
VERIFICATION REPORT 2010

BIOVET JSC

VERIFICATION OF THE

ERUPT JI-PROJECT

“Co-Generation Gas Power Station Biovet”
(Erupt 4 /ERU 04/33)

REPORT JI I - No. 2121 381820

REVISION No. 01

VERIFICATION REPORT 2010

Date of first issue: 26/02/2011	Project No.: 2121 381820
DOE: JI-E-0012 TÜV Rheinland Japan Ltd. (TÜV Rheinland)	Organisational unit: <i>TÜV Rheinland Energie und Umwelt GmbH</i> Am Grauen Stein 51105 Köln, Germany

Summary:

TÜV Rheinland Energie und Umwelt GmbH has been ordered on 21st of December 2010 by Biovet JSC to carry out the verification for the calendar year 2010 of the Erupt JI-Project “Co-Generation Gas Power Station Biovet”; registered under Erupt 4/ERU 04/33 at the location Peshtera in Bulgaria, which was started with an on-site assessment on 25th of February 2011. The verifier confirms that the project is implemented as planned and described in validated and approved project design documents including the announced and approved changes and that in comparison to the monitoring period 2009 no major changes have been occurred within the monitoring period 2010.

Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is already generating 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 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: Assessment and evaluation per 31.12.2010

Verified baseline emissions, project emissions and emission reductions:

Year	2010 based on EF 1 *)	For Comparison: 2009 based on EF 1 *)
Baseline emissions	160 080 t CO ₂ eq	132 885 t CO ₂ eq
Project emissions	66 666 t CO ₂ eq	50 107 t CO ₂ eq
Emission reductions	93 414 t CO ₂ eq	82 778 t CO ₂ eq

*) in accordance with Bulgarian baseline study of Joint Implementation projects in the Bulgarian energy sector of NEK, published by MOEW

The project has continuously generated emission reductions as JI project in the second calendar year (calendar year 2010) of the first commitment period of the Kyoto Protocol from 2008 to 2012 in accordance with the National Guidelines of the Bulgarian Designated Focal Point for generation of Emission Reduction Units under Track I of the “Joint Implementation” mechanism under Article 6 of the Kyoto Protocol.

Report No.: 2121 381820	Subject Group: Environment & Energy	
Report title: Erupt JI-Project “Co-Generation Gas Power Station Biovet” (Erupt 4/ERU 04/33)		
Members of the verification team: Dipl.-Ing.(TH) Kurt Seidel, TÜV Rheinland Energie und Umwelt GmbH Dr.eng. Evgeni Sokolovski, Green and Fair AD		
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Indexing terms

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 Kyoto Protocol
 Large Scale Project Verification
 Clean Development Mechanism
 Landfill Gas Project Activities

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Abbreviations

Explain any abbreviations that have been used in the report here.

AF	Adjustment Factor
AM	Approved Methodology
ACM	Approved Consolidated Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CHP	Combined Heat and Power Generation
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
DVM	Determination and Verification Manual
EA	Economic Analysis
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GWh	Giga Watt Hours
GWP	Global Warming Potential
I	Interview
IETA	International Emissions Trading Organisation
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
IVC	Initial Verification Checklist
JI	Joint Implementation
kW	Kilo Watt
kWh	Kilo Watt Hours
LoA	Letter of Approval
LoI	Letter of Intent
LSTHC	Local Stakeholder Consultation
MoV	Means of Verification
MW	Mega Watt
MWh	Mega Watt Hours
NGO	Non Government Organisation
NPV	Net Present Value
ODA	Official Development Assistance
OSV	On Site Visit
PDD	Project Design Document
PVC	Periodic Verification Checklist
QC	Quality Control
QA	Quality Assurance
SIc	Supplier Information to Client

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t	Tonne
UNFCCC	United Nations Framework Convention on Climate Change
VC	Verification Checklist
VP	Verification Protocol
VVM	Validation and Verification Manual

Conversion Factors and Definitions

Insert and describe any conversion factors used in the report here. In addition, define any specific terminology used in the report.

None

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1 INTRODUCTION

The Client Biovet JSC has commissioned an independent periodic verification by TÜV Rheinland for its Erupt JI-Project “Co-Generation Gas Power Station Biovet”; registered under Erupt 4/ERU 04/33 at the location Peshtera in Bulgaria, which was started with an on-site assessment on 25th of February 2011.

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.

The verifiers have reviewed the GHG data collected to date for the period between implementation date in 2005 and 31th of December 2010 with special focus on the calendar year 2010 (time period of periodic monitoring report).

This report summarizes based on a desk-review, an on-site assessment and follow-up interviews and interactions through corrective action and clarification requests, the final results of the verification of the reported emission reductions and the determination whether the project has been implemented in accordance with the PDD and the previous determination, and whether the monitoring occurred in accordance with the monitoring plan included in the PDD and the relevant annexes.

It is based on the JI Determination and Verification Manual (DVM) in its first version, published in December 2009 by the Joint Implementation Supervisory Committee (JISC) of UNFCCC.

The periodic verification has been performed during one on-site mission. Each task comprised a desk review of the project documents including project description (PDD and baseline study for ERUPT program), monitoring plan, monitoring report, previous monitoring report, previous determination, previous verifications and further documentations.

The verification team consists of the following personnel:

Kurt Seidel, TÜV Rheinland CDM and JI auditor and sectoral scope expert

Dr. Evgeni Sokolovski, Green and Fair AD, verifier under EU-ETS in Bulgaria and local expert

1.1 Objective

The objective of verification can be divided in Initial Verification and Periodic Verification:

- **Initial Verification:**

The objective of an initial verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project will generate verifiable emission reductions. A separate initial verification prior to the project entering into regular operations is not a mandatory requirement.

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• Periodic Verification:

The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; further more the periodic verification evaluates the GHG emission reduction data and expresses 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 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, the JI guidelines and procedures and the relevant host country requirements.

1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by an Independent 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 Rheinland's assessment team has, based on the recommendations in the JI Determination and Verification Manual (DVM), the CDM Validation and Verification Manual (CDM-VVM) and the IETA Validation and Verification Manual (IETA-VVM) published by International Emission Trading Association (IETA) 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 various documents showing the implementation of the project, such as procedures, manuals, equipment characteristics and further documents during the on-site assessment on 25/02/2011. Based on these documents, an on-site assessment for the periodic verification was carried out. Prior to the on-site visit a monitoring report and supporting documents have been submitted by the project proponent, covering the period from January to December 2010.

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The above version of the monitoring report 2010, which has been revised as result of the verification work has served as the basis for the assessment presented herewith.

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
- Quality assurance
- Technical aspects of cogeneration systems
- Monitoring technologies and concepts
- Political, economical and technical conditions in host country
- Knowledge of the Guidelines of the Joint Implementation Supervisory Committee for Joint Implementation under Track 2
- Knowledge of the National Guidelines of the Designated Focal Point of Bulgaria for Joint Implementation under Track 1

According to these requirements TÜV Rheinland has composed a project team in accordance with the appointment rules of the TÜV Rheinland's certification body for CDM and JI, which is the DOE CDM- E-0013 / AIE JI- E-0012.

The verified monitoring report for the calendar year 2010 is intended to be made publicly available together with this verification report on the Ministry of Environment and Water, Executive Environmental Agency's web page in accordance with the Instruction for Approval of Projects Generating Emission Reduction Units under the "Joint Implementation" Mechanism, as published in May 2010 on the Ministry of Environment and Water's website.

1.3 Description of the Project Activity

The project comprises a gas engine, of which the exhaust gases are led into a heat recovery steam generator. The set has been installed together with a high level automation process control system. Biovet contracted GE Packaged Power Inc. power systems for the delivery of the gas turbine of the type LM2000, which has been the first gas turbine used for industrial power production in Bulgaria.

The main equipments of the Co-generation Gas Power Station consist of the following main components:

At the heart of Biovet's cogeneration plant is GE AERO ENERGY's LM2000 aeroderivative gas turbine genset. The LM2000 gas turbine, which is actually a re-rated LM2500 gas turbine, has a rating of 18MW at 36.4% thermal efficiency.

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The flue gas stream will provide the heat to generate the steam for the process. The heat recovery steam generator (HRSG) is produced by Marcegaglia, Italy and has a capacity of 25.5 tons/hour of low pressure steam (technological steam) with the parameters of 9 barg pressure and 179 °C and 5 tons/hour of high pressure steam (injection steam for NO_x control) of 40 barg pressure and 340 °C.

Project participant in the host country Bulgaria is Biovet JSC in Peshtera (Bulgaria), which has implemented the described project activity in the framework of the Memorandum of Understanding on co-operation between the Kingdom of the Netherlands and the Republic of Bulgaria in reducing emissions of greenhouse gases under article 6 of the Kyoto Protocol. SenterNovem, acting as Designated Focal Point for The Netherlands on behalf of the Dutch Ministry of Economic Affairs has purchased the emission reductions generated by this project through the ERUPT 4 tender. According to the available project information, the project's starting date is April 2004. The crediting period starts on January 01, 2008. Project owners have decided to opt for a five year crediting period from 2008 – 2012 and an additional time frame from July 1st 2006 until December 31st 2007 for the optional delivery of AAU's.

2 METHODOLOGY

Starting the verification the verifier's first task has been to familiarize with the project. Based on the received documents (see list of references) a verification checklist (VC) has been prepared, consisting of the Initial Verification Checklist (IVC) and the Periodic Verification Checklist (PVC) and the Verification Protocol according to the DVM, see Annex A to this report.

These above checklists serve the following purposes:

- it elaborates the significance of changes during project implementation
- it organizes details of the audit procedure and clarifies the requirements the project is expected to meet;
and
- it documents how a particular requirement has been validated and 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 project installations at Biovet JSC in Peshtera, Bulgaria
- interviews and follow-up with the project participants

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The findings are the essential part of this verification report, which is based on the verification protocols mentioned above. The compilation of the open issues resulting from the completion of the above verification protocols is summarised in Annex A of this report. The structure of the Initial Verification Checklist (IVC) and the Periodic Verification Checklist (PVC) is shown in the following:

Initial Verification Checklist – Table 1

OBJECTIVE	Ref.	COMMENTS	Concl. (incl FARs/CARs)
The requirements the project must meet.	to the legislation or agreement where the requirement is found.	Description of circumstances and further conclusions.	<p>This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements.</p> <p>The corrective action requests are numbered and presented to the client in the Verification report. Forward Action Requests (FARs) indicate essential risks for further periodic verifications</p>

Periodic Verification Checklist
Table 1: Data Management System/Controls

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
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.	<p>A score is assigned as follows:</p> <p>Full all best-practice expectations are implemented.</p> <p>Partial a proportion of the best practice expectations is implemented.</p> <p>Limited this should be given if little or none of the system component is in place.</p>	<p>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 noncompliance with stated requirements.</p> <p>The corrective action requests are numbered and presented to the client in the Verification</p>

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		report. The Initial Verification has additional Forward Action Requests (FAR) . FAR indicates essential risks for further periodic verifications
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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 key source data. Focus on those risks that impact the accuracy, completeness and consistency of the reported data.	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. 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 trails etc.	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 Areas where data accuracy, completeness and consistency could be improved are highlighted.

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: <ul style="list-style-type: none"> - 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 	Having investigated the residual risks, the conclusions are noted here. Errors and uncertainties are highlighted.

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	equipment - Check sampling analysis results Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.	
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Only a few issues have been encountered during the verification process, which could be meanwhile resolved and will be further improved during the next periodic monitoring and verification. The current monitoring report has been amended, it has been confirmed by the project proponent that further procedures for the improvement of next periodic monitoring will be implemented, especially with regard to the performance of the back-up boilers.

On-site visit for the verification

Initial on-site visit: February 25, 2011.

Monitoring Period:

From January 2010 to December 2010 for ERUs

Verification team

Audit team leader: Kurt Seidel, TÜV Rheinland CDM and JI auditor and sectoral scope expert
 Auditor (s): Dr. Evgeni Sokolovski, Green and Fair AD, verifier under EU-ETS in Bulgaria and local expert

Duration of verification

Preparations: From 21-02-2011 to 23-02-2011
 On-site verification: On 25-02-2011
 Follow-up: From 25-02-2011 to 07-03-2011
 Reporting: From 21-03-2011 to 29-03-2011

2.1 Review of Documentation and Site Visits

The verification was performed as a desk review of the project documents including project design documents, monitoring plan, validation report, monitoring report (January 2011, February 2011) and further documentations. The monitoring template submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached as Annex B to this report. One site visit was realized. The first part of the on-site assessment enables the verification of the project installation and of the monitoring plan. Based on this assessment the verification protocol was developed.

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The main focus of the second part of the on-site assessment was to verify both the emission reductions presented in the monitoring report and all the raw data necessary to confirm such calculation. Interviews with different plant employees and external assessors have been performed.

The assessment has included the following means of verification:

- review of project documentation
- on-site inspections, including; review of performance records, interviews with project participants and local stakeholders, collection of measurements, observation of established practices and testing of the accuracy of monitoring equipment
- review of monitoring results and verification of the correct application of monitoring methodologies
- determination of the reductions in GHG emissions, and
- review of additional data from other sources if appropriate.

Participants on the verification on the part of project participants were on 25th of February 2011:

Biovet JSC – Mr. Ivan Zlatev, Ecologist of QM/EM Department

Biovet JSC – Mr. Jordan Jordanov, Chief of Cogeneration Plant

Biovet JSC – Mrs. P. Radeva, Energy Efficiency Department

2.2 Resolution of Corrective and Forward Action Requests

The objective of this phase of the verification was to resolve the requests for corrective actions and any other outstanding issues which needed to be clarified for TÜV Rheinland'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 nevertheless some CARs, CLs and FARs have to be reported and the same has been solved completely. To guarantee the transparency of the verification process, the CARs, CLs and FARs raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the verification protocol and the summary of open issues in Annex A.

3 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 monitoring report and further documentation 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 and in the summary of open issues in Annex A.

1. Where TÜV Rheinland had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Corrective Actions Request (CAR) or Clarification Request (CL), respectively, have been issued. The Corrective Action Requests are stated, where

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applicable, in the following sections and are further documented in the Verification Protocol in appendix a. The verification of the project resulted in several Corrective Action Requests (CARs) and Clarification Request (CLs).

2. A Forward Action Requests (FAR) should be issued, where:

- the actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
- an adjustment of the MP is recommended.

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. missing adequate description of procedures concerning functionality tests of the flow meters. 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 and in the summary of open issues in Annex A.

The verification has identified a risk for material misstatements for the emission reductions in the first crediting period (2008-2012). Emission reductions with material misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions.

3. The final conclusions for verification subject are presented in the following sub-chapters of chapter 3 “Initial Verification Findings”.

The verification findings related to the project implementation will very likely result in a revision of the final monitoring report.

3.1 Remaining issues, CARs, CLs, FARs from initial determination and verification

From the determination and subsequent verification no open issues in form of not yet resolved Corrective Action Requests, Clarification Requests or Forward Action Requests could be identified during the verification work conducted by the assigned verification team of TÜV Rheinland Immissionsschutz und Energiesysteme GmbH.

3.2 Project Implementation

3.2.1 Discussion

Equipment of this project activity is installed as described in the PDD / baseline study and the monitoring plan and the monitoring report 2010 of Biovet JSC of March 2011. It can be stated,

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that the way the production data is obtained is consistent with the way the historical data had been determined. Main measurement equipments are in place and calibrated. The existing metering systems have been identified and checked. Responsibility for installation and operation of the equipment is within sites employees. The equipment is calibrated periodically as proven during the on-site visit. The project boundaries have not been changed. Nevertheless there could be identified areas where a further improvement is possible, which is in the field of replacement procedures of monitoring equipment, in the field of a mid-term planned calibration preparation (see also chapter 3.8.) and in the field of efficiency assessment of the back-up boilers.

3.2.2 Findings

Corrective Action Request No. 1 (CAR 1) from previous periodic verification

Please provide replacement protocols for replaced measuring devices in the past (e.g. replacement of main gas meter). Corrective Action Request No. 1 (CAR 1) is resolved and can be closed.

Forward Action Request No. 1 (FAR 1) from previous periodic verification

Please secure a proper record handling of such replacements in the future (number of measuring devices; meter reading records at the start and at the end) based on a company procedure with relevant replacement records in Bulgarian language and in English language.

See Annex A.

Forward Action Request No. 2 (FAR 2) from previous periodic verification

In case the current conservative approach of applying a default value for the efficiency of the back-up boilers (87 %, which is the default value for old { “old” refers to equipment with an individual age of at least 10 years } natural gas fired boilers (w/o condenser) in compliance with the CDM-methodological tool “Tool to determine the baseline efficiency of thermal or electric energy generation systems”(Version 01) will be replaced by a determination of the efficiency of the back-up boilers based on standardised performance measurements such as ASME PTC-6 or IEC 60953-3, ASME PTC-4 or BS 845 or EN 12952-15 etc., the results of these efficiency tests have to be submitted to the verification team prior to next periodic verification.

See Annex A.

3.2.3 Conclusion

The replacement records for the main gas meter and the justification for the use of the back-up gas meter has been provided to the verification team. After the requested supplementary documents have been submitted (Closure of CAR 1) together with the overworked and revised

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monitoring report and resolving of the raised issues, the project complies with the pre-requisites for a faultless periodic verification and the requirements for monitoring of energy projects leading finally to a request of issuance of ERUs. The forward action requests don't request any immediate action but need to be responded prior to the next periodic verification, and will further improve the monitoring.

The project complies with the requirements and will continue to comply with the requirements after the monitoring will have been further improved.

3.3 Internal and External data

3.3.1 Discussion

The external data has been verified and are in line with the requirements.

The monitoring plan as provided by the project design document is correctly implemented and hence the main internal data to be monitored is available. Most of the internal data is continuously acquired and stored in the computerized system and from these transferred to excel sheets.

The data have been verified. The audit team can confirm that the used management and operational system is appropriate and is being implemented as defined in the monitoring plan.

The above data are stored in different documents all available during the on-site assessment. No significant reporting risk could be identified with respect to external data used for this project activity.

3.3.2 Findings

No findings

3.3.3 Conclusion

The project complies with the requirements for a management of external and internal data.

3.4 Environmental and Social Indicators

3.4.1 Discussion

No additional information relating to the environmental monitoring required by the authority (IPPC-permit, etc.) are included in the monitoring report, as there is no requirement for JI Track 1 projects in this regard.

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3.4.2 Findings

As the JI Track 1 standard does not require such information, it is not relevant to assess in addition the fulfilment of the requirements of the environmental authority during periodic JI verification.

3.4.3 Conclusion

No further actions or follow-up necessary for the time being.

3.5 Management and Operational System**3.5.1 Discussion**

The Monitoring Reports clearly documents the various processes established to monitor baseline emissions, project emissions and emission reductions. All procedures have been observed and are available. All calibration documents are correctly recorded following best practice. They are accessible and known to the relevant personnel.

The responsibilities are clearly defined and communicated.

3.5.2 Findings

No findings

3.5.3 Conclusion

The project complies with the requirements for good data management.

3.6 Completeness of Monitoring**3.6.1 Discussion**

The reporting procedures reflect the current monitoring plan. The main parameters were determined as prescribed in a complete and transparent way. The actual monitoring report for calendar year 2010 presents the monitoring concept in the same way as it was presented in the determined project design documentation and subsequently verified initial monitoring reports.

3.6.2 Findings

No findings

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3.6.3 Conclusion

The project complies with the requirements for a complete monitoring report.

3.7 Accuracy of Emission Reduction Calculations**3.7.1 Discussion**

Due to the already verified JI specific approved methodology there is no need to make corrections for data uncertainty. It can be confirmed that emission reduction calculations have been performed according to the monitoring plan and to the calculation methodology reported in the monitoring report. The method to determine GHG emissions is documented based on the determined monitoring plan. No further adjustments and corrections are needed for the reported calendar year 2010.

3.7.2 Findings

No findings

3.7.3 Conclusion

The project complies with the requirements with regard to the accuracy of the emission reduction calculations.

3.8. Quality of Evidence to Determine Emission Reductions**3.8.1 Discussion**

Concerning verification the calculation of emission reductions is based on internal and external data. The origins of internal and external data were explicitly checked and all were in line with the requirements. All the calculation of the values for standard deviations and averages are done by software commercially proved. Inspection of calibration and maintenance records for key equipment was performed.

3.8.2 Findings**Forward Action Request No. 3 (FAR 3) from previous periodic verification**

The monitoring report for the next periodic verification for calendar year 2010 should include a statement about the schedule for future periodic calibration of the main monitoring devices.

See Annex A.

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Forward Action Request No. 4 (FAR 4) from previous periodic verification

The project proponents shall further elaborate with their Parties if the selected more conservative approach to use as grid emission factor default values from the “Operational Guidelines for Project Design Documents of Joint Implementation Projects” of the Ministry of Economic Affairs of The Netherlands from 2004 instead of local values from Bulgaria – available since 2005, which could be used for example as ex-ante option for the remaining crediting period or as ex post option with annual updating, which would require the emissions factor to be updated annually during monitoring within the year in which the project activity displaces grid electricity.

See Annex A.

3.8.3 Conclusion

The project complies with the requirements and will continue to comply with the requirements after the monitoring will have been further improved.

3.9 Management System and Quality Assurance**3.9.1 Discussion**

Due to the straightforward approach for calculating GHG emission reductions the existing management system is appropriate and quality assurance is guaranteed. The IT system is tailor-made for the utilized equipment of the gas turbine and heat recovery steam generator, it ensures the quality of the information and the correct management of the data involved in the project.

3.9.2 Findings**Forward Action Request No. 5 (FAR 5)**

The monitoring report for the next periodic verification for calendar year 2010 should include a statement how the data of the back-up boilers could be integrated into the IT-system of the co-generation plant or another centralized system.

3.9.3 Conclusion

The project complies with the requirements and will continue to comply with the requirements after the monitoring will have been further improved.

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3.10 PROJECT SCORECARD

The conclusions on this scorecard are based on the revised monitoring report.

Risk areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Emission Reductions	
Completeness	Source coverage/ boundary definition	√	√	CARs, CLs	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently. Potential improvements are indicated by relevant CARs and CLs.
Accuracy	Physical Measurement and Analysis	√	√	CARs, CLs	State-of-the-art technology is applied in an appropriate manner. Appropriate back-up solutions are provided. Potential improvements are indicated by CARs and CLs.
	Data calculations	√	√	CARs, CLs	Emission reductions are calculated correctly. Potential improvements are indicated by CARs and CLs.
	Data management & reporting	√	√	CARs, CLs	Data management and reporting were found to be satisfying. Potential improvements are indicated by CARs and CLs.
Consistency	Changes in the Project	√	√	CARs, CLs	Results are consistent to underlying raw data. Potential improvements are indicated by CARs and CLs.

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4 VERIFICATION STATEMENT

TÜV Rheinland Energie und Umwelt GmbH has been contracted by Biovet JSC on 21st of December 2010 to carry out the verification for the calendar year 2010 of the Erupt JI-Project “Co-Generation Gas Power Station Biovet”; registered under Erupt 4/ERU 04/33 at the location Peshtera in Bulgaria, which was started with an on-site assessment on 25th of February 2011. The verifier confirms that the project is implemented as planned and described in validated and approved project design documents including the announced and approved changes. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is already generating 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 and registered project baseline and monitoring, and its associated documents. Based on the process and procedures conducted, the GHG assertion is materially correct and is a fair representation of the GHG data and information, and is prepared in accordance with the approved monitoring plan and the JI guidelines.

According to the information we have seen and evaluated we confirm the following statement:

Reporting period: Assessment and evaluation per 31.12.2010

Verified baseline emissions, project emissions and emission reductions:

Year	2010 based on EF 1 *)	For Comparison: 2009 based on EF 1 *)
Baseline emissions	160 080 t CO ₂ eq	132 885 t CO ₂ eq
Project emissions	66 666 t CO ₂ eq	50 107 t CO ₂ eq
Emission reductions	93 414 t CO ₂ eq	82 778 t CO ₂ eq

*) in accordance with Bulgarian baseline study of Joint Implementation projects in the Bulgarian energy sector of NEK, published by MOEW

The verification team also determined some areas of risks for the project in the context of the management / operation system and of quality assurance. Issues indicated as “Corrective Action Request”, “Clarification Request” and “Forward Action Request” shall be resolved as soon as possible, the results shall be submitted as indispensable information to the verification team of the next periodic verification for calendar year 2010. The project has continuously generated emission reductions as JI project in the second calendar year (calendar year 2010) of the first commitment period of the Kyoto Protocol from 2008 to 2012 in accordance with the National Guidelines of the Bulgarian Designated Focal Point for generation of Emission Reduction Units under Track I of the “Joint Implementation” mechanism under Article 6 of the Kyoto Protocol.

Cologne, 29.03.2011



Kurt Seidel
 JI Auditor

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**Annex A: DVM and TÜV Rheinland Verification Protocol
 (separate attachment)**
Annex B: Reference List

Reference No.	Document or Type of Information
1	REPUBLIC OF BULGARIA, MINISTRY OF ENVIRONMENT AND WATER, EXECUTIVE ENVIRONMENT AGENCY: NATIONAL INVENTORY REPORT 2009 for Greenhouse Gas Emissions, Submission under the UNFCCC and the Kyoto Protocol, dated March, 2009
2	NEK-EAD file: Baseline CEF Report “BASELINE STUDY OF JOINT IMPLEMENTATION PROJECTS IN THE BULGARIAN ENERGY SECTOR, CARBON EMISSION FACTOR“ (2005)
3	NEK-EAD: Baseline Carbon Emission Factor of Bulgarian Electricity and Heat Power System Co-gen file: Carbon Emission Factor 18.11.2005.xls
4	Joint Implementation Supervisory Committee “GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM” (Version 04)
5	Joint Implementation Supervisory Committee “GLOSSARY OF JOINT IMPLEMENTATION TERMS” (Version 02)
6	Joint Implementation Supervisory Committee “JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL” (Version 01)
7	Joint Implementation Supervisory Committee “GUIDANCE ON CRITERIA FOR BASELINE SETTING AND MONITORING” (Version 02)
8	Joint Implementation Supervisory Committee, Twenty-second meeting: Proposed agenda-Annotations, Annex 2 „Draft Procedures Regarding Chances During Project Implementation”
9	Biovet EAD Peshtera: Monitoring Report 2009 for JI PROJECT NEW COGENERATION STATION AT THE BIOVET FACTORY, ERU04/33, revision 01
10	Excel Sheets Monitoring Biovet 2009, revision 01
11	Biovet EAD Peshtera: Monitoring Report 2009 for JI PROJECT NEW COGENERATION STATION AT THE BIOVET FACTORY, ERU04/33, revision 02
12	Excel Sheets Monitoring Biovet 2009, revision 02
13	Annex No. 1 to Monitoring Report 2009: Bulgargas Gas Quality Certificates 2009, JI PROJECT NEW COGENERATION STATION AT THE BIOVET FACTORY, ERU04/33

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14	Annex No. 2 to Monitoring Report 2009: Measurement data protocols, Measurement Protocols to position 1, position 2 and position 3 (Gas flow meter Co-generation natural gas consumption, Electro meter Co-generation electricity production, Steam flow meter Co-generation steam production, Measurement Protocols to position 4 and position 6 (Efficiency of existed boilers Steam flow meter Back up boilers steam production), Measurement Protocols to position 7 (Electro meter Electricity exchange with The National Electrical Grid)
15	Annex No. 3 to Monitoring Report 2009: Measurement devices short technical data, test and calibration certificates 2009 (Measurement device Position 1: Gas flow meter Co-generation gas consumption, Measurement device Position 2: Electro meter Co-generation electricity production, Measurement device Position 3: Steam flow meter Co-generation steam production, Measurement device Position 6: Steam flow meter Steam Power Station steam production, Measurement device Position 7: Electro meter Electricity exchange with the national electrical grid)
16	Replacement record for Gas Flow Meter Co-generation natural gas consumption
17	PDD of JI PROJECT “NEW COGENERATION STATION AT THE BIOVET FACTORY, ERU04/33“, April 2004
18	KPMG Sustainability BV: Determination Report “Co-generation Gas Power Station Biovet“, dated 1 March 2005
19	SGS Climate Change Programme: Verification Report “Biovet JSC Co-Generation Gas Power Station Biovet Peshtera, Bulgaria” (Monitoring Period: 01/01/2008 – 31/12/2008, Third period)
20	Biovet EAD Peshtera: Order confirmation for verification services, dated 04/03/2010
21	On Site Assessment Attendance Records
22	On-site assessment plan for JI-determination/verification process JI-Project „Co-Generation Gas Power Station Biovet“ ERUPT 4 (ERU04/33), Assessment Date May 17th 2010 to May 20th 2010
23	Document Checklist for JI-Project „Co-Generation Gas Power Station Biovet“ERUPT 4 (ERU04/33)
24	Republic of Bulgaria, Ministry of Environment and Water: FOURTH NATIONAL COMMUNICATION ON CLIMATE CHANGE, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, SOFIA – 2006
25	FIFTH NATIONAL COMMUNICATION ON CLIMATE CHANGE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE SOFIA, 2010, Republic of Bulgaria, Ministry of Environment and Water By assignment to the Energy Institute JSC
26	Interministerial working group for elaboration of National Allocation Plan for participation of Bulgari a in the EU ETS in compliance with the regulations of Directive 2003/87/EC: NATIONAL ALLOCATION PLAN FOR

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	PARTICIPATION OF BULGARIA IN THE EUROPEAN COMMUNITY SCHEME FOR GREENHOUSE GAS EMISSION ALLOWANCE TRADING, For the period 2008 – 2012, <i>Sofia, 2007</i>
27	MOEW Bulgaria: Bulgarian JI Guidelines for JI Track 2 (2006, September)
28	MOEW Bulgaria: Bulgarian JI Guidelines for JI Track 1 :“INSTRUCTION FOR APPROVAL OF PROJECTS GENERATING EMISSION REDUCTION UNITS UNDER THE “JOINT IMPLEMENTATION” MECHANISM (2010, June)
29	MOEW Bulgaria „APPROVED JI PROJECTS IN BULGARIA“
30	Memorandum of Understanding on co-operation between the Kingdom of the Netherlands and the Republic of Bulgaria in reducing emissions of greenhouse gases under article 6 of the Kyoto Protocol
31	CDM-methodological tool “Tool to determine the baseline efficiency of thermal or electric energy generation systems”(Version 01)
32	Ministry of Economic Affairs of The Netherlands, May 2004: Operational Guidelines for Project Design Documents of Joint Implementation Projects (<i>Volume 1: General guidelines, Version 2.3</i>)
33	Validation and Verification Manual, IETA/PCF http://www.vvmanual.info
34	Biovet EAD Peshtera: Order confirmation for verification services, dated 31/01/2011
35	On-site assessment plan for JI-determination/verification process JI-Project „Co-Generation Gas Power Station Biovet“ ERUPT 4 (ERU04/33), Assessment Date February 25 th 2011, dated 18/02/2011
36	Biovet EAD Peshtera: Monitoring Report 2010 for JI PROJECT NEW COGENERATION STATION AT THE BIOVET FACTORY, ERU04/33, revision 01, dated January 2011
37	Annexes to Monitoring Report 2010
38	Excel Sheets Monitoring Biovet 2010, revision 01, dated January 2011
39	Biovet EAD Peshtera: Monitoring Report 2010 for JI PROJECT NEW COGENERATION STATION AT THE BIOVET FACTORY, ERU04/33, revision 02, dated February 2011
40	Excel Sheets Monitoring Biovet 2010, revision 02, dated February 2011
41	Biovet EAD Peshtera: Monthly and annual information 2010 for electricity production of Biovet
42	Biovet EAD Peshtera: Monthly and annual information 2010 for production and transport of heat energy of the cogeneration plant of Biovet
43	Biovet EAD Peshtera, Metrology department: Annual Calibration Plan 2011, dated 16/12/2010
44	Biovet EAD Peshtera, Metrology department: Several Calibration Protocols
45	Biovet EAD Peshtera, Cogeneration plant: Excerpt from Logbook
46	Biovet EAD Peshtera: Monthly back-up boiler production data

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