VERIFICATION REPORT

LCME "TEPLOCOMUNENERGO"

VERIFICATION OF THE REHABILITATION OF THE DISTRICT HEATING SYSTEM IN LUHANSK CITY

INITIAL AND1ST PERIODIC (2008-2009)

REPORT NO. UKRAINE/0099/2010

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE 0099/2010

Verification Report on JI project "Rehabilitation of the District Heating System in Luhansk City"

Date of first issue:	Organizational unit:
09/06/2010	Bureau Veritas Certification Holding SAS
Client: LCME "Teplocomunenergo"	Client ref.: Oleksiy Rusakov

Summary:
Bureau Veritas Certification has been commissioned by LCME "Teplocomunenergo" to carry out the initial and 1st periodic verification of GHG emission reduction by the JI project "Rehabilitation of the District Heating System in Luhansk City" located in Luhansk, Ukraine, based on UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting, as well as the host country criteria.

The objective of the project is sustainable development of the region through implementation of energy saving technologies. The project main goal is reduction of natural gas and coal consumption, by means of district heating system rehabilitation in Luhansk City, including boiler and distribution network equipment replacement and rehabilitation, installation of combined heat and power production plants and frequency controllers. Such reduction of fuel consumption will result in decrease of greenhouse gas emissions (CO2 and N2O).

The verification covers the period from January 1, 2008 to December 31, 2009.

The verification is carried out as combined Initial and 1st Periodic Verification. A risk-based approach has been followed to perform the verification. In the course of verification 13 Corrective Action Requests (CAR) and 9 Clarification Requests (CL) were raised and successfully closed. 1 raised Forward Action Request (FAR) is left pending until the next periodic monitoring.

The verification is based on the Monitoring Report #1, versions 01 and 02 (covers January 1st 2008 – December 31st 2008), the Monitoring Report #2, versions 01 and 02 (covers January 1st 2009 – December 31st 2009),the Monitoring Plan, the determined PDD, version 6.0 of 11/12/2009, and supporting documents made available to Bureau Veritas Certification by the project participant.
As a result of the Initial Verification, Bureau Veritas Certification confirms that the project is implemented as planned and described in the PDD. 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.
As a result of the 1st Periodic Verification, the Bureau Veritas Certification confirms that the GHG emission reductions are calculated without material misstatements in conservative and appropriate manner.

Based on information seen and evaluated we confirm that the implementation of the project has resulted in total 79311 tCO2e reductions during the following reporting periods: 38681 tCO2e - for the reporting period 01/01/2008 - 31/12/2008;
40630 tCO2e - for the reporting period 01/01/2009 - 31/12/2009.

On behalf of verification team, Flavio Gomes, the Bureau Veritas Certification Holding SAS Global Product Manager for Climate Change, approved final version of the Verification Report and it is signed by Ivan Sokolov authorized Bureau Veritas Certification Holding SAS Local product manager for Climate Change in Ukraine.

Report No.: UKRAINE/099/2010	Subject Group: JI	
Project title: "Rehabilitation of the District Heating System in Luhansk City"		
Work carried out by: Ivan Sokolov - Team Leader, Lead verifier Oleg Skoblyk - Team Member, Verifier Svitlana Gariyenchyk - Team Member, Verifier		
Work verified by: Ivan Sokolov – Internal Technical Reviewer		
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Indexing terms

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

Abbreviations

AIE	Accrediting Independent Entity
BVCH	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CL	Clarification Request
CO_2	Carbon Dioxide
CHP	Combined Heat and Power
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
IETA	International Emissions Trading Association
JI	Joint Implementation
JISC	JI Supervisory Committee
LCME	Luhansk City Municipal Enterprise
LHV	Lower Heating Value
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

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1 INTRODUCTION

LCME “Teplocomunenergo” has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project, to carry out the initial and 1st periodic verification of GHG emission reduction by the JI project “Rehabilitation of the District Heating System in Luhansk City” (hereafter called “the Project”), Ukraine.
This report summarizes the findings of the verification of the project, performed on the basis of criteria given to provide for consistent project operations, monitoring and reporting, and contains a statement for the verified emission reductions.

Initial and first periodic verification has been performed as one integrated activity.
The verifiers have reviewed the GHG data collected for the period from January 01, 2008 to December 31, 2009.

The National Environmental Investment Agency of Ukraine has confirmed this JI project under Track 1 procedure by the Order No. 72 dated June 02, 2010. The project has approvals of the National Environmental Investment Agency of Ukraine and Ministry of Economic Affaires of the Netherlands (Letters of approval are presented, refer to Section 7).

1.1 Objective

The Purpose of this verification is a combined initial and 1st periodic verification.

The objective of the 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.

The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; furthermore the periodic verification evaluates the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is free of material misstatements; and verifies that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records.
The verification follows UNFCCC criteria referring to the Kyoto Protocol criteria, the JI/CDM rules and modalities, and the subsequent decisions by the JISC, as well as the host country criteria.

1.2 Scope

The verification of this project is based on the Project Design Document version 6.0 dated 11/12/2009, the Monitoring Report #1, versions 01and 02 (covers January 1st 2008 – December 31st 2008), the Monitoring Report #2, versions 01 and 02 (covers January 1st 2009 – December 31st 2009), the monitoring plan as set out in the PDD, supporting documents made available to Bureau Veritas Certification, and information obtained through the on-site interviews and on-site assessment. The documents and information are reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. Bureau Veritas Certification, based on the recommendations in the Validation and Verification Manual (IETA/PCF), has employed a risk-based approach in the verification, focusing on the identification and reporting of significant risks and on reliability of project monitoring and generation of Emission Reductions Units (ERU).

The verification is not meant to provide any consulting towards the Client. However, stated requests for forward actions and corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

1.3 GHG Project Description (quoted from the PDD)

The project main goal is fuel consumption reduction, in particular reduction of natural gas (which is imported to Ukraine) and coal consumption, by means of district heating system rehabilitation in Luhansk City, including boiler and distribution network equipment replacement and rehabilitation, installation of combined heat and power production plants and frequency controllers. Such reduction of fuel consumption will result in decrease of greenhouse gas emissions (CO2 and N2O). The purpose of the project is sustainable development of the region through implementation of energy saving technologies.

Luhansk City Municipal Enterprise (LCME) “Teplocomunenergo”is one of the main enterprises in field of production and distribution of the heat energy in Luhansk City. Its share in district heating system of the city is approximately 92%. It sells heat energy in forms of heat, hot water and steam, to local consumers, namely households, municipal consumers and state-owned organizations. Heat supply market in the region is stable for years.

The project was initiated in 2006 to rehabilitate Luhansk City’s district heating system, including boiler and distribution network equipment replacement and rehabilitation, and installation of combined heat and power production plants (CHP) as well as frequency controllers. Project

includes 135 boiler-houses with 344 boilers (total connected load 550 Gkal/hour, 2006) and 269 km of heat distributing networks, that are managed by LCME “Teplocomunenergo”.
Project provides installation of cogeneration units at the three boiler houses - 11 gas engines, 1064 kW. Gas engines-generators machines "Jenbacher" JGS 320 GS (Austria) are considered as potential candidates for installation.

The project employs the increase in fuel consumption efficiency to reduce greenhouse gas emissions relative to current practice. Over 35.8 million Nm3 of natural gas and 710 ton of coal will be saved annually starting from 2011. Such reduction of fuel consumption is based on increase of the boiler efficiencies, reduction of heat losses in networks and CHP and frequency controllers installation. The following activities will ensure fuel saving:

- Replacement of old boilers by the new highly efficient boilers;
- Switching of load from boiler-houses with obsolete equipment to modern equipped boiler houses;
- Switching of boiler-houses from coal to natural gas;
- Improving of the network organization;
- Application of the pre-insulated pipes;
- Installation of combined heat and power production units;
- Replacement of heat exchangers;
- Installation of heat pump station;
- Installation of frequency controllers at electric drives of draught-blowing equipment and hot water pumps motors.

Implementation of the project will provide substantial economic, environmental, and social benefits to the Luhansk city. Social impact of the project is positive since after project implementation the heat supply service will be improved.
Environmental impact of the project is expected to be positive as the emission of the exhaust gases such as CO2, NOx, and CO will be reduced. Also, due to better after-implementation service, some part of population will cease to use electric heaters, thus, reducing electricity consumption which is related to power plants emissions of CO2, SOx, NOx, CO and particulate matter.

2 METHODOLOGY

The verification of the project consisted of the following activities:

- On-site assessment and interviews held on 29/04/2010;
- Publication of the Monitoring Report on the BV site;
- Desk review of the Monitoring Report and supporting documents;

- Preparation of the Draft Verification Protocol (Appendix A) one and mails;
- Following communications with the project participant by phone and mails;
- Resolution of requests for corrective and forward actions and clarification;
- Preparation of the final Verification Report;
- Internal Technical Review of the Verification Report.

2.1 Verification protocol

According to the Validation and Verification Manual (IETA/PCF) a verification protocol is used as part of the verification. 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 the project is expected to meet; and
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The verification protocol consists of one table under Initial Verification checklist and four tables under Periodic verification checklist. The different columns in these tables are described in Figure 1.

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

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

Initial Verification Protocol Table 1			
Objective	**Reference**	**Comments**	**Conclusion (CARs/FARs)**
The requirements the project must meet	Gives reference to where the requirement is found.	Description of circumstances and further comments on the conclusion	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance of the stated requirements. Forward Action Request (FAR) indicates essential risks for further periodic verifications.

Periodic Verification Checklist Protocol Table 2: Data Management System/Controls		
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**
The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.	A score is assigned as follows: • Full - all best-practice expectations are implemented. • Partial - a proportion of the best practice expectations is implemented • Limited - this should be given if little or none of the system component is in place.	Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non compliance with stated requirements. The corrective action requests are numbered and presented to the client in the verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications.

Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing		
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**
Identify and list potential reporting risks based on an assessment of the emission estimation procedures, i.e. ➢ the calculation methods, ➢ raw data collection and sources of supporting documentation, ➢ reports/databases/information systems from which data is obtained. Identify key source data. Examples of source data include metering records, process monitors, operational logs, laboratory/analytical data, accounting records, utility data and vendor data. Check appropriate calibration and maintenance of equipment, and assess the likely accuracy of data supplied. Focus on those risks that impact the accuracy, completeness and	Identify the key controls for each area with potential reporting risks. Assess the adequacy of the key controls and eventually test that the key controls are actually in operation. Internal controls include (not exhaustive): ➢ Understanding of responsibilities and roles ➢ Reporting, reviewing and formal management approval of data; ➢ Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc. ➢ Controls to ensure the arithmetical accuracy of the GHG data generated and accounting records e.g. internal audits, and checking/ review	Identify areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks Areas where data accuracy, completeness and consistency could be improved are highlighted.

consistency of the reported data. Risks are weakness in the GHG calculation systems and may include: ➢ manual transfer of data/manual calculations, ➢ unclear origins of data, ➢ accuracy due to technological limitations, ➢ lack of appropriate data protection measures? For example, protected calculation cells in spreadsheets and/or password restrictions.	procedures; ➢ Controls over the computer information systems; ➢ Review processes for identification and understanding of key process parameters and implementation of calibration maintenance regimes ➢ Comparing and analyzing the GHG data with previous periods, targets and benchmarks. When testing the specific internal controls, the following questions are considered: 1. Is the control designed properly to ensure that it would either prevent or detect and correct any significant misstatements? 2. To what extent have the internal controls been implemented according to their design; 3. To what extent have the internal controls (if existing) functioned properly (policies and procedures have been followed) throughout the period? 4. How does management assess the internal control as reliable?	

Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing		
Areas of residual risks	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including Forward Action Requests)**
List the residual areas of risks (Table 2 where detailed audit testing is necessary. In addition, other material areas may be selected for detailed audit testing.	The additional verification testing performed is described. Testing may include: 1. Sample cross checking of manual transfers of data 2. Recalculation 3. Spreadsheet 'walk throughs' to check links and equations 4. Inspection of calibration and maintenance records for key equipment	Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties should be highlighted. Errors and uncertainty can be due to a number of reasons: ➢ Calculation errors. These may be due to inaccurate manual transposition, use of inappropriate emission factors or assumptions etc. ➢ Lack of clarity in the monitoring plan. This could lead to inconsistent approaches to calculations or scope of reported data.

	➢ Check sampling analysis results ➢ Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.	➢ Technological limitations. There may be inherent uncertainties (error bands) associated with the methods used to measure emissions e.g. use of particular equipment such as meters. ➢ Lack of source data. Data for some sources may not be cost effective or practical to collect. This may result in the use of default data which has been derived based on certain assumptions/conditions and which will therefore have varying applicability in different situations. The second two categories are explored with the site personnel, based on their knowledge and experience of the processes. High risk process parameters or source data (i.e. those with a significant influence on the reported data, such as meters) are reviewed for these uncertainties.

Verification Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	**Ref. to checklist question in tables 2/3**	**Summary of project owner response**	**Verification conclusion**
If the conclusions from the Verification are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the verification team should be summarized in this section.	This section should summarize the verification team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Verification protocol tables

2.2 Review of Documents

The preliminary and final Monitoring Reports (MRs) for the two monitoring periods submitted by the project participants and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), applied methodology, Kyoto Protocol, Clarifications on Verification Requirements to be checked were reviewed.
To address Bureau Veritas Certification corrective action and clarification requests, prior to and following the site-visit PPs revised the MRs and resubmitted them as version 02.
The verification findings presented in this report relate to the project as described in the PDD version 6.0 of 11/12/2009, Monitoring Report #1, versions 01and 02 and Monitoring Report #2, versions 01and 02.

2.3 Follow-up Interviews

Within the frameworks of the Initial and 1st Periodic Verification, Bureau Veritas Certification verifiers conducted a visit to the project site on 29/04/2010. On-site interviews with the project participants and inspection of the project and monitoring equipment were conducted to collect information needed for the verification of emission reduction. Representatives of Institute of Engineering Ecology and LCME “Teplokomunenergo” were interviewed (see the list of interviewees in Section 6). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
LCME “Teplokomunenergo”	Organizational structure. Responsibilities and authorities. Roles and responsibilities for data collection Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Data logging Data archiving Data reporting Metering equipment control. IT management
Consultant: Institute of Engineering Ecology	Baseline methodology. Monitoring plan. Monitoring report. Deviations from PDD.

2.4 Resolution of Clarification, Corrective and Forward Action Requests

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

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

Corrective Action Requests (CAR) are issued, where:

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

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

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

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

3 INITIAL VERIFICATION FINDINGS

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

1) The findings from the desk review of the original project activity documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Verification Protocol in Appendix A.
2) The conclusions for verification subject are presented.

In the final verification report, the discussions and the conclusions that followed the preliminary verification report and possible corrective action requests are encapsulated in this section.

3.1 Remaining issues CAR’s, FAR’s from previous determination/verification

One task of the verification is to check the remaining issues from the previous determination and verification or issues which are clearly defined for assessment in the PDD.

There are no open issues remaining from the previous determination/ verification.

3.2 Project Implementation

The project employs the increase in fuel consumption efficiency to reduce greenhouse gas emissions relative to current practice. Such reduction of fuel consumption is based on increase of the boiler efficiencies, reduction of heat losses in networks and CHP and frequency controllers installation.

The starting date of the project according to PDD is: 07/02/2006.
The starting date of the crediting period is set to the date where the first emission reduction units are expected to be generated from the project that is January 1, 2007. The end of the crediting period is the end of the lifetime of the main equipment that is minimal 20 years, and correspondingly December 31, 2026.

According to the Project Design Document (PDD) version 6.0 of 11/12/2009, the following basic stages of project implementation are envisaged by the project:

- boiler houses rehabilitation – 2006 – 2011;
- network rehabilitation – 2006 – 2011;
- installation of CHP units – 2010 – 2011;
- installation of frequency controllers – since 2010.
- installation of HPS – 2010;
- installation of heat exchangers – 2006-2010.

Implementation of boiler houses rehabilitation and network rehabilitation are realized according to project plan. In several cases replacement of different (from planed before) diameters of network pipes takes place.

Implemented energy saving measures for the reporting period are presented in Table bellow.

Implemented energy saving measures	Volume of performed works (number of boilers, etc.) 2008	Volume of performed works (number of boilers, etc.) 2009
Complete overhaul	35	26
Replacement of convection part	0	0
Replacement of ceiling screens	1	0
pipe part	0	0
Complete overhaul, switch boiler to water-heating mode	0	0

replacement of the burners	16	20
Installation of automatic system of regulation on boilers	6	11
Switch to boiler-house	1	3
Replacement of boilers		
KSVa-3G	1	0
AOGV-100	1	0
KOLVI - 1000 - 2,6 MW	2	0
Vitomax 200 LW- 40 MW	4	0
MH120 ЕКО "Бернард" - 360 kW	0	2
IVAR Superac 290 2F - 600 KW	0	2
MH120 ЕКО "Бернард" - 420 kW	0	4
«Super Rac-2F-345», pumps with FC, Grundfos & Wilo	0	6
Building of boiler-house	0	0
Replacement of tank-accumulators	0	0
Heat exchangers replacement	0	4
Frequency controllers installation	0	10
Replacement of heating surface	0	0
Pre-insulated network replacement, m	24609	16823
Usual pipe network replacement, m	23930	16747

During the site-visit conducted on 29/04/2010 Bureau Veritas verifiers observed that the frequency controllers that were planned to be installed starting from 2010 according to the implementation schedule, have been already installed in the boiler houses. This deviation has been appropriately justified by the Project Participants. (For further details, please, refer to CL 08 of the Verification Protocol).

The Monitoring System is in place and operational. Monitoring of GHG emission reductions is being carried out as per the Monitoring Plan.

The monitoring equipment such as electricity and gas meters, correctors are in place and comply with the industrial standards of Ukraine. All monitoring equipment is covered by the detailed verification (calibration) plan and is verified with established periodicity, established by its manufacturer.
Outstanding issues related to the Project Implementation, PP’s response and BV Certification’s conclusion are described in Appendix A Table 1 (refer to CAR 01, CL 08).

3.3 Internal and External Data

Internal and external data required for calculation of emission reductions are presented in MRs, Section B.2.1 which contain all default values, variables and attached values, as well as in Annex 1, comprising full description of all 18 parameters that have been monitored during the reported period.
Adequacy of those data and their correct application were assessed based on the spot checks conducted during the site-visit and documents provided by the responsible persons of the enterprise. They include the log-books from the boiler-houses, invoices from natural gas and coal suppliers, independent chemical laboratories reports, meteorological center’s daily reports, etc. For more detailed information, please, refer to Annex 1 of the MRs and the list of documents analyzed.

No areas of concern as to Internal and External Data were identified.

3.4 Environmental and Social Indicators

The analysis of documents on environmental impacts of the project obtained from the LCME “Teplokomunenergo” demonstrated that all documentation (including licenses, permits, reports on inventories conducted) required in accordance with Ukrainian environmental legislation is in place. This has been also stated in the Statement on compliance with environmental legislation requirements which has been issued by the State Inspectorate in Luhansk Region as a result of the scheduled inspection of LCME “Teplokomunenergo” carried out from 3-23 November to 11December 2010.For the list of environmental documents, please, refer to the Reference Section of the present report.

As far as social indicators are concerned, the positive social effect from the measures implemented and planned to be implemented within the project are widely highlighted in the local media. Thus, for instance, the local newspaper “Zhizn’ Luhanska” (“Life in Luhansk”) dated 04/10/2009 describes the commencement meeting held in Moskovskaya street where the second boiler house planned to be implemented under the project, was being opened. It had been built to supply heat and hot water to 8 blocks of flats, social infrastructure buildings and other consumers. Installed equipment will insure 93% boiler house efficiency, which in its turn will definitely result in constant heat and hot water supply to the local dwellers.

Outstanding issues related to the Environmental and Social Indicators, PP’s response and BV Certification’s conclusion is described in Appendix A Table 1 (refer to CAR 05, CAR 08, CAR 10).

3.5 Management and Operational System

Key elements of LCME “Teplokomunenergo” management and operational system for emission monitoring and reporting are set out in specially issued documents:

- Order # 271 of 30/09/2009 on allocation of responsibilities for collecting and archiving the project data; and
- Minute of the LCME “Teplokomunenergo” Technical Council Meeting # 1 of 18/01/2010.

These documents provide the scope of application, definition of primary data, requirements on and responsibilities for data collection, recording, storage, protection, transfer, consolidation, processing, reporting. The Responsibility Structure was prepared by the managers involved who are well informed and qualified to perform the monitoring and reporting tasks.

Registration of natural gas consumption at boiler houses of LCME “Teplocomunenergo” is carried out by the following scheme:

1. All boiler-houses are equipped with gas flow meters, installed at gas distributing units of the boiler-houses.

2. Most of boiler-houses equipped with automatic corrector for temperature and pressure. Gas consumption registered automatically. Beside this operators of all boiler-houses register the instrument readings in the paper journals “Journal of registration of boiler-house’s operation parameters” every day, see Fig.5.

3. At the boiler-houses that are not equipped with gas volume correctors (at present about 2% of the total number of boiler-houses), operators register parameters of gas: temperature and pressure in these journals every 2 hours. These parameters are used to bring gas consumption to normal conditions.

4. Every day operators transfer values of gas consumption to dispatcher of the regional branch of LCME “Teplocomunenergo” by phone. Monthly they transfer the paper report.

5. Regional branches transfer data to Production-Technical Department (PTD) of LCME “Teplocomunenergo” where they are storing and used for payments with gas suppliers.

Data collection scheme is presented at the Fig. 6. of the Monitoring Reports.

Personnel engaged in the JI project, including engineers and technical workers, possesses necessary knowledge and competence. Trainings to the boiler-house operators, equipment setup men, service-and-supply personnel are provided by the Luhansk City Training Center. The appropriate training to the personnel responsible for the equipment operation and monitoring is also provided by equipment producers.

Among the third parties providing external services for the project there are the following companies:

- JSC “Luhanskgas” (providing physicochemical parameters of natural gas consumed in boiler-houses);
- External laboratories providing analyses for the quality of coal supplied);
- State Enterprise “Luhanskstandartmetrologiya”, “Arsenal” Plant providing verification and calibration of the equipment”;
- Luhansk Hydrometeorology Center providing information on daily external temperature of the air;
- Outside companies carrying out disassembling works, waste disposal and burial, and
- Other outside companies which provide the project-specific services. (for further details, please, refer to Appendix C of the present Report.

As far as the established troubleshooting procedure is concerned, there are emergency services within LCME “Teplocomunenergo” operating on the 24-hour basis and having at their disposal machinery destined for equipment repairs, emergency material and equipment reserve, technical personnel guided by the specially developed action plan to be followed in emergency situations. The person in charge of emergencies is a Chief engineer of LCME “Teplocomunenergo”.

Monitoring Report provides sufficient information on the elements of the system related to assigning roles, responsibilities and authorities for implementation and maintenance of monitoring procedures including control of data. The verification team confirms effectiveness of this management system.

Outstanding issues related to Management and Operational System, PP’s responses and BV Certification’s conclusions are described in Appendix A Table 1 (refer to CAR 02, CAR 03, CAR 04, CAR 06, CAR 09,CAR 11, CAR 12, CAR 13, CL 01, CL 02, CL 03, CL 04, CL 05, CL 06, CL 07, FAR 01).

4 FIRST PERIODIC VERIFICATION FINDINGS

4.1 Completeness of Monitoring

The monitoring of the project is complete and in accordance with the monitoring plan contained in the determined PDD.
The relevant emission sources are duly covered by the monitoring. All pertinent parameters are determined and monitored. The collected data is appropriately stored. The monitoring methodology and sustaining records were sufficient to enable verification of emission reductions.

During the verification process, no lacks of evidence were detected. The data gathering and reporting procedures, which were described in the MRs and examined during the on-site visit, were found to reflect the ones defined by the original monitoring plan.

There are no outstanding issues related to Completeness of Monitoring.

4.2 Accuracy of Emission Reduction Calculations

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

The verification team confirms that emission reduction calculations have been performed according to the monitoring plan and to the calculation methodology reported in the final MRs in accordance with the PDD.
The verifiers checked the transfer of monitored data to spreadsheets, correctness of the formulas versus the PDD, as well as calculations of emission reductions.

No inaccuracies in calculations were detected by the verifiers.

4.3 Quality Evidence to Determine Emissions Reductions

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

•LCME "Teplocomunenergo" Directors's Order # 271 of 30/09/2009 on allocation of responsibilities for collecting and archiving the project data; and Minute of the LCME "Teplocomunenergo" Technical Council Meeting # 1 of 18/01/2010.

- Responsibility Structure for GHG emission monitoring
- Clear allocation of roles, responsibilities and authorities
- Competence and commitments of personnel
- QC and QA procedures
- Maintained and calibrated measuring equipment
- Appropriate archiving system
- System of Personnel Training
- Implementation of data traceability
- Checks for consistency and adequacy of data and calculations

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

There are no issues related to Quality Determination of Emission Reductions.

4.4 Management System and Quality Assurance

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

5 PROJECT SCORECARD

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Completeness	Source coverage/ boundary definition	✓	✓	✓	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently.

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Accuracy	Physical Measurement and Analysis	✓	✓	✓	State-of-the-art technology is applied in an appropriate manner. Appropriate backup solutions are provided.
	Data calculations	✓	✓	✓	Emission reductions are calculated correctly
	Data management & reporting	✓	✓	✓	Data management and reporting were found to be satisfying.
Consistency	Changes in the project	✓	✓	✓	Results are consistent to underlying raw data.

6 INITIAL AND FIRST PERIODIC VERIFICATION STATEMENT

Bureau Veritas Certification was commissioned by LCME “Teplocomunenergo” to carry out, under JI track 1 procedure, the initial and 1st periodic verification of the JI project “Rehabilitation of the District Heating System in Luhansk City”, based on UNFCCC criteria for the JI, as well as criteria given to ensue 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 covers the period from January 1, 2008 to December 31, 2009.

The verification was carried out as a combined initial and 1st periodic verification. A risk-based approach has been followed to perform the verification. The verification is based on the Monitoring Report #1, versions 01 and 02 (covers January 1st 2008 - December 31st 2008), the Monitoring Report #2, versions 01 and 02 (covers January 1st 2009 - December 31st 2009) the Monitoring Plan as set out in the determined PDD version 6.0 of 11/12/2009 and supporting documents which were made available to Bureau Veritas Certification by the project participant.

In the course of verification, 13 Corrective Action Requests (CAR), 9 Clarification Requests (CL) and 1 Forward Action Request (FAR) were raised. The CAR’s and CL’s were successfully closed. 1 raised Forward Action Request (FAR) is left pending until the next periodic monitoring.

As a result of the Initial Verification, the Bureau Veritas Certification confirms that the project activities are carried out as planned and described in the PDD with minor deviation in the implementation schedule, which has been reasonably justified, the installed equipment run reliably, measuring equipment is calibrated appropriately, the monitoring system is in place and functional. The project is continuously generating emission reductions.

As a result of the 1st Periodic Verification, the Bureau Veritas Certification confirms that the GHG emission reductions are calculated without material misstatement in conservative and appropriate manner.

Bureau Veritas Certification herewith confirms that the project has achieved total emission reductions in the above mentioned reporting period as of 79311 tCO2e.
Based on the information we have seen and evaluated, we confirm the following statement:

Reporting periods: for the year 2008 (from 01/01/2008 to 31/12/2008)
for the year 2009 (from 01/01/2009 to 31/12/2009)

	2008	**2009**
Baseline emissions, t CO2	316734	309354
Project emissions, t CO2	278053	268724
Emission reductions, t CO2	38681	40630
Total during current monitoring period, t CO2	**79311**	

7 REFERENCES

Category 1 Documents:
Documents provided by Institute for Environment and Energy Conservation that relates directly to the GHG components of the project.

/1/ Project Design Document, version 6.0 dated 11/12/2009

/2/ Monitoring Report #1 version 01 dated 23/02/2010

/3/ Monitoring Report #2 version 01 dated 09/03/2010

/4/ Monitoring Report #1 version 02 dated 02/06/2010

/5/ Monitoring Report #2 version 02 dated 03/06/2010

/6/ Determination Report by Bureau Veritas Certification Holding SAS No UKRAINE/0048/2009 of 18/12/2009

/7/ Letter of Approval of the National Environmental Investment Agency of Ukraine No 365/23/7 of 16/04/2010

/8/ Letter of Approval of the Ministry of Economic Affaires of the Netherlands No 2010JI02 of 03/03/2010

/9/ Order of the National Environmental Investment Agency of Ukraine No 72 of 02/06/2010

/10/ Order #271 on appointing responsible persons for collecting and storing data for the project "Rehabilitation of the District Heating System in Luhansk City" dated 30.09.2009.

/11/ Minutes of the LCME “Teplocomunenergo” Technical Council Meeting # 1 dated 18/01/2010.

Category 2 Documents:

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

/12/ Documents checked during the verification onsite are presented in Annex C

Persons interviewed:

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

/1/ Yuriy Negriy, Chief engineer, LCME “Teplocomunenergo”

/2/ Eleonora Schigoleva, Engineer of Technical Development Group of Industrial Safety Department, LCME “Teplocomunenergo”

/3/ Andriy Melnyk, Chief of Leninsky district operational facilities, LCME “Teplocomunenergo”

/4/ Victor Badin, Chief of Kamennobrodsky district operational facilities, LCME “Teplocomunenergo”

/5/ Dmitriy Kaluzhniy, Chief engineer of Kamennobrodsky district operational facilities, LCME “Teplocomunenergo”

/6/ Grigory Soldatko, Chief of Artemovskiy district operational facilities, LCME “Teplocomunenergo”

/7/ Konstantin Besplokhotniy, Chief engineer of Zhovtneviy district operational facilities, LCME “Teplocomunenergo”

/8/ Olga Tishakova, Chief of Personnel Department, LCME “Teplocomunenergo”

/9/ Ludmila Mikhailyuk, Chief of Boiler Equipment and Heating System Maintenance Department, LCME “Teplocomunenergo”

/10/ Natalia Balalaeva, Chief of Production and Technical Department, LCME “Teplocomunenergo”

/11/ Tatiana Mozhaeva, Engineer of Environmental Protection Group within Production and Technical Department, LCME “Teplocomunenergo”

/12/ Sergiy Krasyon, Master of Boiler House, 8 Pushkina Str.

/13/ Alexander Chebotnikov, Master of Boiler House, 16 Libkneht Str.

/14/ Elena Tretyachenko, Master of Boiler House, City Hospital # 2

/15/ Gennady Natsaev, Master of Boiler House, 116 Internatsionalna Str. and PTU 45

/16/ Pavel Kolesnikov, Master of Boiler House, 73b Sovetskaya Str.

/17/ Konstantin Ropaev, Master of Boiler House, 70 Sosura Str.

/18/ Oleg Kazanchuk, Master of Boiler House, 34 Oboronna Str.

/19/ Irina Bolotova, Master of Boiler House, 1 Novopromishlenna Str.

/20/ Tetiana Grechko, Senior engineer, Institute of Engineering Ecology, Kiev

/21/ Marina Denisyuk, Engineer, Institute of Engineering Ecology, Kiev

/22/ Inhabitants of the buildings connected to the newly installed boilers

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APPENDIX A: COMPANY JI PROJECT VERIFICATION PROTOCOL

Initial Verification Protocol Table 1

Objective	Reference	Comments	Conclusion (CARs/FARs)
1. Opening Session			
1.1. Introduction to audits	Annex C	The Initial Verification and 1st Periodic Verification audit was carried out on the project site on 07/04/2010. Prior to the audit the audit programme and initial questions were provided to the client. The opening meeting and interviews were performed in Head Office of LCME “Teplocomunenergo”by interviews with persons concerned and inspection of project implementation on the sites (9 boiler-houses).nm Participants at the audit were the following persons: Verification team: 1. Ivan Sokolov – Team Leader, Lead Verifier, Bureau Veritas Ukraine, 2. Oleg Skoblyk – Team Member, Verifier, Bureau Veritas Ukraine, 3. Svitlana Gariyenchyk – Team Member, Verifier, Bureau Veritas Ukraine Interviewed persons: 1. Yuriy Negriy, Chief Engineer, LCME “Teplocomunenergo”	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		2. Eleonora Schigoleva, Engineer of Technical Development Group of Industrial Safety Department, LCME “Teplocomunenergo” 3. Andriy Melnyk, Chief of Leninsky district operational facilities, LCME “Teplocomunenergo” 4. Victor Badin, Chief of Kamennobrodsky district operational facilities, LCME “Teplocomunenergo” 5. Dmitriy Kaluzhniy, Chief engineer of Kamennobrodsky district operational facilities, LCME “Teplocomunenergo” 6. Grigory Soldatko, Chief of Artemovskiy district operational facilities, LCME “Teplocomunenergo” 7. Konstantin Besplokhotniy, Chief engineer of Zhovtneviy district operational facilities, LCME “Teplocomunenergo” 8. Olga Tishakova, Chief of Personnel Department, LCME “Teplocomunenergo” 9. Ludmila Mikhailyuk, Chief of Boiler Equipment and Heating System Maintenance Department, LCME “Teplocomunenergo” 10. Natalia Balalaeva, Chief of Production and Technical Department, LCME “Teplocomunenergo” 11. Tatiana Mozhaeva, Engineer of Environmental Protection Group within Production and Technical Department, LCME “Teplocomunenergo” 12. Sergiy Krasyon, Master of Boiler House, 8 Pushkina Str. 13. Alexander Chebotnikov, Master of Boiler House, 16 Libkneht Str.	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		14. Elena Tretyachenko, Master of Boiler House, City Hospital # 2 15. Gennady Natsaev, Master of Boiler House, 116 Internatsionalna Str. and PTU 45 16. Pavel Kolesnikov, Master of Boiler House, 73b Sovetskaya Str. 17. Konstantin Ropaev, Master of Boiler House, 70 Sosura Str. 18. Oleg Kazanchuk, Master of Boiler House, 34 Oboronna Str. 19. Irina Bolotova, Master of Boiler House, 1 Novopromishlenna Str. 20. Tetiana Grechko, Senior engineer, Institute of Engineering Ecology, Kiev 21. Marina Denisyuk, Engineer, Institute of Engineering Ecology, Kiev 22. Inhabitants of the buildings connected to the newly installed boilers	
1.2. Clarification of access to data archives, records, plans, drawings etc.		The verification team got open access to all required plans, data, records, drawings and to all relevant facilities.	OK
1.3. Contractors for equipment and installation works	1, 12	Project has been implemented as defined in the Project Design Document, version 6.0 dated 11/12/2009 and the implementation is evidenced by statements of work completion (see list of verified documents).	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
1.4. Actual status of installation works	1, 2, 4	The project is implemented as planned with a minor divergence which has been reasonably justified by the PPs. **CL08.** According to the project implementation schedule contained in PDD and MR, installation of the frequency controllers is planned for 2010. Nonetheless, some of them have been already installed. Please demonstrate in what way implementation of this measure was taken into account in GHG emission reduction calculation.	CL 08
2. Open issues indicated in determination report			
2.1. Missing steps to final approval	7, 9	**CAR 01.** There is no indication of the JI registration number in MR for 2009.	CAR 01
3. Implementation of the project			
3.1. Physical components	1, 2, 3, 4	The project is implemented within the timeframe stipulated by the project implementation schedule in the PDD. Refer to CL 09. Equipment planned to be installed during the monitoring periods was checked on site.	-
3.2. Project boundaries	1	Project boundaries are in line with those defined in the PDD version 6.0.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.3. Monitoring and metering systems	2, 3, 4, 5, 12	Project facilities are equipped with the metering devices in accordance with the defined parameters for monitoring, including controlling and monitoring the fuel consumption measurement: - gas flow meters the majority of which are equipped with automatic correctors for temperature and pressure; - electricity meters. The complete list of monitoring equipment types, as well as set out calibration procedures are presented in Section B of the MRs. Every hour operator of a boiler house reads the values of outside air temperature, temperature of the natural gas and gas pressure at the entrance to the boiler-house. Natural gas consumption is measured by gas flow meters, installed at the every boiler-house. Every day operator of a boiler house makes registration of daily gas consumption in the special paper journal. **CAR 07.** The roles and responsibilities for the maintenance of the project facilities and monitoring equipment and IT functions are not provided in Section C.1.1. of the MRs.	CAR 07

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.4. Data uncertainty	1,2,3,4,5	According to the Monitoring Plan the volume of consumed natural gas and consumed power was corrected by measurement error using the principle of conservatism. Natural gas consumption and power consumption in the reported years used for Project emissions calculations were increased on the level of accuracy of gas flue meters and electricity meters installed at the every boiler-house.	OK
3.5. Calibration and quality assurance	2,3,4,5,12	The measurements are carried out by metering equipment calibrated in accordance with the Law of Ukraine “On metrology and metrology activity” N 1765-IV from 15.06.2004 During the audit, the status of calibration of all used measuring devices was checked and found proper. Responsibility for maintenance of metering equipment is established, documented and communicated. **CAR 03.** Please provide reference for the applicable national legislation for calibration procedures. **CAR 04.** It is not indicated in corresponding Annex of the MR who is responsible for the calibration of electricity meters. **CL 03.** Please provide passports and the evidence of calibration/maintenance of the installed project equipment.	CAR 03 CAR 04 CL 03

Objective	Reference	Comments	Conclusion (CARs/FARs)
3.6. Data acquisition and data processing systems	2,3,4,5,10, 11,12	Registration of Natural gas consumption at boiler houses of LCME “Teplocomunenergo” is carried out by the following scheme: 1. All boiler-houses are equipped with gas flow meters, installed at gas distributing units of the boiler-houses. 2. Most of boiler-houses equipped with automatic corrector for temperature and pressure. Gas consumption registered automatically. Beside this operators of all boiler-houses register the instrument readings in the paper journals “Journal of registration of boiler-house’s operation parameters” every day. 3. At the boiler-houses that are not equipped with gas volume correctors (at present about 2% of the total number of boiler-houses), operators register parameters of gas: temperature and pressure in these journals every 2 hours. These parameters are used to bring gas consumption to normal conditions. 4. Every day operators transfer values of gas consumption to dispatcher of the regional branch of LCME “Teplocomunenergo” by phone. Monthly they transfer the paper report. 5. Regional branches transfer data to Production-Technical Department (PTD) of LCME “Teplocomunenergo” where they	CL 04 CL 05

Objective	Reference	Comments	Conclusion (CARs/FARs)
		are storing and used for payments with gas suppliers. There are established procedures for protection of electronic and paper data at the LCME “Teplocomunenergo” according to Decision of Technical Council of LCME “Teplocomunenergo” #1 from 18.01.2010. The department of management systems automatization (responsible person P. Levitan) is ordered to copy at the central server all electronic documents received from structure subdivisions. Considering JI project implementation at the enterprise data are duplicated and will be kept till the end of project lifetime (till 2026 year, but not less then two years after last transferring of units to buyer. See an Order #162 from 21.05.2010 “On information archiving for monitoring providing”. Parameters that are to be monitored at regular base are input into a project Database in Excel based spreadsheets that is kept by Institute of Engineering Ecology. **CL 04.** Please provide information on whether there are established procedures for protection and back up of electronic and paper data. **CL 05.** Please clarify if roles and responsibilities of IT	

Objective	Reference	Comments	Conclusion (CARs/FARs)
		Function in GHG data management process including storing, saving, archiving and protecting of the primary, intermediate and final GHG electronic data and submitting them between relevant functions and eventually to the senior management, when necessary, are defined, documented and communicated.	
3.7. Reporting procedures	2,3,4,5,10, 11,12	Please, refer to the above section.	OK
3.8. Documented instructions	10,11	Data reporting procedures and the responsibilities of the managers concerned are described in the following documents: - Order # 271 of 30/09/2009 on allocation of responsibilities for collecting and archiving the project data; and - Minute of the LCME “Teplocomunenergo” Technical Council Meeting # 1 of 18/01/2010. **CL 02.** Please explain if there is documented evidence of establishing roles and responsibilities of relevant functions in the GHG data management.	CL 02
3.9. Qualification and training	2,3,4,5	The appropriate staff training to operate the project equipment is organized within the LCME “Teplocomunenergo” and is also provided by the outside	CL 07

Objective	Reference	Comments	Conclusion (CARs/FARs)
		companies and the Project equipment producers. During interviews conducted onsite training procedure was checked and found adequate. **CL 07.** Please explain whether the JI specific training is provided to the personnel involved in the project as well as to the staff related to the execution of the JI Monitoring Plan	
3.10. Responsibilities	2-5,10,11	Responsibilities of the involved personnel are generally well defined and documented in the Director’ Order and the Minutes of the Technical Council. Names of persons responsible for monitoring during the current monitoring period are presented in Table 6 of Section C of both MRs. **CL 06**. Please explain in what way responsibilities of relevant functions in the GHG data management were communicated to the persons in charge?	CL 06
3.11. Troubleshooting procedures	2,3,4,5	Troubleshooting procedure is sufficiently described in Section C.1. of MRs. **CAR 09.** The troubleshooting procedure is described insufficiently. Please, provide more detailed description of the existing troubleshooting procedure.	CAR 09

Objective	Reference	Comments	Conclusion (CARs/FARs)
4. Internal Data			
4.1. Type and sources of internal data	1-5,12	Internal data collected throughout the reported verification period include monitoring of 13 parameters, among them: - Fuel consumption at boiler houses - Number of customers - Total heating area - Heat transfer value of different types of buildings - Duration of heating period - Duration of hot water supply period - Connected loads to the boiler-houses required for heating - Connected loads to the boiler-houses required for hot water supply - Recalculating factor for average load during heating period - Electric power consumption	OK
4.2. Data collection	1-5	Some of the parameters are measured directly, some of them are calculated. There are also parameters which are taken from the LCME “Teplocomunenergo” Statistics. For the detailed description of the calculation methods used, please, refer to Annex 1 of the MRs.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
4.3. Quality assurance	9,10	According to the management Responsibility Structure of the JI monitoring and reporting the overall responsibility for the control of data quality rests with Yuriy Negriy, LCME “Teplocomunenergo” Chief Engineer. According to the Order/9/ and Minutes/10/ quality of data is insured by the managers responsible for data collection. They provide analysis of data which can be treated as the internal control of data by the second independent persons.	OK
4.4. Significance and reporting risks	12	Risks might be caused by human errors made when data for monitoring are manually measured, collected and further transferred and processed. Owing to control of data exercised by independent persons, as described above, the risks are minimized.	OK
5. External Data			
5.1. Type and sources of external data	1-5,12	The external data used to monitor the project parameters are presented in Annex 1 of the MRs and includes the following: - Average annual Heating Value of a fuel - Daily outside temperature during the heating season - Average inside temperature during the heating season	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
		- Heat transfer factor of new buildings and buildings with new thermal insulation - Standard specific discharge of hot water per personal account - Carbon Emission Factor	
5.2. Access to external data	1-5	Some of the external data are provided on the contractual basis by the outside organizations, others are taken from the official documents and state norms.	OK
5.3. Quality assurance	1-5	No QA routines are explicitly underlined.	OK
5.4. Data uncertainty		Not applicable.	OK
5.5. Emergency procedures	2,3,4,5	Troubleshooting procedure is described in full in Section C.4.of the MRs.	OK
6. Environmental and Social Indicators			
6.1. Implementation of measures	2,3,4,5,12	**CAR 05.** Please provide documented evidences or corresponding references for the statements concerning positive social and environmental impacts contained in Section B.2.5. of MRs. **CAR 10.** MRs lack data on monitoring of environmental impacts of the project. Please provide information on this issue.	CAR 05 CAR 10

Objective	Reference	Comments	Conclusion (CARs/FARs)
6.2. Monitoring equipment		N/A	OK
6.3. Quality assurance procedures	12	Statements on compliance with environmental legislation requirements issued by the State Inspectorate in Luhansk Region as a result of the scheduled and unscheduled inspections of LCME “Teplocomunenergo” may be regarded as the second party independent control.	OK
6.4. External data	2-5, 12	Contracts with external contractors that provide data for monitoring were checked by the verifiers on site. **CAR 08.** Section C.2. does not comprise information on the contracting organizations which carry out calibration of measurement equipment, energy audit, provide data for monitoring project parameters (e.g., daily outside air temperature, laboratory reports , etc.)	CAR 08
7. Management and Operational System			
7.1. Documentation	1-5,10,11	The Initial and First Periodic Monitoring was conducted based on the specially issued Director’s Order and Minutes of the Technical Council as well as the PDD Monitoring Plan. The Issued Monitoring Report can be considered as a comprehensive manual on data monitoring and reporting for the managerial staff of LCME “Teplocomunenergo” engaged in the JI project.	OK

Objective	Reference	Comments	Conclusion (CARs/FARs)
7.2. Qualification and training	1-5	Please, refer to Section 3.9 of the present protocol.	OK
7.3. Allocation of responsibilities	1-5,10,11	Please, refer to Section 3.10 of the present protocol.	OK
7.4. Emergency procedures	1-5	See Section 3.11 of the present protocol.	OK
7.5. Data archiving	10,11	All data during the crediting period will be stored during two years after the end of the crediting period both in paper and electronic format. Responsible personnel are defined. For more detailed information on this issue, please, refer to the PP’s comments on CL 04.	OK
7.6. Monitoring report	2,3,4,5	**CAR 02.** Please, indicate the data source, from which the following quotation is taken: “These requirements are confirmed by tables for monitoring on the pages 13-15” (p.4 of MRs) **CAR 06.** Please provide explanation for the PTD abbreviation contained in data collection scheme (Fig 6 of MRs), as well as indication of the organization/company the mentioned departments belong to. **CAR 12.** Volume of the performed works in 2008 (see Table 2 of the MR “Complete overhaul”) differs from the one	CAR 02 CAR 06 CAR 12 CAR13 CL 01

Objective	Reference	Comments	Conclusion (CARs/FARs)
		provided in Annex 2 (Spreadsheets). Bring them into accord or explain the reason for this difference. The same concerns the total length of the replaced pipes. **CAR 13.** Please change Annex 1 for Annex 2 in supporting spreadsheets. **CL 01.** Please, correct in Sections A.5.1. of both monitoring reports IAE for AIE.	
7.7. Internal audits and management review	2,3,4,5	**CAR 11.** Please provide information on whether the Internal Audits of monitoring activities have been undertaken during the monitoring period in consideration. **FAR 01.** Procedure for conducting the Internal Audits of monitoring activities under JI project should be developed at LCME “Teplocomunenergo” to undertake internal audits during the next reporting period.	CAR 11 FAR 01

Periodic Verification Checklist Protocol Table 2: Data Management System/Controls

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
1. Defined organizational structure, responsibilities and competencies		
1.1. Position and roles	Full	Data reporting procedures and responsibilities of the managers concerned are established by LCME “Teplocomunenergo” Director’s Order #271 on appointing responsible persons for collecting and storing data for the project "Rehabilitation of the District Heating System in Luhansk City" dated 30.09.2009 (further the Order) and Minutes of the LCME “Teplokomunenergo” Technical Council Meeting # 1 dated 18/01/2010 (further the Minutes). In particular, Chief of Heat Sale Department, Chief of Consumers Department, Engineer of technical development group of industrial safety department, Chief of Material accounts Department, Chief of Metrology Department, Department of management systems automatization, Chief of Production and Technical Department, Senior engineer of Institute of Engineering Ecology, Ltd, Vice Director of Institute of Engineering Ecology, Ltd. Scheme of data collection for Monitoring Report presented in Section B. of MRs clearly defines the scope of application, types of primary data, responsibilities of each person and requirements to data collection, recording, storage, protection, transfer, consolidation,

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		processing, and reporting.
1.2. Responsibilities	Full	General and specific monitoring and reporting tasks and responsibilities of relevant managers are specified by the Order and the Minutes.
1.3. Competencies needed	Full	The competencies for each step of the GHG monitoring process have been checked. Knowledge of the GHG operational monitoring process is available. The Order and the Minutes were elaborated with the involvement of the LCME “Teplocomunenergo” managers who themselves are in charge of monitoring and reporting tasks. Hence there was no need of special training.
2. Conformance with monitoring plan		
2.1. Reporting procedures	Full	There were minor deviations of reporting procedures from the monitoring plan set out in the PDD which were appropriately justified by the PPs. The changes are meant to improve the accuracy of information collected and don’t lead to the revision of the original monitoring plan. They are as follows: - The Table of responsibilities for data management was added to Monitoring Report Version 02 (see Table 6). It contained responsible person Andriy Ulchenko - Chief of Metrology department of LCME

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		“Teplocomunenergo” who is responsible for the calibration of electricity meters. - According to the Order #162 of 21.05.2010 “On information archiving for monitoring providing” a Department of management systems automatization was commissioned with copping and keeping of all electronic information. Mechanism of data storing and saving is taking place by scheme providing at the fig. 6 - Scheme of data collection for Monitoring Report. In the Monitoring report (version 2) this scheme was changed. It was amended with the Department of management systems automatization.
2.2. Necessary Changes	Full	It is confirmed that the monitoring report complies with PDD with some insignificant deviations which are comprehensively justified in both Monitoring Reports version 02. Please, refer to the above Section.
3. Application of GHG determination methods		
3.1. Methods used	Full	The project follows the specific methodology developed by the PPs, that is based on the permanent measuring of the fuel consumption and amendments for possible parameters changes in baseline compared to the reporting year. The variable parameters reflect

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
		changes in lower heating value of fuels, quality of heating service, weather changes, changes in customers’ number, etc. A comprehensive description of the methodology used to determine GHG emissions and justification for its application is provided in the PDD and both MRs. The equations used to determine GHG emissions are properly documented in MRs and formalized in terms of the excel spreadsheets.
3.2. Information/process flow	Full	Information/process flow diagram, describing the entire process from raw data to reported totals is developed and presented in Section B of the Monitoring report.
3.3. Data transfer	Full	Data transfer between or within different areas of responsibilities is presented in the information/process flow diagram. Alongside with the electronic conveyance of the collected data, manual transfer also occurs.
3.4. Data trails	Full	The necessary procedures have been defined in internal documents.
4. Identification and maintenance of key process parameters		
4.1. Identification of key parameters	Full	The key physical process parameters are identified in MR in full compliance with PDD Monitoring Plan.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
4.2. Calibration/maintenance	Full	Records of calibration of all measuring devises were checked and the status of calibration was verified as proper.
5. GHG Calculations		
5.1. Use of estimates and default data	Full	Refer to Section 5.1 and 5.3 of the Initial Verification Protocol.
5.2. Guidance on checks and reviews	Full	According to overall management responsibility structure of the JI monitoring and reporting the overall responsibility for the control of data quality is rested with LCME “Teplocomunenergo” Chief Engineer (refer to MRs Section B). According to the Order /10/ and the Minutes /11/, quality of data is ensured by the managers responsible for data collection. They provide analysis of data which can be treated as the internal control of data by the second independent persons.
5.3. Internal validation and verification	Full	Managers responsible for collection, analysis and reporting of primary data send monthly reports for further analysis to the LCME “Teplocomunenergo” Chief Engineer. Monthly reports are aggregated to the annual report which is verified by the signature of LCME “Teplocomunenergo” Chief Engineer .

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
5.4. Data protection measures	Full	The necessary procedures relating to information storage and security are in competence of the Department of management systems automatization of LCME “Teplocomunenergo” providing archiving and insuring security of information.
5.5. IT systems	Full	Refer to Section 3.6 of the Initial Verification Report.

Periodic Verification Protocol Table 3: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
Potential reporting risks based on an assessment of the emission estimation procedures can be expected in the following fields of action: 1. Raw data generation: • Installation of new monitoring equipment, • Replacement of equipment; • Maloperation by personnel.	Regarding the potential reporting risks identified in the left column the following mitigation measures have been observed during the document review and during site visit: 1. Raw data generation: • All installed measuring devices are in line with industry standard; • Only skilled and trained personnel is allowed to operate the relevant equipment and take metering records; • Regular visual inspection of equipment; • Immediate replacement of dysfunctional equipment; • Scheduled process stoppage of equipment for maintenance needs;	The remaining issues are: 1. Raw data generation: • None

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
	• Internal checks of technological discipline.	
2. Raw data collection: • Metering records, • Operational logs; • Calibration and maintenance data; • Passports and other equipment producers’ data; • Accuracy of data supplied.	2. Raw data collection: • Operation by duly calibrated equipment; • Proper maintenance of data and document control procedure; • Responsibilities for the raw data collection are established in job descriptions; • Proper verification by an appointed manager; • Appropriate archiving system established.	2. Raw data collection: • Human mistakes in recording measurements;
3.Data aggregation: • Monthly and annual reports; • IT systems; • Data protection;	3.Data aggregation: • Verification of reported data by the experienced manager; • Maintenance of IT;	3.Data aggregation: None

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
• Responsibilities.	• Clear allocation of responsibilities; • Corporate procedures for protection and back-up of electronic and paper data.	
4.Calculation parameters: • Data sources; • Uncertainties.	4.Calculation parameters: • All parameters and data to be used are defined in the validated monitoring plan	4.Calculation parameters: • None
5.Calculation methods: • Inaccurate input data; • Data storage; • Consistency in following the monitoring plan; • Control of electronic data.	5.Calculation methods: • Quality of input data is ensured; • Validated methodology and electronic tool for calculation emission reduction; • Detailed review of excel spreadsheet.	5.Calculation methods: • Manual data transfer can only be minimized • Input data are checked for adequacy • The danger of miscalculation can only be minimized
6.Monitoring reporting: • Data transfer to/by the author of the monitoring report; • Issuance of the monitoring report;	6.Monitoring reporting: • An experienced specialist is appointed for MR preparation; • Report is checked for adequacy;	6.Monitoring reporting: • None

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
7.Management system: • Inadequacy of management system; • Nonconformities in maintenance of management system.	7.Management system: • Monitoring report contains description of main elements of management system • Personnel demonstrates competence and commitments	7.Management system: • Lack of structured internal audits and reviews of JI project operation may lead to inadequate track of certain critical issues on project performance and GHG emission data **FAR 01.** Procedure for conducting the Internal Audits of monitoring activities under JI project should be developed at LCME “Teplocomunenergo” to undertake internal audits during the next reporting period.

Periodic Verification Protocol Table 4: Detailed audit testing of residual risk areas and random testing

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
1. Raw data generation	• On-site assessment • Evaluation of changes occurred throughout the reporting year • Inspection of calibration and maintenance records for key equipment	No significant uncertainties or errors regarding the raw data generation were observed in the course of verification
2. Raw data collection: • Human mistakes in recording measurements	• On-site evaluation of the monitoring routines and practices • On-site reviews of records and documents • Discussions with process engineers	All interviewed staff showed relevant competence and experience. No significant uncertainties or errors regarding the raw data collection were observed in the course of verification

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
	who have detailed knowledge of process uncertainty and error ranges • Inspection of meters calibration and maintenance records • The seals and passports for the key monitoring equipment were inspected	
3.Data aggregation: • None	N/A	No significant uncertainties or errors regarding the data aggregation were observed in the course of verification.
4.Calculation parameters: • None	N/A	No significant uncertainties or errors regarding the calculation parameters were observed in the course of verification

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
5.Calculation methods: • Manual data transfer can only be minimized • Input data are checked for adequacy • The danger of miscalculation can only be minimized	• Random–wise manual recalculations • Off-site check of equations used in calculations	No significant uncertainties or errors regarding the calculation methods were observed in the course of verification
6.Monitoring reporting: • The danger of manual data transfer can only be minimized	• Cross-checking of the information in the MRs and the original data by verifiers	No significant uncertainties or errors regarding the monitoring reporting were observed in the course of verification.

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
• The danger of insufficient control of adequacy	• Check of the MRs adequacy by verifiers	
7.Management system: • Lack of structured internal audits and reviews of JI project operation may lead to inadequate track of certain critical issues on project performance and GHG emission data	• Records concerning internal audits and reviews of JI project operation should be in placeto assure project performance.	Refer to **FAR 01.**

Verification Protocol Table 5: Resolution of Corrective Action and Clarification Requests

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
CL 01. Please, correct in Sections A.5.1. of both monitoring reports IAE for AIE.		It was corrected in Monitoring Report **Version 02**	CL 01 is closed based on the corrections made to the MRs.
CAR 01. There is no indication of the JI registration number in MR for 2009.		JI registration number was added to Monitoring Report **Version 02** The National Enviromental Investment Agency of Ukraine has confirmed this JI project under Track 1 procedure by the Order No. 72 dated June 02, 2010.	CAR 01 is closed based on the Order issued by NEIA and submitted to the AIE.
CL 02. Please explain if there is documented evidence of establishing roles and responsibilities of relevant functions in the GHG data management?		Established procedure of GHG data management was presented in the monitoring plan (see it in PDD page 100, table 3). Furthermore it is an order # 271 from 30.09.2009 of roles distribution and responsibilities in the GHG data management at the LCME "Teplocomunenergo". See attached files.	CL 02 is closed based on the sufficient information provided.
CL 03. Please provide		Passports of measuring equipment (gas flue meters), electricity	CL 03 is closed based on

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
passports and the evidence of calibration/maintenance of the installed project equipment.		meters) with calibration/maintenance marks were provided during sight visit. Passports of installed project equipment or contracts for its delivery see in attached files.	the additional information provided.
CL 04. Please provide information on whether there are established procedures for protection and back up of electronic and paper data.		There are established procedures for protection of electronic and paper data at the LCME “Teplocomunenergo” according to Decision of technical counsel of LCME “Teplocomunenergo” #1 from 18.01.2010. The department of management systems automatization (responsible person P. Levitan) is ordered to copy at the central server all electronic documents received from structure subdivisions. By the Ukrainian legislation electronic and paper data mast be kept for 3 years. Considering JI project implementation at the enterprise data are duplicated and will be kept till the end of project lifetime (till 2026 year, but not less then two years after last transferring of units to buyer. See an Order #162 from 21.05.2010 “On information archiving for monitoring providing”. Furthermore, parameters that are need to be monitored at regular base are input into a project Database in Excel based spreadsheets that is keeping by Institute of Engineering Ecology.	CL 04 is closed based on the exhaustive information provided by the PPs.
CL 05. Please clarify if roles and responsibilities of IT		There is department of management systems automatization at the LCME “Teplocomunenergo”. According to an Order #162 from	Response is perused and accepted. CL 05 is closed

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
Function in GHG data management process including storing, saving, archiving and protecting of the primary, intermediate and final GHG electronic data and submitting them between relevant functions and eventually to the senior management, when necessary, are defined, documented and communicated?		21.05.2010 “On information archiving for monitoring providing” this department was commissioned with copping and keeping of all electronic information. Mechanism of data storing and saving is taking place by scheme providing at the fig. 6 - Scheme of data collection for Monitoring Report. In the Monitoring report (version 2) this scheme was changed. It was added with department of management systems automatization.	based on the exhaustive explanation provided.
CAR 02. Please, indicate the data source, from which the following quotation is taken: “These requirements are confirmed by tables for monitoring on the pages 13-15” (p.4 of the MRs)		This quotation is referring to ACM0009 Version 03 EB 25 from 28 July 2006 that was actual, when Baseline methodology for this project was establishing. Acting now Editorial revision 03.2 EB 47, from 28 May 2009 updating monitoring methodology/table. However table on the page 15 “Data and parameters monitored” has still contained parameter Energy efficiency ($\varepsilon_{project,i,y}$), relevant quotation has been undertaken from the Monitoring Report Version 02.	CAR 02 is closed based on due amendment made to MRs.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
CAR 03. Please provide reference for the applicable national legislation for calibration procedures.		Law of Ukraine “On metrology and metrology activity” N 1765-IV from 15.06.2004	CAR 03 is closed based on explanation provided.
CAR 04. It is not indicated in corresponding Annex of the MR who is responsible for the calibration of electricity meters.		The Table of responsibilities for data management was added to Monitoring Report Version 02 (see Table 6). It contained responsible person Andriy Ulchenko - Chief of Metrology department of LCME “Teplocomunenergo” who is responsible for the calibration of electricity meters.	CAR 04 is closed based on due amendment made to MRs.
CAR 05. Please provide documented evidences or corresponding references for the statements concerning positive social and environmental impacts contained in Section B.2.5. of the MRs.		Documented evidences for the statements concerning positive environmental impacts are Statements of transferring-acceptance of natural gas for heat energy production for budget enterprisers and organizations and other consumers for 2006-2009 years that was given during determination (see Determination report # Ukraine/0048/2009, documents 328-403). The evidence for the positive social impacts from the project can be articles in the newspaper “Luhansk life” #46 from 04.11.2009 “Heat has come to the Luhansk inhabitants houses” and #18 from 05.05.2010 “Teplokommunenergo”: ecology study to consume”.	Provided documents are perused. CAR 05 is closed based on the information provided.
CAR 06. Please provide explanation for the PTD abbreviation contained in		PTD is an abbreviation of Production-Technical Department of LCME “Teplocomunenergo”. An indication of the company the mentioned departments belong to was added to scheme at the Fig 6 of the	CAR 06 is closed based on due changes made to MRs.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
data collection scheme (Fig 6 of the MRs), as well as indication of the organization/company the mentioned departments belong to.		Monitoring Report Version 02.	
CAR 07. The roles and responsibilities for the maintenance of the project facilities and monitoring equipment and IT functions are not provided in Section C.1.1. of the MRs.		The Table of responsibilities for data management was added to Monitoring Report Version 02 (see Table 6).	CAR 07 is closed based on due changes made to MRs.
CAR 08. Section C.2. does not comprise information on the contracting organizations which carry out calibration of measurement equipment, energy audit, provide data for monitoring project parameters (e.g., daily outside air temperature, laboratory reports , etc.)		Measurement equipment calibration was carried out by GB “Luhanskstandartmetrologiya” for gas flow meters and for electricity meters according to Agreement #48030-2009 from 12.01.2009. Calibration of gas flow meters produced by plant “Arsenal” was carried out by Subdivision “Warranty supervision and testing center – Arsenal” of GB plant “Arsenal” according to Agreements #*И*/75-29-08/081-Y/31-2008 from 18.02.2008, #*И*/75-239-08 from 21.07.2008 and #*И*/75-119-09 from 03.09.2009. Calibration of gas flow meters types: ЛГ , РГ, РГ-К and membrane type was carried out by JSC “Luganskgas” according to Agreements	Response is perused and accepted. CAR 08 is closed based on the supporting documents provided.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
		#179 from 10.09.2009 and #267 from 20.08.2009 Calibration of gas flow meters types: GSM G-25 #028722 was carried out by GB “Donetskstandartmetrologiya” according to Agreements #114-P/31-2008 from 07.03.2008. Daily outside temperature values taken by dispatcher of LCME “Teplocomunenergo” from Luhansk Regional Gidrometerology Center from 10 to 11 a.m. every day of heating season. Luhansk Regional Gidrometerology Center sends the Report every month for every day of heating season according to Agreements # 3M from 09.10.2008. For reconstructed objects that require Environmental Impact Assessment according to Ukrainian legislation PE “Firma Priroda” has developed EIA as a separate section of the project. This information is added to Section C.2 of the Monitoring Report Version 02.	
CAR 09. The troubleshooting procedure is described insufficiently. Please, provide more detailed description of the existing troubleshooting		All boiler-houses have a Plan of localization and liquidation of accidents. For any types of accidents and places of there appearance measures of there liquidation has been developed. There are following types of accidents: stopping of gas supply, stopping of power supply, stopping of water supply, damage of pipe line inside boiler-house, leakage on the heating surface of boiler,	Response is accepted. CAR 09 is closed on the sufficient information provided.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
procedure.		break gas pipe line inside boiler-house, abrupt dropping of water pressure in heat network, gas explosion in furnace and gas flue, absolute interruption of flame torch from burner, fire in boiler-house, flood of gas flue, flood of equipment room, flood of entrance room, damage of power equipment, breakage of all pumps, breakage smoke exhaust or ventilator, breakage of chemical cleaning water filter, dropping of outside temperature lower than -20 ^{o}C. In any case troubleshooting procedure includes immediately reporting to master of boiler-house, dispatcher, manager of filial and direction. As far as Chief engineer of LCME "Teplocomunenergo" is a JI project manager, he takes the appropriate measures. Any of listed above problems can have influence for the JI project. Due to "SVT e.V." (Germany) and Institute of Engineering Ecology (Ukraine) invented the special methodology, that consider such monitoring parameters as: Average inside temperature during the heating season, Heating period duration, Duration of the hot water supply period – calculation of GHG emission reduction takes into account all accidents concerning heat production and distribution that can occur at the enterprise.	
CL 06. Please explain in what way responsibilities of		Responsibilities of relevant functions in the GHG data management were communicated to the persons in charge by distribution of	Explanation is accepted.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
relevant functions in the GHG data management were communicated to the persons in charge?		printed versions of direction’s orders and decisions of technical counsel. Usually persons in charge are present at relevant meetings of technical counsel.	CL 06 is closed.
CAR 10. MRs lack data on monitoring of environmental impacts of the project. Please provide information on this issue.		Project implementation allow to decrease the water consumption and as a result – to decrease the amount of waste water. The evidences for this statements can be acts of water consumption with RME “Luhanskvoda” for 2006-2009 years. Impact on the land medium is not present. Impact on biodiversity is not present. Waste generation increased over the project implementation after disassembling of physically and morally obsolete equipment, burners, pipes, etc. Also there occurred some construction waste due to destruction of boiler settling, boiler house foundations, etc. According to the “Law on waste products”, (article 17) ”Obligations of economical activity subjects in sphere of waste treatment” LCME “Teplocomunenergo” delivers old equipment to metal recycling. Therefore LCME “Teplocomunenergo” has Agreements with ME “Luhansk center of waste utilization” #CP 052-Y/15-2008 from 11.02.2008 and #CP 17-Y/15-2009 from 04.01.2009 for waste burial	Relevant documentation provided by the PPs is perused. CAR 10 is closed.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
		at city landfill in t. Alecsandrovska. LCME “Teplocomunenergo” has the appropriately approved Environmental Impact Assessments (EIA) for all capital constructions (see Appendix _10 to PDD).	
CL 07. Please explain whether the JI specific training is provided to the personnel involved in the project as well as to the staff related to the execution of the JI Monitoring Plan		The special training was held before preparing of Monitoring report for 2008 year, in October, 2009 in Luhansk. It was determined roles and responsibilities during this training. Ms. Tetiana Grechko, senior engineer of Institute of Engineering Ecology, who is responsible for baseline and monitoring methodology development, presented JI Monitoring Plan. It was generated scheme of data collection for Monitoring Report. Decision of technical counsel of LCME “Teplocomunenergo” #1 from 18.01.2010 determined responsibilities for documentation collection and saving for emissions GHG monitoring report designing according to developed JI project “Rehabilitation of the district heating system in Luhansk city” by structure subdivisions accordingly with their duties.	CL 07 is closed based on the provided explanation.
CAR 11. Please provide information on whether the Internal Audits of monitoring activities have been		Internal Audits of monitoring activities haven’t been undertaken because of the absence of energy manager position at the LCME “Teplocomunenergo”. “The analyze of energy indicators of LCME “Teplocomunenergo” operation “ was developed by PE “Metalod” for	Response is accepted. CAR 11 is closed based on explanation provided.

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
undertaken during the monitoring period in consideration.		tariffs establishing on Ministry Resolution #955 from 10.07.2006.	
CAR 12. Volume of the performed works in 2008 (see Table 2 of the MR “Complete overhaul”) differs from the one provided in Annex 2 (Spreadsheets). Bring them into accord or explain the reason for this difference. The same concerns the total length of the replaced pipes.		It is a misprint in Table 2 of the MR. Volume of performed works for 2008 was corrected. It was added 10 Overhaul of setting and length of the replaced pipes were brought into accordance with Spreadsheets in Annex 2.	CAR 12 is closed based on due corrections made to MRs.
CL 08. According to the project implementation schedule contained in PDD and MR, installation of the frequency controllers is planned for 2010. Nonetheless, some of them have been already installed. Please demonstrate in what		Frequency controllers where installed on experimental base at 4 boiler houses in 2009. GHG emission reduction from implementation of this measure takes place due to power saving and calculated in Annex 3. CO2 emissions reduction due to power saving at the LCME “Teplocomunenergo” to MR.	Response is accepted. CL 08 is closed.

<table>
<tr><th>Report clarifications and corrective action requests</th><th>Ref. to checklist question in tables 2/3</th><th>Summary of project owner response</th><th>Verification conclusion</th></tr>
<tr><td>way implementation of this measure was taken into account in GHG emission reduction calculation.</td><td></td><td></td><td></td></tr>
<tr><td>CL 09. Please, provide reasoning for the difference in actually achieved GHG emissions reductions and the ones estimated in the PDD.</td><td></td><td>There ate some reasons for the difference in actually achieved GHG emissions reductions and the ones estimated in PDD

<table><tr><td></td><td>By monitoring</td><td>By PDD</td></tr><tr><td>2007</td><td>Was not carried out</td><td>12208</td></tr><tr><td>2008</td><td>38681</td><td>25669</td></tr><tr><td>2009</td><td>40630</td><td>38321</td></tr></table>
Formulae presented in D.1.4. are used to estimate emission reductions in PDD. These calculations were based on equipment efficiency increasing. In the PDD calculations, by the conservatism principle, the minimal guaranteed effects from all energy saving measures were taken in to account.
Also, emission reductions from implemented measures were calculated only for the next years after energy saving measures implementation. In fact result in the form of emissions reduction is achieved immediately after energy saving measures implementation</td><td>CL 09 is closed based on provided reasoning.</td></tr>
</table>

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
		in the year of reconstruction, especially if it was done at the beginning of the year. Expressly to calculate all emissions reduction from the project, “SVT e.V.” (Germany) and Institute of Engineering Ecology invented monitoring methodology for “District Heating” projects in Ukrainian conditions that take into account all measures involved in the project and it’s peculiarities This methodology is presented in section D (monitoring plan). It is based on the permanent measuring of the fuel consumption and corrections for possible changes of parameters in reporting year comparing to the baseline. The changeable parameters may be the lower heating value of fuels, quality of heating service (providing of normative temperature value inside apartments), weather features, number of customers, etc. As it was mentioned before, this approach eliminates any possibility of reduction of fuel consumption and correspondingly GHG emission due to incomplete delivery of heat to consumers Calculations of emissions reduction in Monitoring Reports for 2008-2009 were prepared in accordance with this methodology.	

Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Verification conclusion
CAR 13. Please change Annex 1 for Annex 2 in supporting spreadsheets.		This misprint was corrected.	CAR 13 is closed based on due corrections made to MRs.
FAR 01. Procedure for conducting the Internal Audits of monitoring activities under JI project should be developed at LCME “Teplocomunenergo” to undertake internal audits during the next reporting period.			To be checked during the next periodic verification

APPENDIX B: VERIFICATION TEAM

The verification team consists of the following personnel:

Oleg Skoblyk, Specialist (energy management)

Team member, Climate Change Verifier
Bureau Veritas Ukraine Health, Safety and Environmental Project Manager

He has graduated from National Technical University of Ukraine ‘Kyiv Polytechnic University” with specialty Power Management. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). He performed over 5 audits since 2008. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the determination/verification of 11 JI projects.

Svitlana Gariyenchyk, Ecology Specialist

Team member, Climate Change Verifier
Bureau Veritas Ukraine Health, Safety and Environment Department Project Manager.

She has 8 year working experience as a Project Manager, Head of Investment, Environmental Programs and Training Department in the company operating in the sphere of ecological audit, management and certification. She is experienced in European Union programs as an environmental protection expert.
She followed study and training course within TACIS program on training of managers in the sphere of environmental protection. She has completed intensive training course “Lead verifier of JI projects”. She is involved in the determination/verification of 7 JI projects.

The verification report was reviewed by:

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

Internal Technical Reviewer, Climate Change Lead Verifier
Bureau Veritas Certification Local Climate Change Product Manager for Ukraine

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment

Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the determination/verification of 50 JI projects

APPENDIX C: DOCUMENTS CHECKED DURING VERIFICATION

1. Contract of the purchase and sale of emission reduction units (ERUs) #256-У/1-2008 dated 09.06.2008.
2. Letter of endorsement of JI project “Rehabilitation of the District Heating System in Luhansk City” #11569/11/10-07 dated 24.10.2007.
3. Contract #543 dated 07.02.2006.
4. Passport of multifunction electrical meters of electricity SL 7000 Smart.
5. Passport of multifunction electrical meters of electricity ACE 6000, ser. #500.
6. Passport ГМЮИ.411129.009ПС of electrical meter of active energy СА4-195, #087908.
7. Passport ОПТ.468.007 ПС of three-phase induction electrical meters dated ИП, #040962208.
8. Passport ОПТ.468.015 ПС of three-phase induction electrical meters dated ИП, #040962208.
9. Table of natural gas consumption at LCME "Teplokomunenergo" for 2006-2009.
10. Table of consumption of water supply for 2006-2009.
11. Statement #166/1 SE "Luhanskstandartmetrologia" від 29.10.2008 р. Valid till 29.10.2010.
12. Certificate #166/1 dated 29.10.2008 of state metrological attestation.
13. Passport of measure and measurement devices, ser. #0968. Pesults of periodic verification dated 27.08.2009.
14. Statement #394 SE "Luganskstandartmetrologia" dated 23.03.2010. It is valid to 23.03.2012.
15. Certificate #394 dated 23.03.2010 of state metrological attestation.
16. Statement #355 SE "Luganskstandartmetrologia" dated 10.02.2010. It is valid to 10.02.2012.
17. Certificate #355 dated 10.02.2010 of state metrological attestation.
18. Statement #248 SE "Luganskstandartmetrologia" dated 26.11.2009. It is valid to 26.11.2011.
19. Certificate #248 dated 26.11.2009 of state metrological attestation.
20. Passport of measure and measurement devices, ser. #0044. Results of periodic verification dated 27.08.2009.

21. Statement #166 of expertise of assembling of the flow measuring device dated 08.12.2008.
22. Statement #167 of expertise of assembling of the flow measuring device dated 08.12.2008.
23. Certificate of state metrological attestation #39.1063.08 dated 06.08.2008 of computerized accounting unit of natural gas consumption.
24. Certificate of state metrological attestation #39.1062.08 dated 06.08.2008 of measurement complex based on calculator "ОЕ-22ДМ IZ".
25. Statement #221 of expertise of assembling of the flow measuring device dated 26.11.2008.
26. Certificate of state metrological attestation #39.1084.08 dated 13.08.2008 of computerized accounting unit of natural gas consumption.
27. Protocol #101 of state metrological attestation of computerized accounting unit of natural gas volume based on differential pressure flowmeter with a standard diaphragm and measurement complex based on calculator "ОЕ-22ДМ IZ", ser. #0345.
28. Protocol of verification of household gas meter dated 29.06.2006.
29. Passport of household gas meter, ser. #9218696. Results of the state verification dated 29.06.2006.
30. Certificate #137 of verification of the measurement complex dated 27.09.2006. It is valid to 27.09.2008.
31. Statement #57 SE "Luganskstandartmetrologia" dated 19.03.2009. It is valid to 19.03.2011.
32. Certificate #57 dated 19.03.2009 of state metrological attestation.
33. Contract СП-17-У/15-2009 457н on the waste disposal at the landfill dated 04.01.2009.
34. Contract СП 052-У/15-2008/СП-457 on the waste disposal at the landfill dated 11.02.2008.
35. Supplementary agreement #1 to the contract С-51-У/15-2009-1384 dated 05.02.2009 on inert materials disposal dated 09.12.2009.
36. Contract С-51-У/15-2009-1384 on inert material location dated 05.02.2009.
37. Contract СП-457 on the waste disposal at the landfill dated 29.12.2009.
38. Statement #85 dated 30.04.2009.
39. Statement #138 dated 28.05.2009.
40. Statement #190 dated 27.07.2009.
41. Statement #243 dated 25.08.2009.
42. Statement #246/300 dated 29.09.2009.
43. Statement #258 dated 31.08.2009.
44. Statement #262 dated 31.08.2009.
45. Statement #263 dated 31.08.2009.
46. Statement #291 dated 29.09.2009.
47. Statement #325 dated October 2009.
48. Statement #326 dated October 2009.

49. Statement #343 dated October 2009.
50. Statement #344 dated 29.10.2009.
51. Statement #459 dated 23.12.2009.
52. Statement #477 dated 30.12.2009.
53. Statement #37 dated 31.01.2008.
54. Statement #141 dated 29.04.2008.
55. Statement #156 dated April 2008.
56. Statement #299 dated 29.08.2008.
57. Statement #346 dated 30.09.2008.
58. Statement #347 dated 30.09.2008.
59. Statement #453 dated 30.10.2008.
60. Statement dated November 2008.
61. Statement dated 14.04.2009.
62. Certificate #391 of the washed product quality dated 31.05.2007. Result of the analysis #391 dated 01.06.2007.
63. Certificate #89 of the coal quality dated 08.08.2007. Result of analysis #89 dated 08.08.2007.
64. Certificate #225 of the coal quality dated 28.10.2007. Result of analysis #225 dated 28.10.2007.
65. Certificate #259 of the coal quality dated 11.12.2007. Result of analysis #259 dated 11.12.2007.
66. Certificate #265 of the coal quality dated 27.12.2007. Result of analysis #265 dated 27.12.2007.
67. Certificate #245 of the coal quality dated 15.11.2007. Result of analysis #245 dated 15.11.2007.
68. Certificate #163 of the coal quality dated 14.08.2007 r. Result of analysis #163 dated 14.08.2007.
69. Certificate #10 of the power station coal quality dated 21.01.2008. Result of analysis #10 dated 21.01.2008.
70. Certificate #19of the coal quality dated 16.02.2008. Result of analysis #19 dated 16.02.2008.
71. Certificate #25 of the raw coal quality (washed products) dated 17.02.2008. Result of analysis dated 18.02.2008.
72. Certificate #25 of the power station coal quality dated 15.03.2008. Result of analysis #25 dated 15.03.2008.
73. Certificate #31 of the power station coal quality dated 25.03.2008. Result of analysis #31 dated 25.03.2008.
74. Certificate #33 of the power station coal quality dated 22.04.2008. Result of analysis #33 dated 22.04.2008.
75. Certificate #34 of the raw coal quality (washed products) dated 04.04.2008. Result of analysis dated 05.04.2008.
76. Certificate #40 of the coal quality dated 29.05.2008. Result of analysis #40 dated 29.05.2008.
77. Certificate #3 of the washed product quality dated 14.01.2009. Result of analysis dated 14.01.2009.

78. Certificate #59 of the power station coal quality dated 05.02.2009. Result of analysis #59 dated 05.02.2009.
79. Certificate #109 of the power station coal quality dated 23.03.2009. Result of analysis #109 dated 23.03.2009.
80. Certificate #214 of the anthracite coal quality dated 31.03.2009. Result of analysis #1039 dated April 2009.
81. Certificate #143 of the power station coal quality dated 29.04.2009. Result of analysis #143 dated 29.04.2009.
82. Certificate #278 of the power station coal quality dated 28.08.2009. Result of analysis #278 dated 28.08.2009.
83. Certificate #1059 of the washed product quality dated 10.12.2009. Result of analysis #568 dated 10.12.2009.
84. Letter #06/23 to the director A.A. Rusakov of LCME "Teplokomunenergo" dated 05.01.2010.
85. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for September 2009.
86. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for August 2009.
87. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for July 2009.
88. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for June 2009, ex. #589 dated 15.07.2009.
89. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for May 2009.
90. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for April 2009.
91. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for February 2009.
92. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for Jenuary 2009.
93. Passport of physical and chemical parameters of natural gas that was transfered to OJSC "Luganskgas" for December 2008.
94. Letter #232 02-26 (about the average daily air temperature and pressure for January 2008) dated 04.01.2008.
95. Letter #415/02-26 (about the average daily air temperature and pressure for February 2008) dated 01.03.2008.
96. Letter #574/02-26 (about the average daily air temperature and pressure for March 2008) dated 01.04.2008.
97. Letter #734/02-26 (about the average daily air temperature and pressure for April 2008) dated 17.04.2008.
98. Letter #754/02-26 of the average data of air temperature and pressure for October 2008 dated 04.11.2008.
99. Letter #1855/01-21 of the average temperature for November 2008 dated 05.12.2008.
100. Letter #11/01-21 of the average temperature and pressure for December 2008 dated 01.2009.
101. Letter #160/02-26 of the average temperature and pressure for January 2009 dated 05.02.2009.
102. Letter #241/02-26 of the average temperature and pressure for February 2009 dated 03.2009.
103. Letter #377/02-46 of the average temperature and pressure for March 2009 dated 01.04.2009.
104. Table of the average daily temperature for April 2009.

105. Letter #1094/04/1-46 of the average temperature and pressure for October 2009 dated 03.11.2009.
106. Letter #1212/04/1-36 of the average temperature and pressure for November 2009 dated 03.12.2009.
107. Letter #40/04/1-36 of the average temperature and pressure for December 2009 dated 03.01.2010.
108. Letter #202/04/1-36 of the average temperature and pressure for January 2010 dated 01.02.2010.
109. Information letter #798 dated 20.01.2010 of the size of standardized monetary value of land area for calculation of land tax for 2010.
110. Decision #270/1 dated 17.05.1996 on the provision for the temporary long-term use under the conditions of land rent to LCME "Teplokomunenergo" for construction of boiler shops and auxiliary buildings.
111. Decision #18/5 dated 15.10.1997 on the provision for the permanent use of land area to LCME "Teplokomunenergo" for construction of boiler shop and auxiliary buildings at 77 Sovietska Str.
112. Decision #31/21 dated 29.02.2008 on granting the permission to LCME "Teplocomunenergo" for development of the project of allotment of land area at Pushkina Str. (near the building #8) for allocation of device of the automatic heating supply system.
113. Information of amounts of performed reculculations connected with LCME "Teplokomunenergo" for 2007-2008.
114. Information of amounts of performed reculculations connected with LCME "Teplokomunenergo" for 2009.
115. Contract #1969 on the right of the temporary use of land (including the rent) dated 02.04.1997.
116. Contract #1/10 of the boiler shop rent dated 01.10.2006.
117. Contract of sale and purchase #02/01 dated 01.02.2009
118. Letter of the purchase of greenhouse gas enissions reduction after 2012 dated 03.02.2010.
119. Passport ГМЮИ.411129.009ПС of electrical meter of active energy СА4-195, #086633.
120. Passport ГМЮИ.411129.009ПС of electrical meter of active energy СА4-195, #088250.
121. Passport ОПТ.468.15 ПС of three-phase induction ИП meters of electrical energy, ser. #866014.
122. Passport СИ of the environmental parameters and characteristics, ser. #027984. Results of state verification dated 05.10.2009.
123. Passport Ф62.784.001 ПС of rotary gas meter РГК-Ex, ser. #0044.
124. Protocol #100 of gas meter verification, type G40 РГК-1/30, ser. #0044 dated 25.08.2009.
125. Passport of gas volume corrector "Тандем"-ТР, ser. #1813.
126. Passport of the preassure meter, ser. #9170879. Results of the state verification dated 14.05.2009.
127. Passport of the thermometer, ser. #91473. Results of the state verification dated 05.05.2008.
128. Statement of survey of the natural gas accounting unit dated 15.07.2009, ser. #10209, ser. #1679.
129. Statement of survey of the natural gas accounting unit dated 19.02.2010, ser. #0044, ser. #1813.
130. Statement #M-78 of the commissioning of the natural gas accounting unit dated

05.03.2009.

131. Passport ПБВИ.407 223.002 ПС of the butterfly water meter КВ-1,5, ser. #027189. Certificate of the state verification dated 09.04.2009.

132. Passport of the water meter, ser. #00066. Results of the state verification dated 09.07.2009.

133. Passport of the water meter, ser. #25439. Results of the state verification dated 09.07.2009.

134. Passport of boiler, ser. #456.

135. Passport of boiler, reg. #2474 dated 16.03.2000, ser. #1994/2.

136. Statement #25-05-08, #32-05-08, #36-05-08 of acceptance of the contract work performed for May 2008.

137. Statement #1-1-8 РСЦ, #7-01-08-РСЦ, #4-1-8-РСЦ, #20-01-08 ср, #28-01-08 ср, #22-01-08 ср of acceptance of the contract work performed for January 2008.

138. Statement #6-2-8, #3-2-8 of acceptance of the contract work performed for February 2008.

139. Statement #21-03-08, #24-03-08, #23-03-08 of acceptance of the contract work performed for March 2008.

140. Statement #38-04-08 ср, #40-04-08-ср, #25-04-08-ср, #15-04-08 РСЦ of acceptance of the contract work performed for April 2008.

141. Statement #66-07-07СР, #61-07-08-СР of acceptance of the contract work performed for July 2008.

142. Statement #38-08-08СР, #25-08-08-СР, #1-08-08 РСЦ, #19-08-08 of acceptance of the contract work performed for August 2008.

143. Statement #21-10-08-СР of acceptance of the contract work performed for October 2008.

144. Statement #7-09-08, #30-09-08-СР, #31-09-08-СР of acceptance of the contract work performed for September 2008.

145. Statement #20-11-08, #21-11-08, #22-11-08, #28-11-08-СР, #15-11-08 of acceptance of the contract work performed for November 2008.

146. Statement #9-03-09, #10-03-09 of acceptance of the contract work performed for March 2009.

147. Statement #61-05-09-СР, #62-05-09-СР, #3-05-09-СР of acceptance of the contract work performed for May 2009.

148. Statement #2-07-09 of acceptance of the contract work performed for July 2009.

149. Statement #20-08-09 of acceptance of the contract work performed for August 2009.

150. Statement #68-09-09, #69-09-09СР of acceptance of the contract work performed for September 2009.

151. Statement #31-10-09-СР, #7-10-09 of acceptance of the contract work performed for October 2009.

152. Statement #79-11-09СР, #80-11-09СР, #81-11-09ср of acceptance of the contract work performed for November 2009.

153. Statement #27-12-09ср, #28-12-09-СР, #44-12-09 of acceptance of the contract work performed for December 2009.

154. Agreement on supply #148-П43-2009/б dated 15.04.2009.

155. Supplementary agreement #2 to the contract dated 13.02.2009 #58-У/34-2009 dated 31.12.2009.

156. Technical requirements on work performing of the inventory of pollutants emissions from stationary sources into the air at the enterprise LCME "Teplokomunenergo".

157. Technical report of the inventory of pollutants emissions at the enterprise: LCME "Teplokomunenergo" dated 2007.

158. Annex to the technical report of the inventory of pollutants emissions at the enterprise: LCME "Teplokomunenergo" dated 2009.
159. Technical report: sanitary and technical survey (the additional inventory) of the pollutant emission sources into the air by LCME "Teplokomunenergo" dated 2009.
160. Conclusion of the state sanitary and epidemiological expertise #05/417 dated 17.04.2009.
161. Protocol of the state sanitary and epidemiological expertise #05/419 dated 17.04.2009.
162. Documents that considered the amount of emissions for getting the permit on the pollutant emissions into the air by stationary sources for LCME "Teplokomunenergo" dated 2009.
163. Conclusion of the state sanitary and epidemiological expertise #05/1179 dated 05.12.2008.
164. Protocol of the state sanitary and epidemiological expertise #05/1180 dated 05.12.2008.
165. Documents that considered the amount of emissions for getting the permit on the pollutant emissions into the air by stationary sources for LCME "Teplokomunenergo" dated 2008.
166. Permit #1.1.100 dated 21.03.2008 on the waste disposal in 2009. It is valid from 01.01.2009 to 01.01.2010.
167. Limits #1.1.100. on waste generation and waste disposal for 2008 of LCME "Teplokomunenergo".
168. Limits #1.1.100. on waste generation and waste disposal for 2009 of LCME "Teplokomunenergo".
169. Permit #1.1.100 dated 17.08.2007 on the waste disposal in 2008. It is valid from 01.01.2008 to 01.01.2009.
170. Permits #4410136600-155 dated 15.10.2009, #4410136600-114 dated 16.06.2009, #4410136600-158 dated 19.10.2009, #4410136600-127 dated 15.07.2009, #4410136600-86 dated 24.02.2009, #4410136600-121 dated 01.07.2009, #4410136600-126 dated 15.07.2009, #4410136600-115 dated 16.06.2009, #4410136600-70 dated 31.12.2008, #4410136600-100 dated 17.04.2009, №4410136600-101 dated 17.04.2009 on the pollutants emissions into the air by stationary sources.
171. Photo - Type MB-DLE 412 B01 S20 (226563)
172. Photo - Ultrasonic gas meter "Курс-01" G40 A1, ser. #4015.
173. Photo - Type MB-DLE 410 B01 S20 (226562)
174. Photo - Ultrasonic gas meter "Курс-01" G25 A1, ser. #4219.
175. Photo - Type MB-ZRDLE 415 B01 S22 (229088)
176. Photo - Type MB-VEF 420 B01 S10 (228037)
177. Log book of the registration of the gas consumption by the boiler "2nd city hospital".
178. Log book of the parameters of the boiler "2nd city hospital".
179. Photo - Gas meter #074752
180. Photo - Heating device АОГВ-50 Э, ser. #196
181. Photo - Device Type UPS 50-185 F 280, ser. #96405842
182. Photo - Monophase electrical meter of electrical energy "МЕРИДІАН" СОЭ-1.02/2Т #8661532

183. Photo -Smoke exhauster #7, inv. #28608

184. Photo - Boiler КСВА-3Г #1, reg. #2276, inv. #34312

185. Daily report of boiler operators: boiler shop Novopromushlennaia. Started 14.10.2008.

186. Photo - Ultrasonic gas meter "Курс-01" G160 A1, ser. #4425.

187. Newspaper "Zhyzn Luganska" dated 04.11.2009 #46 (1010), article "Heat and comfort came at the houses of Luhansk citizens".

188. Technical report "Analysis of the energy parameters of the work of LCME "Teplokomunenergo" and assessment of conformity of the enterprise source data for calculation of fuel energy resources consumption and water consumption for production, heat energy transportation and distribution" dated 2008.

189. Certificate #70 dated 06.08.2008. Certificate is valid to 06.08.2009.

190. Certificate of the state registration of the legal entity A01 #486407 dated 29.09.2009.

191. Contract #И/75-29-08/081-У/31-2008 for services dsted 18.02.2008.

192. Contract #179 on the state verification of the household meters 10.09.2008.

193. Contract #267 on the state verification of the industrial gas meters dated 20.08.2009.

194. Contract #И/75-239-08 for services dated 21.07.2008.

195. Contract #И/75-119-09 for the works performing dated 03.09.2009.

196. Contract #48030-2009 dated 12.01.2009.

197. Contract #114-Р/31-2008 for works of the verificarion of the industrial gas meter in the machine shop laboratory and presented to SE "Donetskstandartmetrologia" for the state verification dated 07.03.2008.

198. Contract #3М dated 09.10.2008.

199. Statement #109, #108 dated 22.05.2009, #85 dated 30.04.2009, #64 dated 26.03.2009.

200. Plan of the localization and liquidation of emergency situations at the boil shop Osypenko-Raskovoi.

201. Plan of the localization and liquidation of emergency situations at the boil shop 16 Karla Libknehta.

202. Plan of the localization and liquidation of emergency situations at the boil shops of the areas ДП-1.

203. Plan of the localization and liquidation of emergency situations at the boil shop СШ #22.

204. Plan of the localization and liquidation of emergency situations at the boil shops at 34 Oboronna srt.

205. Passports of the boiler shops, reg. #7984, reg. #7982, reg. #7983, reg. #7981, reg. #4117, reg. #4118, reg. #4111, reg. #4110, reg. #4064.

206. Statements #21-12-08, #7-12-08 РСЦ of the acceptance of performed contract works for December 2008.

207. Statement #7-09-08 of the acceptance of performed contract works for September 2008.

208. Statement #4-04-09 of the acceptance of performed contract works for April 2009.

209. Statements #22-11-08, #20-11-08 of the acceptance of performed contract works for November 2008.

210. Statement of the verification to the compliance with the requirements of environmental legislation of LCME "Teplokomunenergo" at Luhansk city dated 10-28.11.2008.
211. Statement of the verification to the compliance with the requirements of environmental legislation of LCME "Teplokomunenergo" at Luhansk city dated 16-27.02.2009.
212. Statement of the verification to the compliance with the requirements of environmental legislation of LCME "Teplokomunenergo" at Luhansk city from 23.11.2009 p. to 11.12.2009.
213. Data of the water consumption at LCME "Teplokomunenergo" for December 2009.
214. Additional volume of the waste water at LCME "Teplokomunenergo" that take into consideration based on the decision of Supreme Economic Court of Ukraine dsted 18.11.2009.
215. Data of the water consumption at LCME "Teplokomunenergo" for November 2009.
216. Data of the water consumption at LCME "Teplokomunenergo" for October 2009.
217. Data of the water consumption at LCME "Teplokomunenergo" for September 2009.
218. Data of the water consumption at LCME "Teplokomunenergo" for August 2009.
219. Data of the water consumption at LCME "Teplokomunenergo" for July 2009.
220. Data of the water consumption at LCME "Teplokomunenergo" for June 2009.
221. Data of the water consumption at LCME "Teplokomunenergo" for May 2009.
222. Data of the water consumption at LCME "Teplokomunenergo" for April 2009.
223. Data of the water consumption at LCME "Teplokomunenergo" for March 2009.
224. Data of the water consumption at LCME "Teplokomunenergo" for February 2009.
225. Data of the water consumption at LCME "Teplokomunenergo" for January 2009.