



VERIFICATION REPORT

OJSC “OBLTEPLOKOMUNENERGO”

VERIFICATION OF THE “REHABILITATION OF THE DISTRICT HEATING SYSTEM OF ZAPORIZHZHIA CITY”

REPORT No. UKRAINE-VER/0219/2011

REVISION No. 02

BUREAU VERITAS CERTIFICATION



VERIFICATION REPORT

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Client: OJSC "Oblteplokomunenergo"	Client ref.: Barbarov Yu. A.

Summary:
Bureau Veritas Certification has made the periodic verification of the «Rehabilitation of the District Heating System of Zaporizhzhia City» project of OJSC "Oblteplokomunenergo" located in the city of Zaporizhzhia, and applying the JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

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

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

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 212297 tons of CO₂eq for the monitoring period from 01/01/2010 till 31/12/2010.

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

Report No.: UKRAINE-ver/0219/2011	Subject Group: JI
Project title: "Rehabilitation of the District Heating System in Zaporizhzhia City"	
Work carried out by: Oleg Skoblyk – Team Leader, Verifier, Technical Specialist	
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer	
Work approved by: Flavio Gomes - Operational Manager	
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1 INTRODUCTION

OJSC “Oblteplokomunenergo” has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project the «Rehabilitation of the District Heating System of Zaporizhzhia City» (hereafter called “the project”) in the city of Zaporizhzhia.

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

1.1 Objective

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

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

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

1.2 Scope

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

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

1.3 Verification Team

The verification team consists of the following personnel:

Oleg Skoblyk
Bureau Veritas Certification Team Leader, Climate Change Verifier
Technical Specialist

Bureau Veritas Certification, Financial Specialist

This verification report was reviewed by:



Ivan Sokolov

Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01.1 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

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

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

2.1 Review of Documents

The Monitoring Report (MR) Monitoring report «Rehabilitation of the District Heating System of Zaporizhzhia City» version 01 dated 14/03/2011 submitted by OJSC «Oblteplokomunenergo» and additional background documents related to the project design and baseline, i.e. country Law,) and/or Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification further corrective action and clarification requests, Commercial Utility Enterprise «Zaporizhzhiamiskteplomerezh» revised the MR and resubmitted it on version 02 dated 31/03/2011 and version 03 dated 12/05/2011, the latter MR version 03 is considered final.

The verification findings presented in this report relate to the Monitoring Reports versions 01, 02 and 03 and project as described in the determined PDD.



2.2 Follow-up Interviews

On March 14, 2011 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Concern "Mis'ki teplovi merezhi" and Institute of Engineering Ecology were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Concern "Mis'ki teplovi merezhi"	<ul style="list-style-type: none"> • Project implementation status • Organizational structure • Responsibilities and authorities • Personnel training • Quality management procedures and technology • Records of equipment installation • Control of metering equipment • Metering record keeping system, database • Cross-check of the information provided in the MR with other sources
Institute of Engineering Ecology	<ul style="list-style-type: none"> • Baseline methodology • Monitoring plan • Monitoring report • Deviations from PDD

2.3 Resolution of Clarification, Corrective and Forward Action Requests

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

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

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

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



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

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

3 VERIFICATION CONCLUSIONS

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

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

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 7 Corrective Action Requests, 6 Clarification Requests, and 0 Forward Action Requests.

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

3.1 Project approval by Parties involved (90-91)

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

The abovementioned written approvals are unconditional.

3.2 Project implementation (92-93)

It was assessed by Bureau Veritas verification team during the site visit that the project has been implemented in accordance with the PDD regarding which the determination has been deemed final.

Implementation of the rehabilitation of boiler-houses and heating systems has been realized according to the project plan.

Project equipment has been installed with minor deviations from the schedule and is fully operational.



Outstanding issues related to the Project implementation, PP's response and BV Certification's conclusion is described in Appendix A.

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

The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website.

For calculating the emission reductions key factors, such as:

- high priority of heat supply sector for the national energy saving policy declared by the Ukrainian Government of Ukraine and stated in the State Program of Communal Economics Restructuring and Development for 2004-2010 (Ukrainian Law "On heat supply" No. 2479-VI from 09.07.2010), Ukrainian Law "On energy saving" No. 74/94-VR from 01.07.1994 and Ukrainian Law "About amendments to the Ukrainian Law "On energy saving" No. 1026-V from 16.05.2007. New Law of Ukraine "On heat supply" No. 2633-IV from 02.06.2005 which regulate relations on the heat supply market and stipulates for the implementation of energy saving measures and more efficient technologies.
- high price of the fuel, in particular natural gas which is nearly 95 % of fuel type used in Ukraine for the needs of the municipal heat supply;
- the amount of fuel consumption is calculated for the conditions in which normative parameters of heat and hot water supply are provided. Implementation of continuous monitoring of its quality (measurement of internal temperature in the specific buildings as well as registration of residents' complaints for the poor-quality heat supply) is foreseen. This increases the control for the qualitative heat supply for the consumers and excludes deliberate reduction of heat consumption, and, in such a way, of fuel consumption with the purpose of increasing generation of GHG emissions reduction units;
- lack of monitoring devices for heat and heat-carrier consumption in the municipal boiler-houses presents the main complication for implementation of the JI projects on district heating in Ukraine. In this context, and taking into consideration essential load changes in the boilers, constant fuel consumption measurement taken by the highly accurate measurement equipment, provides for more its more exact measurement

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



Data sources used for calculating emission reductions such as:

- Fuel consumption by boiler-houses (Natural gas)
- Heat value of natural gas
- Average external temperature during heating season
- Average internal temperature during heating season
- Quantity of hot water supply consumers
- Total heating area
- Average heat-transfer factor of the buildings in base year
- Heating area of buildings (existed in base year) with improved heat insulation in reporting year
- Heating area of new buildings connected to the heat supply system
- Heat-transfer factor of the buildings with new thermal insulation
- Duration of heating period
- Duration of hot water supply period
- Maximal connected load for heating services
- Connected load for hot water supply
- Standard specific discharge of hot water at personal account
- Conversion factor for average load within heating period
- Electric energy consumption by the boiler-houses, wherein frequency regulation are planned
- CO2 emission factor for natural gas

are clearly identified, reliable and transparent.

Emission factors, including default emission factors, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The relevant threshold to be classified as JI SSC project was not exceeded during the monitoring period under consideration on an annual average basis.

Outstanding issues related to the Compliance of the monitoring plan with the monitoring methodology, PP's response and BV Certification's conclusion is described in Appendix A.

3.4 Revision of monitoring plan (99-100)

Not applicable.



3.5 Data management (101)

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

The function of the monitoring equipment, including its calibration status, is in order.

Outstanding issues related to the Data management, PP's response and BV Certification's conclusion is described in Appendix.

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

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the periodic verification of the «Rehabilitation of the District Heating System of Zaporizhzhia City» Project in Ukraine. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of OJSC "Oblteplokomunenergo" is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 03 dated 10/12/2010. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 03 dated 12/05/2011 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.



Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

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

Baseline emissions	:980842	t CO2 equivalents.
Project emissions	:768545	t CO2 equivalents.
Emission Reductions	:212297	t CO2 equivalents.



5 REFERENCES

Category 1 Documents:

Documents provided by Type the name of the company that relate directly to the GHG components of the project.

- /1/ PDD «Rehabilitation of the District Heating System of Zaporizhzhia City» version 03 dated 29/12/2010
- /2/ Monitoring report «Rehabilitation of the District Heating System of Zaporizhzhia City» version 01 dated 14/03/2011
- /3/ Monitoring report «Rehabilitation of the District Heating System of Zaporizhzhia City» version 02 dated 31/03/2011
- /4/ Monitoring report «Rehabilitation of the District Heating System of Zaporizhzhia City» version 03 dated 12/05/2011
- /5/ Determination Report UKRAINE-det/0185/2010 dated 20/12/2010.
- /6/ Excel spread sheet: "MR4_Zpr_2010_v.03.xls"
- /7/ Letter of Approval #568/23/7 dated 16/03/2011 issued by National Environmental Investment Agency of Ukraine, acting as the Ukrainian Designated Focal Point
- /8/ Letter of Approval #J294-0485 dated 24/01/2011 issued by the Federal Office for the Environment, acting as the Swiss Designated Focal Point

Category 2 Documents:

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

- /1/ Contract # 553, Kyiv, from 11.04.2005, Institute of industrial ecology, Execution of works on revision, manufacturing, starting up and adjusting and putting into operation two heatutilized gas-purifying installations to boilers
- /2/ Zaporizhzhya, Zaporizhzhyan heat engineers have to refuse from gas purchase
- /3/ Environment of habitation, Zaporizhzhya, battle for the heat
- /4/ Ukrainian academy of architecture, Energy Saving in buildings, # 5-2009 (#48), Kyiv, october 2009
- /5/ Center of Energy Saving of Ukraine is transferred to Zaporszhzhya
- /6/ Concern "Mis'ki teplovi merezhi", Zaporizhzhya, Head Layterman Igor Abramovych, Diploma for successful work on raising economic efficiency...
- /7/ Concern «Mis'ki teplovi merezhi», Zaporizhzhya, Head Layterman Igor Abramovych, Diploma for successful work on raising economic efficiency...
- /8/ Concern «Mis'ki teplovi merezhi», Zaporizhzhya, Head Fomich Sergiy Volodymyrovych, Diploma for 2nd place in competition for status "The best enterprice of communal heat energy of Ukraine" in the 1st quarter 2010
- /9/ Kozak palace, Diploma of participant of 7th specialized exhibition Energy, november 10-12, 2010, Zaporizhzhya, Concern «Mis'ki teplovi merezhi»
- /10/ Ultrasonic gas meter, "Kypc 01", G 1000Б, Manufactured in Ukraine in 2007, № 02197



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- /11/ Gas volume corrector, Manufactured in Ukraine, 1ExibIIAT4XIP66
- /12/ Converter РАДМІР
- /13/ Statement of working commission on acceptance of completed construction equipment, Zaporizhzhya, 30.12.2009
- /14/ Statement # 2 acceptance of execution of contract works in september 2010, customer - Concern «Mis'ki teplovi merezhi»
- /15/ Inspection of State Architectural and Construction Control in Zaporizhzhyan region, Permit on building works execution from 25.06.2010, # 353-10, Concern «Mis'ki teplovi merezhi»
- /16/ Statement of working commission on acceptance of completed construction equipment, Zaporizhzhya, 29.12.2009, Concern «Mis'ki teplovi merezhi»
- /17/ Statement of working commission on acceptance of completed construction equipment, Zaporizhzhya, 29.10.2009, Concern «Mis'ki teplovi merezhi»
- /18/ Statement of State Admission committee on acceptance of completed construction object, Zaporizhzhya, 2009
- /19/ Statement of State Admission committee on acceptance of completed construction object, Zaporizhzhya, 2009, Registered 11.07.2009, # 125
- /20/ Head of Zaporizhzhya, Direction # 79p, 09.02.2009, Zaporizhzhya, On approval of statement of State Admission Committee on object operation admission "Systems of heat supply Ordzhonikidze, Zhovtnevyi regions, Zaporizhzhya - reconstructio of heat network in Gagarina, Yatsenko, Geroiv Stalingradu str."
- /21/ Statement on ecological consequences
- /22/ Statement on intentions
- /23/ Contract # 32121458/1/10/2 on heat energy usage, Zaporizhzhya, 21.04.2010
- /24/ Scheme of heating main, that is on the account of consumer
- /25/ National Agency of ukraine on assurance of effective usage of energy resourses. Conclusion of effective recognition of the project regarding the introduction of advanced energy technologies to produce alternative fuel sources,# 23 from 28.08.2009
- /26/ Annex to Conclusion # 23, # 745-01/14/3-0 from 31.08.2009
- /27/ Concern «Mis'ki teplovi merezhi», Average temperature of external air during heating period

Persons interviewed:

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

- /1/ Igor Laiterman - Deputy Director General for Development of heating systems and energy saving of Concern "Mis'ki teplovi merezhi"
- /2/ Ludmyla Roganchuk - Head of Production Department of Concern "Mis'ki teplovi merezhi"
- /3/ Natalia Konareva – Head of the Technical Department of Concern "Mis'ki teplovi merezhi"
- /4/ Natalia Kara – Head of the Sales Department of Concern "Mis'ki teplovi merezhi"



/5/ Nonna Pawluk – Institute of Engineering Ecology representative



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VERIFICATION PROTOCOL

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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	<u>CAR1</u> : The information concerning project approval is missing in the MR. Please, add the appropriate information to the document and provide Letters of Approval to AIE.	CAR1	OK
91	Are all the written project approvals by Parties involved unconditional?	See CAR1 above.	OK	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	<u>CL1</u> : Amounts of emission reductions provided in PDD and MR are different. Please clarify.	CL1	OK
93	What is the status of operation of the project during the monitoring period?	Project equipment has been installed with minor deviations from the schedule and is fully operational. It has been seen on site and can be proved by the verification team.	OK	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	Yes, the monitoring occurs in accordance with the monitoring plan included in the PDD.	OK	OK
95 (a)	For calculating the emission reductions or	Yes, all relevant were key factors were taken into account,	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	enhancements of net removals, were key factors, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	as appropriate.		
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	<p><u>CL2</u>: Please, explain what 22 in the formula for calculation of conversion factor for the average load within the heating period. Please justify this number.</p> <p><u>CL3</u>: Please clarify why some of the numbers in excel spread sheets marked in red.</p> <p><u>CL4</u>: Please clarify why emission reduction for some of the boiler-houses is negative.</p> <p><u>CL5</u>: Please, provide documented instruction which indicates that the data monitored and required for verification are to be kept for two years after the crediting period as per <i>JI determination and verification manual, v.01</i>.</p> <p><u>CL6</u>: Please, provide start and end dates of heating period for each year of monitoring period, and for each boiler-house in case if those dates are different for some boiler-houses.</p> <p><u>CAR2</u>: JI MONITORING REPORT FORM not existing. Please exclude this inscription from MR.</p> <p><u>CAR3</u>: Please clarify why in calculations used heating period duration 4032 hours for all years of monitoring period and all boiler-houses. Usage of default heating period duration is not correct because in line with monitoring plan this parameter must be determine per year for every year and every boiler-</p>	<p>CL2</p> <p>CL3</p> <p>CL4</p> <p>CL5</p> <p>CL6</p> <p>CAR2</p> <p>CAR3</p>	<p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p>



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>house based on Concern "MTM" measures and statistic information.</p> <p><u>CAR4</u>: Please add to MR references on file where provided Annex 2, Annex 3, Annex 4 and Annex 5.</p> <p><u>CAR5</u>: Please specify numbers of Figures in MR.</p> <p><u>CAR6</u>: Some of the word in MR provided in Ukrainian. Please correct.</p> <p><u>CAR7</u>: Please clarify why in calculations same Recalculating factor for average load during heating period was used for all years of monitoring period. In line with monitoring plan this parameter must be determine once per year based on statistic data of this year.</p>	CAR4	OK
			CAR5	OK
			CAR6	OK
			CAR7	OK
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Yes, emission factors selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	OK	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	Yes, the calculation of emission reductions based on conservative assumptions and the most plausible scenarios in a transparent manner.	OK	OK
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the	N/A	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	monitoring period determined?			
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/A	N/A	N/A
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/A	N/A	N/A
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	N/A	N/A	N/A
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	N/A	N/A	N/A
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	N/A	N/A	N/A
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	N/A	N/A	N/A



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	N/A	N/A	N/A
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	N/A	N/A	N/A
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	N/A	N/A	N/A
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/A	N/A	N/A
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/A	N/A	N/A
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/A	N/A	N/A
104	Does the monitoring period not overlap with previous monitoring periods?	N/A	N/A	N/A
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/A	N/A	N/A
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as:	N/A	N/A	N/A



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<ul style="list-style-type: none"> - The types of JPAs; - The complexity of the applicable technologies and/or measures used; - The geographical location of each JPA; - The amounts of expected emission reductions of the JPAs being verified; - The number of JPAs for which emission reductions are being verified; - The length of monitoring periods of the JPAs being verified; and - The samples selected for prior verifications, if any? 			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/A	N/A	N/A
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?	N/A	N/A	N/A
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/A	N/A	N/A
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	N/A	N/A	N/A



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Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
<u>CAR1</u> : The information concerning project approval is missing in the MR. Please, add the appropriate information to the document and provide Letters of Approval to AIE.	Item 90	The Letters of Approval for this project are issued by Ukraine (Host party) and Switzerland. The copies of these Letters of Approval will be provided to AIE	MR version 03 and supporting documents were checked and founded appropriate. The issue is closed.
<u>CAR2</u> : JI MONITORING REPORT FORM not existing. Please exclude this inscription from MR.	Item 95 (b)	This inscription is excluded from MR version 03	MR version 03 was checked and founded appropriate. The issue is closed.
<u>CAR3</u> : Please clarify why in calculations used heating period duration 4032 hours for all years of monitoring period and all boiler-houses. Usage of default heating period duration is not correct because in line with monitoring plan this parameter must be determine per year for every year and every boiler-house based on Concern "MTM" measures and statistic information.	Item 95 (b)	Heating period duration is determined for every boiler-house per every calendar year, according to the monitoring plan, and namely these values are used in calculations. In Zaporizhzhia city the heating period is started and finished by the order of municipality, thus duration of the heating period is the same for all or almost all of the boiler-houses of Concern "MTM", and makes correspondingly (see Annex 2).	Excel spread sheet "MR4_Zpr_2010_v.03.xls" was checked and founded appropriate. The issue is closed.
<u>CAR4</u> : Please add to MR references on file where provided Annex 2, Annex 3, Annex 4 and Annex 5.	Item 95 (b)	This is added in MR version 03	MR version 03 was checked and founded appropriate. The issue is closed.
<u>CAR5</u> : Please specify numbers of Figures in MR.	Item 95 (b)	This is corrected in MR version 03	MR version 03 was checked and founded appropriate. The issue is closed.



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<p><u>CAR6</u>: Some of the word in MR provided in Ukrainian. Please correct.</p>	<p>Item 95 (b)</p>	<p>This is corrected in MR version 03</p>	<p>MR version 03 was checked and founded appropriate. The issue is closed.</p>
<p><u>CAR7</u>: Please clarify why in calculations same Recalculating factor for average load during heating period was used for all years of monitoring period. In line with monitoring plan this parameter must be determine once per year based on statistic data of this year.</p>	<p>Item 95 (b)</p>	<p>According to the developed and determined JI-project specific approach used in the JI projects on rehabilitation of the district heating systems in Ukraine, the baseline value of Recalculating factor for average load during heating period (g), determined once after the end of the base year, is used for almost all calculations. Only in case when in the base year the hot water supply service was absent at all ($(1-a^b) = 0$), and in the reported year this service was provided (due to improvement of heat supply service quality for population), the value of parameter (g) for the reported year is to be used. In this project there are no such cases, thus it is not necessary to determine parameter (g) for each year since it will not be used in calculations</p>	<p>MR version 03 was checked and founded appropriate. The issue is closed.</p>
<p><u>CL1</u>: Amounts of emission reductions provided in PDD and MR are different. Pleas clarify.</p>	<p>Item 92</p>	<p>Amounts of emission reductions provided in PDD were estimated as predictable values on the base of expected results of the main planned energy saving measures.</p> <p>Amounts of emission reductions provided in the MR are calculated based on the actual fuel consumption in a reported year, as well as actual external conditions, with construction of the Dynamic Baseline according to the used JI-project specific approach.</p>	<p>The issue is closed.</p>



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<p><u>CL2</u>: Please, explain what 22 in the formula for calculation of conversion factor for the average load within the heating period. Please justify this number.</p>	<p>Item 95 (b)</p>	<p>The number "22" in the formula for calculation of conversion factor for the average load within the heating period corresponds to the minimum outside temperature -22 °C determined for Zaporizhzhia city in valid normative document "KTM 204 Ukraine 244-94" (2001). Maximum connected load to a boiler-house that is required for heating is calculated according to heat demand at the minimum outside temperature.</p>	<p>The issue is closed.</p>
<p><u>CL3</u>: Please clarify why some of the numbers in excel spread sheets marked in red.</p>	<p>Item 95 (b)</p>	<p>The negative values of emission reductions in excel spread sheets are marked in red for visualization.</p>	<p>The issue is closed.</p>
<p><u>CL4</u>: Please clarify why emission reduction for some of the boiler-houses is negative.</p>	<p>Item 95 (b)</p>	<p>In MR calculations the actual amounts of fuel consumption are used, with taking into account the actual conditions such as outside temperature, actual heated area and hot water supply service customers number, actual duration of services, etc. Unfortunately, operation of some of the boiler-houses wasn't effective in reported year, and led to even increased amount of emissions, that is treated as negative emission reductions.</p>	<p>Response founded appropriate. The issue is closed.</p>



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<p><u>CL5</u>: Please, provide documented instruction which indicates that the data monitored and required for verification are to be kept for two years after the crediting period as per <i>Jl determination and verification manual, v.01</i>.</p>	<p>Item 95 (b)</p>	<p>The General director of Concern "MTM" had issued the Order # 604/1 dated 15.10.2009 "On formation of the operational team and storage term of documents", according to which the special operational team for monitoring of the JI project execution was formed, and the duties of its members were determined including storage of monitoring information for two years after the crediting period, i.e. till 31.12.2032.</p> <p>This is added in MR v.03.</p>	<p>MR version 03 was checked and founded appropriate. The issue is closed.</p>
<p><u>CL6</u>: Please, provide start and end dates of heating period for each year of monitoring period, and for each boiler-house in case if those dates are different for some boiler-houses.</p>	<p>Item 95 (b)</p>	<p>2010: 01.01.2010 ...31.03.2010 + 06.10.2010 ...31.12.2010</p> <p>Please see response to CAR3</p>	<p>The issue is closed.</p>