Verification Report

Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko Donetsk, Ukraine

4th JI Verification of the project:
"Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" Ukraine"
Period: January 1st to September 30th, 2009

Report No. 1400879

December 08, 2009

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich - GERMANY

Industrie Service

Report No.	Date of first issue	Version	Date of this revision	Certificate No.
1400879	November 27th, 2009	2	08th of December 2009	-

Subject:	4th JI verification, period January 1st to September 30th, 2009
Executing Operational Unit:	TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 80686 Munich, Germany
Client:	Lease Enterprise "Coal Mine named after O.F. Zasyadko" Prospekt Zasyadko, Donetsk, 83054, Ukraine
Contract approved by:	Werner Betzenbichler
Report Title:	4th JI Verification of the project: "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" Ukraine", Period: January 1st to September 30th, 2009
Number of pages	20 (excluding cover page and annexes)

Summary:

The certification body "Climate and Energy" of TÜV SÜD Industrie Service GmbH has been ordered by Lease Enterprise "Coal Mine named after A.F. Zasyadko" in Donetsk, Ukraine, to carry out the 4th JI Verification of the project: "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" Ukraine", period: January 1st to September 30th, 2009.

The verifier confirms that the project is implemented and is running as planned and described in determined 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 does generate GHG emission reductions.

The verifier can confirm that the GHG emission reduction for the whole monitoring period 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 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 January 1st, 2009 to September 30th, 2009.

Verified emission in the above reporting period:

Baseline Emissions:	544,394 t CO_2
Project Emissions :	60,862 t CO_2
Emission Reductions:	**483,532 t CO_2**

Work carried out by:	Thomas Kleiser (Assessment Team Leader), Dr. Volodymyr Ilchenko and Dr. Albert Geiger	**Internal Quality Control by:** Rachel Zhang

Abbreviations

Abbreviations that have been used in the report here:

AIE	Applicant Independent Entity
CAR	Corrective Action Request
CHP	Combined Heat and Power
CMM	Coal Mine Methane
DFP	Designated National Focal Point
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Greenhouse Gas
GWP	Global Warming Potential
IETA	International Emission Trading Association
IPCC	Intergovernmental Panel on Climate Change
IVC	Initial Verification Checklist
JI	Joint Implementation
KP	Kyoto Protocol
MP	Monitoring Plan
MVP	Monitoring and Verification Protocol
NMHC	Non Methane Hydrocarbons
PDD	Project Design Document
PPA	Power Purchase Agreement
PVC	Periodical Verification Checklist
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	UN Framework Convention on Climate Change
VPS	Vacuum Pump Station
VVM	Validation and Verification Manual

Industrie Service

Table of Contents

1 INTRODUCTION

Lease Enterprise "Coal Mine named after A.F. Zasyadko" in Donetsk, Ukraine has commissioned an independent verification by TÜV Industrie Service GmbH (TÜV SÜD) of the JI project "Coal Mine Methane at the Coal Mine named after A.F. Zasyadko" in Donetsk, Ukraine. The order comprises the verification of the period January 1st, 2009 to September 30th, 2009 of the JI project "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko", and is related to emission reductions achieved during the first three quarters of the year 2009.

Verification is the periodic independent review and ex post determination by the Designated Operational Entity / Independent Entity of the monitored reductions in GHG emissions during the defined verification period.

This report summarizes the findings of the JI verification of the three first quarters of the year 2009. It is based on the Periodic Verification Report Template Version 3.0, December 2003, which is part of the Validation and Verification Manual (VVM) published by International Emission Trading Association (IETA).

This Verification consisted of a desk review of the project documents including the monitoring report and the associated calculation sheet.

The results of the determination were documented by TÜV SÜD in the determination report: "Coal Mine Methane at the Coal Mine named after A.F. Zasyadko", Draft Final Determination Report No. 913421, rev. No. 2, dated March 29th, 2007 (and actualised on March 27th, 2008 in the context of uploading the project for approval as JI Track 2 project at JI-SC).

The last JI periodic verification report (monitoring period: October 1st, 2008 to December 31th, 2008, Report No. 1276184 from February 19th, 2009) indicated no forward action requests with relevance for this verification.

The verification team consists of the following personnel:

Thomas Kleiser	TÜV SÜD Munich	Project Manager, Assessment Team Leader
Dr. Volodymyr Ilchenko	TÜV SÜD Munich	Country Expert, Regional Manager
Dr. Albert Geiger	TÜV SÜD Munich	Auditor, Technical expert

1.1 Objective

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. During the periodic verification it also has to be assessed whether Forward Action Requests remaining from former verifications already have been solved or at least that there is a significant progress in solving these issues finally and that no major risks remain for the successful verification.

The verification shall consider both quantitative and qualitative information on emission reductions.

Quantitative data comprises the monitoring reports submitted to the verifier by the project entity. Qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emissions reports, review and internal audit of calculations/data transfers.

The verification is based on criteria set by UNFCCC, the Kyoto Protocol and JI as well as CDM modalities and procedures.

1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and the validated project design documents including its monitoring plan. The monitoring report and associated documents are reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD 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 clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

The audit team has been provided with a Monitoring Report and underlying data records in October 2009 (version 1), covering the period for generating emissions reductions from January 1st, 2009 to September 30th, 2009. This document serves as the basis for the assessment presented herewith.

A final revised Monitoring report (Version 2.2, dated December 4th, 2009) was submitted at the end of the verification process and serves as basis for the final conclusion in this report.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the audit team performing the verification has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Knowledge of recent decisions by JI supervisory committee - http://ji.unfccc.int
- Quality assurance
- Technical aspects of coal mine methane capture and utilization in CHP plants and as fuel
- Monitoring technologies and concepts

Industrie Service

- Political, economical and technical conditions in host country

According to these requirements TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV certification body “climate and energy”:

Thomas Kleiser is the Assessment Team Leader of the project with a background in physics and meteorology. Till 31st of December 2008 he was head of the division CDM and JI at TÜV SÜD Industrie Service GmbH conducting more than 90 validations and verifications of CDM and JI projects. In this position he was responsible for validation, verification and certifications processes for GHG mitigation projects as well as trainings for internal auditors. Since 1st of January 2009 he is head of the “Certification Body” of TÜV SÜD.

Dr. Volodymyr Ilchenko is a trainee for GHG auditing at the department “TÜV Carbon Management Service” in the head office of TÜV SÜD Industrie Service GmbH in Munich, Germany. He holds a M.Sc. degree in electrical engineering and has PhD in mechanical engineering. He has received training on the contents and objectives of GHG auditing for climate change projects and is responsible in his current position for the validation/determination and verification audits for JI, CDM and VCS projects. Before joining TÜV SÜD he worked as development engineer in the field of energy systems.

Dr. Albert Geiger is a GHG auditor for CO_2-emission reduction projects of the scopes 8, 10 and 13 at the department “Environmental Service” of TÜV SÜD. He has done more than 15 CDM and JI projects and holds a PHD in geological sciences and does environmental consulting at TÜV SÜD since 1999.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (ALL)
- Environmental and Social Impact Assessment (ALL)
- Knowledge of recent decisions by JI supervisory committee (ALL)
- Quality assurance (Kleiser)
- Technical aspects of coal mine methane capture and utilization in CHP plants and as fuel (Geiger, Kleiser)
- Monitoring technologies and concepts (ALL)
- Political, economical and technical conditions in host country (Ilchenko, Kleiser, Geiger)

Responsibility for the internal quality control of the project was Rachel Zhang, member of the certification body “climate and energy” within TÜV SÜD.

1.3 GHG Project Description

The purpose of this project is the avoidance of methane emissions into the atmosphere at Leasing Company “the Coal Mine named after A.F. Zasyadko”, further referred to the Zasyadko mine or simply the mine.

Coal Mine Methane, drained and recovered in the operating mine works and from mine ventilation works, as well as methane produced by surface goaf wells at Zasyadko Mine, are **used to produce electricity** for mine works and the public grid (if there is a surplus); to **replace heat** currently produced by coal- and gas-fired boilers, including municipal boilers; and to **produce gas** for use as vehicle fuel.

The implementation status of the project in the verification period was as follows:

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

The on-site audit has been carried out on 22nd /23rd of October 2009. Audit participants on the part of Zasyadko Coal Mine were:

- Boris Bokiy; Deputy General Director of Zasyadko Coal Mine and responsible for the monitoring plan
- Yevgeniy Beresovskiy, CHP Director at Zasyadko Coal Mine
- Valery Cherednikov, Monitoring engineer

Technical Translator for German, English, Russian and Ukrainian on behalf of the mine:

- Alexander Posternikov

Participant at the audit on the part of Carbon Emission Partnership LLC was:

- Sergiy Apostolaka, director

Participants at the on-site audit on the part of TÜV SÜD

- Dr. Volodymyr Ilchenko, Country expert
- Dr. Albert Geiger, GHG auditor

2 METHODOLOGY

In order to ensure transparency a verification checklist (VC) has been prepared based on the received documents (see Annex 1) according to the VVM.

These checklists serve the following purposes:

- it organizes details of the audit procedure and clarifies the requirements the project is expected to meet; and
- it documents the result of the verification.

During the verification a special focus was given to:

- the correct implementation of the project (installations, monitoring equipment and procedures, quality assurance procedures)
- the correctness of assumptions with impacts on the monitoring and verification process (e.g. baseline assumptions)
- sustainable development and environmental performance parameters
- training programs
- allocation of responsibilities
- the day-to-day operation of the system

After the document review the audit team conducted

- an on-site inspection at the coal mine gas assessing the CMM capture and utilization system
- interviews with the personnel and the persons responsible for preparation and submission of the monitoring report

The findings are the essential part of this verification report, which is based on the verification protocol of the VVM. The structure of the tables in the periodic verification protocol is shown in the following:

Periodic Verification Checklist Table 1: Data Management System/Controls		
Expectations for GHG data management system/controls	Score	Verifiers Comments (including *Forward Action Requests*)
The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.	A score is assigned as follows: **Full** all best-practice expectations are implemented. **Partial** a proportion of the best practice expectations is implemented **Limited** this should be given if little or none of the system component is in place.	Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (**OK**)**,** or a **Clarification Request (CR)** in case the information given in the monitoring report ids deemed insufficient but correct 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 Checklist Table 2: GHG calculation procedures and management control testing		
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
Identification of potential reporting risks based on an assessment of the emission estimation procedures.	Identification of the key controls for each area with potential reporting risks. Assessment of adequacy of the key controls and eventually test that the key controls are actually in operation.	Identification of areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks
Identification of key source data. Focus on those risks that impact the accuracy, completeness and consistency of the reported data.	Internal controls include, Understanding of responsibilities and roles, Reporting, reviewing and formal management approval of data; Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data	Areas where data accuracy, completeness and consistency could be improved are highlighted.

Periodic Verification Checklist Table 2: GHG calculation procedures and management control testing		
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
	trails etc.	

Periodic Verification Checklist Table 3: Detailed audit testing of residual risk areas and random testing		
Areas of residual risks	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *FARs*)**
List of residual areas of risks of Periodic Verification Checklist Table 2 where detailed audit testing is necessary. *In addition, other material areas may be selected for detailed audit testing.*	*The additional verification testing performed is described. Testing may include:* ▪ *Sample cross checking of manual transfers of data* ▪ *Recalculation* ▪ *Spreadsheet 'walk throughs' to check links and equations* ▪ *Inspection of calibration and maintenance records for key equipment* ▪ *Check sampling analysis results* *Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.*	*Having investigated the residual risks, the conclusions are noted here. Errors and uncertainties are highlighted.*

Three CARs were encountered during the verification process. These CARs could be solved during the verification process.

CRs appear whenever

- Given information in the monitoring report was deemed to be insufficient.

Five CRs have been identified and solved during this verification process.

Furthermore FARs (Forward Action Requests) for a better understanding can be issued, whenever

- the current status requires a special focus on this item for the next consecutive verification, or
- an adjustment of the MVP is recommended
- more detailed information appears a beneficial to the project
- QM procedures are available but should be collected in one central document (QM Manual).

No FARs have been issued.

Duration of the verification

Preparations: October 2009
On-site verification: 22nd /23rd of October

Monitoring Period:

From January 1st, 2009 to September 30th, 2009

2.1 Review of Documentation and Site Visits

The verification was performed as a desk review of the project documents including monitoring plan, last verification report, monitoring report (from January 1st , 2009 to December 31th, 2009) and further documentations.

The site visit included an on-site inspection at the coal mine with focus on the methane capture and utilization system and on the QM system (data processing, work instructions etc.), interviews with the management, personnel of the coal mine and persons responsible for the preparation and submission of the monitoring report.

2.2 Resolution of Corrective and Forward Action Requests

The objective of this phase of the verification was to resolve the corrective action request which needed to be clarified for TÜV SÜD`s positive conclusion on the GHG emission reduction calculation. Quality and accuracy of the data and documents presented during the on site visit was high and therefore only three minor CARs and five CRs had to be reported. To guarantee the trans-

parency of the verification process, the requests raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the verification protocol in annex 1.

3 PERIODIC VERIFICATION FINDINGS

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

The findings from the desk review of the final monitoring report 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 annex 1.

1) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification Request or Corrective or Forward Action Request, respectively, have been issued. The Clarification Requests as well as Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in annex 1. The verification of the project resulted in four Corrective Action Requests and three Clarification Requests.
2) In the context of Forward Action Requests, risks have been identified, which may endanger the delivery of high quality ERUs in the future, i.e. by deviations from standard procedures as defined by the MP. As a consequence, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions. Forward Action Requests are understood as recommendation for future project monitoring; they are stated, where applicable, in the following sections and are further documented in the Verification Protocol in annex 1.
3) The final conclusions for verification subject are presented.

The verification findings relate to the project implementation as documented and described in the final monitoring report.

3.1 Remaining issues, FARs from the last verification

3.1.1 Discussion

One task of this periodic verification is to check remaining issues from the previous verification.

3.1.2 Findings

None

3.1.3 Conclusion

TÜV SÜD confirms that there are no open FARs from previous verifications.

3.2 Completeness of Monitoring

3.2.1 Discussion

All monitoring parameters described in the Monitoring Report have been checked against the Monitoring Plan of the approved PDD. It can be stated by TÜV SÜD that the monitoring has been carried out in accordance with the monitoring plan. All parameters were monitored and determined as per the Monitoring Plan.

The monitoring data of the monitoring period were stored electronically according to the approved PDD and handed over to the audit team during the on-site visit. The data sets reflect continuous measurements by the meters as required by the registered project design document. Additionally, handwritten data books were presented.

3.2.2 Findings

OBJECTIVE	COMMENTS	Concl.
Monitoring	**Corrective Action Request No. 1:** Chapter A.8. of the MR: Please revise this chapter according to the on-site findings.	The chapter has been revised. It is now clearly stated that there are no deviations to the registered monitoring plan. TÜV SÜD confirms that there are no changes against previous verifications and the registered monitoring plan. ☑
Monitoring	**Corrective Action Request No. 3:** Chapter B.1.2. p. 18 of the MR: Please show the results of the internal cross checking.	The done cross checking confirms the gas consumption at the CHP units M1 till M4 within the defined error limits. Hence, the given data have been confirmed. ☑

3.2.3 Conclusion

The monitoring report is transparent and complete. The status of the project is clearly described in chapter A.3. All parameters and formulae mentioned in the PDD are described in detail (chapter B and D). The relationship between meters and parameters is clearly demonstrated. All meters are unambiguously identified by their serial numbers and ID numbers. The location of the meters is shown on overviews or is described. The calibration specifications are clearly shown.

The settled CARs have been answered sufficiently. TÜV SÜD confirms that the monitoring as described in the monitoring report complies fully with the monitoring plan of the registered PDD.

3.3 Accuracy of Emission Reduction Calculations

3.3.1 Discussion

For monitoring only calibrated meters have been used according to our check of the calibration documents (see 2.4 till 2.6 of the document list). Inspection of calibration and maintenance records was performed for all relevant meters. All calibrations fulfil the calibration requirements of the Ukraine and the applied monitoring methodology.

The raw data have been checked randomly using data from secondary meters and written meter values of the logbooks. The values used in the calculation file (excel file) have been checked against the raw data. No errors have been detected.

All default values used in the calculations have been checked against the approved PDD. The values fully comply with the PDD default values.

All calculations of the emission reductions have been done according to the formulae of the registered PDD using Microsoft excel. The correctness of the calculations has been checked by TÜV SÜD by means of exemplary recalculations. Due to the approved methodology there is no need to make corrections for data uncertainty.

Industrie Service

3.3.2 Findings

OBJECTIVE	COMMENTS	Concl.
Calibration	**Corrective Action Request No. 2:** The given calibration dates do not cover the whole monitoring period. Please add the missing dates.	The missing calibration dates have been inserted. The dates have been cross checked against primary data by TÜV SÜD. TÜV SÜD confirms that the dates are consistent with the dates given on the calibration protocols. Hence, the CAR is considered to be solved. ☑
Crosscheck	**Clarification Request No. 5:** Table 3.1, column F: Please explain the extraordinary high value of August.	The increase in gas production has been evidenced by an increase in gas flow in drilling wells. Hence, the issue is considered to be solved. ☑

3.3.3 Conclusion

The settled Car and CR have been answered sufficiently

TÜV SÜD confirms that:

- **the applied raw data are accurate**
- **the emission reduction calculations are transparent and correctly done according to the Monitoring Plan of the approved PDD.**

- **the Monitoring Report fully complies with the approved PDD concerning the accuracy of the calculations.**

3.4. Quality of Evidence to Determine Emission Reductions

3.4.1 Discussion

The calculation of emission reductions was based on internal data (the external grid emission factor was fixed ex-ante). The origin of those data was explicitly checked.

The external grid emission factor finally needs to be approved by the Ukrainian DFP.

The procedures of the data collection and processing as well as the excel sheets used for calcualtion of emission reduction were checked. It can be confirmed that all equations and algorithms follow the approved methodology applied in the registered PDD.

The manual transfer of data was cross checked. No mistakes have been detected.

The observations of the audit team left no doubt that the monitoring process has been implemented in accordance with the Monitoring Plan presented in the registered PDD and the Monitoring Manual.

3.4.2 Findings

None.

3.4.3 Conclusion

TÜV SÜD confirms that the project complies fully with the JI requirements in respect to the quality of evidence.

3.5 Management System and Quality Assurance

3.5.1 Discussion

The monitoring activities are strictly organised and written down in the Monitoring Manual. The responsibilities are determined and quality assurance measures are implemented on-site. The clear distribution of the monitoring duties has been demonstrated by the staff during the on-site visit. The Monitoring Manual is constantly updated by the monitoring team. At the beginning of November version 3 has been implemented.

3.5.2 Findings

The findings are summarised in the following table:

OBJECTIVE	COMMENTS	Concl.
Documentation	**Clarification Request No. 1:** Please translate all Russian words into English. Please write all names as given in the PDD. Chapter A.10. of the MR: Please add the data of the writer of the monitoring report (CEP).	The Russian words have been translated into English. The specifications of the writer of the MR have been added. Hence, the Cr is considered to be settled. ☑
Documentation	**Clarification Request No. 2:** Please correct the serial number of the pressure meter P 12, Item No. M3 (page 27 of MR).	The serial number has been corrected. ☑
Documentation	**Clarification Request No. 3:** The last version of the approved monitoring manual has to be forwarded to TÜV SÜD (English version).	The English version of the monitoring manual version 3 from 02/11/2009 has been delivered. ☑
Documentation	**Clarification Request No. 4:** A.8: Please check the date of the final PDD and correct.	The date has been corrected in the latest version of the MR. Hence, the issue is considered to be solved. ☑

3.5.3 Conclusion

The three CRs have been solved. Due to the straightforward approach for calculating GHG emission reductions the existing management system is assessed to be appropriate and the quality assurance is on a high level guaranteed.

Hence, TÜV SÜD confirms that the project complies fully with the approved PDD concerning the Management System and the QAS.

4. PROJECT SCORECARD

The conclusions on this scorecard are based on the latest version of the monitoring report.

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	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 back-up solutions are provided.
	Data calculations	✓	✓	✓	Emission reductions are calculated correctly.
	Data management & reporting	✓	✓	✓	Data management and reporting were found to be satisfying. Potential for improvement is indicated by 4 FARs.
Consistency	Changes in the project	✓	✓	✓	Results are consistent to underlying raw data.

Industrie Service

5 VERIFICATION STATEMENT

TÜV SÜD Industrie Service GmbH has performed the 4th JI verification (period: January 1st, 2009 to September 30th, 2009), of the project "Utilization of Coal Mine Methane at the Coal Mine named after A.F. Zasyadko".

The verification is based on requirements of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords" and the recent rules and regulations as well as guidance given by JI-Supervisory committee.

The management of Zasyadko Coal Mine is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the document "Monitoring Report; period January 1st, 2009 to September 30th, 2009" (Carbon Emission Partnership LLC., final document version 2.1, dated November 10th, 2009).

The verifier confirms that the project is implemented as planned and described in the registered project design document. Installed equipment being essential for generating emission reduction and for metering the data defined in the monitoring plan runs reliably and is calibrated appropriately. The monitoring system is in place and works correctly. The project generates GHG emission reductions according to the approved methodology.

The verifier can confirm that the GHG emission reduction is calculated without material misstatements for the whole monitoring period.

Our opinion relates to the project's GHG emissions reductions reported and related to the valid project baseline and monitoring, and its associated documents.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: January 1st, 2009 to September 30th, 2009.

Verified emission in the above reporting period:

Baseline Emissions:	544,394 t CO_2
Project Emissions:	60,862 t CO_2
Emission Reductions:	**483,532 t CO_2**

Munich, December 08th, 2009

Thomas Kleiser
Project Manager

Munich, December 08th, 2009

Rachel Zhang
Deputy Head of certification body Climate and Energy"

Table 1: Data Management System/Controls

The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table. A score is assigned as follows:

- Full - all best-practice expectations are implemented.
- Partial - a proportion of the best practice expectations is implemented
- Limited - this should be given if little or none of the system component is in place.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including *Forward Action Requests*)
1. Defined organisational structure, responsibilities and competencies		
1.1. Position and roles *Position and role of each person in the GHG data management process is clearly defined and implemented, from raw data generation to submission of the final data. Accountability of senior management must also be demonstrated.*	Partial	The responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan. The GHG data management process is clearly defined and the staff is totally aware and also fully capable of their positions and associated tasks.
1.2. Responsibilities *Specific monitoring and reporting tasks and responsibilities are included in job descriptions or special instructions for employees.*	Full	The responsibilities are clearly defined and described in the actual monitoring manual. The interviewed employees were fully aware of their tasks and responsibilities.

1.3. Competencies needed *Competencies needed for each aspect of the GHG determination process are analysed. Personnel competencies are assessed and training programme implemented as required.*	Full	The competencies for each aspect of the GHG determination process have been thoroughly checked. The team from the Zasyadko coal mine did not change since last verification. As already stated at the previous verifications the team has already gathered high level generic experience with methane utilisation as well as detailed knowledge of the CHPs and their operational monitoring process. Several trainings were performed throughout 2009, which are well documented and demonstrated during the site visit in October 2009. The technical consultant and the writer of the monitoring report is the company Carbon Emission Partnership LLC. The neatly done report reflects a high level of understanding of the monitoring processes as well as competence. This has been confirmed by the on-site interviews. **<u>Clarification Request No. 1:</u>** Please translate all Russian words into English. Please write all names as given in the PDD. Chapter A.10. of the MR: Please add the data of the writer of the monitoring report.
2. The Conformance with monitoring plan		
2.1. Reporting procedures *Reporting procedures should reflect the monitoring plan content. Where deviations from the monitoring plan occur, the impact of this on the data is estimated and the reasons justified.*	Partial	There are no changes in the reporting procedures. The reporting procedures are neatly described in the emission monitoring manual.

2.2. Necessary Changes *Necessary changes to the monitoring plan are identified and are integrated in local procedure.*	Partial	All required metering systems have been identified and checked during the on-site visits. The monitoring and metering equipment is described in detail in the monitoring manual and the monitoring report, inclusive calibration dates and calibration frequencies. TÜV SÜD IS confirms that there are no necessary changes to the monitoring plan. **Corrective Action Request No. 1:** Chapter A.8. of the MR: Please revise this chapter according to the on-site findings. **Clarification Request No. 2:** Please correct the serial number of the pressure meter P 12 , Item No. M3 (page 27 of MR).
3. Application of GHG determination methods		
3.1. Methods used *There are documented description of the methods used to determine GHG emissions and justification for the chosen methods. If applicable, procedures for capturing emissions from non-routine or exceptional events are in place and implemented.*	Full	The method to determine GHG emissions is fully documented. Procedures for capturing emissions from exceptional events (steam trap failures, start / stops etc) are extensively covered. Back-up procedures in case of meter failures exist and are described in the monitoring manual. TÜV SÜD confirms that the applied methods and procedures fully comply with the approved PDD.
3.2. Information/process flow *An information/process flow diagram, describing the entire process from raw data to reported totals is developed.*	Full	An overall flow diagram has been developed and inserted into the actual emission monitoring manual.

3.3. Data transfer *Where data is transferred between or within systems/spreadsheets, the method of transfer (automatic/manual) is highlighted - automatic links/updates are implemented where possible. All assumptions and the references to original data sources are documented.*	Partial	The data transfer process has been widely automated in order to avoid transfer failures. All data sources are clearly referenced. The transfer of the data is explained in the monitoring manual. There are no changes referring to the previous verification. All daily and monthly data files have been forwarded to TÜV SÜD IS. The data are accurate and complete.
3.4. Data trails *Requirements for documented data trails are defined and implemented and all documentation are physically available.*	Full	All documents with the primary data are available and all primary data which were retrieved on a random basis could be confirmed. Changes of meters are documented. Primary data are directly entered into the workbook sheets, without any in-between steps.
4. Identification and maintenance of key process parameters		
4.1. Identification of key parameters *The key physical process parameters that are critical for the determination of GHG emissions (e.g. meters, sampling methods) are identified.*	Full	Yes, all key parameters are identified. This has been verified during the on-site visit.
4.2. Calibration/maintenance *Appropriate calibration/maintenance requirements are determined.*	Full	The calibration documents of all monitoring meters have been checked. Result: All calibration / maintenance requirements are met. **Corrective Action Request No. 2:** The given calibration dates do not cover the whole monitoring period. Please add the missing dates.

5. GHG Calculations		
5.1. Use of estimates and default data *Where estimates or default data are used, these are validated and periodically evaluated to ensure their ongoing appropriateness and accuracy, particularly following changes to circumstances, equipment etc. The validation and periodic evaluation of this is documented.*	Full	Default values (either IPCC or data locally acquired as boiler efficiency, fuel consumption of the vehicles and grid factor) already have been described in the PDD and have been confirmed in the determination report. No additional estimates or default data have been used during the verification period nor does the monitoring concept foresee the use of such data.
5.2. Guidance on checks and reviews *Guidance is provided on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented. This includes spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.*	Partial	All monitoring methods and procedures are described in the monitoring manual. However the latest version of the manual was not available in English. **Clarification Request No. 3:** The last version of the approved monitoring manual has to be forwarded to TÜV SÜD (English version).
5.3. Internal verification *Internal verifications include the GHG data management systems, to ensure consistent application of calculation methods.*	Full	According to the on-site findings the internal control procedures are in general working well. The methods to calculate the GHG reductions appear to be consistently applied. No anomalies were observed. The internal control procedures were described in the monitoring manual in section V. **Corrective Action Request No. 3:** Chapter B.1.2. p. 18 of the MR: Please show the results of the internal cross checkings.

5.4. Internal validation *Data reported from internal departments should be validated visibly (by signature or electronically) by an employee who is able to assess the accuracy and completeness of the data. Supporting information on the data limitations, problems should also be included in the data trail.*	Full	The reported data is checked and transferred from daily spreadsheet into monthly spreadsheets by the assigned staff. Interviews, discussions and on-site checks confirmed that the responsible persons are fully qualified for these tasks.
5.5. Data protection measures *Data protection measures for databases/spreadsheets should be in place (access restrictions and editor rights).*	Full	In the new emission monitoring manual some data protection measures are described in detail. Daily sums are transferred manually into logbooks.
5.6. IT systems *IT systems used for GHG monitoring and reporting should be tested and documented.*	Partial	The IT systems are broadly described in the monitoring manuals.

Table 2: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
Failure of the monitoring meters	Errors because of technical failure or insufficient calibration are possible.	All monitoring meters are controlled permanently from the control room. The meters are calibrated according to the requirements of the manufacturer by external organisations. Hence, a significant failure of the monitoring meters is rather unlikely.
Failure in data collection and management.	Failures because of incorrect computer handling or incorrect data input are possible.	The computers are handled by specialists. The data input is mostly automatically. Hence, errors in data collection and management are very unlikely.
Errors in calculation	Errors because of wrong data input or false formulae are possible	The calculation spreadsheets have been checked. The input of the data is done by an expert. The calculations are done by windows software. Hence, the risk of calculation errors is considered to be very low.

Table 3: 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*)
Human mistakes in measurements and data processing	During the on-site visit the persons involved in the data acquisition process have been interviewed and asked concerning their role and competencies, furthermore they had to describe the procedures for which they are responsible.	All interviewed staff showed competence and has been trained well. The data management is widely done automatically. Hence, human mistakes in measurements and data processing are very unlikely.
Random testing of the data and calculations	All data which were used in the Excel sheet of the calculation file were explicitly checked. On a random basis data were checked at their primary source. • Re-calculation Recalculation of the workbook files was performed. • Spreadsheet 'walk throughs' to check links and equations All equations and algorithms used in the different workbook sheets were checked. • Inspection of calibration and maintenance records for key equipment The seals and the documents for the key equipment were inspected	The data files have been checked on the basis of primary data. No errors have been found. Hence, data errors are very unlikely. The done calculation has been checked random wise. No errors have been found. The calibration of all monitoring meters has been checked. For all meters valid calibration protocols have been delivered. Hence, severe calibration errors are unlikely.
Uncommon events	Uncommon events have to be described in the logbooks.	No uncommon events in the monitoring period

Table 4: Compilation of open issues

Corrective and Forward Action Requests by audit team	Summary of project owner response	Audit team conclusion
Corrective Action Request No. 1: Chapter A.8. of the MR: Please revise this chapter according to the on-site findings.	The chapter A.8 has been revised and proper correction has been made in the text.	The chapter has been revised. It is now clearly stated that there are no deviations to the registered monitoring plan. TÜV SÜD confirms that there are no changes against previous verifications and the registered monitoring plan. ☑
Corrective Action Request No. 2: The given calibration dates do not cover the whole monitoring period. Please add the missing dates.	Missing dates of calibration have been added and current version covers whole monitoring period of the report.	The missing calibration dates have been inserted. The dates have been cross checked against primary data by TÜV SÜD. TÜV SÜD confirms that the dates are consistent with the dates given on the calibration protocols. Hence, the CAR is considered to be solved. ☑
Corrective Action Request No. 3: Chapter B.1.2. p. 18 of the MR: Please show the results of the internal cross checkings.	The results of internal cross checking been added in the form of the Table 3.1 for the monitoring period and Table 3.2 contain detailed daily cross checking results.	The done cross checking confirms the gas consumption at the CHP units M 1 till M4 within the defined error limits. Hence, the taken data have been confirmed. ☑
Clarification Request No. 1: Please translate all Russian words into English. Please write	All the words in the MR have been translated including tables and drawings in-	The Russian words have been translated into English. The specifi-

Corrective and Forward Action Requests by audit team	Summary of project owner response	Audit team conclusion
all names as given in the PDD. Chapter A.10. of the MR: Please add the data of the writer of the monitoring report (CEP).	scriptions. Data of the writer of MR has been added in Chapter A.10	cations of the writer of the MR have been added. Hence, the Cr is considered to be settled. ☑
Clarification Request No. 2: Please correct the serial number of the pressure meter P 12, Item No. M3 (page 27 of MR).	Serial number has been corrected	The serial number has been corrected. ☑
Clarification Request No. 3: The last version of the approved monitoring manual has to be forwarded to TÜV SÜD (English version).	Monitoring Manual has been updated and approved, latest English version forwarded to TÜV SÜD	The English version of the monitoring manual version 3 from 02/11/2009 has been delivered. ☑
Clarification Request No. 4: A.8: Please check the date of the final PDD and correct.	Date checked and corrected	The date has been corrected in the latest version of the MR. Hence, the issue is considered to be solved. ☑
Clarification Request No. 5: Table 3.1, column F: Please explain the extraordinary high value of August.	High value for August is related to increase of methane output in m3seam Eastern, inclined longwall by main break and flowing of surface degasification well	The increase in gas production has been evidenced by an increase in gas flow in drilling wells. Hence, the issue is considered to be solved. ☑

Category 1 Documents:

Documents provided by the Client that relate directly to the GHG components of the project. These have been used as direct sources of evidence for the initial verification conclusions.

1-1	PDD "Utilisation of Coil Mine Methane at the Coil Mine named after A. F. Zasyadko", Version 04, 02/02/2007, Global Carbon B. V.
1-2	JI Monitoring Report Version 1.0 from 1th of October 2009, Carbon Emission Partnership LLC.
1-3	JI Monitoring Report Version 2.1 from 10th of November 2009, Carbon Emission Partnership LLC.
1-4	Excel spread sheet with the calculation of the emission reductions, 21st of November 2009, Lease Enterprise Mine named after A. F. Zasyadko
1-5	Logbook of CHP unit concerning of volume of mining gas, 01/01-30/09/2009, Lease Enterprise Mine named after A. F. Zasyadko
1-6	Amount of generated electricity according to electric meters, 01/01-30/09/2009, Lease Enterprise Mine named after A. F. Zasyadko
1-7	Volume of the heat meter SA94/2, 01/01-30/09/2009, Lease Enterprise Mine named after A. F. Zasyadko
1-8	Computer tables of electricity amount, gas consumption and methane content, 01/01-30/09/2009, Lease Enterprise Mine named after A. F. Zasyadko
1-9	Amount of electricity production, ignition gas and AGFCP for the period 01/01-30/09/2009, Lease Enterprise Mine named after A. F. Zasyadko
1-10	The input data for calculation of emission reductions, 01/01-30/09/2009. Lease Enterprise Mine named after A. F. Zasyadko
1-11	Handwritten data books
1-12	Confirmation of electricity consumption at Zasyadko coal mine for the period 01/01-30/09/2009, issued by chief power engineer of Zasyadko coal mine
1-13	Reports of quarterly NMHC analysis for 01/01-30/09/2009

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents. These documents have been used to cross-check project assumptions and confirm the validity of information given in the Category 1 documents and in verification interviews.

2-1	Approved consolidated baseline methodology ACM0008 "Consolidated baseline methodology for coal bed methane, coal mine methane and ventilation air methane capture and use for power (electrical or motive) and heat and/or destruction by flaring or catalytic oxidation", ACM0008 – Version 04, 15.10.2007, UNFCCC
2-2	Tool for the demonstration and assessment of additionality, Version 05, 16/05/2008, UNFCCC
2-3	Clarification regarding the public availability of documents under the verification procedure under the Joint Implementation Supervisory Committee (version 03)
2-4	Calibration documents for gas analyzers at vacuum pumping stations, shown on-site
2-5	Calibration documents for the flow meters, shown on-site
2-6	Calibration documents for the electricity meters, shown on-site
2-7	Information about the research institute "Respirator", which is responsible authority for calibration works
2-8	List of equipment that will be calibrated in 2009 by research institute "Respirator"
2-9	Passports for electricity meters incl. transformation coefficients
2-10	List of software incl. description for data collection, calculation and reporting implemented at CHP
2-11	Emission Monitoring Manual for Mine name after A. F. Zasyadko, 2008,. Lease Enterprise Mine named after A. F. Zasyadko, version 2.3 from January 28th, 2009 and version 3 from November 2nd, 2009
2-12	Excel calculation sheets, Lease Enterprise Mine named after A. F. Zasyadko
2--13	List of CHP staff, Lease Enterprise Mine named after A. F. Zasyadko
2-14	Vacation plan of CHP staff in 2009, Lease Enterprise Mine named after A. F. Zasyadko
2-15	Logbook of CHP staff working hours in 2009, Lease Enterprise Mine named after A. F. Zasyadko
2-16	Documentation of the daily works at CHP in 2009, Lease Enterprise Mine named after A. F. Zasyadko

2-17	Trainings conducted at coal mine in 2009, Lease Enterprise Mine named after A. F. Zasyadko
2-18	Mining plan 2009
2-19	Gas production well 1185
2-20	Drilling plan 2009