# VERIFICATION REPORT

## LE "COAL MINE NAMED AFTER A.F. ZASYADKO"

# VERIFICATION OF THE "UTILIZATION OF COAL MINE METHANE AT THE COAL MINE NAMED AFTER A.F. ZASYADKO"

6TH PERIODIC

(01 FEBRUARY 2010 – 31 JULY 2010)

REPORT NO. UKRAINE /0154/2010

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE 0154/2010

# VERIFICATION REPORT "UTILIZATION OF COAL MINE METHANE AT THE COAL MINE NAMED AFTER A.F. ZASYADKO"

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| Date of first issue:<br>13/09/2010 | Organizational unit:<br>Bureau Veritas Certification Holding SAS |
| Client:<br>LE "Coal Mine named after A.F. Zasyadko" | Client ref.:<br>Boris Bokiy |

Summary:

Bureau Veritas Certification has made the 6th periodic verification of the "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko", JI Registration Reference Number 0035, project of LE "Coal Mine named after A.F. Zasyadko" located in Donetsk city, Ukraine, and applying the methodology ACM0008 version 03, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and 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 (CR, CAR and FAR), presented in Appendix A.

The verification is based on the Monitoring Report (covers February, 1st 2010 –July, 31st 2010), the determined PDD, version 4.4 of 27/03/2008, 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 approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements, and the ERUs issued totalize 461027 tons of $CO_2$eq for the monitoring period.

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.

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| Report No.:<br>UKRAINE/0154/2010 | Subject Group:<br>JI |
| Project title:<br>"Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" | |
| Work carried out by:<br>Team Leader, Lead Verifier: Ivan Sokolov<br>Team Member, Technical Specialist: Igor Antipko | |
| Work reviewed by:<br>Flavio Gomes - Internal Technical Reviewer | |
| Work approved by:<br>Flavio Gomes – Global Climate Change Product Manager | |

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| 13/09/2010 | 01 | 77 |

**Indexing terms**

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

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## Abbreviations

| | |
|---|---|
| ACM | Approved Consolidated Methodology |
| AIE | Accrediting Independent Entity |
| BVCH | Bureau Veritas Certification Holding SAS |
| CAR | Corrective Action Request |
| $CH_4$ | Methane |
| CR | Clarification Request |
| CMM | Coal Mine Methane |
| $CO_2$ | Carbon Dioxide |
| DFP | Designated Focal Point |
| EF | Emission Factor |
| EIA | Environmental Impact Assessment |
| ER | Emission Reduction |
| ERU | Emission Reduction Unit |
| DVM | Determination and Verification Manual |
| FAR | Forward Action Request |
| GHG | Green House Gas(es) |
| GWP | Global Warming Potential |
| IETA | International Emissions Trading Association |
| IPCC | Intergovernmental Panel on Climate Change |
| JI | Joint Implementation |
| JISC | Joint Implementation Supervisory Committee |
| KP | Kyoto Protocol |
| MoV | Means of Verification |
| MP | Monitoring Plan |
| MR | Monitoring Report |
| NGO | Non-Governmental Organisation |
| PCF | Prototype Carbon Fund |
| PDD | Project Design Document |
| PP | Project Participant |
| QA/QC | Quality assurance/quality control |
| UNFCCC | United Nations Framework Convention on Climate Change |

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# 1 INTRODUCTION

LE "Coal Mine named after A.F. Zasyadko" has commissioned Bureau Veritas Certification to verify the emission reductions of its JI project "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" (hereafter called "the project"), Donetsk city, Ukraine, JI Registration Reference No 0035.

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

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

The results of the determination were documented by TÜV SÜD Industrie Service GmbH Carbon Management Service in the report: "Determination of "Utilization of Coal Mine Methane at the Coal Mine named after O.F. Zasyadko" JI project in Donetsk, Ukraine" No.913421, Rev. 022008-03-27.

The results of the previous verifications were documented in the following TÜV SÜD Industrie Service GmbH verification reports:

1. Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, First Periodic JI Verification Report No. 1200469 of November 4th, 2008
2. Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Second Periodic JI Verification Report No. 1264102 of February 18th, 2009
3. Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Third Periodic JI Verification Report No. 1276184 of February 19th, 2009
4. Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Fourth Periodic JI Verification Report No. 1400879 of December 08, 2009
5. Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Fifth Periodic JI Verification Report No. 600500450 of 14 May 2010

The project has been approved by Ukraine. The approval was issued by the Minister of Environmental Protection in a letter dated 14 March 2006 with reference number № 2568/01-10. The approval was reconfirmed in a letter dated 24 July 2007 with reference number № 8169/10/10-07. The project has been approved by Japan in a letter dated 30 January 2007. The project has been approved by Switzerland in a letter dated 4 May 2007 with reference number G185-0703. The project has been proved by The Netherlands in a letter dated 16 May 2007. The project is registered under Track 2.

## 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 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 1.0 and underlying data records, covering the period from 01 February 2010 to 31 July 2010 inclusive (see Section 6).

## 1.3 GHG Project Description

The purpose of this project is the avoidance of methane emissions into the atmosphere at Leasing Company "Mine named after A.F. Zasyadko".

Coal Mine Methane, drained and recovered in the operating mine as well as methane produced by surface goaf wells at Zasyadko Mine, is used to:
(i) produce electricity for mine works and the public grid (in case there is a surplus);
(ii) replace heat currently produced by coal- and gas-fired boilers, including municipal boilers; and
(iii) produce gas for use as vehicle fuel.
CMM fired combined heat and power modules or CHPs will supply electricity to the Mine and provide the surplus to the public grid. Heat recovery systems will provide heat to the Mine and municipal boilers. The existing on-site heat-only boilers will be closed down whereas the municipal boiler houses will operate at a lower level.
Furthermore five automotive double-block gas filling stations will provide fuel to the Mine's truck fleet.

### 1.4 Verification Team

The verification team consists of the following personnel:

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

Bureau Veritas Certification Team Leader, Climate Change Verifier, Local Climate Change Product Manager for Ukraine

**Igor Antipko (Mining Electro-Mechanics)**
Bureau Veritas CertificationTechnical Specialist

This verification report was reviewed by:

**Flavio Gomes**
Bureau Veritas Certification Global Climate Change Product Manager

## 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 Appenix A). 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:<br>• Full - all best-practice expectations are implemented.<br>• Partial - a proportion of the best practice expectations is implemented<br>• Limited - this should be given if little or none of the system component is in place. | Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non compliance with stated requirements. The corrective action requests are numbered and presented to the client in the verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications. |

| **Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing** | | |
|---|---|---|
| **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.<br>➢ the calculation methods,<br>➢ raw data collection and sources of supporting documentation,<br>➢ reports/databases/information systems from which data is obtained.<br>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.<br>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:<br>➢ manual transfer of data/manual calculations,<br>➢ unclear origins of data,<br>➢ accuracy due to technological limitations,<br>➢ 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.<br>Internal controls include (not exhaustive):<br>➢ Understanding of responsibilities and roles<br>➢ Reporting, reviewing and formal management approval of data;<br>➢ Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc.<br>➢ Controls to ensure the arithmetical accuracy of the GHG data generated and accounting records e.g. internal audits, and checking/ review procedures;<br>➢ Controls over the computer information systems;<br>➢ Review processes for identification and understanding of key process parameters and implementation of calibration maintenance regimes<br>➢ Comparing and analysing the GHG data with previous periods, targets and benchmarks.<br>When testing the specific internal controls, the following questions are considered:<br>1. Is the control designed properly to ensure that it would either prevent or detect and correct any significant misstatements?<br>2. To what extent have the internal | Identify areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks<br>Areas where data accuracy, completeness and consistency could be improved are highlighted. |

| | | |
|---|---|---|
| | controls been implemented according to their design;<br>3. To what extent have the internal controls (if existing) functioned properly (policies and procedures have been followed) throughout the period?<br>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.<br>In addition, other material areas may be selected for detailed audit testing. | The additional verification testing performed is described. Testing may include:<br>1. Sample cross checking of manual transfers of data<br>2. Recalculation<br>3. Spreadsheet 'walk throughs' to check links and equations<br>4. Inspection of calibration and maintenance records for key equipment<br>➢ Check sampling analysis results<br>➢ 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.<br>Errors and uncertainty can be due to a number of reasons:<br>➢ Calculation errors. These may be due to inaccurate manual transposition, use of inappropriate emission factors or assumptions etc.<br>➢ Lack of clarity in the monitoring plan. This could lead to inconsistent approaches to calculations or scope of reported data.<br>➢ 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.<br>➢ 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.<br>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 01/08/2010 submitted by Lease Enterprise Coal Mine named after A.F. Zasyadko 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, Lease Enterprise Coal Mine named after A.F. Zasyadko revised the MR and resubmitted it as version 2.0 of 09/09/2010.

The verification findings presented in this report relate to the project as described in the PDD version 4.4 of 27/03/2008, TÜV SÜD Industrie Service GmbH Fifth Periodic JI Verification Report No. 600500450 of 14 May 2010 and Monitoring Report version 1.0 and 2.0.

## 2.2 Follow-up Interviews

On August 26-27, 2010 Bureau Veritas Certification verification team performed interviews with project stakeholders at Lease Enterprise Zasyadko Coal Mine site to confirm selected information and to resolve issues identified in the document review. Representatives of Lease Enterprise Zasyadko Coal Mine, LLC "Carbon Emission Partnership Technic" and VEMA S.A. were interviewed (refer to 6 References). The main topics of the interviews are summarized in Table 1.

**Table 1 Interview topics**

| Interviewed organization | Interview topics |
|---|---|
| Lease Enterprise Coal Mine named after A.F. Zasyadko | Project implementation status<br>Organizational structure<br>Responsibilities and authorities<br>Personnel training<br>Quality management procedures and technology<br>Records of equipment installation<br>Control of metering equipment<br>Metering record keeping system, database<br>Cross-check of the information provided in the MR with other sources |
| Consultant:<br>LLC "Carbon Emission Partnership Technic"<br>VEMA S.A. | Baseline methodology<br>Monitoring plan<br>Monitoring report<br>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 (CR), 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 6TH 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 previous, Fifth Periodic JI Verification Report No. 600500450 of 14 May 2010 prepared by TÜV SÜD Industrie Service GmbH contained the following open issues:

**Forward Action Request 1**

In the near future it is expected that $EL_{cons} > GEN_{CHP}$ . In this case the electricity amounts have to be transparently shown and the raw data have to be presented. Furthermore, all E-meters involved have to be described and listed up according to the tables in the MR.

**Conclusion of the verification team**

The electricity amount generated by CHP under project is less than net electricity consumed by the Mine:

- $GEN_{CHP}$ = 91 927,209 MWh;
- $EL_{cons}$ = 104 129,241 MWh.

Respective description of meters is provided in Section B.1.2. of the MR. **FAR 1** is closed.

**Forward Action Request 2**

Please describe the sampling procedures of the gas analysis in the Monitoring Manual.

**Conclusion of the verification team**

The sampling procedures of the gas analysis have not been included into Monitoring Manual.
**FAR 2** remains open.

**Forward Action Request 3**
Next NMHC analysis: The sampling has to be documented in a sampling protocol.

**Conclusion of the verification team**
Gas sample analysis prepared by "Respirator" was provided to verification team for checking.
**FAR 3** is closed.

### 3.2 Project Implementation

The present JI project implies utilization of Coal Mine Methane (CMM) from the Coal Mine named after A.F. Zasyadko for heat and power generation and production of gas to be used as a vehicle fuel. According to the PDD version 4.4 of 27/03/2008 two 12 module CHPs and five automotive gas filling stations should be installed and should be fired with CMM.
The implementation status of the project in the verification period is as follows:

- Generation of electricity and heat at the Vostochnaya site of the mine (12 module CHP)
- Utilisation of methane as vehicle fuel (Automobile Gas Filling Compressor Plant)

At the time of previous and current monitoring periods the delay in the installation of some project units as to the determined PDD was noted.
The status of project activity implementation compared to the PDD is presented in the table below:

*Table1. Project implementation status.*

| **Activity** | **Planned installation date, as stated in the PDD** | **Implementation status** |
|---|---|---|
| Commissioning of two gas filling compressor stations | March 2004 | March 2004 |
| Commissioning of one new gas filling compressor station | March 2005 | March 2005 |

| | | |
|---|---|---|
| Commissioning of the 1st CHP modules at Vostochnaya site | January 2006 | January 2006 |
| Commissioning of the 12st CHP modules at Vostochnaya site | April 2006 | April 2006 |
| Heat delivery from CHP modules to and shut-down of boilers at Vostochnaya site | September 2006 | September 2006 |
| Commissioning of one new gas filling compressor station | November 2007 | Not reflected in MR |
| Commissioning of one new gas filling compressor station | January 2008 | Not reflected in MR |
| Heat delivery from CHP modules to and shut-down of boilers at Yakovlevskaya site | July 2008 | Delayed, planned for October 2010 |
| Heat delivery from CHP modules to and shut-down of boilers at Centralnaya site | May 2008 | Not reflected in MR |
| Commissioning of the 1st CHP modules at Yakovlevskaya site | July 2009 | Delayed, planned for December 2010 |
| Commissioning of the 12st CHP modules at Yakovlevskaya site | December 2009 | Delayed, commissioning of 6 CHP modules planned for December 2011 |
| Supply of heat to DH-system | September 2009 | Delayed, planned for December 2012 |

A new activity (Construction of vacuum pump station N 4 at Grigoryevskaya shaft with six vacuum pumps VVN-150 and build up 3 pipe lines) not declared in the PDD has been implemented in March 2007.

As it is seen from the Table above the implementation of the planned activities ( at the Centralnaya, Yakovlevskaya, Grigorievskaya sites) is postponed for the later periods within the crediting period. Thus, the project is still not fully implemented. Though, the implementation of the missing parts of the project is going on.

The verifiers can confirm, through the visual inspection that all physical features of the proposed JI project activity including data collecting and storage systems have been implemented, the project is completely operational that was seen on-site.

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 CAR01, CL03).

### 3.3 Internal and External Data

The monitoring approach in the Monitoring Plan of the PDD version 04 requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way. Internal and external data required for calculation of emission reductions are presented in Monitoring Report section B.2.2.
All parameters were monitored and evaluated as per the Monitoring Plan, among them:

- Electricity generation by CHP
- Electricity consumed by the Mine
- Heat consumed
- CMM consumed by CHP
- CMM consumed at AGFCP

The monitoring equipment used for baseline and project emission calculation is presented in the section B of Monitoring Report. All the monitoring equipment is checked and calibrated according to the calibration plans.

The verification team checked the appropriateness of default external and internal data, the state of monitoring equipment, the calibration procedures, data control, and assessed the qualification of personnel.

Reporting on monitoring of emissions is performed constantly; all statistical reports are prepared and submitted pursuant to the current Ukrainian environmental legislation.

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 CL04, FAR 04, CL06, CL13).

### 3.4 Environmental and Social Indicators

CHP is very efficient technology for generating electricity and heat together as its implementation leads to a destruction of CMM that otherwise would be vented into the atmosphere. The supply of CMM to vehicles will lead to an additional destruction of CMM. As the vehicles currently are fuelled by diesel and gasoline, the project will avoid combustion of fossil vehicle fuels at vehicles that will be switched to CMM. All these effects lead to a reduced emission of greenhouse gases and, thus, witness for CHP's high environmental purity.

CHP have lower ranges of pollutant emissions and allow to reducing heat pollution of atmosphere. CHP installation on average achieves a reduction of 10 per cent in CO2 emissions in comparison with gas fired combined cycle gas turbine.

Under existing environmental legislation Zasyadko coal mine is obliged to monitor and report annually certain contaminant emissions (nitrogen dioxide, sulfurous anhydride, carbon oxide, dust etc.). Therefore, there are already well established and fully functional procedures for environmental monitoring at the Zasyadko coal mine. The office of environmental engineer is responsible for relevant data monitor, collection and compilation of quarterly reports.

Environmental performance of the project is monitored in the framework of existing procedures and the project related data is incorporated into total environmental report that Zasyadko coal mine prepares annually.

All comments received by the coal mine were positive towards implementation of the project. It was especially noted that utilization of coal mine methane will increase safety of the work, reduce emissions of GHG and other pollutants and will have positive social impact with creation of new working places.

The identified areas of concern as to Environmental and Social Indicators, project participants response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CL07, CAR 05, CL08, CL09).

### 3.5 Management and Operational System

The general project management is executed by the Deputy General Director of the LE Coal Mine named after A.F. Zasyadko" through supervising and coordinating activities of his subordinates, such as Technical Director, CHP Chief, Monitoring Engineer, etc. The project management structure is presented in the MR section C.1.1.

Section C.1.1. of the MR provides sufficient information about the elements of the system related to assigning roles, responsibilities and authorities for implementation and maintenance of monitoring procedures including control of data. The verification team confirms a high effectiveness of this management system. The personnel responsible for monitoring are trained in an appropriate manner. The existing management and operational systems are eligible for reliable project monitoring, though it has a potential for further improvement as follows from the FARs issued.

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 FAR02, CAR 04, CL05, FAR03, CL10, CL11, CL12, CAR06).

### 3.6 Completeness of Monitoring

The monitoring of the project is complete, effective and reliable and generally in accordance with monitoring plan contained in the determined PDD. All relevant emission sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently. All pertinent parameters were monitored and determined as prescribed. The collected data were stored during the whole monitoring period. The monitoring methodologies and sustaining records were sufficient to enable verification of emission reductions. During the verification process, no significant lacks of evidence were detected. The reporting procedures, which were described in the final MR and examined during the on-site visit, were found to reflect the ones defined by the monitoring plan.

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 CAR02, CAR03).

### 3.7 Accuracy of Emission Reduction Calculations

All used data were of a high quality to assure accurate calculation. It is evidenced that the whole monitoring system was fully operational during the entire monitoring period. The calibration results ensure the correct functionality of all the necessary equipment pertinent to the project activity. 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 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 PPs, 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.

The identified areas of concern as to Accuracy of Emission Reduction Calculation, project participants response and BV Certification's conclusion are described in Appendix A Table 5 (refer to FAR01, CL01, CL02).

### 3.8 Quality Evidence to Determine Emissions Reductions

The evidences that were obtained by the verification team in order to provide confidence in the provided emission reduction calculation, such as:

- Duly maintained installation and operation of duly calibrated equipment
- Explicitly defined JI project management structure
- Clear allocation of roles, responsibilities and authorities
- Automatic data acquisition system
- Reliable IT for data collection, processing and storing
- Procedures for protection and back up of electronic and paper data
- QC and QA procedures
- Implementation of data traceability
- Appropriate archiving system
- Competent and qualified personnel
- Maintained and calibrated measuring equipment
- Regular data crosschecking procedure
- Check for consistency and adequacy of calculations and data
- TÜV SÜD Industrie Service GmbH Verification Reports prepared by on previous monitoring periods
- IPCC data
- Emission Monitoring Manual elaborated and implemented at the Mine

are observed as consistent and to high quality. All used parameters were of sufficient and appropriate quality to assure an accurate monitoring.

### 3.9 Management System and Quality Assurance

To ensure quality of project operation and monitoring an efficient Management and Operation System is developed and maintained as discussed in Section 3.5 above.

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# 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 6TH PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification has performed the 6th periodic verification of the JI project "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" project of LE "Coal Mine named after A.F.Zasyadko", which applies the approved consolidated methodology ACM0008 version 03. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of LE "Coal Mine named after A.F. Zasyadko"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 4.4. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 2.0 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is 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 01/02/2010 to 31/07/2010
Baseline emissions : 519 083 t CO2 equivalents.
Project emissions : 58 056 t CO2 equivalents.
Emission Reductions : 461 027 t CO2 equivalents.

# 6 REFERENCES

**Category 1 Documents:**
Documents provided by project participants that relate directly to the GHG components of the project.

/1/ PDD"Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" version 4.4 of 27/03/2008

/2/ Determination of "Utilization of Coal Mine Methane at the Coal Mine named after O.F. Zasyadko" JI project in Donetsk, Ukraine" No.913421, Rev. 022008-03-27 issued by TÜV SÜD Industrie Service GmbH

/3/ Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, First Periodic JI Verification Report No. 1200469 of November 4th, 2008 issued by TÜV SÜD Industrie Service GmbH

/4/ Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Second Periodic JI Verification Report No. 1264102 of February 18th, 2009 issued by TÜV SÜD Industrie Service GmbH

/5/ Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Third Periodic JI Verification Report No. 1276184 of February 19th, 2009 issued by TÜV SÜD Industrie Service GmbH

/6/ Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Fourth Periodic JI Verification Report No. 1400879 of December 08, 2009 issued by TÜV SÜD Industrie

| | |
|---|---|
| | Service GmbH |
| /7/ | Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko, Donetsk, Ukraine, Fifth Periodic JI Verification Report No. 600500450 of 14 May 2010 issued by TÜV SÜD Industrie Service GmbH |
| /8/ | Monitoring Report # 8 "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" version 1.0 dated 01/08/2010 |
| /9/ | Monitoring Report # 8 "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" version 2.0 dated 09/09/2010 |
| /10/ | EMISSION MONITORING MANUAL for Mine named after A.F. Zasyadko, implemented from October 10, 2009 |
| /11/ | LoA No 2568/01-10 of March 17, 2006 issued by Ministry of Environmental Protection of Ukraine |
| /12/ | LoA issued on January 30, 2007 by the Government of Japan |
| /13/ | LoA issued on May 16, 2007 by the State of the Netherlands, acting through the Ministry of Economic Affaires and its implementing agency SenterNovem |
| /14/ | LoA issued on May 4, 2007 by the Federal Office for the Environment of Switzerland |

**Category 2 Documents:**

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

| | |
|---|---|
| /15/ | 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/ | Boris Bokiy – Deputy General Director, LE Coal Mine named after A.F. Zasyadko" |
| /2/ | Yevgeniy Berezovskiy – CHP Chief |
| /3/ | Valeriy Cherednikov – Monitoring Engineer, Gas Treatment Lead Engineer |
| /4/ | Vadim Nosach – CHP Chief Engineer |
| /5/ | Igor Shtugorenko – AGFCP Mashinist |
| /6/ | Tatyana Shapovalova – AGFCP Operator |
| /7/ | Vasiliy Natarin – AGFCP Chief |
| /8/ | Aleksey Kostenko – Foreman |

/9/ Vladimir Reznichenko – Electrical Workshop Senior Mechanic

/10/ Elena Kopylova – Lead Engineer, Environment Protection Department

/11/ Svetlana Lyubarets – Director, LLC "Carbon Emission Partnership Technic"

/12/ Sergiy Apostolaka – Technical Consultant, VEMA S.A.

/13/ Roman Vdovichenko – Manager, VEMA S.A.

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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:<br><br>*BVC Verification team:*<br>Ivan Sokolov - Team Leader, Lead Verifier<br>Igor Antipko - Team Member, Technical Specialist<br><br>Interviewed persons:<br>*LE "Coal Mine named after A.F. Zasyadko":*<br><br>Boris Bokiy – Deputy General Director, LE Coal Mine named after A.F. Zasyadko"<br>Yevgeniy Berezovskiy – CHP Chief<br>Valeriy Cherednikov – Monitoring Engineer, Gas Treatment Lead Engineer<br>Vadim Nosach – CHP Chief Engineer<br>Igor Shtugorenko – AGFCP Mashinist<br>Tatyana Shapovalova – AGFCP Operator | OK |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | Vasiliy Natarin – AGFCP Chief<br>Aleksey Kostenko – Foreman<br>Vladimir Reznichenko – Electrical Workshop Senior Mechanic<br>Elena Kopylova – Lead Engineer, Environment Protection Department<br><br>*LLC "Carbon Emission Partnership Technic":*<br>Svetlana Lyubarets – Director<br><br>*VEMA S.A.:*<br>Sergiy Apostolaka – Technical Consultant<br>Roman Vdovichenko - Manager | |
| **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** | PDD v 4.4 | Project has been implemented as defined in the PDD version 4.4 and the implementation is evidenced by statements of work completion (see list of verified documents). | OK |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| **1.4. Actual status of installation works** | PDD v 4.4, MR 1.0 | There are some delays in the project implementation compared to the schedule determined in the PDD version 4.4 caused by lack of financing. | OK |
| ***2. Open issues indicated in validation report*** | | | |
| **2.1. Missing steps to final approval** | 77-81 | The verification team identified no missing steps. The project has been approved by all Parties involved: Ukraine, Japan, Switzerland and the Netherlands. The Letters of Approval from these countries were presented to the verification team. | OK |
| ***3. Implementation of the project*** | | | |
| **3.1. Physical components** | PDD v 4.4, MR 1.0 | Project implementation schedule has faced some delays and changes compared to the determined PDD version 4.4.<br><br>**CAR01.** Please make appropriate changes to the implementation schedule. | CAR 01 |
| **3.2. Project boundaries** | PDD v 4.4, MR 1.0 | Project boundaries were not changed | OK |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| **3.3 Emission reductions achieved** | PDD v 4.4, MR 1.0 | Emission reductions achieved during the 01/02/2010 – 31/07/2010 monitoring period equal 461 027t CO2e.<br><br>**FAR01.**To make assessment of emission reduction achieved in the year 2010 compared to the estimated emission reductions declared in the PDD version 4.4. during the next periodic verification.<br><br>There is an increase in amount of methane utilized during the current monitoring period compared to the previous MR.<br><br>**CL 01.** Please provide reasoning for this.<br><br>**CL 02.** According to the PDD version 4.4. , the estimated emission reductions for the year 2008 made 556.770 t CO2, for the year 2009 - 946.668 t CO2.<br>According to to the MRs for the previous monitoring periods, emission reductions achieved were 650.851t CO2 and 706.348 (647.055) t CO2 respectively. Please, explain how were those ERs achieved considering the delay in implementation of project activities declared in the PDD. | FAR01<br>CL 01<br>CL02 |
| **3.4. Monitoring and metering systems** | 91-103, 114-117, 154-160 | There are changes in the monitoring plan compared to the final monitoring plan dd. 27 March 2008 as described in the PDD version 4.4. New metering devices have been | |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | MR 1.0 | substituted, and additions have been made to provide safety of parameters monitored. Calibration of all these devices has been performed (see below).Parameters as well as formulas have not been changed.<br><br>From January 1, 2008, primary and secondary metering devices/ meters have been added/ substituted, because CHP unit measuring system was updated and improved. In addition, new metering device blocks for high concentration flow metering measurement have been installed<br>• Universal 1 Metering system for ignition gas at CHP unit instead of Gn6 with their sensors;<br>• Universal 2 Metering system for fuel gas at AGFCP, additionally to gas fuelling stations equipment;<br>• BKTM Metering system for fuel gas in machine rooms, instead of Keuter device, ADM Electronic at gas.<br><br>Section A.8 of the MR English version states that "There are no deviations in the monitoring plan compared to the final monitoring plan dd. 27 March 2008 as described in the PDD version 4.4" and Ukrainian version in its turn states that "There are changes…".<br>**CL 03.**Please, clarify which statement is correct. | OK<br><br>CL 03 |
| **3.5. Data uncertainty** | 91-103, 114-117, | Level of uncertainty of data collected is established in the measuring equipment certificates and verified according to | OK |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | 118-129, 130-141, 142-153, 154-160 | established calibration schedules. During calculation of the GHG emissions the level of uncertainty is taken into account according to the Article 10 part 1 of "Law of Ukraine on Metrology and Metrological Activity", which states the level of uncertainty. | |
| **3.6. Calibration and quality assurance** | 2-61, 68-69 | All the calibration procedures are performed according to the detailed calibration plan. On the date of verification, 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 as well as in the Appendix C of the present Verification Report<br><br>**FAR02.** Please describe the sampling procedures of the gas analysis in the Monitoring Manual. | The sampling procedures of the gas analysis have not been included into Monitoring Manual. **FAR02** is open. |
| **3.7. Data acquisition and data processing systems** | 112 | Data collection is carried out with automated accounting system based on data of primary sensors and electricity, heat and metering devices. Sensors and meters function control and maintenance is performed by CHP departments:<br>• power meters are maintained by power engineer department; | |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | • AGFCP meters are maintained by chief engineer for gas treatment;<br>• fuel and Ignition Gas meters of CHP are maintained by chief engineer for gas treatment jointly with CHP Technological Process Automatic Management System staff;<br>• heat meters are maintained by Heat Engineer, in collaboration with CHP Technological Process Automatic Management System staff;<br>• maintenance of means of communication, computers and software of dispatcher department as a whole and especially automatic recording system is made by CHP Technological Process Automatic Management System.<br>Information on gas, power and heat counting at CHP and AGFCP is transferred to Dispatching office of CHP. Implementation of state-of-the-art computing management system will provide an effective monitoring in online mode and analysis of operation efficiency. Data from all controlling devices are automatically fed into database with the aid of proper software. In case of any significant deviation of data being monitored from operational parameters immediate alarm is made, with indication of source of such deviation. This makes a foreman able to make an effective management when putting of corrections by his/her subordinates in shift, including technical staff in | |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | charge, and to eliminate such deviations.<br><br>The overall data processing scheme is presented in the Monitoring Manual.<br><br>**CL04.** Please check the reference contained in the Monitoring Report to PDD section B.2, figure 5 named "GE Enbacher 620 module" and make appropriate correction.<br><br>Please refer to CAR in Section 5.5. of Table 2 of the present Protocol | CL04<br><br>- |
| **3.8. Reporting procedures** | 112 | All data necessary for the CO2 emission reductions calculation is collected.<br>CHP:<br>Monitoring engineer is in charge of controlling operation and state of processing equipment. Based on information provided by dispatching office, he/she also prepares annual reports on gas consumption and emission monitoring, and provides them to CHP Technical Director and Deputy General Director of the Mine.<br><br>AGFCP:<br>Data collection and storage at AGFCP is conducted by its staff. AGFCP operator controls and prepares data, and | CAR 02<br>CAR 03 |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | transfers them to CHP dispatching office, and keeps daily gas consumption logbook.<br>Also, CHP heat engineers make daily reading of database from Universal G14. Additionally, to protect the database, a gas consumption logbook is also kept.<br><br>Transformer Substation 110/6.3/6.6<br>CHP dispatcher controls data on amounts of power fed into and obtained from the grid. CHP dispatcher controls data on amounts of power fed into grid and obtained from grid, according to figures of meters A21 and A22, installed at two bus channels in transformer substation TP 110/6,3/6,6. The same data are controlled by department of Chief Power Engineer of Mine. Until 5th day of the month next to the reporting month, Chief Power Engineer of Mine provides data for check to CHP Technical Director and Deputy General Director of the Mine.<br><br>The monitoring period indicated in the heading of Table "Gas volume and volumetric consumption computing blocks BKT.M1-BKT.M4" on page 23 of the MR is incorrect.<br><br>**CAR02.** Please, make due correction of this heading.<br><br>During the check of raw data collection, transfer and processing made by the verification team it was revealed | |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | that input data read from BKT.M-2 taken for the last date of the current monitoring period was incorrect.<br><br>**CAR03.** Please check this data and make corrections appropriately. | |
| **3.9. Documented instructions** | 112 | There is "EMISSION MONITORING MANUAL for Mine named after A.F. Zasyadko" developed at the enterprise, which contains:<br>• Data collection and monitoring at CHP<br>• Data collection and monitoring at AGFCP<br>• Data collection and monitoring at Transformation Substation 110/6.3/6.6<br>• Preparation GHG Monitoring Report<br>• Table forms<br>• Work Instruction of CHP gas treatment leading engineer<br>• Work Instruction of CHP power engineer<br>• Work Instruction of CHP chief dispatcher<br>• Training program for GHG emission monitoring at combined heat and power plant<br><br>**CAR04.** Data Monitoring Flowchart providing the names of persons in charge for every stage of data collection, | |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | transfer, processing and archiving should be included to the MR. | CAR04 |
| **3.10. Qualification and training** | 104, 105, 108-110, 112 | All contracts with the equipment suppliers include provisions on personnel training. Thus, training is provided by the equipment producers. All training plans and reports were presented to the verification team during the site visit.<br><br>**CL05.** Please provide information on who is responsible for training programs development in the Mine and include it in monitoring report.<br><br>**FAR03.** To improve training procedure, please, include topics of all planned training sessions into examination logbook. | <br><br>CL05<br><br>FAR03 |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| **3.11. Responsibilities** | 112 | Monitoring engineer controls operation and state of processing equipment. Based on information provided by the dispatching office, he/she prepares annual reports on gas consumption and emission monitoring, and provides them to CHP Technical Director and Deputy General Director of the Mine.<br>• Boris Bokiy – Deputy General Director, LE Coal Mine named after A.F. Zasyadko"<br>• Yevgeniy Berezovskiy – CHP Chief<br>• Valeriy Cherednikov – Monitoring Engineer, Gas Treatment Lead Engineer<br>• Vadim Nosach – CHP Chief Engineer<br>• Igor Shtugorenko – AGFCP Mashinist<br><br>Please, refer to CAR in Section 3.9 of the present Protocol. | - |
| **3.12. Troubleshooting procedures** | MR 1.0<br>p. C4 | In case of CMM supply system (either the whole system or a separate feeding pipe) breakdown methane-air mixture will be urgently released into the atmosphere through the emergency gas vent stack. The shut-off valves will automatically close CMM supply pipes, natural gas will be fed into gas treatment plant and consequently into the inlets of engines and into pre-chambers. As the main gas record blocks are after the venting stack, only combusted CMM will be accounted for. CO2 emissions reduction will be calculated by cross-checking method for this period. | OK |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | At CHP, the equipment of the same type is installed, for substitution of main equipment for short period in case of breakdown or calibration of electricity and heat meters, CMM metering equipment, pressure, temperature sensors, etc. These devices are able to transfer all data to monitoring and control computer system. Equipment is also calibrated in due periods by Centre for Standardization and Metrology, and Ivano-Frankovsk Centre for Standardization and Metrology.<br>Information from the database is monthly (at the beginning of each month) transferred to and kept on the hardware. Fuel gas consumption logbooks for each CHP unit G1-G12, ignition gas G13, surface degasification gas, as well as for the AGFCP-G14 are also. | |
| ***4. Internal Data*** | | | |
| **4.1. Type and sources of internal data** | 112 | The control and monitoring system can be divided into CHP, AGFCP and Transformer Substation:<br>For the purpose of emission reductions monitoring the following parameters are measured:<br>• Electricity production<br>• Concentration of fuel gas<br>• Concentration of ignition gas<br>• Ignition gas amount | |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | • Ignition gas temperature<br>• Ignition gas pressure<br>• gas for motor vehicle filling amount<br>• Gas for motor vehicle filling temperature<br>• Gas for motor vehicle filling pressure<br>• Motor vehicle fuelling gas amount<br>• Fuel gas amount<br>• Fuel gas temperature<br>• Fuel gas pressure<br>• Heat amount<br><br>**FAR04.**For the next periodic verification, appropriate saving and archiving of initial data logbooks should be insured.<br>In order to meet the JISC requirements on data saving and archiving, an Order on archiving of all project related documentation for two years after the last ERU transmission should be developed and included to the Emission Monitoring Manual. All persons responsible for data collection and monitoring should be aware of the provisions of this Order. | FAR04 |
| **4.2. Data collection** | 112 | See section 3.8 of this protocol.<br><br>Please, refer to CAR in the previous Section 3.9 of the present Protocol. | - |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| **4.3. Quality assurance** | 112 | At CHP, crosscheck of control and measuring equipment is conducted as follows:<br>• power: REF high voltage cells counters;<br>• gas: DBT devices;<br>• heat: summation of figures from individual heat counters at CHP units.<br>Cross-check of ignition gas meter «Universal» G13 is made for accounting technical parameters of manufacturing company, and their amount does not exceed 5% of amount of methane consumed with fuel gas. To protect database, ignition gas consumption logbook is kept.<br>Cross-check is made by CHP operator on monthly base, by monitoring engineer on quarterly base, and other authorized supervisory persons do make a spot check hereof.<br><br>At CHP, a log of calibration of control and measuring equipment is kept, subject to applicable law. Calibration is conducted by State Center of Metrology and Standardization. The documents that confirmed calibration were provided for the verification team. | OK |
| **4.4. Significance and reporting risks** | 1 | Potential reporting risks based on an assessment of the emission estimation procedures can be expected in the following fields of action:<br>• the calculation methods, | OK |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | • raw data collection and sources of supporting documentation,<br>• reports/databases/information systems from which data is obtained.<br><br>At CHP, crosscheck of control and measuring equipment is conducted as follows:<br>• power: REF high voltage cells counters;<br>• gas: DBT devices;<br>• heat: summation of figures from individual heat counters at CHP units. | |
| ***5. External Data*** | | | |
| **5.1. Type and sources of external data** | MR 1.0 | See section B.2.1. of the MR version 2.0. | OK |
| **5.2. Access to external data** | MR 1.0 | See section B.2.1. of the MR version 2.0. | OK |
| **5.3. Quality assurance** | MR 1.0 | The documents that confirmed the external data were provided for the verification team. | OK |
| **5.4. Data uncertainty** | MR 1.0 | See section 3.5. of this table. | OK |
| **5.5. Emergency procedures** | 1 | **CL06.** Please, provide information whether there are any procedures which will be applicable if there is no access to relevant external data. | CL06 |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | | |
| ***6. Environmental and Social Indicators*** | | | |
| **6.1. Implementation of measures** | MR 1.0, 85-89 | It is stated in PDD version 4.4 that environmental performance of the project will be monitored in the framework of procedures existing at Mine.<br><br>**CL07.** Please clarify whether there are project related documents containing information on its environmental impacts. Were there any analyses as for the project's impacts on air, water resources, waste treatment, noise impact on labour conditions performed?<br><br>Neither determined PDD version 4.4 nor the latest MR comprise information as for environmental and/or social indicators, which could be necessary to monitor for the success of the project activity.<br><br>**CAR05.** Please explain in what way these indicators are taken into account. | CAR05<br>CL07 |
| **6.2. Monitoring equipment** | 1 | **CL08**. Please clarify if the project activity demanded the | CL08 |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | installation of special measures for environmental impact monitoring (e.g. filtering systems or compensation areas) and whether such measures were implemented. Also please clarify if the metering systems for environmental impact monitoring, where necessary, had been installed and was functioning during monitoring period. | |
| **6.3. Quality assurance procedures** | 1 | **CL09.** Please clarify what quality assurance procedures are applied for data on project environmental impact. | CL09 |
| **6.4. External data** | 1 | N/A | |
| **7. Management and Operational System** | | | |
| **7.1. Documentation** | 106-107 | The company complies with all legal and statutory requirements of Ukraine. All procedures and routines relating to the quality of emission reductions are properly documented in the specially designed and implemented "Emission Monitoring Manual" which has been constantly updated and improved to ensure a successful operation of the project and credibility and verifiability of the ERs achieved. Existing Management and Operational system at the enterprise is well-defined and effective.<br><br>**CL10.** Please, provide Accreditation Certificate of Respirator Institute. | OK<br><br>CL10<br><br>CL11 |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| | | **CL11.** Please, provide information on AGFCP commissioning date and serial number.<br><br>**CL12.** Please, provide licenses for the AGFCP. | CL12 |
| **7.2. Qualification and training** | 104, 105, 108-110, 112 | See chapter 3.10. of this Table of this protocol | OK |
| **7.3. Allocation of responsibilities** | 112 | The responsibilities and authorities are described in "Emission Monitoring Manual" for each individual in job descriptions as required statutorily. Persons working at sites are aware of their responsibilities, and relative records are maintained. | OK |
| **7.4. Emergency procedures** | MR 1.0 p. C4 | See chapter 3.12 of the present Protocol. | OK |
| **7.5. Data archiving** | 1 | All operators are responsible for data handling. All required data are stored daily, and they are archived in electronic and paper form. All data will be stored at least five years. Besides, operators prepare standardized daily, weekly, monthly, and annual reports. | OK |
| **7.6. Monitoring report** | MR 1.0 | Data information is laid down in the monitoring report version 2.0. | OK |

| Objective | Reference | Comments | Conclusion (CARs/FARs) |
|---|---|---|---|
| **7.7. Internal audits and management review** | 112 | Internal control which allows the identification and solution of problems at an early stage is provided by the following implemented procedures:<br>• Introduction of a modern computerized control system allows for efficient on-line monitoring and reviewing work process performance at the Zasyadko Central Dispatching office every fifteen minutes.<br>• Cross-checking which is made by CHP operator on monthly base, by monitoring engineer on quarterly base, and other authorized supervisory persons do make a spot check hereof. | OK |

**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** | | |

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks |
|---|---|---|
| **structure, responsibilities and competencies** | | |
| **1.1. Position and roles** | Full | Positions and role of each person in the GHG data management process is clearly defined and implemented. For this monitoring period the following personnel is responsible for the project implementation:<br>LE "Coal Mine named after A.F. Zasyadko":<br>• Boris Bokiy – Deputy General Director, LE Coal Mine named after A.F. Zasyadko"<br>• Yevgeniy Berezovskiy – CHP Chief<br>• Valeriy Cherednikov – Monitoring Engineer, Gas Treatment Lead Engineer<br>• Vadim Nosach – CHP Chief Engineer<br>• Igor Shtugorenko – AGFCP Mashinist<br>• Tatyana Shapovalova – AGFCP Operator<br>• Vasiliy Natarin – AGFCP Chief<br>• Aleksey Kostenko – Foreman<br>• Vladimir Reznichenko – Electrical Workshop Senior Mechanic<br>• Elena Kopylova – Lead Engineer, Environment Protection Department<br><br>LLC "Carbon Emission Partnership Technic":<br>Svetlana Lyubarets – Director |
| **1.2. Responsibilities** | Full | • AGFCP operator controls and prepares data, and transfers them to CHP dispatching office, and keeps daily records in gas logbook; |

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks |
|---|---|---|
| | | • Two CHP dispatchers control input data at CHP units (gas treatment station), operation process parameters, and heat and power output, keeps daily logs for fuel, ignition gas and surface well gas consumed by AGFCP.<br><br>All information is transferred to CHP dispatching office, and is controlled in online mode by shift foreman. Based on information provided by dispatching office, monitoring engineer prepares monthly and annual reports about monitoring of power, gas, heat and emissions, and provides them to CHP Technical General Director Deputy and Lease Enterprise Mine named after A.F. Zasyadko Deputy General Director Deputy General. General supervision over monitoring system is carried out by management of Zasyadko Coal Mine according to control and reporting system in place. |
| **1.3. Competencies needed** | Full | The responsibilities and authorities are described for each individual in job descriptions as required statutorily. The required training was identified in advance and was successfully delivered that was checked onsite. |
| **2. Conformance with monitoring plan** | | |
| **2.1. Reporting procedures** | Full | The monitoring plan is as per the registered PDD version 4.4. The applauded version of PDD version 4.4. is publicly available at the UNFCCC website http://ji.unfccc.int/UserManagement/FileStorage/Q5R65QBGA2B44Q2FUW5199HND2X0T1 The monitoring methodology developed for this project was used in monitoring process. |

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks |
|---|---|---|
| | | Reporting procedures should reflect the monitoring methodology content. |
| **2.2. Necessary Changes** | Full | Project implementation schedule has faced some delays and changes from PDD version 4.4.<br><br>Please, refer to the CL in Section 2.1. of the present Protocol. |
| **3. Application of GHG determination methods** | | |
| **3.1. Methods used** | Full | The methods used to determine GHG emissions reflect the chosen methodology content and are documented in the "Emission Monitoring Manual" . The calculation of the emission reduction is correct. |
| **3.2. Information/process flow** | Full | See section 3.7 and 3.8 of the Table 1 of the present Protocol. |
| **3.3. Data transfer** | Full | See section 3.7 and 3.8 of the Table 1 the present Protocol. |
| **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** | | |

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks |
|---|---|---|
| **of key process parameters** | | |
| **4.1. Identification of key parameters** | Full | The critical parameters for the determination of GHG emissions are the parameters listed in section D of the approved PDD version 4.4. |
| **4.2. Calibration/maintenance** | Full | The company maintains the elaborated calibration plan for the project equipment. The audit team verified the calibration status of all the equipment at the sites sampled for the audit and found them to be in compliance with the plan. |
| **5. GHG Calculations** | | |
| **5.1. Use of estimates and default data** | Full | See section B.2.1. of the MR version 1.0. |
| **5.2. Guidance on checks and reviews** | Full | All data is collected by the monitoring engineer who reports the information to the CHP Technical Direct. He reviews the data and approves reporting to the Deputy General Director.<br><br>At the end of each monitoring period, a Monitoring Report (MR) is prepared.<br><br>After completing the Monitoring Report, the employee at Carbon Emission Partnership LLC makes an on-site visit to verify the data submitted by doing simple checks of the data. Furthermore, he will clarify any inconsistencies or outstanding |

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks |
|---|---|---|
| | | issues in the Monitoring Plan with all responsible persons in the collection of the data. After the on-site visit the employee at Carbon Emission Partnership LLC prepares a second draft MR and submits this version to the Head of Carbon Emission Partnership LLC.<br>The supervisor will review both the MR and the calculation sheet and returns any comments to the MR and the calculation sheet after which the MR is finalized and submitted to the deputy-General Director Deputy General of the Mine for final approval. After his approval the MR is submitted to the Verifier (AIE) for performance of further processing.<br><br>. |
| **5.3. Internal validation and verification** | Full | Please, refer to Section 7.7 of Table 1 of the present Protocol. |
| **5.4. Data protection measures** | Full | Information from database is monthly (at the beginning of each month) transferred to hardware, and kept there. Also, fuel gas consumption logbooks for each CHP unit G1-G12, ignition gas G13, surface degasification gas and AGFCP-G14 are also kept.<br><br>**CL13.** Please clarify whether the data protection measures (e.g. access restrictions and editor rights) for databases/spreadsheets are in place. |
| **5.5. IT systems** | Full | Data is collected in electronic database.<br><br>**CAR06**. Please provide the description of the IT systems used for GHG monitoring |

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks |
|---|---|---|
| | | and reporting. Provide documentation for the IT systems used. |

**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:<br>➢ the calculation methods,<br>➢ raw data collection and sources of supporting documentation,<br>➢ reports/databases/information systems from which data is obtained.<br>Key source data applicable to the project assessed are hereby: | 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:<br><br>Key source data for this parameter are:<br>• meter reading.<br>• record for fuel gas, ignition gas, electricity, motor vehicle fuelling gas, heat.<br>The metering equipments are installed appropriately in the enclosure panels and same are of reputed make. | 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 4.4 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 |
|---|---|---|
| ➢ metering records ,<br>➢ process monitors,<br>➢ operational logs (metering records),<br>➢ laboratory/analytical data (for energy content of fuels),<br>➢ accounting records,<br>Appropriate calibration and maintenance of equipment resulting in high accuracy of data supplied should be in place.<br>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:<br>➢ manual transfer of data/manual calculations,<br>➢ position of the metering equipment,<br>➢ unclear origins of data,<br>➢ accuracy due to technological limitations,<br>➢ lack of appropriate data protection | Calculation methods:<br>The reporting procedures reflect the monitoring plan content and the calculation of the emission reduction is correct and also additionally deducting the project emissions. | |

| Identification of potential reporting risk | Identification, assessment and testing of management controls | Areas of residual risks |
|---|---|---|
| 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:<br>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 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| Project implementation schedule has faced some delays and changes compared to the determined PDD version 4.4. **CAR01.** Please make appropriate changes to the implementation schedule. | Table 1 3.1 | Accident occurred on 18.11.2007 caused delays in project implementation. From the end of 2009, CHP has been working in normal (standard) mode. | CAR 01 is closed based on the explanation provided. |
| **FAR01.** To make assessment of emission reduction achieved in the year 2010 compared to the estimated emission reductions declared in the PDD version 4.4. during the next | Table 1 3.3 | | FAR01 remains open till the next periodic verification. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| periodic verification. | | | |
| There is an increase in amount of methane utilized during the current monitoring period compared to the previous MR.<br>**CL01.** Please provide reasoning for increase in amount of methane utilized during the current monitoring period compared to the previous MR. | Table 1<br>3.3 | High value for year 2010 is related to increase of methane output in m3 seam Eastern inclined longwall by main break and flowing of surface degasification well.<br><br>The difference between planned rated values for coal mine methane utilized and amount of power generated as shown in PDD 4.4. and actual values is caused by following objective factors:<br><br>• In 2009, vacuum pump station at Yakovlevskaya site was combined with vacuum pump station at Vostochnaya site as a common system. This allowed use of underground degasification methane that had been planned for use at Yakovlevskaya site, at | CL01 is closed based on the exhaustive information provided to the verifiers. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| | | Vostochnaya site CHP; this caused significant coal mine methane inflow with higher concentration to Vostochnaya site CHP<br><br>• Increase of surface degasification pipeline diameter.<br>• Load rate for equipment at Vostochnaya site CHP (75 to 90%) higher than planned in PDD 4.4; this relates to the coal mine methane recovery being higher than planned in PDD.4.4.<br><br>• degasification well yields higher than planned in PDD 4.4 allowed significant increase of coal mine methane recovery.<br>• increase of coal mine methane recovery took place due to application of experience gained at drilling of degasification wells | |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| | | and their operation conditions.<br><br>A.F.Zasyadko Coal Mine develops new version of PDD that will include experience gained in coal mine methane recovery yields, operation conditions of degasification, gas feeding, pump and compressor, and generating equipment.<br><br>See Attachment document # 1 (Eastern inclined longwall development progress schedule) | |
| Section A.8 of the MR English version states that "There are no deviations in the monitoring plan compared to the final monitoring plan dd. 27 March 2008 as described in the PDD version 4.4" and | Table 1 3.3 | Correct statement is in English version: there are no deviations. | CL03 is closed based on the information provided. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| Ukrainian version in its turn states that "There are changes…". **CL03.** Please, clarify which statement is correct. | | | |
| **CL04.** Please check the reference contained in the Monitoring Report to PDD section B.2, figure 5 named "GE Enbacher 620 module" and make appropriate correction. | Table 1 3.7 | Correct version: MR 2.0 Section B.2., Figure 9, page 28. | CL03 is closed based on the explanation provided. |
| The monitoring period indicated in the heading of Table "Gas volume and volumetric consumption | Table 1 3.8 | Corrections already made. See page 23 English version of MR 2. | CAR02 is closed based on due corrections made to the MR. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| computing blocks BKT.M1-BKT.M4 on page 23 of the MR is incorrect.<br><br>**CAR02.** Please, make due correction of this heading. | | | |
| During the check of raw data collection, transfer and processing made by the verification team it was revealed that input data read from BKT.M-2 taken for the last date of the current monitoring period was incorrect.<br><br>**CAR03.** Please check this data and make corrections | Table 1<br>3.8 | Corrections already made. See page 23 English version of MR 2 | CAR03 is closed based on due corrections made to the MR. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| appropriately. | | | |
| **CAR04.** Data Monitoring Flowchart providing the names of persons in charge for every stage of data collection, transfer, processing and archiving should be included to the MR. | Table 1 3.9 | See Data Monitoring Flowchart in C.1.1 section English version of MR 2 | CAR04 is closed based on the corrections made by the PPs to the MR. |
| **CL05.** Please provide information on who is responsible for training programs development in the Mine and include it in monitoring report. | Table 1 3.10 | At the CHP, CHP Chief Dispatcher is responsible for training programs development (Maxim Mynka). Approval by Director General O.F.Zasyadko Coal Mine is required. | CL05 is closed based on the information provided. |
| **FAR03.** To improve training procedure, please, include topics of all planned training | Table 1 3.10 | Topics:<br>1. Methane consumption amount definition;<br>2. Electricity accounting; | FAR03 remains open and should be checked during the next periodic verification. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| sessions into examination logbook. | | 3. Heat accounting;<br>4. CO2 Emission reduction calculation methodology. | |
| **FAR04.** For the next periodic verification, appropriate saving and archiving of initial data logbooks should be insured.<br>In order to meet the JISC requirements on data saving and archiving, an Order on archiving of all project related documentation for two years after the last ERU transmission should be developed and included to the Emission Monitoring Manual. All persons responsible for data | Table 1<br>4.1 | See B.3. English version of MR 2.<br>The Order will be developed for the next periodic verification. | FAR04 remains open and should be checked during the next periodic verification. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| collection and monitoring should be aware of the provisions of this Order. | | | |
| **CL06.** Please, provide information whether there are any procedures which will be applicable if there is no access to relevant external data? | Table 1 5.5 | If there's no access to relevant external data, they will be provided by Respirator Scientific Research Institute and State Standard. Appropriate agreements have been made with them.<br>Periodical check of Default Values is performed. | CL06 is closed based on the information provided. |
| **CL07.** Please clarify whether there are project related documents containing information on its environmental impacts. Were there any analyses as for | Table 1 6.1 | All activity under the project is perfomed subject to Ukrainian current environmental law. At construction of CHP and AGFCP, Environmental Impact Assessement has been performed. Pursuant to Atmospheric Air Protection Law of Ukraine, as approved by Ukrainian Board of | CL07 is closed based on the information provided. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| the project's impacts on air, water resources, waste treatment, noise impact on labour conditions performed? | | Ministers on March 13, 2002 # 302 and Order of Ukrainian Ministry of Environmental Protection dd. 09.03.2006 # 108. Mine obtains allowances for emission of contaminating substances.<br>See also B.2.6.of MR 2.0<br>Safety measure training is performed once every three months; all employees pass an exam in safety measures once a year. CHP staff and visitors are provided with individual protection devices for protection from harmful factors of activity.<br>See also Section C.1.2. of MR 2.0.<br>See Attachment document # 2 | |
| Neither determined PDD version 4.4 nor the latest MR comprise information as for environmental and/or social indicators, which | Table 1<br>6.1 | Safety measure training is performed once every three months; all employees pass an exam in safety measures once a year. CHP staff and visitors are provided with individual protection devices for protection from harmful factors of activity. | CAR05 is closed based on the information provided. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| could be necessary to monitor for the success of the project activity.<br>**CAR05.** Please explain in what way these indicators are taken into account. | | | |
| **CL08**. Please clarify if the project activity demanded the installation of special measures for environmental impact monitoring (e.g. filtering systems or compensation areas) and whether such measures were implemented. Also please clarify if the metering systems for | Table 1 6.2 | Pollutant emissions inventory conducted with the assistance of third-party certified company that provides screening and analysis of samples contaminants pollutant substance with own attorney equipment.<br>See Section B.2.6.of MR 2.0 | CL08 is closed based on the information inserted to the MR. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| environmental impact monitoring, where necessary, had been installed and was functioning during monitoring period. | | | |
| **CL09.** Please clarify what quality assurance procedures are applied for data on project environmental impact. | Table 1 6.3 | Reporting an monitoring of emissions is performed constantly; all statistical reports are prepared and submitted pursuant to Guide to Filling In the State Statistical Control Statements for Atmospheric Air N # - TP (air) (annual) and # 2- TP (air) (quarterly) Atmospheric Air Protection Report issued by Derzhkomstat (State Committee of Statistics) # 674 dd. 30.12.2004.<br>The impact of the project to the condition of waters is insiginificant due tot use of water for domestic needs only. At CHP, Grid Water Consumption Metering Device Reading | CL09 is closed based on the exuastive information provided by the PPs. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| | | Log is kept; data therefrom are used for preparation of statistical reports. Environmental Impact monitoring for water condition is performed and all statistic report statements are submitted pursuant to the current law of Ukraine.<br>During project implementation, measures are established that relate to domestic activity only (service and repair of equipment), and household activity. Monitoring of waste is performed, and statistical report statements are submitted: # N 1-VT "Waste and Package and Tare Accounting pursuant to the current law of Ukraine.<br>See Section B.2.6.of MR 2.0 | |
| **CL10.** Please, provide Accreditation Certificate of Respirator Institute | Table 1 7.1 | See Attachment document # 3 | CL10 is closed based on the documents submitted. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| **CL11.** Please, provide information on AGFCP commissioning date and serial number | Table 1 7.1 | See Attachment document # 4. | CL11 is closed based on the documents submitted |
| **CL12.** Please, provide licenses for the AGFCP. | Table 1 7.1 | Because of own consumption of gas, licenses for AGFCP are not required. | CL12 is closed based on the explanation provided. |
| **CL13.** Please clarify whether the data protection measures (e.g. access restrictions and editor rights) for databases/spreadsheets are in place. | Table 2 5.4 | Person in charge for data saving appointed: Valeriy Cherednikov; list of persons having access to data storage facilities is formed. Archive of the documents which are kept in paper form, is stored out of AGFCP. Passwords for servers are monthly changed; for each server, persons in charge are appointed, and list of the persons having access is formed.<br>See Section B.3. English version of MR 2.0 | CL13 is closed based on due corrections made to the MR. |
| **CAR06.** Please provide the | Table 2 5.5 | The IT systems are broadly described in the monitoring manual. | CAR06 is closed based on due corrections made to the MR. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| description of the IT systems used for GHG monitoring and reporting. Provide documentation for the IT systems used. | | For record - keeping of GHG emission reduction, own software has been developed by CHP Automatic Control System and Processing Service which provides record - keeping for fuel gas and heat.<br>Following software has been purchased either:<br>-Checker 8 (integrated software developed and written by the manufacturer; to be supplied with the Universal control unit) – ignition gas and AGFCP gas record -keeping;<br>- Alfa- Center measuring and computing complex integrated into ASKUE (common mine automatic system of power commercial record - keeping) - power record -keeping;<br>-DIA.NE.XT (software delivered with CHP units) – control, regulation, indication, setting, and saving of data for CHP unit.<br>See B.3. English version of MR 2.0 | |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| **CL02.** According to the PDD version 4.4. , the estimated emission reductions for the year 2008 made 556.770 t CO2, for the year 2009 - 946.668 t CO2. According to to the MRs for the previous monitoring periods, emission reductions achieved were 650.851t CO2 and 706.348 (647.055) t CO2 respectively. Please, explain how were those ERs achieved considering the delay in implementation of project activities declared in the PDD. | Table 1 3.3 | Please, refer to the PPs' response on CL01. | CL02 is closed. |

| Report clarifications and corrective action requests | Ref. to checklist question in tables 1-3 | Summary of project owner response | Verification conclusion |
|---|---|---|---|
| **FAR02.** Please describe the sampling procedures of the gas analysis in the Monitoring Manual. | Table 1 3.6 | | The sampling procedures of the gas analysis have not been included into Monitoring Manual. **FAR02** remains open since the previous verification and must be checked during the next periodic verification. |

# APPENDIX B: VERIFIERS CVS

The verification team consists of the following personnel:

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

Team Leader, 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.

**Igor Antipko (Mining Electro-Mechanics)**
Team member, Bureau Veritas Ukraine Technical Specialist,
Climate Change Verifier

Graduated from Stahanov College of Mines, specialist in Mining Electro-Mechanics (Automation processes of production of minerals, development of the circuits of electrosupply of mines, management of chisel and explosive works in mines). Completed full course of the Labour protection and Safety, was employed at the position of the Mine mechanic on repair of the equipment, Mine underground electromechanic (service and repair of mechanisms and equipment, lines of transportation of the electric power in mine of extraction stone coal, service and repair of gas analyzer of methane, monitoring and repair mine of air control devices).

**The verification report was reviewed by:**

**Leonid Yaskin, PhD (thermal engineering)**
Internal Technical Reviewer
Bureau Veritas Certification Rus General Director, Climate Change Local Manager, Lead Auditor, IRCA Lead Tutor, Climate change Lead Verifier

He has over 30 years of experience in heat and power R&D, engineering, and management, environmental science and investment analysis of projects. He worked in Krzhizhanovsky Power Engineering Institute, All-Russian Teploelectroproject Institute, JSC Energoperspectiva. He worked for 8 years on behalf of European Commission as a monitor of Technical Assistance Projects. He is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). He performed over 250 audits since 2002. Also he is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered OHSAS 18001 Lead Auditor Training Course. He is an Assuror of Social Reports. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in the determination of over 50 JI projects.

# APPENDIX C: DOCUMENTS CHECKED DURING VERIFICATION

1. **CHP Plant**
2. Photo-Electricity meter Elster-Metronika #01117846
3. Photo-Electricity meter Elster-Metronika #01117849
4. Photo-Electricity meter Elster-Metronika #01117851
5. Photo-Electricity meter Elster-Metronika #01117852
6. Photo-Electricity meter Elster-Metronika #01117855
7. Photo-Electricity meter Elster-Metronika #01117856
8. Photo-Electricity meter Elster-Metronika #01132765
9. Photo-Electricity meter Elster-Metronika #01132766
10. Photo-Electricity meter Elster-Metronika #01117845
11. Photo-Electricity meter Elster-Metronika #01122650
12. Photo-Electricity meter Elster-Metronika #01117848
13. Photo-Electricity meter Elster-Metronika #01103251
14. Photo-Electricity meter Elster-Metronika #01103208
15. **BKT.M-094**
16. Photo-Fuel gas amount meter DRG.M-10000 #103
17. Photo-Fuel gas temperature meter Metran-274-02 #509669
18. Photo-Fuel gas preassure meter Vegabar 14 # 14447569
19. Photo-Fuel gas amount meter DRG.M-10000 #109
20. Photo-Fuel gas temperature meter Metran-274-02 #510753
21. Photo-Fuel gas preassure meter Vegabar 14 # 14536342
22. Photo-Fuel gas amount meter DRG.M-10000 #102
23. Photo-Fuel gas temperature meter Metran-274-02 #510745
24. Photo-Fuel gas preassure meter Vegabar 14 # 14536534
25. **BKT.M-095**
26. Photo-Fuel gas amount meter DRG.M-10000 #108
27. Photo-Fuel gas temperature meter Metran-274-02 #510735
28. Photo-Fuel gas preassure meter Vegabar 14 # 14568471
29. Photo-Fuel gas amount meter DRG.M-10000 #104
30. Photo-Fuel gas temperature meter Metran-274-02 #509670

31. Photo-Fuel gas preassure meter Vegabar 14 # 14536186
32. Photo-Fuel gas amount meter DRG.M-10000 #097
33. Photo-Fuel gas temperature meter Metran-274-02 #510733
34. Photo-Fuel gas preassure meter Vegabar 14 # 14536368
35. **BKT.M-099**
36. Photo-Fuel gas amount meter DRG.M-10000 #105
37. Photo-Fuel gas temperature meter Metran-274-02 #510754
38. Photo-Fuel gas preassure meter Vegabar 14 #14568589
39. Photo-Fuel gas amount meter DRG.M-10000 #096
40. Photo-Fuel gas temperature meter Metran-274-02 #510755
41. Photo-Fuel gas preassure meter Vegabar 14 #14536306
42. Photo-Fuel gas amount meter DRG.M-10000 #100
43. Photo-Fuel gas temperature meter Metran-274-02 #510747
44. Photo-Fuel gas preassure meter Vegabar 14 #14536606
45. **BKT.M-100**
46. Photo-Fuel gas amount meter DRG.M-10000 #101
47. Photo-Fuel gas temperature meter Metran-274-02 #510738
48. Photo-Fuel gas preassure meter Vegabar 14 #14568610
49. Photo-Fuel gas amount meter DRG.M-10000 #099
50. Photo-Fuel gas temperature meter Metran-274-02 #510742
51. Photo-Fuel gas preassure meter Vegabar 14 #14536304
52. Photo-Fuel gas amount meter DRG.M-10000 #098
53. Photo-Fuel gas temperature meter Metran-274-02 #510744
54. Photo-Fuel gas preassure meter Vegabar 14 #14568573
55. Universal-02 #6023
56. AO2040 #3.244705.5
57. AO2040 #3.244704.5
58. G 250 Lg-K-80-1/30 #9771
59. Vegabar 178 #12307278
60. Flow meter Keuter #167
61. Heat meter SA-94/2M #22903
62. **AGFCP**

63. Technical parameters logbook, start date: 01/03/09
64. Daily register logbook,start date: 01/03/09
65. Vehicles gas filling registers
66. Certificates on gas (methane) from degasification boreholes at AGFCP (January-July 2010)
67. **Transformer station**
68. Photo-Electricity meter Elster-Metronika #01116374
69. Photo-Electricity meter Elster-Metronika #01116376
70. **Register point**
71. Universal-02 #327
72. G 400LG0K-100-1/30 #9786
73. PVT-01-1 #211
74. Yakovlevska CHP construction site
75. Borehole
76. Degasification and heat supply pipelines network scheme
77. LoE #1459/29/7 of 03/12/2009
78. LoA for JI project "Utilisation of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" # 2568/01-10 of 17/03/06
79. LoE #6124/20/2-7 of 04/06/04
80. LoE # 10061/20/1-1 of 05/10/04
81. LoA # 2568/01-10 of 17/03/06
82. Certificate on measuring equipment check (Heat meter SA-94/2) # 1/194 valid till 04/06/2011 issued SE "Donetskstandartmetrologiya"
83. Passport #1192 on state check results for ADM 1 # 168
84. EIA for CHP JMS 620 GS-S.LC gas pump engine
85. Report on inventory of pollutant emissions into atmosphere at LE "Coal Mine named after A.F.Zasyadko" of 15/05/2010
86. Calculation of emissions of methane in atmosphere on "Coal mine named after A.F.Zasjadka" for 1quarter 2010
87. Calculation of emissions of methane in atmosphere on "Coal mine named after A.F.Zasjadka" for 2 quarter 2010
88. Standard ecological form 2TP-Air for 1 quarter 2010
89. Standard ecological form 2TP-Air for 2 quarter 2010
90. Instruction on installation and the passport:
91. Electricity meter Elster-Metronika #01117846
92. Electricity meter Elster-Metronika #01117849
93. Electricity meter Elster-Metronika #01117851

94. Electricity meter Elster-Metronika #01117852
95. Electricity meter Elster-Metronika #01117855
96. Electricity meter Elster-Metronika #01117856
97. Electricity meter Elster-Metronika #01132765
98. Electricity meter Elster-Metronika #01132766
99. Electricity meter Elster-Metronika #01117845
100. Electricity meter Elster-Metronika #01122650
101. Electricity meter Elster-Metronika #01117848
102. Electricity meter Elster-Metronika #01103251
103. Electricity meter Elster-Metronika #01103208
104. Examination of monitoring GHG logbook
105. GE Energy Certificate to Mr. Yevgen Berezovskyy "Extended maintenance for clients on GE Jenbacher gas engines" training Course
106. License for production of electric energy АБ №177304 of 04/07/2005
107. License for using minerals АБ #390896 of 02/12/2009
108. Report on the chiller ASHRAEof 05/07/2010
109. Report on the chiller ASHRAEof 06/07/2010
110. Report of training and Instructing in operation chiller RTAC TRANE company of 05/07/2010-06/07/2010
111. Log-book of electric energy (REF)
112. Emission Monitoring manual of 09/10/2009
113. Log-book of fuel gas
114. Operation manual for ВСН.М №245
115. Operation manual for ВСН.М №099
116. Operation manual for ВСН.М №100
117. Operation manual for ВСН.М №095
118. Metrological certificate Fuel gas amount meter DRG.M-10000 №035A-03/09 of 19.08.2009
119. Metrological certificate Fuel gas amount meter DRG.M-10000№034A-03/09 of 19.08.2009
120. Metrological certificate Fuel gas amount meter DRG.M-10000№033A-03/09 of 19.08.2009
121. Metrological certificate Fuel gas amount meter DRG.M-100000№023A-03/09 of 01.07.2009
122. Metrological certificate Fuel gas amount meter DRG.M-10000№024A-03/09 of 01.07.2009
123. Metrological certificate Fuel gas amount meter DRG.M-10000№025A-03/09 of 01.07.2009
124. Metrological certificate Fuel gas amount meter DRG.M-10000№018A-03/09 of 17.07.2009
125. Metrological certificate Fuel gas amount meter DRG.M-10000№026A-03/09 of 17.07.2009

126. Metrological certificate Fuel gas amount meter DRG.M-10000№027A-03/09 of 17.07.2009
127. Metrological certificate Fuel gas amount meter DRG.M-10000№019A-03/09 of 15.06.2009
128. Metrological certificate Fuel gas amount meter DRG.M-10000№018A-03/09 of 15.06.2009
129. Metrological certificate Fuel gas amount meter DRG.M-10000№017A-03/09 of 15.06.2009
130. Metrological certificate Fuel gas preassure meter Vegabar 14 №2212 of 06.06.2007
131. Metrological certificate Fuel gas preassure meter Vegabar 14 №2213 of 06.06.2007
132. Metrological certificate Fuel gas preassure meter Vegabar 14 №2214 of 06.06.2007
133. Metrological certificate Fuel gas preassure meter Vegabar 14 №2215 of 06.06.2007
134. Metrological certificate Fuel gas preassure meter Vegabar 14 №2216 of 06.06.2007
135. Metrological certificate Fuel gas preassure meter Vegabar 14 №2217 of 06.06.2007
136. Metrological certificate Fuel gas preassure meter Vegabar 14 №2218 of 06.06.2007
137. Metrological certificate Fuel gas preassure meter Vegabar 14 №2219 of 06.06.2007
138. Metrological certificate Fuel gas preassure meter Vegabar 14 №2220 of 06.06.2007
139. Metrological certificate Fuel gas preassure meter Vegabar 14 №2221 of 06.06.2007
140. Metrological certificate Fuel gas preassure meter Vegabar 14 №2222 of 06.06.2007
141. Metrological certificate Fuel gas preassure meter Vegabar 14 №2223 of 06.06.2007
142. Passport Fuel gas temperature meter Metran-274-02№509670
143. Passport Fuel gas temperature meter Metran-274-02№510735
144. Passport Fuel gas temperature meter Metran-274-02№510736
145. Passport Fuel gas temperature meter Metran-274-02№510744
146. Passport Fuel gas temperature meter Metran-274-02№510742
147. Passport Fuel gas temperature meter Metran-274-02№510738
148. Passport Fuel gas temperature meter Metran-274-02№510754
149. Passport Fuel gas temperature meter Metran-274-02№510755
150. Passport Fuel gas temperature meter Metran-274-02№510747
151. Passport Fuel gas temperature meter Metran-274-02№510745
152. Passport Fuel gas temperature meter Metran-274-02№509669
153. Passport Fuel gas temperature meter Metran-274-02№510753
154. Certificate on gas/methane supplied from degassing wells to AGFCP(January 2010)
155. Certificate on gas/methane supplied from degassing wells to AGFCP(February 2010)
156. Certificate on gas/methane supplied from degassing wells to AGFCP(March 2010)
157. Certificate on gas/methane supplied from degassing wells to AGFCP(April 2010)

158. Certificate on gas/methane supplied from degassing wells to AGFCP(May 2010)

159. Certificate on gas/methane supplied from degassing wells to AGFCP(June 2010)

160. Certificate on gas/methane supplied from degassing wells to AGFCP(July 2010)

161. Mining and Geological Conditions Forecast for Vostochnaya Lava

162. "Respirator" Institute Accreditation Certificate

163. "Terra Viva-2010" Award

164. AGFCP Commissioning dates and performance attributes