estimation of emission reductions. The monitoring team responsibilities are collection of the data that can not be measured but need to be monitored. The Chief Engineer is responsible for preparation and archiving of monitoring reports.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
4.3. Quality assurance	/2/	All monitoring equipment is part of detailed calibration plan. On the date of verification, Calibration records of the measuring and monitoring equipment has been verified on-site. All the meters have been found to be calibrated regularly as per determined calibration plan for each site.	OK
4.4. Significance and reporting risks	/2/	Clarification Request (CL) 3 Please provide information considering reporting risks.	CL3
5. External Data			
5.1. Type and sources of external data	/2/	The external parameters are obtained according to the monitoring plan. The calculation of energy efficiency of the system is performed by JSC "Ukrtest" which is accredited for the abovementioned services. Corrective Action Request (CAR) 3 Please provide the documents confirming the business relationship with JSC "Ukrtest" and the documents confirming the accreditation of this organization.	CAR3
5.2. Access to external data	/2/	The external parameters are obtained according to the monitoring plan. The calculation of energy efficiency of the system is performed by JSC "Ukrtest" which is accredited for the abovementioned services.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		All the external parameters except for energy efficiency are taken form the National Cadastre of Anthropogenic Emissions and Greenhouse Gas Absorption of Ukraine.	
5.3. Quality assurance	/2/	See chapter 5.1.	OK
5.4. Data uncertainty	/2/	See chapter 5.1.	OK
5.5. Emergency procedures	/2/	See chapter 5.1.	OK
6. Environmental and Social Indicators			
6.1. Implementation of measures	/2/	The proposed interference into the existing production scheme has a positive environmental impact owning to switching of PFC, LTD from fuel oil to natural gas and will correspondingly lead to greenhouse gas air emissions reduction. Emissions reduction will occur as a result of realisation of this project, namely: at the expense of the fact that carbon content in fuel oil is much higher than in natural gas. Emissions reduction achieved as a result of implementation of this project has environmental impact in Ukraine and does not impact greenhouse gas emissions abroad Ukraine. Environment Impact Assessment (EIA) has been conducted	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		for the proposed JI project. The environmental characteristics and evaluation of the influence has been presented in the PDD version 05. According to the EIA conclusion fuel switch on the enterprise will lead to the significant pollutants emissions reductions of the fuel system, which will have positive effect on the population of the nearby area.	
6.2. Monitoring equipment	/2/	See chapter 6.1.	OK
6.3. Quality assurance procedures	/2/	See chapter 6.1.	OK
6.4. External data	/2/	See chapter 6.1.	OK
7. Management and Operational System			
7.1. Documentation	/2/	The company complies with all legal and statutory requirements of the Ukraine and the same were made available to the verification team. PFK LTD has all the necessary permissions and licenses.	OK
7.2. Qualification and training	/2/	See chapter 3.9 of this protocol.	OK
7.3. Allocation of responsibilities	/2/	The responsibilities and authorities are described for each individual in job descriptions as required statutorily. Persons working at sites are aware of their responsibilities,	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		and relative records are maintained.	
7.4. Emergency procedures	/2/	The emergency procedures with respect to operation controls are available in data control	OK
7.5. Data archiving	/2/	Corrective Action Request (CAR)4 Please provide information on how and where the data is stored and for how long is being kept.	CAR4
7.6. Monitoring report	/2/	Data information is laid down in the monitoring report.	OK
7.7. Internal audits and management review	/2/	Clarification Request (CL) 4 Please provide more information concerning internal audits and management reviews.	CL4

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

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	PFK LTD general director assigns the responsible personnel, who are obliged to provide exploitation and maintenance of the gas pipeline as well as providing stability and effectiveness of system work. These functions are as well foreseeing al necessary for monitoring data registration. Personnel are also responsible for mainaining optimal exploitation level. The fuel system performance monitoring group will be headed by Chief Engineer of PFC, LTD. Monitoring will be conducted in close contact with the operating group and will include monitoring itself, as well as analysis and archiving of all data defined in the previous section. Calculation of the emission reduction volume will also be an obligation of the monitoring group. Periodical data on natural gas consumption will be analysed in respect of the respective registered factors provided by the operating group to confirm their consistency. In case of discrepancies between the data their origin may be established in cooperation with the operating group. If any discrepancy is detected in monitoring data, respective adjustment shall be made in the monitoring system of a respective factor or the monitoring system of the fuel system. The Chief Engineer is responsible for preparation and archiving of monitoring

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		reports. The Director General regularly analyses the consolidated monitoring data and respective documentation.
1.2. Responsibilities	Full	Measurement performance and data collection is envisaged to the exploitation team The measurement results are then given to the monitoring team for the estimation o emission reductions. The monitoring team responsibilities are collection of the data that can not be measured but need to be monitored.
1.3. Competencies needed	Full	The responsibilities and authorities are described for each individual in job descriptions as required statutorily. Training needs were identified in advance and training was delivered that was checked onsite.
2. Conformance with monitoring plan		
2.1. Reporting procedures	Full	The monitoring plan is as per the registered PDD version 5. The applauded version of PDD version 5. is publicly available at the site http://www.bureauveritas.com.ua/wps/wcm/connect/bv_comua/local/home/our-services/consulting/ivansokolovnews?presentationtemplate=bv_master/news_full_story_presentation where it was placed during determination process. The monitoring CDM Methodologies, such as ACM0009 v03.2 was used in monitoring process.
2.2. Necessary Changes	Full	There were no deviations to the registered PDD version 05.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
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	A detailed records management system has been established at PFK LTD to record and document all required data. The records management system includes paper records maintained by the departments. These records are available as part of the verification process, as they outline all consumption values for the project site.
3.3. Data transfer	Full	The complete data is stored in a paper way and also the part of Management information system which is controlled by accounts
3.4. Data trails	Full	The necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the all the parameters listed in the monitoring plan
4. Identification and maintenance of key process parameters		
4.1. Identification of key parameters	Full	The critical parameters for the determination of GHG emissions are the parameters listed in section D of the approved PDD version 5.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
4.2. Calibration/maintenance	Full	The company maintains the elaborate calibration plan for each of the equipment. The audit team verified the status for all the equipment at the sites sampled for the audit and found them to be complying with the plan.
5. GHG Calculations		
5.1. Use of estimates and default data	Full	Lower combustion temperature of natural gas, Emission factor for natural gas, Lower combustion temperature of fuel oil, Energy efficiency of a system fired with natural gas, Energy efficiency of a system fired with fuel oil, Emission factor for fuel oil.
5.2. Guidance on checks and reviews	Full	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. Internal audits did not reveal any non-conformances. The audit team did verify all the parameters listed in monitoring report.
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 a paper way and is burned on CDs.

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, Appropriate calibration and maintenance	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 additionally deducting the project emissions caused by fossil fuel.	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 5 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
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).		

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.	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 Letters of Approval from both sides are not received yet.	2.1.	Letter of Approval #188/23/7 was issued by the National Environmental Investments Agency of Ukraine from 5th of March 2010. Letter of Approval from the other Party is still not received. Letter of Approval #2010 JI08 was issued by the Ministry of Economic Affairs of the Netherland from 13th of April 2010.	Issue is closed.
Corrective Action Request (CAR) 2 Please provide information concerning the documented instructions regarding the monitoring, archiving and reporting procedures.	3.9.	Functions and responsibilities of the monitoring team are defined by the order of General Director of the JSC “PFC” №294 dated 23.11.2009. Monitoring team is defined by the order of General director of JSC “PFC” №300 dated 30.11.2009.	Issue is closed. The evidence was presented to the verification team.
Corrective Action Request (CAR) 3 Please provide the	5.1.	Agreement №34455/12 dated 01.06.2005. Certificate of Attestation №EC-09-05 dated 07.07.2005. Certificate of Attestation	Issue is closed. The evidence was presented to the verification team.

documents confirming the business relationship with JSC "Ukrtest" and the documents confirming the accreditation of this organization.		№CE-13-08 dated 07.07.2008.	
Corrective Action Request (CAR)4 Please provide information on how and where the data is stored and for how long is being kept.	7.5.	Natural gas consumption results are presented in the certificates of work acceptance for natural gas transportation, which are signed by the representatives of the JSC "PFC" and the representatives of the gas suppliers' enterprise. Energy efficiency calculation results are presented in a regime chart. Monitoring data is stored during all crediting period plus 2 years after the final ERU transaction.	Issue is closed. The evidence was presented to the verification team.
Clarification Request (CL) 1 Please clarify the difference.	3.3.	Difference in results can be explained by the fact that there were corrections provided into PDD after preliminary monitoring. At the moment of monitoring report creation the detailed monitoring of all the data was performed, which resulted some discrepancies between monitoring data defined in the PDD and real data in the monitoring report	Issue is closed. The evidence was presented to the verification team.
Clarification Request (CL) 2	3.5	According to the data of "National Cadastre of Anthropogenic Emissions	Issue is closed. The evidence was presented to the verification team.

Please provide information on how the level of uncertainty is taken into account. And please define if the level of uncertainty is taken into account in the final emission reductions calculations.		and Greenhouse Gas Absorption of Ukraine" level of uncertainty for those parameters is defined as low. Level of uncertainty for monitoring data, which have to be measured, is defined in the meters certificates. Gas flue meters are verified by the State representatives on a regular basis, which can exclude the measurement error in the results.	
Clarification Request (CL) 3 Please provide information considering reporting risks.	4.4.	The chief metrologist of PFC, LTD is responsible for maintenance of gas meters and if necessary sending on time these meters to the repair. While the meter is being repaired, monitoring data of natural gas consumption is collected by the enterprise that supply of natural gas. The enterprise that supplies natural gas performs permanent measurement of amount of natural gas that is supplied. Due to this mechanism the risk of absence of monitoring data for performance of emission reduction estimation is absent.	Issue is closed. The evidence was presented to the verification team.
Clarification Request (CL) 4 Please provide more information concerning internal audits and	7.7.	Personnel of JSC “PFC” passes through appropriate procedure of the qualification confirmation "Statement on professional stuff training at the manufacture" which is confirmed by the Order №127/151of Ministry	Issue is closed. The evidence was presented to the verification team.

management reviews.		of Labor and Social Politics of Ukraine and the Ministry of the Science and Education of Ukraine dated 26.03.2001 and is registered at the Ministry of Justice of Ukraine dated 06.04.2001 by number №315/5506. The enterprise is performing training and knowledge cgecking according to the requirements of НПАОП 0.00-4.12.	

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 Health, Safety and Environment Department Project Manager

Nadiya Kaiiun 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. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and is involved in the determination/verification of 20 JI projects.

Kateryna Zinevych, M.Sci. (environmental science)

Climate Change Verifier

Bureau Veritas Ukraine Health, Safety and Environment Project Manager

Kateryna Zinevych has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She has successfully passed the course for Lead Auditor of Bureau Veritas Certification for Environment Management Systems. She has undergone a training course on Clean Development Mechanism /Joint Implementation and she is involved in the determination/verification of 26 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 Local Climate Change Product Manager for Ukraine

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 has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the determination/verification of 50 JI projects.

APPENDIX C: DOCUMENTS CHECKED DURING VERIFICATION

1. Statement on acceptance-transfering of services of natural gas transportation dated 31.01.2009.
2. Statement on acceptance-transfering of natural gas dated 18.02.2009.
3. Statement on acceptance-transfering of natural gas dated 31.03.2009.
4. Statement on acceptance-transfering of natural gas dated 30.04.2009.
5. Statement on acceptance-transfering of natural gas dated 31.05.2009.
6. Statement on acceptance-transfering of natural gas dated 30.06.2009.
7. Statement on acceptance-transfering of natural gas dated 31.07.2009.
8. Statement on acceptance-transfering of natural gas dated 31.08.2009.
9. Statement on acceptance-transfering of natural gas dated 30.09.2009.
10. Statement on acceptance-transfering of natural gas dated 31.10.2009.
11. Statement on acceptance-transfering of natural gas dated 30.11.2009.
12. Statement on acceptance-transfering of natural gas dated 31.12.2009.
13. Statements on implementation of services of natural gas transportation dated 31.01.2008.
14. Statements on implementation of services of natural gas transportation dated 29.02.2008.
15. Statements on implementation of services of natural gas transportation dated 31.03.2008.
16. Statements on implementation of services of natural gas transportation dated 30.04.2008.
17. Statements on implementation of services of natural gas transportation dated 31.05.2008.
18. Statements on implementation of services of natural gas transportation dated 30.06.2008.
19. Statements on implementation of services of natural gas transportation dated 31.07.2008.
20. Statenemt on acceptance-transfering of natural gas transportation dated 31.08.2008.
21. Statement on acceptance-transfering of natural gas dated 31.08.2008.
22. Statement #1 on acceptance-transfering of natural gas according to the contract dated 01.07.2008 #П-01/913-ПГ 2008.
23. Statement #440/09-08 on acceptance-transfering of natural gas dated 30.09.2008.
24. Statement of acceptance-transfering of natural gas dated 30.09.2008.
25. Statement of transfering-acceptance of naturalt gas dated 30.09.2008.
26. Statements of acceptance-transfering of natural gas dated 31.10.2008.
27. Statement of transfering-acceptance of naturalt gas dated 31.10.2008.

28. Statement of acceptance-transfering of natural gas dated 30.11.2008.
29. Statement of acceptance-transfering of natural gas dated 31.12.2008.
30. Statement on acceptance-transfering of services of natural gas transportation dated 31.12.2008.
31. Information letter of mazut consumption for 2004.
32. Information letter #572 dated 28.12.2009.
33. Statement on implementation of services of natural gas transportation dated 31.06.2005.
34. Statement on implementation of services of gas transportation dated 31.07.2005.
35. Statement on implementation of services of natural gas transportation dated 31.08.2005.
36. Statement on implementation of services of natural gas transportation dated 01.10.2005.
37. Statement on implementation of services of natural gas transportation dated 01.11.2005.
38. Statement on implementation of services of natural gas transportation dated 01.12.2005.
39. Statement on implementation of services of natural gas transportation dated 31.12.2005.
40. Statement of implementation of services for transportation of natural gas dated 10.10.2006.
41. Statement of implementation of services for transportation of natural gas dated 12.03.2007.
42. Statement of implementation of services for transportation of natural gas dated 12.02.2007.
43. Statement of implementation of services for transportation of natural gas dated 12.02.2007 according to the Contract # П-01/3505-ПГ/2006.
44. Statement of implementation of services for transportation of natural gas dated 20.02.2006.
45. Statement of implementation of services for transportation of natural gas dated 20.08.2006.
46. Statement of implementation of services for transportation of natural gas dated 28.02.2006.
47. Statement of implementation of services for transportation of natural gas dated 28.02.2007.
48. Statement of implementation of services for transportation of natural gas dated 30.02.2006.
49. Statement of implementation of services for transportation of natural gas dated 30.09.2007 according to the Contract # П-01/3505-ПГ/2006.
50. Statement of implementation of services for transportation of natural gas dated 30.09.2007 according to the Contract # 45/07-Г-К.
51. Statement of implementation of services for transportation of natural gas dated 30.04.2006 according to the Contract # 15-16725/05 dated 11.05.2005 SC "Gas of Ukraine".
52. Statement of implementation of services for transportation of natural gas

dated 30.04.2006 according to the Contract # 15-16725/05 dated 11.05.2005 LLC "Fiesta".

53. Statement of implementation of services for transportation of natural gas dated 30.04.2007 according to the Contract # 01-К/07.
54. Statement of implementation of services for transportation of natural gas dated 30.11.2006 according to the Contract # П-007-ПГ/06-1224.
55. Statement of implementation of services for transportation of natural gas dated 30.11.2006 according to the Contract # П-01/3505-ПГ/2006.
56. Statement of implementation of services for transportation of natural gas dated 30.11.2007 according to the Contract # П-01/3505-ПГ/2006.
57. Statement of implementation of services for transportation of natural gas dated 30.11.2007 according to the Contract # 308/07.
58. Statement of implementation of services for transportation of natural gas dated 30.11.2007 according to the Contract # 45/07-Г-К.
59. Statement of implementation of services for transportation of natural gas dated 30.11.2007 according to the Contract # 90/07.
60. Statement of implementation of services for transportation of natural gas dated 30.06.2006 according to the Contract # 15-16725/05 dated 19.12.2005 LLC "Fiesta".
61. Statement of implementation of services for transportation of natural gas dated 30.06.2007 according to the Contract # 308/07.
62. Statement of implementation of services for transportation of natural gas dated 30.06.2007 according to the Contract # П-01/3505-ПГ/2006.
63. Statement of implementation of services for transportation of natural gas dated 31.03.2006 according to the Contract # 15-16725/05 dated 11.05.2005 SC "Gas of Ukraine".
64. Statement of implementation of services for transportation of natural gas dated 31.05.2006 according to the Contract # 15-16725/05 dated 11.05.2005 LLC "Fiesta".
65. Statement of implementation of services for transportation of natural gas dated 31.12.2006.
66. Statement of implementation of services for transportation of natural gas dated 31.12.2007 according to the Contract # 1/3505-ПГ/2006.
67. Statement of implementation of services for transportation of natural gas dated 31.12.2007 according to the Contract # 308/07.
68. Statement of implementation of services for transportation of natural gas dated 30.12.2007 according to the Contract # 90/07.
69. Statement of implementation of services for transportation of natural gas dated 31.10.2006.
70. Statement of implementation of services for transportation of natural gas dated 31.10.2007 according to the Contract # 1/3505-ПГ/2006.
71. Statement of implementation of services for transportation of natural gas dated 30.10.2007 according to the Contract # 45/07-Г-К.
72. Statement of implementation of services for transportation of natural gas dated 31.10.2007 according to the Contract # 90/07.
73. Statement of implementation of services for transportation of natural gas dated 31.07.2006.

74. Statement of implementation of services for transportation of natural gas dated 31.07.2007.
75. Statement of implementation of services for transportation of natural gas dated 31.08.2006.
76. Statement of implementation of services for transportation of natural gas dated 31.08.2007.
77. Statement of implementation of services for transportation of natural gas dated 31.01.2006.
78. Statement on implementation of services of natural gas transportation dated 31.01.2007.
79. Statement on implementation of services of natural gas transportation dated 31.05.2006 in compliance with Contract #15-16725/05 dated 11.05.2005 LLC "Fiesta".
80. Statement on implementation of services of natural gas transportation dated 31.05.2007 in compliance with Contract #90/07-г.
81. Statement on implementation of services of natural gas transportation dated 31.05.2007 in compliance with Contract #П-01/3505-ПГ/2006.
82. Statement of state commission of built facility readiness for presentation to the state entrance examination dated 05.07.2006.
83. Statement of acceptance of equipment to assemblage according to the facility. Replacement of burner devices СНГ-54 at ТВП #1.
84. Statement of acceptance of equipment to assemblage according to the facility. Replacement of burner devices СНГ-54 at ТВП #2.
85. Statement of acceptance of equipment to assemblage according to the facility. Replacement of burner devices СНГ-54 at ТВП #3.
86. Statement of acceptance of equipment to assemblage according to the facility. Replacement of burner devices СНГ-54 at ТВП #4.
87. Statement of job acceptance of repaired, reconstructed, and modernized facilities. Burning shop ТВП #1.
88. Statement of job acceptance of repaired, reconstructed, and modernized facilities. Burning shop ТВП #2.
89. Statement of job acceptance of repaired, reconstructed, and modernized facilities. Burning shop ТВП #3.
90. Statement of job acceptance of repaired, reconstructed, and modernized facilities. Burning shop ТВП #4.
91. Newspaper of Golovanivsk district council and working complex of editorial office "Visnyk Golovanivshzhyny" #43 (8914) dated 11.08.2007.
92. Order of Ministry of Fuel and Energy of Ukraine #293 dated 04.07.2005 on appointment of the state commission.
93. Project of nickel production plan for 2010 (working РТП№1и2+РКЗ-4,5).
94. Protocol #30 of meeting of commission of verification of knowledge of engineer and technical workers of LLC "Pobuzhsky Feronokelevyi Kombinat" dated 11.03.2005.
95. Protocol of LLC "Uchbovo-kursovyi kombinat" #66 dated 03.06.2005.
96. Design of nickel production for August 2009.
97. Design of nickel production for April 2009.

98. Design of nickel production for December 2009.
99. Design of nickel production for July 2009.
100. Design of nickel production for June 2009.
101. Design of nickel production for May 2009.
102. Design of nickel production for March 2009.
103. Design of nickel production for November 2009.
104. Design of nickel production for October 2009.
105. Design of nickel production for September 2009.
106. Design of nickel production for January 2009.
107. Resolution of Pobuzka Local Council #230 dated 10.10.2007 On concession of the permission for construction of gas supply network of the industrial area of LLC "Pobuzkyi ferronickel plant".
108. Resolution of Pobuzka Local Council #237 dated 10.10.2007 On concession of the permission for allocation of land from the location of HRP, pipeline and crane units in the area of Pobuzkoyi Local Council.
109. Resolution of Pobuzka Local Council #417 dated 15.08.2008 On acceptance and transmission of gas-distributing point and a suitable gas-tap of high and medium pressure to village Pobuzke.
110. Order of Cabinet of Ministers of Ukraine dated 25/12/2002 #723-p On gasification of settlements of Gaivoronskyi, Ulianovskyi and Golovanivskyi districts of Kirovogradska region
111. Attestation certificate #1933. Issued from 25.09.2006., valid to 20.09.2010.
112. Gas turbine meter TZ/FLUXI №6459706001. Pasport. Date of last verification: 24.03.09.
113. Gas turbine meter TZ/FLUXI №6459706002. Pasport. Date of last verification: 26.08.09.
114. Photo. Actaris/ TZ/Fluxi 2150. G1000.
115. Statement on acceptance-transfering of services of natural gas transportation dated 31.01.2009.