VERIFICATION REPORT

ENVIRONMENTAL (GREEN) INVESTMENTS FUND LTD

VERIFICATION OF THE

"BIOGAS UTILIZATION FOR GENERATING OF ELECTRICITY AND HEAT AT FARMS OF UKRAINIAN DAIRY COMPANY LTD"

Initial and 1st periodic

REPORT NO. UKRAINE-VER/0213/2011

REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0213/2011

VERIFICATION REPORT

Date of first issue:	Organizational unit:
06/05/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Environmental (Green) Investments Fund Ltd	Ms. Olena V. Koval

Summary:

Bureau Veritas Certification has made the initial and 1st periodic verification of the "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd", project of Environmental (Green) Investments Fund Ltd located in Kyiv oblast, Zgurivsky region, v. Velyky Krupil as well as in Chernigiv oblast, Borzniansky region, v. Komarivka, and applying the JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Accredited Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, *was conducted using Bureau Veritas Certification internal procedures.*

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (CR, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project generates GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize19454 tons of CO_2eq for the monitoring period that covers the period from 01/11/2009 till 31/12/2010.

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

Report No.:	Subject Group:
UKRAINE-ver/0213/2011	JI
Project title:	
"Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd"	
Work carried out by:	
Kateryna Zinevych – Team Leader, Lead Verifier Skoblyk Oleg - Team Member, Lead Verifier Svitlana Gariyenchyk – Team Member, Verifier Olena Manziuk – Team Mamber, Verifier	
Work reviewed by:	
Ivan Sokolov - Technical Reviewer	
Work approved by:	
Flavio Gomes - Operational Manager	

Date of this revision:	Rev. No.:	Number of pages:
30/05/2011	02	54

Bureau Veritas Certification Holding SAS

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1 INTRODUCTION

Environmental (Green) Investments Fund Ltd has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd" (hereafter called "the project") in Kyiv oblast, Zgurivsky region, v. Velyky Krupil as well as in Chernigiv oblast, Borzniansky region, v. Komarivka.

This report summarizes the findings of the verification of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification covers the period from 1st November 2009 to 31st December 2010.

1.1 Objective

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

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

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

The verification scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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 project monitoring towards reductions in the GHG emissions.

1.3 Verification Team

The verification team consists of the following personnel:

Kateryna Zinevych
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Skoblyk Oleg
Bureau Veritas Certification Team Member, Climate Change Lead Verifier

Svitlana Gariyenchyk
Bureau Veritas Certification Team Member, Climate Change Verifier

Olena Manziuk
Bureau Veritas Certification Team Member, Climate Change Verifier

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organizes, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The completed verification protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Monitoring Report (MR) submitted by Environmental (Green) Investments Fund Ltd and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Approved CDM methodology and Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

The verification findings presented in this report relate to the Monitoring Report versions 1.0, 3.0, 4.0 and project as described in the determined PDD.

2.2 Follow-up Interviews

On February 17-18, 2011 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Environmental (Green) Investments Fund Ltd and Ukrainian Dairy Company Ltd were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Ukrainian Dairy Company Ltd	• Project implementation status • Organizational structure • Responsibilities and authorities • Personnel training • Quality management procedures and technology • Records of equipment installation • Control of metering equipment • Metering record keeping system, database • Cross-check of the information provided in the MR with other sources
Environmental (Green) Investments Fund Ltd	• Baseline methodology • Monitoring plan • Monitoring report • Deviations from PDD

2.3 Resolution of Clarification, Corrective and Forward Action Requests

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

If the Verification Team, in assessing the monitoring report and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;

(b) Clarification request (CL), requesting the project participants to provide additional information for the AIE to assess compliance with the monitoring plan;

(c) Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

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

3 VERIFICATION CONCLUSIONS

In the following sections, the conclusions of the verification are stated.

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 21 Corrective Action Requests and 29 Clarification Requests.

The number between brackets at the end of each section corresponds to the DVM paragraph.

3.1 Remaining issues and FARs from previous verifications

The following has been stated in the determination report issued by SGS United Kingdom Limited (CL 8, CL 20, CL 21 further transformed to FAR 26 and FAR 27) :
“Detailed monitoring procedure is not in place. Please, explain what national regulations and/or internal standards are used to ensure quality system. Draft of monitoring procedure was provided. Adequacy and adoption of Monitoring procedure shall be checked during the first verification”.
Detailed monitoring procedure as for the requests determined in Sections 5.2.1. – 5.2.10 of the Determination protocol were revised by the verification team; PP’s comments on the above mentioned outstanding issues were requested. The developed and adopted monitoring procedures were checked during the verification.

The Instruction on monitoring of GHG emission reduction within the framework of operational phase of Biogas Utilization for Heat and Power Production at the Farms of Ukrainian Dairy Company Ltd joint implementation project was designed and approved by the Order of

Chairman of the Board №232/2 dated 20.09.2009. The following sections were included:

- emergency preparedness (for cases where emergencies can cause unintended emissions)
- calibration of monitoring equipment
- maintenance of monitoring equipment and installations
- monitoring, measurements and reporting
- day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)
- dealing with possible monitoring data adjustments and uncertainties
- review of reported results/data
- internal audits of GHG project compliance with operational requirements where applicable
- project performance reviews before data is submitted for verification, internally or externally
- corrective actions in order to provide for more accurate future monitoring and reporting.

In addition, an Educational program of training under the Instruction for employees involved in the maintenance of the project was elaborated. Instruction, Program of training and Protocols of trainings are enclosed.

- Annex #1. Order #№232/2 dated 20.09.2009. Instructions on monitoring of GHG emission reduction within the framework of operational phase of Biogas Utilization for Heat and Power Production at the Farms of Ukrainian Dairy Company Ltd joint implementation project of 20.09.2009.
- Educational program on GHG emission reduction monitoring within the framework of operational phase of Biogas Utilization for Generating of Electricity and Heat at the Farms of Ukrainian Dairy Company Ltd joint implementation project.
- Protocol #1 of committee meeting on examination of monitoring of GHG emission reduction within the framework of operational phase of Biogas Utilization for Generating of Electricity and Heat at the Farms of Ukrainian Dairy Company Ltd joint implementation project dated 01.10.2009.
- Protocol #2 of committee meeting on examination of monitoring of GHG emission reduction within the framework of operational phase of Biogas Utilization for Generating of Electricity and Heat at the Farms of Ukrainian Dairy Company Ltd joint implementation project dated 25.12.2010.

No other remaining outstanding issues were left from the determination.

3.2 Project approval by Parties involved (90-91)

Written project approvals by Switzerland and Ukraine have been issued by the DFPs of those Parties when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines. (They are listed among Category 1 Documents in the Reference section of this report)

The abovementioned written approvals are unconditional.

Outstanding issue related to Project approval by Parties involved, PP's response and BVC's conclusion are described in Appendix A Table 2 (refer to CL 29).

3.3 Project implementation (92-93)

According to the PDD two cogeneration modules with total electric power and heating capacity of 955 kW and 1081 kW respectively were to be installed at Farm 1. As opposed to the PDD, only one co-generator JMC 312GS-B.L with the electric power capacity of 625 kW and heating capacity of 686 kW is currently operational. Due to the less amount of production capacity, only 75% of cattle manure enters the biogas plant. In compliance with PDD, it was envisaged to produce electrical energy and heat in co generators beginning from 01.11.2009. Actually, during the first month of exploitation generator was going through the setting operation and testing procedures and biogas was combusted at flare candle.
Thus, the actual starting date of the cogeneration module operation is 01/12/2009.
According to the PDD, biogas plant at Farm 2 was to be set into operation till the end of 2009. However, caused by the global financial crisis of 2008-2009 construction and assembly works at farm 2 were suspended and startup date of biogas plant was postponed for the year 2011.

Other deviations in comparison with determined PDD have not been detected.

Outstanding issue related to Project implementation, PP's response and BVC's conclusion are described in Appendix A Table 2 (refer to CL 01, CL 23, CAR 01, CAR 14).

3.4 Compliance of the monitoring plan with the monitoring methodology (94-98)

The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final.

For calculating the emission reductions, key factors, such as cattle livestock turnover, the manure physical-chemical content, concentration of the methane in biogas and others, influencing the baseline emissions and

the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating emission reductions, such as external data provided by

- Company Zorg-Ukraine Ltd;
- Ukrainian Centre for Standardization and Metrology;
- Laboratory of ecological and sanitary-epidemiological monitoring of AIC enterprises, chair of cattle hygiene and cattle ecology named after A.K. Skorohodko of the National University of Life and Environmental Sciences of Ukraine;
- Laboratory of the Institute of technical thermophysics of the NAS of Ukraine;
- Laboratory of the Gas Institute of the NAS of Ukraine;
- Central geophysical observatory;
- Ukrainian Hydrometeorological Center;
- Authorized affiliate of GE Jenbacher in Ukraine - Company Sinaps;
- CJSC Kyivoblenergo and JSC Chernigivoblenergo,

as well as internal data of the farm, such as Monitoring Journal, documentation related to the environmental protection and other are clearly identified, reliable and transparent.

Emission factors, including default emission factors, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.
The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.

Outstanding issues related to Compliance of the monitoring plan with the monitoring methodology, PP's response and BVC's conclusion are described in Appendix A Table 2 (refer to CL 16, CL 03, CL 04, CL 19, CL 27, CL 28, CAR 01, CAR 02, CAR 04, CAR 05, CAR 06, CAR 10, CAR 11, CAR 15, CAR 16, CAR 17, CAR 20, CAR 21).

3.5 Revision of monitoring plan (99-100) "Not applicable"

3.6 Data management (101)

The data and their sources, provided in monitoring report, are clearly identified, reliable and transparent.

The implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures.
The monitoring plan:

- Describes all key characteristics that are monitored, among them:
- accounting of energy production and consumption;
- accounting of dairy herd and manure physical-chemical analysis control;
- accounting of the biogas flow and properties;
- the procedure for storage and use of fermented mass in the fields as fertilizer monitoring;
- Specifies the indicators, constants and variables used (Sections B.2.1. and B.2.2.);
- Describes the methods employed for data monitoring and recording (Section B.3.);
- Presents the quality assurance and control procedures for the monitoring process. This includes information on manufacturer, type, serial number, date of installation, date of last calibration, information to specific uncertainty, need for changes and replacements (Sections B.1.2. – B.1.4.);
- Clearly identifies the responsibilities and authority regarding the monitoring activities (Section B.2.; C.1.1.);

On the whole, the procedures applied for monitoring process reflect good monitoring practices.

The data collection and management system for the project is in accordance with the monitoring plan.

Outstanding issues related to Data management, PP's response and BVC's conclusion are described in Appendix A Table 2 (refer to CL 02, CL 05 – CL 15, CL 17 – CL22, CL24 – CL 26, CAR 07- CAR 09, CAR 12, CAR 13, CAR 18, CAR 19).

3.7 Verification regarding programmes of activities (102-110) "Not applicable"

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the initial and 1st periodic verification of the "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd" Project in Ukraine, which applies the JI specific approach. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of Ukrainian Dairy Company Ltd is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 07. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report versions 1.0, 3.0, 4.0 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is accurately calculated and is free of material errors, omissions, or misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm, with a reasonable level of assurance, the following statement:

Reporting period: From 01/11/2009 to 31/12/2009

Baseline emissions	: 2245	t CO2 equivalents
Project emissions	: 700	t CO2 equivalents
Emission Reductions	: 1545	t CO2 equivalents

Reporting period: From 01/01/2010 to 31/12/2010

Baseline emissions	: 20518	t CO2 equivalents
Project emissions	: 2609	t CO2 equivalents
Emission Reductions	: 17909	t CO2 equivalents

Total for the period from 01/11/2009 to 31/12/2010:

Baseline emissions	: 22763	t CO2 equivalents
Project emissions	: 3309	t CO2 equivalents
Emission Reductions	: 19454	t CO2 equivalents

5 REFERENCES

Category 1 Documents:
Documents provided by Environmental (Green) Investments Fund Ltd, represented that relate directly to the GHG components of the project.

/1/ PDD "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd." , version 07 dated 30/06/2010
/2/ Determination Report "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd" dated 14/07/2010 issued by SGS United Kingdom Limited
/3/ MR "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd", version 1.0 dated 31/01/2011
/4/ MR "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd", version 3.0 dated 18/04/2011
/5/ MR "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd", version 4.0 dated 26/04/2011
/6/ Calculation of Emission Reductions (Excel file), version 1.0 of 31/01/2011
/7/ Calculation of Emission Reductions (Excel file), version 3.0 dated 18/04/2011
/8/ Calculation of Emission Reductions (Excel file), version 4.0 dated 26/04/2011
/9/ Letter of Approval # J294-0485 of 26.01.2011issued by the Federal Office for the Environment, acting as the Swiss Designated Focal Point (Switzerland)
/10/ Letter of Approval # 690/23/7 of 30.03.2011 issued by the National Environmental Investment Agency of Ukraine

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/ AMS-III.D. "Methane recovery in agricultural and agro industrial activities", version 15
/2/ AMS-I.C. "Thermal energy for the user with or without electricity", version 13.
/3/ Methodological "Tool to determine project emissions from flaring gases containing methane"
/4/ Energy accounting from 01.01.2011 till 31.01.2011
/5/ Energy accounting from 01.12.2010 till 31.12.2010
/6/ Energy accounting from 01.11.2010 till 30.11.2010

/7/ Energy accounting from 01.10.2010 till 31.10.2010
/8/ Energy accounting from 01.07.2010 till 31.07.2010
/9/ Energy accounting from 01.06.2010 till 30.06.2010
/10/ Energy accounting from 01.05.2010 till 31.05.2010
/11/ Energy accounting from 01.04.2010 till 30.04.2010
/12/ Energy accounting from 01.03.2010 till 31.03.2010
/13/ Energy accounting from 01.02.2010 till 28.02.2010
/14/ Energy accounting from 01.01.2010 till 31.01.2010
/15/ Temperature senses
/16/ CHP flow-meter
/17/ Electricity and heat meter production (generator 0630P)
/18/ Komarivka village construction site
/19/ Educational programme on GHG emission reduction monitoring within the framework of operational phase of Biogas Utilization for Generating of Electricity and Heat at the Farms of Ukrainian Dairy Company Ltd joint implementation project
/20/ Protocol #1 of committee meeting on examination of monitoring of GHG emission reduction within the framework of operational phase of Biogas Utilization for Generating of Electricity and Heat at the Farms of Ukrainian Dairy Company Ltd joint implementation project dated 01.10.2009
/21/ Protocol #2 of committee meeting on examination of monitoring of GHG emission reduction within the framework of operational phase of Biogas Utilization for Generating of Electricity and Heat at the Farms of Ukrainian Dairy Company Ltd joint implementation project dated 25.12.2010
/22/ Instructions for labour safety in the operation and maintenance of processing organic waste into biogas complex
/23/ Instructions regarding maintenance and operation of processing organic waste into biogas complex operator's actions in case of emergency
/24/ Technological design standards: manure management systems VNTP APK-09.06.9.94
/25/ Civil listening protocol of discussion on permit for works at the object of the Velykyi Krupil Dairy Farm Reconstruction with Extension, Zgurivskyi district of Kyiv Region dated 17.01.2008
/26/ Protocol #23/07 of members meeting of Ukrainian Dairy Company Ltd dated 27.12.2007
/27/ Resolution #13 of 07.02.2008 on consideration of statement from Ukrainian Dairy Company Ltd
/28/ Conclusion #216-2008/181 of state expert commission on the Dairy Farm of 6000 Cows, Komarivka Village, Borozniansky District of Chernihiv Region project, issued by State Specialized Expert Organization - Central Office of Ukrainian State Building Expertise
/29/ The Velykyi Krupil Dairy Farm Reconstruction with Extension, Zgurivskyi district of Kyiv Region Working Project 81-07 ПЗ
/30/ Annex #1 dated 12.06.2008 to the Contract 08022 dated

12.06.2008, Specification of cogeneration module JMC-312 GS-B,L.

/31/ Contract #08022 for cogeneration equipment delivery dated 12.06.2008

/32/ Conclusion of the expert commission 09B #04-2120-14185 dated 13.04.2009 on design documentation conformity to normative acts of labour safety and industrial policy. The Velykyi Krupil Dairy Farm Reconstruction with Extension, Zgurivskyi district of Kyiv Region Working Project. Issued by Kyiv Expert Technical Centre of National Science and Research Institute of Industry and Labour Safety State Enterprise

/33/ The Velykyi Krupil Dairy Farm Reconstruction with Extension, Zgurivskyi district of Kyiv Region Working Project 81-07 ПЗ, Explanatory Note, Volume 1, Environmental Impact Assessment, Statement of Ecological Consequences

/34/ Annex 10, Summary of Climatic Characteristics of Iagotyn city dated 12.01.2006 № 1-121-1302/05-180, issued by Central Geophysical Observatory (CGO)

/35/ Letter from Kyiv Region State Department of Ecology and Natural Resources № 05-09/6970 dated 25.07.2006 on delivery of background concentration numbers.

/36/ Conclusion of State Sanitary and Epidemiological Expert Commission № 05.03.02-07 50581 of 20.10.2006. Project development on reconstruction of existent cowsheds with completion to build dairy farm in Velykyi Krupil village of Zgurivskiy district of Kyiv region. Issued by State Sanitary and Epidemiological Office

/37/ Technical and economical proposal dated 07.11.2007 on 270t/day, Biogas unit

/38/ Tax levy of environment pollution fee dated 24.01.2011

/39/ License, Series AB #407869 on economical activity, connected with creation of architectural objects, ZORG Ukraine LLC, valid from 22.07.2008 till 22.07.2011

/40/ Order #232/2 dated 20.09.2009 on the biogas unit monitoring.

/41/ Working project, Biogas unit, Volume 1, Explanatory note 3-022-08-ПЗ, License for the object №3-022-08

/42/ Annex #1. Order #№232/2 dated 20.09.2009. Instructions on monitoring of GHG emission reduction within the framework of operational phase of Biogas Utilization for Heat and Power Production at the Farms of Ukrainian Dairy Company Ltd joint implementation project of 20.09.2009

/43/ Passport #002118, Gas meter G 400 RHK-1/30-0,1-4 Ex, serial number №0457.

/44/ Passport #0002043, Gas meter G 250 RHK-1/30-0,1-4 Ex, serial number №0956.

/45/ Operational manual of measuring pressure transducers №45675

/46/ Act of installation of gas-flow meter RHK-Ex, serial number

№0002118 dated 01.10.2009

/47/ Project of initial requirements of biogas analyzer design

/48/ System of gas control SHK-1, log-book 5BC1.550.004 FO

/49/ Act of gas analyzer installation SHK-1 5 BC.550.004, plant number № of 01.10.2009

/50/ Operational manual for resistance thermometers and thermal elements of modifications TR/TC

/51/ Act of installation of electricity meter Siemens XPS, serial number GD 939997414 WW of 10.10.2009

/52/ Certificate on estate property, non-residential premises of 11.12.2007, issued by executive committee of Velykyi Krupil village council

/53/ Statute of Ukrainian Dairy Company Ltd (new edition) dated 30.05.2008.

/54/ Certificate of state registration of legal entity, series A00 #2603251, Ukrainian Dairy Company Ltd, dated 13.04.2006

/55/ Information note #00069/2006 Ukrainian Dairy Company Ltd issued by EDRPOU

/56/ Contract #208 of 03.09.2007 on project, repair, preparation and research works

/57/ Contract #022 of 06.02.2008 on biogas installation manufacture, mounting, calibration, commissioning and delivery

/58/ Contract #08022 dated 12.06.2008 on cogeneration equipment delivery dated 12.06.2008

/59/ Agreement #212 dated 16.07.2008 of general contract on project, repair, preparation and research works

/60/ Termination agreement dated 15.07.2008 of Contract #208 dated 03.09.2007

/61/ Exclusive license and technical assistant agreement between Planet Biogastechnik GMBH and ZORG Ukraine LLC of 11.08.2007

/62/ Contract #2010/2009 of 18.08.2009 between Ukrainian Dairy Company Ltd, SYNAPS PSME and ZORG Ukraine LLC on scheduled service maintenance of gas-piston module GE Jenbacher JMC-312 GS B.L. Ukrainian Dairy Company Ltd

/63/ Letter from Gas Institute #97/40-496 of 14.09.2009

/64/ Report on work ''Execution of biogas burning system implementation services conducted on Flare with 3,5 MW capacity

/65/ Annex to Letter №142т/25-7 of 28.09.09. List of basic and laboratory equipment, which is applied for research of organic materials during processing them into biogas and biofertilizers.

/66/ Boigas analysis for 02.06.2009 based on order of ZORG Ukraine LLC

/67/ Central Geophysical Observatory, Reply on the request #1188/10/10-11 of 20.01.2011 regarding information for green-house gases inventory, average annual air temperature for 2009

/68/ Letter from UNAS #168т/25-7 of 20.12.10 concerning determination of physical and chemical properties of raw materials

and fermented solutions from the biogas installation in the Velykyi Krupil village.

/69/ Gas sample analysis from the biogas installation dated 27.04.2010 conducted by UNAS Gas Institute Gas Analyzing Laboratory

/70/ Gas sample analysis from the biogas installation dated 17.02.2010 conducted by UNAS Gas Institute Gas Analyzing Laboratory

/71/ Gas sample analysis from the biogas installation dated 03.12.2009 conducted by UNAS Gas Institute Gas Analyzing Laboratory

/72/ Gas sample analysis from the biogas installation dated 06.11.2009 conducted by UNAS Gas Institute Gas Analyzing Laboratory

/73/ Animal balance sheet for 2009.

/74/ Animal balance sheet for 2010.

/75/ Cattle breeding balance sheet for 01.11.2009

/76/ Cattle breeding balance sheet for 01.12.2009

/77/ Cattle breeding balance sheet for 01.01.2010

/78/ Cattle breeding balance sheet for 01.02.2010

/79/ Cattle breeding balance sheet for 01.03.2010

/80/ Cattle breeding balance sheet for 01.04.2010

/81/ Cattle breeding balance sheet for 01.05.2010

/82/ Cattle breeding balance sheet for 01.06.2010

/83/ Cattle breeding balance sheet for 01.07.2010

/84/ Cattle breeding balance sheet for 01.08.2010

/85/ Cattle breeding balance sheet for 01.09.2010

/86/ Cattle breeding balance sheet for 01.10.2010

/87/ Cattle breeding balance sheet for 01.11.2010

/88/ Cattle breeding balance sheet for 01.12.2010

/89/ Cattle breeding balance sheet for 01.01.2011

/90/ Note #28 of 17.01.2011 from Ukrainian Dairy Company Ltd to Ukrainian National Ecology Investments Agency

/91/ Order #217/2 of 01.09.2009 on biogas installation operation

/92/ Note #35 of 17.01.2011 from Ukrainian Dairy Company Ltd

/93/ Protocol #13/10 dated 03.12.2010 of participants Ukrainian Dairy Company participants general meeting

/94/ Order #232/1 of 19.09.2009 on assignment of responsible person for biogas installation operation.

/95/ Letter # 38 of 26.01.2011 from Ukrainian Dairy Company Ltd concerning electric and heat energy production

/96/ Letter #168т/25-7 of 20.12.2010 concerning performed tests on determination of physical and chemical characteristics of raw materials and fermented solutions from the biogas installation in the Velykyi Krupil village

/97/ Certificate of Quality Management System SIC.02.008.220 dated 26.12.2008, issued by the Certification Body "Bureau of International Certification" to Zgurivska branch of Ukrainian Milk Company Ltd

/98/ Abstract from the resolution #07 of 27.02.2008 concerning building on the territory of Local Council

/99/ Permit №324-п on execution of building works of 26.05.2009

/100/ Conclusion №216-2008/181 of complex state expert commission on the project ''Dairy farm of 6000 cows, Komarivka village, Boroznianskiy district of Chernihiv region''. Dated 22.05.2009

/101/ Contract #06/03 on invention (transfer) of scientific and technical production of 06.03.2008

/102/ Ukrainian Dairy Company Ltd, Project ''Dairy farm of 6000 cows, Komarivka village, Boroznianskiy district of Chernihiv region'', Volume 2, Part 3 - Environmental impact assessment, Object №06/03 - МФ-П.ОВОС.ПЗ

/103/ Magnum G 400 VSA generator Technical Passport

/104/ Gas content(a) and manure/ fermented mass(b) lab analyses for the monitoring period

/105/ Letters from research laboratories with list of equipment and methods used for analyses: gas(a),manure(b)

/106/ Letter from UDC with explanations on Milk Herd

/107/ Monitoring journal 2009

/108/ Ecological expertise extract with the list of pollutants and the Expertise conclusion

/109/ Permit on special water use

/110/ UDC order #33 (order on information saving and environmental protection person)

/111/ Safety training Program

/112/ Monitoring training Protocol

/113/ Monitoring Instruction

/114/ Cross – checking protocol

/115/ Letter from Ukrainian Hydrometeorological Center

/116/ Supercom 01-SK-S-3 Passport

/117/ Instruction for operator in case of Emergency situation

/118/ Statement on the biogas composition comparison testing results of 18/02/2010

/119/ Letter #127 of 24/03/2011 issued by UDC Ltd to confirm the

company's electricity consumption class

Persons interviewed:

List persons interviewed during the verification or persons that contributed with other information that are not included in the documents listed above.

/1/ Sergiy Dmytriev, chief of heat and power sector, Ukrainian Dairy Company Ltd

/2/ Vyctor Dudnyk, Biogas plant operator on duty, Ukrainian Dairy Company Ltd

/3/ Andrij Glotov, Chief Engineer,responsible for the environmental issues, Ukrainian Dairy Company Ltd

/4/ Maryna Bereznytska, Inventory and project expert (Waste sector), Environmental (Green) Investments Fund Ltd

/5/ Yuriy Pyrozhenko, Inventory and project expert (Agriculture sector), Environmental (Green) Investments Fund Ltd

APPENDIX A: COMPANY PROJECT VERIFICATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

Check list for verification, according to the JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	The project has been approved by both Host Party (Ukraine) and sponsor party (Switzerland). The written project approvals were issued by NFPs of both Parties involved (see chapter 7 References in the verification report). **CL29.** Please, provide the LoAs from the Parties involved in the project.	CL29	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	**CAR 01.** The starting date of the monitoring period 24/09/2010 indicated in the MR differs from the starting date of the crediting period 15/09/2010 indicated in the PDD. Please explicitly indicate this deviation in the MR. **CL 01.** Please indicate sectoral scope(s) the project refers to **CL 23.** According to the document on electrical and thermal energy produced from the project start till the end of the year 2010 presented to the verifiers during the on-site	CL01 CL23 CAR01 CAR14	OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		visit, there was no electrical and thermal energy generation in November 2009. Please, explain why the crediting period starts in November **CAR 14.** The date and of version of the MR refer to its first submission. Please, correct these issues respectively		
93	What is the status of operation of the project during the monitoring period?	The status of project activity implementation compared to the PDD is presented in the Monitoring Report Section A.6. Appropriate justification of the deviations from the implementation schedule in the determined PDD are also provided.	OK	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The Monitoring System is in place and operational. Monitoring of GHG emission reductions occurred basically in accordance with the determined Monitoring Plan included in the PDD regarding which the determination has been deemed final. **CL 16.** It was stated in the determined PDD that cogeneration installation is to work 24 hours 365 days in year. At the same time it was stated that annual amount of electricity which would be displaced by the electrical and thermal energy produced in cogenerator was calculated based on its operation for 8000 hours per year. Please, explain what	CL16	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		operational time was taken for ERs calculation for the monitoring period, as 24hoursx365 days make 8760, not 8000 hours		
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) of the DVM, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	For calculating the emission reductions, key factors, such as cattle livestock turnover, the manure physical-chemical content, concentration of the methane in biogas and others, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.	OK	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	All the data sources used for calculating emission reductions are clearly identified, reliable and transparent. They are listed and classified in the MR Sections B.2.1- B.2.4. These include: - direct measurements of gas consumption and electric energy generation by, and electrical own needs of CCGT; - estimation of Net Caloric Value of natural gas by supplier's certificates; - calculation of grid emission factor for the URES "Center" as per Annex 2 of the PDD; - IPCC data for natural gas emission factor. **CL 03.**Please explain what abbreviations AIC (p.5 of the MR) and RZHT (p.6 of the MR)	CL03 CL04 CL27 CAR01 CAR02 CAR15	OK OK OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		stand for **CAR 01.** Please provide reference for the agricultural technology specifying the optimum terms for storage time of the biomass to be used as a fertilizer (p.6 of the MR) **CAR 02.**Please, provide reference for the nitrogen content in fermented mass defined on p.6 of the MR **CL 04.**Please, specify the units for the Grade of accuracy values presented in Table 5 of the MR **CL 27.** Please, give reference for the following statement from the MR p.6 "the optimum terms of agricultural technology" **CAR 15.** "The annual input of organic fertilizers norm calculation **should be** based…" (p.6 of the MR). Are **must be** or **is to be** meant here? The same concerns the footnote on p.10. Please, correct this		
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	**CAR 04.**Please, make corrections for the P14 and P15 variables presented in Table 9 of the MR **CAR 05.** Emission factor for displacement/consumption of energy from the grid presented in MR differs from the one used in PDD. Please check this and make appropriate corrections.	CAR04 CAR05 CAR06 CAR16 CAR20 CAR21 CL28	OK OK OK OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CAR 06. Tables of variables used for monitoring must comprise information on the frequency of monitoring. Please complement the tables with this information **CAR 16.**There is inconsistency between the average annual temperatures for the years 2009 and 2010 indicated in the calculation spreadsheet and the ones submitted by the Observatory and UHC. **CAR 20.** Please, justify your choice of emission factor for producing electricity from the grid. Provide the supporting documents with the indication to which class of consumers UDC belongs to or another relating documents. **CAR 21.** The calculation of ERs for the year 2009 should be made taking into account the Order N 63 dated 15/04/2011 issued by the State Environmental Investment Agency of Ukraine on the approval of the national electricity grid emission factors for the year 2009 **CL 28.** Please, indicate in the calculation spreadsheet the GWP for CH_4.		
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible	**CAR 10.** In the excel spreadsheet it is stated that the project activity ERs were calculated for the period of 121 days in 2009. At the same time the crediting period start is defined	CAR10 CAR11 CAR17 CL19	OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	scenarios in a transparent manner?	as 01/11/2009 which makes 61 days in 2009. Please bring in line those figures and make respective corrections in the ERs calculation. **CAR 11.**Recalculation of the baseline emissions made by the verifiers shows that the total baseline emissions equal 4032 and 13860 tons of CO2 eq. for 2009 and 2010 years respectively. Please, check this out and correct appropriately. **CAR 17.** There is a mistake in the baseline emissions reduction for the year 2010 (MR p.25). Please check this and make further corrections respectively. **CL 19.**Please, explain whether the actual value of biogas flared was calculated based on the candle capacity?		
Applicable to JI SSC projects only_Paragraph 96_Not applicable				
Applicable to bundled JI SSC projects only_Paragraphs 97(a) – 98_Not applicable				
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant_Paragraphs 99(a) – 99(b)_Not applicable				
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	The implementation of data collection procedures is in accordance with the determined monitoring plan **CL 07.** It has been evidenced by BV verification team during the site visit that information concerning the cattle population	CL07 CAR12	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		at the farm for the monitoring period differs from that presented in the MR. Please, provide explanation for this issue or make due corrections to the ER calculation. **CAR 12.** Monitoring Instruction issued by Order #232/2 dated 20/09/2009 prescribes saving and archiving of project data for the period 2009-2012, that doesn't meet the JISC requirement		
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	**CL 02.** Please Provide technical characteristics of Magnum G 400 VSA generator	CL02	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	**CL 05.** Please, provide results of lab analyses for the monitoring period. **CL 06.** Please, provide Accreditation Certificates, as well as the list of accredited areas for the laboratories conducting laboratory analyses and calibration of the project equipment. **CL 08.** Please, provide documents that state the quantity of the diesel fuel combusted in cogenerator and tractor during the monitoring period **CL 09.**Please provide documents of the farm as for specific fossil fuel consumption (P18 variable in Table 9 of the MR) **CAR 07.**Section B.2.6.of the MR does not contain sufficient information for the verifiers	CL05 CL06 CL08 CL09 CL10 CL11 CL17 CL18 CL19 CL20 CL21 CL25 CAR07 CAR08 CAR09	OK OK OK OK OK OK OK OK OK OK OK OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		to be able to estimate the project impact on the environment. Please provide statistic and reporting documentation as far as the project environmental impacts is concerned, to the verifiers **CAR 08.** It is not clear from the organizational chart presented in Figure 1 of the MR nor from the Monitoring Journal who is in charge of the monitoring of the environmental issues at the farm. Please, make due amendments to the MR, as well as to the Monitoring Journal **CL 10.** Please, explain what data protection measures for databases are envisaged. Who is in charge of this procedure? Have the specific orders on information saving been issued and communicated to the personnel responsible for monitoring? **CL 11.** Please, provide documented evidence for the trainings conducted to the personnel involved in the project activities. **CAR 09.** Please amend the list of the Third Parties involved in the project activities including electricity and diesel fuel suppliers, Centre for Standardization and Metrology and other organizations, as appropriate.(E.g. “Sinaps” for carrying out planned maintenance of equipment) **CL 17.** It was stated in the determined PDD		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		that emergency preparedness is based on general requirements defined by national standard regulating manure management. Nothing is said about emergency/troubleshooting procedure in the MR. Please, provide information on those procedures in the MR taking into consideration the biogas plant specific character. **CL 18.** It was seen on site that gas flow meter # 0002118 measuring the volume of gas going to flare was uninstalled for the winter period. Please, explain what measures are envisaged in the MP for the case of emergency at the biogas plant. How would the volume of gas flared be measured in the emergency situation? **CL 19.** Please, provide explanation for the fluctuation of electric and heat power generated during the monitoring period as is presented in supporting document No 38 dated 26/01/2011. **CL 20.** There is an inconsistency between CH4 content taken for calculations and the one in the laboratory reports. (Please, refer to the lab analysis as for 03/12/2009 and for the data for the respective date in the Monitoring journal: 25,99-33,6% and 53% respectively).		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Please, explain what it could be accounted for and make appropriate corrections, if needed. **CL21.** Recently provided supporting documents filed in Att_9 and Att_12 are empty. **CL 25.** Please provide justification for the data uncertainly level presented in the Monitoring Instruction, Table 8 of Section 6.		
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	**CL 12.** It is stated in the MR that Identification of biogas composition is carried out by Laboratory of the Gas Institute every two weeks. Please, provide documented evidence for the analyses results for the monitoring period. **CL 13.** Please, provide documented evidence on the approved internal auditing procedure as a part of the monitoring plan **CL 14.**Please, describe in more details the cross-checking method used for ERs calculation **CL 15.** Please, explain which level of uncertainty was taken into account while taking the readings of the meters, the one presented in Tables 5 and 6 of the MR or the one prescribed by the Article 10 of "Law of Ukraine on Metrology and Metrological Activity" as it is stated in Section D.2. of the MR	CL12 CL13 CL14 CL15 CL20 CL21 CL22 CL24 CL26 CAR13 CAR18 CAR19	OK OK OK OK OK OK OK OK OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CL 20. Please provide the documents of the farm on daily manure quantity delivered to the manure management system to confirm P2 and B3 variables from the Monitoring plan **CL 21.** Please provide information on the average temperature for the year 2010 **CL 22.** Please, provide monthly reports on the electricity and thermal energy produced in 2009 **CL 24.** It is stated in paragraph 5.4 of the Monitoring Instruction that the results of QA/QC activities are to be documented. Please provide the documented evidence of the QA/QC activities undertaken in the monitoring period **CL 26.** Please, provide passport for thermal energy meter Supercom 01-SK-S-3 ("Techprylad") **CAR 13.**Documents on the project's environmental impacts defined in the EIA for the monitoring period have not be presented **CAR 18.** According to the PDD, the methane fraction in biogas w_3 is to be analyzed once every two weeks. There are 5 reports of the biogas chemical analyses for the monitoring period provided by the PPs to the verification team. Please, present the rest of the reports. In either case, please, explain the origin of the data concerning the methane content in		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		biogas used for calculations. **CAR 19.** According to the determined PDD the biogas plant at Farm 2 was to be set into operation till the end of 2009. Please, make due corrections in table 2 of the MR.		
Verification regarding programs of activities (additional elements for assessment) _Paragraphs 102 – 105_Not applicable				
Applicable to sample-based approach only_Paragraphs 106 – 110_Not applicable				

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CL 01. Please indicate sectoral scope(s) the project refers to	92	Project refers to sectoral scope 15 (Agriculture) and 1 (Energy industries/renewable	Issue is closed.
CL 02. Please Provide technical characteristics of Magnum G 400 VSA generator	101 (b)	Please see attachment 1(p.23), technical characteristics of Magnum G 400 VSA generator	CL 02 is closed based on the information provided
CL 03. Please explain what abbreviations AIC (p.5 of the MR) and RZHT (p.6 of the MR) stand for	95(b)	Abbreviation “AIC” means Agro-Industrial Complex and RZHT (Russian abbreviation РЖТ) – spreader of liquid organic fertilizers	CL03 is closed, based on the explanations and corrections made to the MR

CAR 01. Please provide reference for the agricultural technology specifying the optimum terms for storage time of the biomass to be used as a fertilizer (p.6 of the MR)	95(b)	"Instructions on laboratory monitoring of waste disposal plants at cattle-breeding complexes", M., "Kolos", Part I – 1982, Part II – 1983 and Part III – 1984	CAR 01 is closed based on the information provided
CAR 02. Please, provide reference for the nitrogen content in fermented mass defined on p.6 of the MR	95(b)	Values of nitrogen content in fermented mass were calculated using physical-chemical analysis data based on methodology presented in the Ukraine's National Inventory Report on GHG emissions and absorption submitted to the UNFCCC secretariat and approved by IPCC expert review team (Report of the individual review of the annual submission of Ukraine submitted in 2009, FCCC/ARR/2009/UKR)	CAR 02 is closed based on the information provided
CL 04. Please, specify the units for the Grade of accuracy values presented in Table 5 of the MR	95(b)	It is an accuracy class in accordance with DSTU 3339-96	Issue is closed based on the information provided

CAR 03. Please, provide more detailed description of the manure management control procedure as well as the procedure for storage and use of fermented mass in the fields as fertilizer. Are they duly documented? If yes, provide the documented evidence		Manure management control procedure and procedure for storage and use of fermented mass in the fields as fertilizer are based on the following sources: 1.Technological Designing Departmental Regulations of Agro-Industrial Complex 09.06 "Systems of manure removal, treatment, preparation and usage", Kiev 2006, Ukraine AIC 2."Instructions on laboratory monitoring of waste disposal plants at cattle-breeding complexes", M., "Kolos", Part I – 1982, Part II – 1983 and Part III – 1984 Results of monitoring that was carried out in accordance with above mentioned procedures following "Instruction on monitoring of emission reductions within the operational stage of JI Project "Biogas utilization for generating of electricity and heat at the farms of Ukrainian Dairy Company Ltd. (#35 from 17.01.2011)	CAR 03 is closed based on the additional information provided

CL 05. Please, provide results of lab analyses for the monitoring period.	101 (c)	Please see attachment 2 gas content and manure/fermented mass lab analyses	CL 05 is closed based on the supporting documents provided

CL 06. Please, provide Accreditation Certificates, as well as the list of accredited areas for the laboratories conducting laboratory analyses and calibration of the project equipment.	101 (c)	Certification of **measuring** laboratories regulated by Articles 10, 22, 24, 37, 38 of the Law of Ukraine "On metrology and metrological activity". Organization and procedure for certification in the state metrological system installed "Rules and empowerment in the state metrological certification system approved by the Order Gospotrebstandarta Ukraine of 29 March 2005, the number 71 and registered with the Ministry of Justice of Ukraine on 13 April 2005 under № 392/10672 Laboratories, were the tests done in the framework of the monitoring plan of the project are **not measuring**, due to the fact that the parameters under control are very specific for Ukraine (the project is the first of its kind for our country), and tests can be done only in **research** laboratories .	CAR 02 is closed based on the information provided

		All three laboratories are operating at research institutes in the system of the **National Academy of Sciences of Ukraine**. **http://www.ittf.kiev.ua/otp/index.html** (Please see attachment 3)	
CL 07. It has been evidenced by BV verification team during the site visit that information concerning the cattle population at the farm for the monitoring period differs from that presented in the MR. Please, provide explanation for this issue or make due corrections to the ER calculation.	101 (a)	Annual "Statement of animals flow at all divisions of UDC farm" for 2009 and 2010 was submitted to BV verification team during the site visit as an evidence of livestock amount. The total of two lines of the Statement makes a figure that is under monitoring in frames of the Project. Lines "Milk herd" and "Heifers"(young cows calved for the first time) in the column of "Availability on…" and it amounts for 2009 – 4049 heads and for 2010 – 4143 heads. In the same time the statistical form #24 "State of animal breeding" is monthly form and reflects only Milk herd quantity. The manure of these two categories of animals is fermented in biogas plant. Please, see revised calculations and attachment 4	Issue is closed based on the explanation provided

CAR 04. Please, make corrections for the P14 and P15 variables presented in Table 9 of the MR	95 (c)	Corrected (please see revised version of MR)	CAR 04 is closed based on the relevant corrections made to the MR
CL 08. Please, provide documents that state the quantity of the diesel fuel combusted in cogenerator and tractor during the monitoring period	101 (c)	Monitoring journal 2009,2010 (Please see attachment 5)	CL 08 is closed on the documents provided for verification

CAR 05. Emission factor for displacement/consumption of energy from the grid presented in MR differs from the one used in PDD. Please check this and make appropriate corrections.	95 (c)	Research data of Global Carbon B.V. on Standardized factors of CO2 emission by the Ukrainian electricity grid were used as emission factors in PDD (Study "Standardized emission factors for the Ukrainian electricity grid" (Version 5, 02 February 2007). In accordance with monitoring plan data (PDD version 7 from 27.01.2010) emission factor for displacement/consumption of energy from the grid within monitoring period is determined based on the data from most recent approved baseline study (table D1.1.3, B9). As the proposed project is implemented using track 1 procedure, emission factor approved by the National Environmental Investments Agency of Ukraine have to be used. The latest study - "Methodology for calculation of specific CO2 emissions during electrical energy production at	CAR 05 is closed based on the justifications provided

		power plants and its consumption" (approved by the order #39 from 21.03.2011) is based on the amount of electricity that is released by the power plant, amount of fuel consumed for electricity releasing, fuel net calorific value, heat losses connected with chemical and mechanical combustion incompleteness and technological expenditure of energy in electricity grid. Approved CO2 emission factor (order #43 from 28.03.2011) that is based on above mentioned methodology was used in ER calculations within monitoring period. Please see revised Exel file and MR.	
CL 09. Please provide documents of the farm as for specific fossil fuel consumption (P18 variable in Table 9 of the MR)	101 (c)	Monitoring journal 2009, 2010 (Please see attachment 5)	CL 09 is closed based on the information provided
CAR 06. Tables of variables used for monitoring must comprise information on the frequency of monitoring. Please complement the tables with this information	95 (c)	Corrected (please see revised version of MR)	CAR 06 is closed based on the corrections made to the MR

CAR 07. Section B.2.6.of the MR does not contain sufficient information for the verifiers to be able to estimate the project impact on the environment. Please provide statistic and reporting documentation as far as the project environmental impacts is concerned, to the verifiers	101 (c)	Please see attachment 6,7 Ecological expertise extract and Permits	CAR 07 is closed based on the additional information provided
CAR 08. It is not clear from the organizational chart presented in Figure 1 of the MR nor from the Monitoring Journal who is in charge of the monitoring of the environmental issues at the farm. Please, make due amendments to the MR, as well as to the Monitoring Journal	101 (c)	The Chief Engineer is responsible at the UDC farm for the environment. Please see attachment 8(an order), MR is corrected.	CAR 08 is closed based on the information provided and corrections made to the MR
CL 10. Please, explain what data protection measures for databases are envisaged. Who is in charge of this procedure? Have the specific orders on information saving been issued and communicated to the personnel responsible for monitoring?	101 (c)	There is a special program that provides protection for viewing, opening, changing, deleting files and folders to a specific user (Access Administrator). It is used for Excel files, containing Monitoring Journal information. Please see attachment 8 (order on information saving)	CL 10 is closed based on the information provided
CL 11. Please, provide documented evidence for the trainings conducted to the personnel involved in the project activities.	101 (c)	Please see attachment 9,10(Training protocols)	CL 11 is closed based on the documented evidence provided

CAR 09. Please amend the list of the Third Parties involved in the project activities including electricity and diesel fuel suppliers, Centre for Standardization and Metrology and other organizations, as appropriate.(E.g. "Sinaps" for carrying out planned maintenance of equipment)	101 (c)	Company Zorg-Ukraine Ltd. is involved for the regular calibration of the rotor gas-meters RGK-Ex; meter station of a generated heat Supercom-01-SKS-3, НВП "Techprilad"; pressure sensors IS-20-S, S1, ECO-1 WIKA; temperature sensors TR10-C WIKA; electricity meter Siemens XPS as well as system of gas control SGK-1 5BC.550.004 produced by JISK SPF SENSOR, Kharkiv. Besides, in implementing the monitoring plan the following entities are engaged by the project owner: Laboratory of ecological and sanitary-epidemiological monitoring of AIC enterprises, chair of cattle hygiene and cattle ecology named after A.K. Skorohodko of the National University of Life and Environmental Sciences of	CAR 09 is closed based on the amendments made to the MR

		Ukraine and Laboratory of the Institute of technical thermophysics of the NAS of Ukraine Performing of physical-chemical manure and final sludge analyses. Laboratory of the Gas Institute of the NAS of Ukraine Identification of qualitative and quantitative biogas composition every two weeks with the help of a gas analyzer. Samples are withdrawn by laboratory assistants at farm in special gas sampling tube with two taps and are submitted to the laboratory. Central geophysical observatory and Ukrainian Hydrometeorological Center Approval of an average annual temperatures values at project site that are necessary for monitoring of methane conversion factor value for	

		anaerobic lagoons (MCF). Authorized affiliate of GE Jenbacher in Ukraine - Company Sinaps Performing of co generators major repairs. CJSC Kyivoblenergo and JSC Chernigivoblenergo Electricity supply during the project startup period. Ukrainian Centre for Standardization and Metrology Responsible for calibration and certification.	

CL 12. It is stated in the MR that Identification of biogas composition is carried out by Laboratory of the Gas Institute every two weeks. Please, provide documented evidence for the analyses results for the monitoring period.	101 (d)	Indications of gas analyzer, which operates continuously, reflected in the MJ for the years 2009 and 2010 (PDD p. 38, System of gas control SGK-1 5BC.550.004-everyday data, installed in October 1st, 2009). In addition as a procedure for QA / QC, biogas samples were taken and the composition of the gas analyzed in the research laboratory of the Institute of Gas: 2009: 29 October, 6 November, 3 December; 2010: 17 February, 27 April. Please see attachment 2.	CL 12 is closed based on the documented evidence provided
CL 13. Please, provide documented evidence on the approved internal auditing procedure as a part of the monitoring plan	101 (d)	Please see attachment 11,12 (Monitoring Instruction and Cross – checking protocol)	CL 13 is closed based on the documented evidence provided

CL 14. Please, describe in more details the cross-checking method used for ERs calculation	101 (d)	Within the framework of quality control procedures, the calculated values of the dry matter amount in cows' manure (6,2 and 7,0 kg/head/day for 2009 and 2010 correspondingly) and ash fractions in a dry matter (0,151 and 0,132 correspondingly) were compared with similar regulatory data for cattle (DM - 6,3 kg/day and ASH - 0,16). Results of the comparison indicate conformity of the aforesaid data (difference for DM data – 1% and 10%, for ASH data – 6% and 17% respectively). Besides, pursuant to the requirements set in AMS-III.D methodology, VS values (5,3 kg/head/day for 2009 and 6,0 kg/head/day for 2010), were compared with the	CL 12 is closed based on the required description provided

		correspondent default value set in the 2006 IPCC Guidelines (4,5 kg/head/day). Discrepancies between the aforesaid values (18% and 34% respectively) can be explained by the fact that the default value of amount of volatile solids excreted has been elaborated by the IPCC primarily for the countries of Eastern Europe, but the national data indicate the specificity of cattle breeds, stockkeeping and fodder rations for milk herd cows that are owned by the Ukrainian Dairy Company Ltd.	
CL 15. Please, explain which level of uncertainty was taken into account while taking the readings of the meters, the one presented in Tables 5 and 6 of the MR or the one prescribed by the Article 10 of "Law of Ukraine on Metrology and Metrological Activity" as it is stated in Section D.2. of the MR	101 (d)	The level of uncertainty presented in tables 5 and 6 of the MR was considered while taking the readings of the meters. Article 10 of "Law of Ukraine on Metrology and Metrological Activity" just states that metering results should be used only in case if corresponding level of uncertainty of measurements is known	CL 15 is closed based on the explanation provided

CAR 10. In the excel spreadsheet it is stated that the project activity ERs were calculated for the period of 121 days in 2009. At the same time the crediting period start is defined as 01/11/2009 which makes 61 days in 2009. Please bring in line those figures and make respective corrections in the ERs calculation.	95 (d)	Corrected (please see revised ER calculation sheet)	CAR 10 is closed based on the corrections made to the MR
CAR 11. Recalculation of the baseline emissions made by the verifiers shows that the total baseline emissions equal 4032 and 13860 tons of CO2 eq. for 2009 and 2010 years respectively. Please, check this out and correct appropriately.	95 (d)	Corrected (please see revised ER calculation sheet)	CAR 11 is closed based on the corrections made to the MR
CL 16. It was stated in the determined PDD that cogeneration installation is to work 24 hours 365 days in year. At the same time it was stated that annual amount of electricity which would be displaced by the electrical and thermal energy produced in cogenerator was calculated based on its operation for 8000 hours per year. Please, explain what operational time was taken for ERs calculation for the monitoring period, as 24hoursx365 days make 8760, not 8000 hours	94	Value of operational time for cogenerators used in PDD is based on the data from Working project Emissions reductions within the monitoring period were calculated based on actual data about amount of electrical and thermal energy produced in cogenerators (8760 hours/year)	Required explanationwas provided. Cl 16 is closed

CL 17. It was stated in the determined PDD that emergency preparedness is based on general requirements defined by national standard regulating manure management. Nothing is said about emergency/troubleshooting procedure in the MR. Please, provide information on those procedures in the MR taking into consideration the biogas plant specific character.	101 (c)	According to the Law of Ukraine "On fire safety" for case of fire the site is provided with two fire water tanks with capacity of 100m3 and pumping station. Object is secured by external fire extinguishing. Emergency situation is possible at the receiving station and manure pumping system in case of the lagoon feeding pump stopping. This incident will trigger the alarm (siren) and the addition of manure in lagoons will be provided by means of the wet organic fertilizer throwing machine, which has the capacity and equipped with a pump for liquid water mixtures pumping. Hermetic pipelines for manure transport using and manure lagoons waterproofing prevents manure leakages into the soil and groundwater. In the case of an emergency on biogas plant (termination of	Required information has been provided. CL 17 is closed

		biogas supply) generator operates on diesel fuel and the surplus biogas is flared at a gas open flare.Uninterrupted power supply for milking facility units in case of power failure is provided by means of generator, which works on diesel fuel. In terms of design decisions, passport requirements on the installation and operation of equipment implementation and adherence to safety the emergencies should not occur at biogas plant. Please see changes in MR and attachment 15	
CL 18. It was seen on site that gas flow meter # 0002118 measuring the volume of gas going to flare was uninstalled for the winter period. Please, explain what measures are envisaged in the MP for the case of emergency at the biogas plant. How would the volume of gas flared be measured in the emergency situation?	101 (c)	The gas pipeline is designed in such a way that, if necessary when the flare gas meter is not operating, the gas flow could be directed through the second meter # 0002043. At the moment the rotary gas flow meter # 0002118 is reinstalled.	Issue is closed

CL 19. Please, explain whether the actual value of biogas flared was calculated based on the candle capacity?	95 (d)	The actual value of biogas flared was calculated based on the candle gas meter data and amount of candle working hours fixed in the Monitoring Journal	Appropriate explanation has been provided. CAR 10 is closed
CAR 12. Monitoring Instruction issued by Order #232/2 dated 20/09/2009 prescribes saving and archiving of project data for the period 2009-2012, that doesn't meet the JISC requirement	101 (a)	UDC order about saving of information within 3 years after the last transaction Please see attachment 8	CAR 12 is closed based on the corrections made to the MR
CL 20. Please provide the documents of the farm on daily manure quantity delivered to the manure management system to confirm P2 and B3 variables from the Monitoring plan	101 (d)	Monitoring Journal 2009,2010 Please see attachment 5	The required information has been submitted to the verifiers. Issue is closed
CL 21. Please provide information on the average temperature for the year 2010	101 (d)	Please see attachment 13 letter from Ukrainian Hydrometeorological Center	The required information has been submitted to the verifiers. Issue is closed
CL 22. Please, provide monthly reports on the electricity and thermal energy produced in 2009	101 (d)	Monitoring Journal 2009 is provided in attachment 5	The documents have been provided. CL 22 is closed
CL 23. According to the document on electrical and thermal energy produced from the project start till the end of the year 2010 presented to the verifiers during the on-site visit, there was no electrical and thermal energy generation in November 2009. Please, explain why the crediting period starts in November	92	1st of November 2009 - is the official date of putting into operation of cogenerator at Farm 1. But in fact, during the first month of exploitation generator was getting through the setup and testing procedures and biogas was combusted at flare candle.	The required explanation has been provided to the verifiers. Issue is closed

CL 24. It is stated in paragraph 5.4 of the Monitoring Instruction that the results of QA/QC activities are to be documented. Please provide the documented evidence of the QA/QC activities undertaken in the monitoring period	101 (d)	Cross –checking protocol Please see attachment 12	CL 24 is closed based on the supporting documents provided to the verifiers.
CL 25. Please provide justification for the data uncertainly level presented in the Monitoring Instruction, Table 8 of Section 6.	101 (c)	Uncertainly levels for B3 (0,5%),B4-B5 (0,7%) variables were derived based on the sampling data range according to initial results of physical-chemical analysis performed by the Laboratory of the National University of Life and Environmental Sciences of Ukraine and Laboratory of the Institute of technical thermophysics of the NAS of Ukraine following methodology presented in chapter 6 of GPG 2000 "Quantifying Uncertainties in Practice". Uncertainty value for electricity meter Siemens XPS (B6 – 1%) was taken from the equipment certificate.	Data uncertainty has been justified. CL 25 is closed
CL 26. Please, provide passport for thermal energy meter Supercom 01-SK-S-3 ("Techprylad")	101 (d)	Supercom 01-SK-S-3 Passport is provided in attachment 14	The required document has been submitted. Issue is closed
CAR 13. Documents on the project's environmental impacts for the monitoring period have not been presented	101 (d)	Please see attachment 6,7 (Limits and Permits)	The required documents have been submitted. Issue is closed

CAR 14. The date and of version of the MR refer to its first submission. Please, correct these considering the actual date of the second submission	92	Corrected (please see revised version of MR)	The required documents have been submitted. Issue is closed
CL 27. Please, give reference for the following statement from the MR p.6 "the optimum terms of agricultural technology"	95(b)	"Instructions on laboratory monitoring of waste disposal plants at cattle-breeding complexes", M., "Kolos", Part I – 1982, Part II – 1983 and Part III – 1984 Corrected (please see revised MR).	CL 27 is closed, as the required information has been reflected in the MR.
CAR 15. "The annual input of organic fertilizers norm calculation **should be** based…" (p.6 of the MR). Are **must be** or **is to be** meant here? The same concerns the footnote on p.10. Please, correct this	95(b)	Corrected (please see revised version of MR)	CAR 15 is closed based on the corrections made to the MR
CL 28. Please, indicate in the calculation spreadsheet the GWP for CH_4.	95(c)	Corrected (please see revised calculation spreadsheet)	The required data has been added. CL 28 is closed
CAR 16. There is inconsistency between the average annual temperatures for the years 2009 and 2010 indicated in the calculation spreadsheet and the ones submitted by the Observatory and UHC.	95(c)	Corrected (please see revised calculation spreadsheet)	CAR 16 is closed based on the corrections made to the MR
CL29. Please, provide the LoAs from the Parties involved in the project.	90	LOA sent 07.04.2011	CL 29 is closed as the LoAs from both Parties involved have been presented to the verifiers

CAR 17. There is a mistake in the baseline emissions reduction for the year 2010 (MR p.25). Please check this and make further corrections respectively.	95(d)	Corrected (please see version 4.0 of MR)	The mistake has been corrected. CAR 17 is closed
CAR 18. According to the PDD, the methane fraction in biogas w_3 is to be analyzed once every two weeks. There are 5 reports of the biogas chemical analyses for the monitoring period provided by the PPs to the verification team. Please, present the rest of the reports. In either case, please, explain the origin of the data concerning the methane content in biogas used for calculations.	101(d)	At the moment of PDD preparation gas analyser wasn't installed and it was envisaged that biogas analyses will be performed every two weeks in the laboratory of the Gas Institute of Ukrainian NAS. Also in monitoring plan it was mentioned that System of gas control SGK-1 5BC.550.004, produced by JISK SPF SENSOR, Kharkiv, Ukraine will define methane fraction in biogas at inlets of co generators. Within the monitoring period readings of above mentioned system (are presented in Monitoring Journal) were used to calculate ER. Biogas analyses are also performed in the laboratory of the Gas Institute of Ukrainian NAS not less than twice a year only for quality control.	CAR 18 is closed based on the explanations provided.

CL 19. Please, provide explanation for the fluctuation of electric and heat power generated during the monitoring period as is presented in supporting document No 38 dated 26/01/2011.	101(c)	Fluctuation of electric and heat power generated during the monitoring period is directly explained by the changes in volume of biogas flow combusted in cogenerator.	CL 19 is closed based on the justification provided
CL 20. There is an inconsistency between CH4 content taken for calculations and the one in the laboratory reports. (Please, refer to the lab analysis as for 03/12/2009 and for the data for the respective date in the Monitoring journal: 25,99-33,6% and 53% respectively). Please, explain what it could be accounted for and make appropriate corrections, if needed.	101(c)	Data about CH4 content used in calculations were previously based on the laboratory reports of Gas Institute of Ukrainian NAS. ER calculations were updated and now are based on more accurate data from Monitoring Journal based on readings of System of gas control SGK-1 5BC.550.004 (please see revised calculation spreadsheet).	CL 20 is closed based on the more accurate data provided for calculation
CL21. Recently provided supporting documents filed in Att_9 and Att_12 are empty.	101(c)	Resent 07.04.2011	CL 21 is closed as the required supporting documents have been provided for verification
CAR 19. According to the determined PDD the biogas plant at Farm 2 was to be set into operation till the end of 2009. Please, make due corrections in table 2 of the MR.	101(d)	Corrected (please see revised version of MR)	Due correction has been made to the MR. Issue is closed.

CAR 20. Please, justify your choice of emission factor for producing electricity from the grid. Provide the supporting documents with the indication to which class of consumers UDC belongs to or other relating documents.	95(c)	The official letter from the project owner (#127 as of 24.03.2011) confirming that UDC company belongs to the second class of voltage consumers is attached	CAR 20 is closed based on the required documents presented to the verifiers
CAR 21. The calculation of ERs for the year 2009 should be made taking into account the Order N 63 dated 15/04/2011 issued by the State Environmental Investment Agency of Ukraine on the approval of the national electricity grid emission factors for the year 2009	95(c)	Respective recalculations have been made. Please, refer to the upgraded MR, version 4.0	CAR 21 is closed based on the required corrections made to the MR.