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Verification Report

Danish Energy Agency

Second Periodic Verification of

"Boiler efficiency improvement at
Holboca CET Iasi II, Romania"
as JI Track 1 Project

3rd Monitoring period: 01-01-2009 to 31-12-2009

Report No. 600500437

25 October 2010

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

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Report No.	**Date of first issue**	**Version:**	**Date of this revision**	**No. of pages**
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Subject:			Second JI Periodic Verification under Track 1 for 2009	
Executing Operational Unit:				
TÜV SÜD Industrie Service GmbH, Carbon Management Service Westendstrasse 199 - 80686 Munich, Federal Republic of Germany				
Project Participants (client and project owner):				
Client (Buyer of credits): Ministry of Climate and Energy Danish Energy Agency, Amaliegade 44 DK-1256; Copenhagen K; Denmark Project Owner: S.C. C.E.T. Iasi S.A., Calea Chişinăului nr.25 700265 - Iaşi, ROMANIA				
Registration number / Project Title			RO1000132 / Project: "Boiler efficiency improvement at Holboca CET Iasi II, Romania"	
Scope/Technical Area (TA)			1/1.2	
Monitoring period:			01-01-2009 to 31-12-2009	
First Monitoring Report (version/date)			Version 01 / 08-02-2010	
Final Monitoring Report (version/date)			Version 03 / 27-07-2010	

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Summary:

TÜV SÜD Industrie Service GmbH has performed the second JI periodic verification of the: "Boiler efficiency improvement at Holboca CET Iasi II, Romania" as a JI Track 1 project. A verification for the pre-JI period of 2006 and 2007 was already conducted by TÜV SÜD Industrie Service GmbH (report no: 1100242 from 04.03.2009) which covered the initial verification as well the years 2006 and 2007. The. verification of first JI Track 1 period regarding the ERs achieved in 2008 was also conducted by TÜV SÜD Industrie Service GmbH (report no: 600500085 from 09.06.2010)

The project consists of 2 high pressure boilers with a capacity of 420 t/h each and turbo-generators with a capacity of 50 MW each. The combined heat and power plant is fuelled by hard coal and for start-up and transient periods, with fuel oil and produces heat and hot water that supply the Iasi town - Primary Network of District Heating System.

The management of SC C.E.T. IASI SA Centrala de Termoficare is responsible for the data acquisition, collection and for the preparation of the GHG emissions data as well the reported GHG emission reductions.

A document review, followed by a site visit was conducted to verify the information submitted by the project participant regarding the present verification period. Based on the assessment carried out, the verifier confirms:

- that the project has been implemented and operated in accordance with the description given in the registered PDD (version 4, 24-09-2008) http://ji.unfccc.int/JIITLProject/DB/P0TQKX18ZWNH3BO84RICO3WBQX5HDI/details
- that the project is not completely implemented as described in registered PDD. The ash removal system is not installed yet. The main components of the system were installed. This can be accepted due to the fact the ash removal system has no influence on efficiency and on emission reductions. However FAR was issued requesting final installation of the ash removal system.
- that the monitoring plan complies with the applied methodology (described in PDD) and the monitoring has been carried out exactly following the monitoring plan.

The equipment which is essential for generating emission reductions are installed exactly following the registered PDD, they run reliably and the meters are calibrated appropriately. The operation of the equipment does not deviate from the description in the registered PDD. The project is generating emission reductions as a JI Track 1 project. The ERs for 2009 were 29,101 tCO_2 while in the registered PDD they were estimated approximately 26,000 tCO_2 per year. This 11% difference is explained by conservative approach used in PDD and also by cold winter in 2009/2010 season. It is in a reasonable range compared with the figures as given in the registered PDD.

The verifier can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion refers to the project's GHG emissions and resulting GHG emission reductions reported, both determined due to the valid and registered project's baseline, its monitoring plan and its associated documents.

Based on the information we have seen and evaluated we confirm that the implementation of the project resulted in 29,101 t CO_{2e} of emission reductions during the JI Track 1 verification period 01-01-2009 to 31-12-2009.

A possibility of double counting of ERs is also excluded as clearly stated in art 8 of the LoA from the Romanian DFP.

These ERs can be transferred as long as there is an agreement between the Host country and the Buyer country and all parties have issued a LoA for this project.

Verification team:	**Technical Reviewer:**
• ATL Thomas Kleiser (Assessment Team Leader) • Auditor Madis Maddison • Auditor Georgios Agrafiotis (Project manager)	Robert Mitterwallner **Responsible Certification Body Members:** Rachel Zhang Deputy Head of Certification Body

TÜV SÜD Industrie Service GmbH Carbon Management Service

Abbreviations

AAU	Assigned Amount Unit
ACM	Approved Consolidated Methodology
AIE	Accredited Independent Entity (also verifier)
CO_{2e}	Carbon dioxide equivalent
CR / CL	Clarification Request
CAR	Corrective Action Request
ER	Emissions reduction
ERU	Emission Reduction Unit
EPA	Environmental Protection Agency
FAR	Forward Action Request
GHG	Greenhouse Gas
IRL	Information Reference List
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participant
PVC	Periodical Verification Checklist
SD	Sustainable Development
TÜV SÜD	TÜV SÜD Industrie Service GmbH, Carbon Management Service
UNFCCC	UN Framework Convention on Climate Change
VER	Verified Emission Reductions
DVM	Determination and Verification Manual
VP	Verification Protocol

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Main Documents (referred to in this report)

Methodology (name / version)	Project specific	
Final PDD:	Version 4, 24-09-2008	
Revised Monitoring Plan:	N/A	
	Version	Date
Published Monitoring Report	01	08-02-2010 (2nd JI period, 3rd verification in total)
Revised Monitoring Report	03	27-07-2010
Project documentation link:	http://ji.unfccc.int/JIITLProject/DB/P0TQKX18ZWNH3BO84RICO3WBQX5HDI/details	

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1 INTRODUCTION

1.1 Objective

Danish Energy Agency as project participant (PP) has commissioned an independent verification by TÜV SÜD Industrie Service GmbH (TÜV SÜD) of its registered JI Track 1 project: "Boiler efficiency improvement at Holboca CET Iasi II Iasi, Romania".
http://ji.unfccc.int/JIITLProject/DB/P0TQKX18ZWNH3BO84RICO3WBQX5HDI/details
The objective of the verification work is to comply with the requirements of paragraph 62 of the JI guidelines. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the registered PDD "Boiler efficiency improvement at Holboca CET Iasi II, Romania" Version 04. 24-09-2008, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete and verifiable and in accordance with applicable JI requirements,
- ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology,
- evaluate the data recorded and stored as per project specific methodology.

1.2 Scope

The verification scope is defined as an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Accredited Independent Entity. The verification is based on the submitted monitoring report, the validated project design documents including its monitoring plan and determination report, initial and first periodic verification report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the JISC and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, JI rules and Romanian national requirements as they are set by the Romanian DFP:
http://ji.unfccc.int/JI_Parties/PartiesList.html#Romania
Based on the requirements in the JI determination and verification manual (DVM) from JISC 19, Annex 4, TÜV SÜD has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.
The verification considers both quantitative and qualitative information on emission reductions.
The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 GHG Project Description

Project activity:	"Boiler efficiency improvement at Holboca CET II Iasi, Romania"
UNFCCC registration number:	RO1000132
Project Participants:	SC C.E.T. IASI SA Centrala de Termoficare- project owner represented by the General Director Dorin Ivana

	Buyer of credits: Danish Energy Agency (former Danish Environmental Protection Agency) represented by MIHAI BRASOVEANU
Location of the project:	47° 08' 50", 019 North, 27° 43' 03",734 East
Date of registration:	1st April 2010
Starting date of the crediting period:	01-10-2006. Until 31-12-2007 AAUs were verified by TÜV SÜD (Pre-JI Verification Report no: 1100242 from 04.03.2009) and transferred. From 01-01-2008 onwards begins the official JI crediting period of ERUs. Verification of first JI Track 1 verification period (from 01-01-2008 to 31-12-2008) was also conducted by TÜV SÜD (report no: 600500085 from 09.06.2010).

Holboca CET II Iasi is a combined heat and power plant owned by SC CET Iasi SA, the municipal owned energy supply company. The power plant is equipped with two high pressure boilers with a capacity of 420 t/h each and turbo-generators with a capacity of 50 MW each. The combined heat and power plant is fuelled by hard coal and for start-up and transient periods, with fuel oil and produces heat and hot water that supply the Iasi town - Primary Network of District Heating System. It is operated on full capacity approximately 6 month per year, during the heating season, which usually lies between the months November – April (no hot water is supplied outside of the heating season).

The JI Track 1 Project activity involves the utilization of fire - side cleaning technology under the trademark Therma Chem. Therma - Chem represents an on-load fire side treatment for large industrial boilers and process heaters in order to eliminate and prevent the deposition of slag and ash deposits on various heat exchange surfaces along the flue gases route, inside boilers radiant section, super-heaters, economisers, air pre-heaters, flue gases ducts, etc.

Consequently the effects of the Therma - Chem technology are the following:

• It increases the boiler efficiency and capacity, thus decreasing fuel consumption and hence the associated greenhouse gas emissions and the quantity of ash and other materials released,

• It maintains the normal boiler operating parameters over prolonged operating periods, eliminating the shutdowns for boiler cleaning and condition restoration,

• Through better efficiency, it will help the power plant to reduce the cost of compliance with emissions regulations, taking into account the reduction of SOx and NOx emissions as well as other particulates due to reduced fuel consumption per ton of steam produced. The implemented measures exceed the national regulations significantly.

2 METHODOLOGY

2.1 Verification Process

The verification process is based on the approach depicted in the Determination and Verification Manual for JI.

Standard auditing techniques have been adopted. The verification team performs first a desk review, followed by an on-site visit which results in a protocol including all the findings. The next step is to close out the findings through direct communication with the PPs and finally prepare the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before submission to the project participant Danish Environment Agency (DEA).

2.2 Verification Team

The appointment of the team takes into account the coverage of the technical area(s), sectoral scope(s) and relevant host country experience for verifying the ER achieved by the project activity in the relevant monitoring period for this verification.

The verification team was consisting of the following members:

Name	Qualification	Coverage of scope	Coverage of technical area	Host country experience
Thomas Kleiser	**ATL**	☑	☑	
Madis Maddison	GHG-A	☑	☑	☑
Georgios Agrafiotis	GHG-T	☑		

Thomas Kleiser is Head of the Certification Body of TÜV SÜD Industrie Service GmbH since 2009 and lead auditor. He has participated in more than 100 CDM and JI project assessments, (validations /determinations and verifications) and more than 20 voluntary projects under different schemes.

Madis Maddison is specialized in auditing of greenhouse gas emission reduction projects. This experience he has gained (in co-operation with TÜV SÜD Industrie Service) in determination and verification of Joint Implementation (JI) projects in Estonia, Lithuania, Poland, Romania and Bulgaria. He has received training in the JI determination as well as CDM validation and verification process and applied successfully as GHG Auditor.

Georgios Agrafiotis is determiner and verifier for JI and voluntary projects. He has work experience in the field of industrial environmental technology and protection and also in technical environmental projects. As GHG trainee he has been appointed scopes 1,5 and 13 as per UNFCCC definition.

2.3 Review of Documents

The Monitoring Report version 1 submitted by the PP to TÜV SÜD in February 2010 and was the base for the desk review.

The published MR was assessed in the desk review with the aim to:

- verify the completeness of the data and the information presented in the MR,

- check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid,
- evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of all documents reviewed is available in Annex 2 of this report.

2.4 On-site Assessment and follow-up Interviews

During 11-06-2010, TÜV SÜD performed a physical site inspection and on-site interviews with project stakeholders to:

- confirm the implementation and operation of the project,
- review the data flow for generating, aggregating and reporting the monitoring parameters,
- confirm the correct implementation of procedures for operations and data collection,
- cross-check the information provided in the MR documentation with other sources (raw data),
- check the monitoring equipments against the requirements of the PDD, including calibrations, maintenance, etc.,
- review the calculations and assumptions used to obtained the GHG data and ER,
- identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

A list of the persons interviewed during this verification activity is included in Annex 2.

2.5 Quality of Evidence to Determine Emission Reductions

Among many others the following relevant and reliable evidences have been used by the audit team during the verification process:

1. Calibration and Checking certificates of metering equipment, IRL#27, 28, 29, 30
2. Project data sheets, IRL#34
3. Coal stock inventory reports, IRL#35
4. Fuel oil stock inventory reports, IRL#36
5. Turbine operation log-books, IRL#37
6. Coal purchase invoices, IRL#38
7. Fuel oil purchase invoices, IRL#39
8. Therma-Chem purchase invoices, IRL#22

Sufficient evidence covering the full verification period in the required frequency is available to validate the figures stated in the final MR. The source of the evidences will be discussed in chapter 3.4 of this report. Specific cross-checks have been done in cases that further sources were available. All figures in the monitoring report were cross-checked by the audit team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

2.6 Resolution of Clarification and Corrective and Forward Action Requests

The objective of this phase of the verification process was to resolve any outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the GHG emission reduction calculation. The findings raised as Forward Action Requests (FAR#1) indicated in previous reports (validation/verification) were clarified during communications between the PP and TÜV SÜD.

Concerns raised in the desk review, the on-site audit assessments and the follow up interviews and the responses provided for the raised concerns are documented in Annex 1 (verification protocol) to guarantee the transparency of the verification process.

A Corrective Action Request (CAR) is raised where TÜV SÜD identifies:

- non-conformities in monitoring and/or reporting with the monitoring plan;
- that the evidence provided is not sufficient to prove conformity;
- mistakes in assumptions, data or calculations that impair the ER;
- FARs stated during validation that are not solved until the on-site visit.

A Clarification Request (CR) is raised where TÜV SÜD does not have enough information or the information is not clear in order to confirm a statement or data.

A Forward Action Request (FAR) is raised where TÜV SÜD identifies that monitoring and/or reporting required special attention or adjustments for the next verification period.

Information or clarifications provided as response to a CAR, CL or FAR could also lead to a new CAR.

2.7 Internal Quality Control

As an ultimate step of verification the final documentation including the verification report and the protocol have to undergo an internal quality control by the Certification Body (CB) "climate and energy", i.e. each report has to be finally approved either by the Head of the CB or the Deputy. In case one of these two persons is part of the assessment team the approval can only be given by the other one. If the documents have been satisfactorily approved, the Request for Issuance is submitted with the relevant documents.

3 VERIFICATION RESULTS

In the following sections the results of the verification are stated. The verification results relate to the project performance as documented and described in the final Monitoring Report (27-07-2010, Version 3). The verification findings for each verification subject are presented below:

3.1 FARs from Previous Verification

The verification team confirms that the only FAR#1 presented in the first JI Track 1 verification report no: 600500085 from 09.06.2010 has been solved by the PPs during the verification Audit. However based on this a new FAR#1 was raised concerning the late installation of ash removal system. Though absence of the ash removal system does not have influence on efficiency nor on ER generation, it was anyhow a part of the registered project. In case PP will fail to install it until next verification audit, the deviation from the Project Design Document shall be mentioned.

3.2 Project Implementation in accordance with the registered Project Design Document

The JI project as determined is not completely implemented yet. The part that is not fully implemented (ash removal system) has no influence on efficiency and on emission reductions. The installed equipment being essential and operational for generating emission reduction and for metering the data defined in the monitoring plan runs reliably and is calibrated appropriately. The monitoring system is in place and the project does generate GHG emission reductions.

No data and/or variables presented in the MR differ significantly from the stated in the registered PDD, which could cause an increment of the ER in this period or in future periods in relation to the estimates in the registered PDD. The annual ERs are in compliance with the figures as presented in the determined and approved PDD.

3.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The monitoring plan is in accordance with the approved project specific methodology, applied by the proposed JI project activity. Neither a revision nor a deviation to the monitoring plan has been requested to the DFP/AIE.

3.4 Compliance of the Monitoring with the Monitoring Plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD. All parameters were monitored and determined as per the Monitoring Plan.
The verification of the parameters required by the monitoring plan are provided as follows:

Data / Parameter:	Quantity of coal consumed in boiler 1
Data unit:	Tonnes
Description:	Total quantity of coal consumed in boiler 1
Source of data used:	Monitoring is based on meters (coal volume and belt velocity) readings. By mechanical adjustment of coal layer height and direct measurement of belt velocity the volume is established. Further the standard density of hard coal (established by consultant) is used to calculate the result.

	The data is read and documented hourly in respective log book according to the procedure JI 005. The district heating operator reads the coal meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic coal consumption meters in the boilers" form code F JI 005 – 02. JI Project Manager transfers data to respective project data sheets (IRL#34), from where it is transferred to ER calculation sheet (IRL#7). All meters are fully functional and properly calibrated.
Means of verification/Comments:	Quantity of coal consumed in boiler 1 was verified by checking the data on project data sheets (IRL#34).
Cross-check	Quantity of coal consumed in boiler 1 was cross-checked from monthly coal stock inventory reports (IRL#35).

Data / Parameter:	Quantity of coal consumed in boiler 2
Data unit:	Tonnes
Description:	Total quantity of coal consumed in boiler 2
Source of data used:	Monitoring is based on meters (coal volume and belt velocity) readings. By mechanical adjustment of coal layer height and direct measurement of belt velocity the volume is established. Further the standard density of hard coal (established by consultant) is used to calculate the result. The data is read and documented hourly in respective log book according to the procedure JI 005. The district heating operator reads the coal meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic coal consumption meters in the boilers" form code F JI 005 – 02. JI Project Manager transfers data to respective project data sheets (IRL#34), from where it is transferred to ER calculation sheet (IRL#7). All meters are fully functional and properly calibrated.
Means of verification/Comments:	Quantity of coal consumed in boiler 2 was verified by checking the data on project data sheets (IRL#34).
Cross-check	Quantity of coal consumed in boiler 2 was cross-checked from monthly coal stock inventory reports (IRL#35).

Data / Parameter:	Quantity of fuel oil consumed in boiler 1
Data unit:	Tonnes
Description:	Total quantity of fuel oil consumed in boiler 1
Source of data used:	Monitoring is based on pressure meter readings (serial number 4707, 2755-83, 2506, 2434-83). The hourly oil flow is established based on metered pressure losses in the supply pipe (calibrated nomogrammes are used showing the relationship between oil flow and pressure loss in the system). The data is read and documented hourly in respective log book according to the procedure JI 005, JI 008. JI Project Manager transfers data to respective project data sheets (IRL#34), from where it is transferred to ER calculation sheet (IRL#7). All meters are fully functional and properly calibrated.
Means of verification/Comments:	Quantity of oil consumed in boiler 1 was verified by checking the data on project data sheets (IRL#34).
Cross-check	Quantity of oil consumed in boiler 1 was cross-checked from monthly fuel oil stock inventory reports (IRL#36).

Data / Parameter:	Quantity of fuel oil consumed in boiler 2
Data unit:	Tonnes
Description:	Total quantity of fuel oil consumed in boiler 2
Source of data used:	Monitoring is based on pressure meter readings (serial number 4707, 2755-83, 2506, 2434-83). The hourly oil flow is established based on metered pressure losses in the supply pipe (calibrated nomogrammes are used showing the relationship between oil flow and pressure loss in the system).

	The data is read and documented hourly in respective log book according to the procedure JI 005, JI 008. JI Project Manager transfers data to respective project data sheets (IRL#34), from where it is transferred to ER calculation sheet (IRL#7). All meters are fully functional and properly calibrated.
Means of verification/Comments:	Quantity of oil consumed in boiler 2 was verified by checking the data on project data sheets (IRL#34).
Cross-check	Quantity of oil consumed in boiler 2 was cross-checked from monthly fuel oil stock inventory reports (IRL#36).

Data / Parameter:	Quantity of steam produced in boiler 1
Data unit:	Tonnes
Description:	Total quantity of steam produced in boiler 1
Source of data used:	Monitoring is based on meter readings. The hourly values of produced steam flow are established based on metered pressure difference. The data is read and documented hourly in respective log book according to the procedure JI 005; JI 007. JI Project Manager transfers data to respective project data sheets (IRL#34), from where it is transferred to ER calculation sheet (IRL#7). All meters are fully functional and properly calibrated.
Means of verification/Comments:	Quantity of steam produced by boiler 1 was verified by checking the data on project data sheets (IRL#34).
Cross-check	Quantity of steam produced by boiler 1 was cross-checked from log-book for turbine operation (IRL#37).

Data / Parameter:	Quantity of steam produced in boiler 2
Data unit:	Tonnes
Description:	Total quantity of steam produced in boiler 2
Source of data used:	Monitoring is based on meter readings. The hourly values of produced steam flow are established based on metered pressure difference. The data is read and documented hourly in respective log book according to the procedure JI 005; JI 007. JI Project Manager transfers data to respective project data sheets (IRL#34), from where it is transferred to ER calculation sheet (IRL#7). All meters are fully functional and properly calibrated.
Means of verification/Comments:	Quantity of steam produced by boiler 2 was verified by checking the data on project data sheets (IRL#34).
Cross-check	Quantity of steam produced by boiler 2 was cross-checked from log-book for turbine operation (IRL#37).

Data / Parameter:	Calorific value of coal
Data unit:	Kcal/kg
Description:	Calorific value of coal used in the boilers
Source of data used:	Monitoring is based on analyzing the coal used in the boilers. The analysis is done daily by utilities own laboratory. The analysed sample is documented daily in a report "Chemical analysis report for hard coal" (IRL 38 ÷IRL 44). JI Project Manager transfers data to respective project data sheets (IRL#34),from where it is transferred to ER calculation sheet (IRL#7). The calorimetric system is certified by Romanian National Institute of Metrology. All meters used in analyzing are fully functional and properly calibrated. The personnel are properly trained.
Means of verification/Comments:	Calorific value of coal was verified by checking the data on project data sheets (IRL#34).

Cross-check	Calorific value of coal was cross-checked with the respective information from invoices of purchased coal (IRL#38).

Data / Parameter:	Calorific value of fuel oil
Data unit:	Kcal/kg
Description:	Calorific value of fuel oil used in the boilers
Source of data used:	Monitoring is based on analyzing the fuel oil used in the boilers. The analysis is done daily by utilities own laboratory. The analysed sample is documented weekly in a report "Analysis certificate for fuel oil (IRL 45 ÷IRL 46).). JI Project Manager transfers data to respective project data sheets (IRL#34), from where it is transferred to ER calculation sheet (IRL#7). The calorimetric system is certified by Romanian National Institute of Metrology. All meters used in analyzing are fully functional and properly calibrated. The personnel are properly trained.
Means of verification/Comments:	Calorific value of fuel oil was verified by checking the data on project data sheets (IRL#34).
Cross-check	No cross-check is available as calorific value of fuel oil was not indicated on the purchase invoices. However the values are in the same range used for estimation of emission reductions in the PDD of this project and another registered Romanian project "Energy Efficiency Improvement of the District Heating System in Drobeta Turnu-Severin" (RO1000133).

3.5 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

All data has been available and all the parameters have been monitored in accordance with the registered monitoring plan.

The reported data have been cross-checked against other sources available as explained above in chapter 3.4.

The verifier confirms that the methods and formulae used to obtain the baseline, project and leakage emissions are appropriate. The same has been done in accordance with the methods and formulae described in the registered monitoring plan and applicable methodology.

The verifier confirms that the monitoring report includes all parameters and the monitored data at the intervals required by the methodology and PDD.

The verifier confirms that all the emission factors and default values (ex-ante values from PDD) have been correctly used and could be justified. All the emission factors and default values are explicitly mentioned in the monitoring report.

4 SUMMARY OF FINDINGS

The verifier can confirm that the published MR and related documents are complete and verifiable in accordance with the JI requirements. All the findings raised by the verification team, the responses by the PPs and the conclusion from the team are presented in Annex 1. The means of verification and resulting changes in the MR or related documents are identified in the following tables:

CAR 1: Include in the Monitoring Report detail information on calibration (dates when the meter was dissembled and/or calibrated, calibrating company, calibration certificate number etc) for each meter, sensor (or other device) used for monitoring.
CAR 1, means of verification
Version 3 (27.07.2010) of the Monitoring Report was sent to audit team for verification.
CAR 1, changes in the MR or related documents
Information on calibration of meters was added to Monitoring Report (27.07.2010, version 3) (IRL#6).

CAR 2: Correct the values of coal used in boiler 2 for February 17 and 25. There are typing mistakes.
CAR 2, means of verification
Version 3 (27.07.2010) of the ER calculation workbook was sent to audit team for verification.
CAR 2, changes in the MR or related documents
Values of coal used in boiler 2 for February 17 and 25 were corrected in the ER calculation workbook (27.07.2010, version 3) (IRL#7).

CAR 3: Include the description of metering principle of the fuel oil and calibration of meters into the Monitoring Report.
CAR 3, means of verification
Version 3 (27.07.2010) of the Monitoring Report was sent to audit team for verification.
CAR 3, changes in the MR or related documents
Description of metering principle of the fuel oil and calibration of meters was added to Monitoring Report (27.07.2010, version 3) (IRL#6).

CAR 4: Correct the value for February 06, there is a typing error.
CAR 4, means of verification
Version 3 (27.07.2010) of the ER calculation workbook was sent to audit team for visual verification.
CAR 4, changes in the MR or related documents
No changes in the MR or ER calculation sheet were made. However the project data sheet (IRL#34) for February 2, was corrected. Fuel oil flow for boiler K1 was typed by mistake in the column for coal flow for boiler K2. Figures for hours 8 and 9 (0.74 and 0.27 respectively) were moved to the column for fuel oil flow for Boiler K1.

CAR 5: Correct values for February 04 and April 26, there are typing mistakes.
CAR 5, means of verification
Version 3 (27.07.2010) of the ER calculation workbook was sent to audit team for verification.
CAR 5, changes in the MR or related documents
Values of steam produced by boiler 1 for February 04 and April 26 were corrected in the ER calculation workbook (27.07.2010, version 3) (IRL#7).

CAR 6: Add the description of sampling method and of location of coal sampling point to Monitoring Report.
CAR 6, means of verification
Version 3 (27.07.2010) of the Monitoring Report was sent to audit team for verification.
CAR 6, changes in the MR or related documents
Description of sampling method and of location of coal sampling point was added to Monitoring Report (27.07.2010, version 3) (IRL#6).

CAR 7: Correct the value for December 15, there is a typing error.
CAR 7, means of verification
Version 3 (27.07.2010) of the ER calculation workbook was sent to audit team for verification.
CAR 7, changes in the MR or related documents
Calorific value of coal for December 15 was corrected in the ER calculation workbook (27.07.2010, version 3) (IRL#7).

CAR 8: Add the description of sampling method and location of fuel oil sampling point to Monitoring Report.
CAR 8, means of verification
Version 3 (27.07.2010) of the Monitoring Report was sent to audit team for verification.
CAR 8, changes in the MR or related documents
Description of sampling method and of location of fuel oil sampling point was added to Monitoring Report (27.07.2010, version 3) (IRL#6).

CAR 9: Correct the value for February 2, there is a typing error.
CAR 9, means of verification
Version 3 (27.07.2010) of the ER calculation workbook was sent to audit team for verification.
CAR 9, changes in the MR or related documents
Calorific value of fuel oil for February 2 was corrected in the ER calculation workbook (27.07.2010, version 3) (IRL#7).

CAR 10: Indicate units for Baseline Emissions, Project Emissions and Total Emission Reductions on Front Page of the calculation tool.
CAR 10, means of verification
Version 3 (27.07.2010) of the ER calculation workbook was sent to audit team for verification.
CAR 10, changes in the MR or related documents
Units for Baseline Emissions, Project Emissions and Total Emission Reductions were added to Front Page of the ER calculation workbook (27.07.2010, version 3) (IRL#7).

CAR 11: Provide the calculation tool in two separate versions: one in protected format (all sheets) for official reference and another in unprotected format for auditing purposes.
CAR 11, means of verification
Version 3 (27.07.2010) of the ER calculation workbook was sent to audit team for verification.
CAR 11, changes in the MR or related documents
Worksheets in Version 3 (27.07.2010) of the ER calculation workbook were locked (IRL#7).

CAR 12: The Monitoring Report and the calculation tool shall have issuing date and version number mentioned in both: file name and on the front page.
CAR 12, means of verification
Version 3 (27.07.2010) of the Monitoring Report including ER calculation workbook was sent to audit team for verification.

CAR 12, changes in the MR or related documents
The issuing date and version number were added to Monitoring Report and the calculation tool (Version 3, 27.07.2010) (IRL#6, 7).

CR 1: Present technical data sheets for boilers including manufacturer, commissioning dates and serial numbers.
CR 1, means of verification
Technical data sheets for boilers (IRL#20) were sent to audit team for verification.
CR 1, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 2: Present technical information for Therma Chem FS 12 injection system including their capacity, manufacturer data, serial numbers and commissioning dates.
CR 2, means of verification
Technical information for Therma Chem FS 12 injection system (IRL#21) was sent to audit team for verification.
CR 2, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 3: Present invoices for purchase of Therma Chem chemical.
CR 3, means of verification
The invoices and consumption reports of Therma-Chem chemical (IRL#22) were sent to audit team for verification.
CR 3, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 4: Present technical information for installed ash electrostatic precipitation system including its capacity, manufacturer data, serial numbers and commissioning dates.
CR 4, means of verification
Technical information for installed ash electrostatic precipitation system (IRL#23) was sent to audit team for verification.
CR 4, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 5: Provide the list of the operational licences and copies of these licences.
CR 5, means of verification
Copies of operational licences (IRL#24) were sent to audit team for verification.
CR 5, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 6: Provide a copy of the training programme and the copies of the training certificates (including laboratory personnel).
CR 6, means of verification
Copy of the training programme and the copies of the training certificates (IRL#25, 26) were sent to audit team for verification.
CR 6, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 7: Present copies of calibration certificates for all meters.
CR 7, means of verification
Copies of calibration certificates for all meters (IRL#27, 28, 29, 30) were sent to audit team for

visual verification.
CR 7, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 8: Provide the copy of the consultant's report establishing the standard density of hard coal.
CR 8, means of verification
The copy of the consultant's report establishing the standard density of hard coal (IRL#31) was sent to audit team for verification.
CR 8, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 9: Present technical data sheets for all meters for verification.
CR 9, means of verification
Technical data sheets for all meters (IRL#32, 33) were sent to audit team for verification.
CR 9, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 10: Present copies of monthly inventory reports of coal stock.
CR 10, means of verification
Copies of monthly inventory reports of coal stock (IRL#35) were sent to audit team for verification.
CR 10, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 11: Provide copies of monthly fuel oil stock inventory reports.
CR 11, means of verification
Copies of monthly fuel oil stock inventory reports (IRL#36) were sent to audit team for verification.
CR 11, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 12: Present copies of log-book for turbines operation for full year 2009.
CR 12, means of verification
Copies of log-book for turbines operation for year 2009 (IRL#37) were sent to audit team for verification.
CR 12, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 13: Provide copy of certificate for calorimetric system.
CR 13, means of verification
Copy of certificate for calorimetric system (IRL#30) was sent to audit team for verification.
CR 13, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 14: Provide copies of the invoices for purchased fuel oil indicating the calorific value of oil used in 2009.
CR 14, means of verification
Copies of the invoices for purchased fuel oil (IRL#39) were sent to audit team for verification.
CR 14, changes in the MR or related documents
No changes in the MR or related documents were made.

CR 15: Provide copy of the EPA Report.
CR 15, means of verification
Two letters from local EPA confirming the fulfilment of environmental regulations (IRL#41, 42) were sent to audit team for verification.
CR 15, changes in the MR or related documents
No changes in the MR or related documents were made.

FAR 1: The ash removal system shall be installed as it was the part of the Project described in PDD. In case PP will reconsider to install it, the deviation from the Project Design Document will be mentioned.
FAR 1, means of verification
The installation of ash removal system shall be checked during next verification. See also § 3.1 in this report.
FAR 1, changes in the MR or related documents
No changes in the MR or related documents were made.

Industrie Service

5. VERIFICATION STATEMENT

TÜV SÜD Industrie Service GmbH has performed the second periodic verification for 2009 of the project: "Boiler efficiency improvement at Holboca CET II Iasi, Romania" as JI track 1. The verification is based on the currently valid documentation of the UN Framework Convention on Climate Change (UNFCCC).

The management of SC C.E.T. IASI S.A. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions on the basis set out within the project's Monitoring Plan indicated in the latest version of determined PDD version 4, dated 24-09-2008.

The verifier can confirm that:

- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the project is operated as planned and described in the validated and registered project design document;
- that the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- that the monitoring system is in place and generates GHG emission reductions data;
- that the GHG emission reductions are calculated without material misstatements;
- that the monitoring plan in Monitoring Report is as per the registered PDD;
- that the monitoring plan in latest determined PDD is in accordance with the approach taken regarding baseline setting and monitoring (please see Appendix B of the JI Guidelines – Decision 9 COP/MOP).

Our opinion refers to the project's GHG emissions and resulting GHG emission reductions reported both determined due to the valid and registered project's baseline, its monitoring plan and its associated documents.

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

Reporting period: From 01-01-2009 to 31-12-2009

Verified emissions in the above reporting period:

Baseline emissions:	269,001	t CO_{2e}
Project emissions:	239,900	t CO_{2e}
Leakage emission:	0	t CO_{2e}
Emission reductions:	29,101	t CO_{2e}

Munich, 25-10-2010

Rachel Zhang
Deputy Head of Certification body "climate and energy"

Munich, 25-10-2010

Thomas Kleiser
Assessment Team Leader

Industrie Service

Annex 1: Verification Protocol

Verification Protocol

Project Title: Second periodic verification at Holboca Iasi II, ERs from 2009

Date of Completion: 25.10.2010

Number of Pages: 59

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Input by audit team in green colour

Old text from previous verification (unchanged situation) in black colour

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Industrie Service

1. Project Activity Implementation

1.1. Technology

Project Location (s) *include any other sites which are relevant to the project activity*			
	PDD Description	Verification Findings (or Results?)	Conclusion and IRL
Site Description / Address:	*Holboca CET Iasi II is located between the city of Iasi (approx. 13 km away) and the town of Holboca (approx. 8 km away), in the north-eastern part of Romania*	*The address is Holboca, 707250 Iasi, Romania.*	☑
GPS coordinates:		*47° 08' 50",019 North, 27° 43' 03",734 East*	☑
Technical Equipment – Main Components			
	PDD Description	Verification Findings (or Results?)	Conclusion and IRL
Equipment Description	*The Holboca CET Iasi II plant is equipped with two high pressure boilers, each with a capacity of 260 Gcal/h, producing 420 t/h of steam.*	*The Holboca CET Iasi II plant is equipped with two high pressure boilers, each with a capacity of 260 Gcal/h, producing 420 t/h of steam.*	☑
Component 1: Technical Features	*Two high pressure boilers, each with a capacity of 260 Gcal/h, producing 420 t/h of steam*	Capacity*: 260 Gcal/h each* Manufacturer*: SC VULCAN SA Bucharest – Romania* Commissioning date*: 1986 and 1988, refurbished 1997 – 2001* Serial numbers*: 22250 and 22909*	☑ *IRL#20*

		Clarification Request #1. *Present technical data sheets for boilers including manufacturer, commissioning dates and serial numbers*	
Component 2: Technical Features	*Therma Chem FS 12 injection system.* *Two injection pistols for each boiler and one dosing system for each boiler.*	Capacity*: 600 – 1000 liters/hour each* Manufacturer*: SC HIDROTEH SRL - Romania* Commissioning date*: September 2006* Serial numbers*: Boiler1- CP-IB1-001; Boiler 2 – CP-IB2-002* **Clarification Request #2.** *Present technical information for Therma Chem FS 12 injection system including their capacity, manufacturer data, serial numbers and commissioning dates.* **Clarification Request #3.** *Present invoices for purchase of Therma Chem chemical.*	☑ *IRL#21* *IRL#22*
Component 3: Technical Features	*Ash removal system.*	*Ash removal system is installed partially: only electrostatic precipitation of ash was installed in 2007 (for boiler #1) and 2008 (for boiler #2).* Capacity*: Flue Gas Capacity: 1,240,000 m3/h* Manufacturer*:* *for boiler 1: SC IUT Bistrita Nasaud – Romania* *for boiler 2: SC VULCAN SA Bucharest – Romania* Commissioning date*:* *for boiler 1: 1986, rehabilitated in 2009* *for boiler 2: 1988, rehabilitated in 2008*	☑ *IRL#23*

		Serial numbers*: EPS for boiler 22250 and EPS for boiler 22909* **Clarification Request #4.** *Present technical information for installed ash electrostatic precipitation system including its capacity, manufacturer data, serial numbers and commissioning dates.*	
Operation Status during verification			
	Verification Findings		Conclusion and IRL
Approvals / Licenses	*Following licences exist:* 1. *Licence to supply heat energy No: 1511 issued by ANRE (National Energy Regulation Authority) at 12.07.2002;* 2. *Licence to produce heat energy No: 2034 issued by ANRE (National Energy Regulation Authority) at 20.12.2007;* 3. *Licence to supply electric energy No: 1666 issued by ANRE (National Energy Regulation Authority) at 10.11.2004;* 4. *Licence to produce electric energy No: 1726 issued by ANRE (National Energy Regulation Authority) at 25.04.2005;* 5. *Environmental Authorization No: 10 issued by Romanian Ministry of Environment (Bacau Regional Agency) at 10.05.2006.* **Clarification Request #5.** *Provide the list of the operational licences and copies of these licences.*		☑ *IRL#24*

Actual Operation Status	Start date of operation (each site if applicable): *20. December 2006* Under construction ☐ In operation ☒ Boiler 1, Boiler 2 Out of operation ☐ Reason and date (if out of operation):	☑
	The boiler plant was running during the heating season from 01.01.2009 to 27.04.2009 and from 13.12.2009 to 31.12.2009. *Verified on-site that the project operates as described.*	☑
Remarks on Special Operational Circumstances During the Verification Period	Phased implementation: *Project is already in operation since December 2006. However ash removal system is not entirely installed, see comments above.* Special cases: *The boilers operate one at a time in order to enable cleaning of another boiler at the mean time. There is not enough heat demand to run both boilers parallel.*	☑

1.2. Organization

Project Participant (s)		
	Verification Findings	Conclusion and IRL
Entity / Responsible person:	*SC C.E.T. IASI SA Centrala de Termoficare- project owner represented by the General Director Dorin Ivana and* *Danish Energy Agency (former Danish Environmental Protection Agency) represented by MIHAI BRASOVEANU.* *It was confirmed on-site.*	☑
JI Project management:	*Carmen Antonovici – Responsible for Environmental Protection, JI Project. Manager*	☑

	CET Iasi. *It was confirmed on-site.*	

1.3. Quality Management System

General aspects of the Quality Management System		
	Verification Findings	Conclusion and IRL
Quality Management Manual:	*There is a Quality Assurance System implemented and certified in CET Iasi Holboca Power Plant. - ISO 14001 Certificate for Environment Management System for electricity production and supply and for thermal energy production.*	☑ *IRL#24*
Responsibilities:	*General Director Dorin Ivana,* *Mrs. Carmen Antonovici – Responsible for Environmental Protection CET IASI II*	☑
Qualification and Training:	*Several trainings were conducted. Especially the new JI Project Manager was trained.* *Danish consultant Grue & Hornstrup has drawn up a constant training programme as a part of post implementation services.* **Clarification Request #6.** *Provide a copy of the training programme and the copies of the training certificates (including laboratory personnel).*	☑
Implementation of QM-system	*The personnel involved in this project are properly qualified and trained as presented in the attached documents.*	*IRL#25* *IRL#26*

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1.4. Outstanding FARs from previous Verifications (or forwarded issues from the determination report)

No Forward Action Requests were issued in determination report.

Outstanding Requests from Previous Verifications	Summary of project owner response	Audit team Conclusion and IRL
FAR#1. The ash removal system shall be installed as it was the part of the Project described in PDD. In case PP will reconsider to install it, the deviation from the Project Design Document will be mentioned.	Respective information is attached in Annex 3 (FAR 1_Ash Removal System). Since at present at CET Iasi II Holboca is under preparation and will be implemented a new slag removal system ("DRY SYSTEM") which will replace the existing slag removal system ("WET SYSTEM), it was decided to integrate the new fly ash removal system with new the slag removal system.	*PP is considering installing the ash removal system integrated with new slag removal system. So the requirement to install the ash removal system is not removed and the FAR is forwarded to next verification.Meanwhile the old system was used.* **Forward Action Request #1.** *The ash removal system shall be in-stalled as it was the part of the Project described in PDD. In case PP will reconsider to install it, the deviation from the Project Design Document will be mentioned.*

2. Monitoring Plan Implementation

2.1. Parameters

Parameters					
Meth/tool	PDD	MR	Included in table	Compliance	Conclusion and IRL
Project specific methodology is applied	*$fP_{a,B1}$ Quantity of coal consumed in boiler 1*	*$fP_{a,B1}$ Quantity of coal consumed in boiler 1*	*§ 2.2 Table 1*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3 IRL#6*
Project specific methodology is applied	*$fP_{a,B2}$ Quantity of coal consumed in boiler 2*	*$fP_{a,B2}$ Quantity of coal consumed in boiler 2*	*§ 2.2 Table 2*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3 IRL#6*
Project specific methodology is applied	*$fP_{b,B1}$ Quantity of fuel oil consumed in boiler 1*	*$fP_{b,B1}$ Quantity of fuel oil consumed in boiler 1*	*§ 2.2 Table 3*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3 IRL#6*
Project specific methodology is applied	*$fP_{b,B2}$ Quantity of fuel oil consumed in boiler 2*	*$fP_{b,B2}$ Quantity of fuel oil consumed in boiler 2*	*§ 2.2 Table 4*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3 IRL#6*
Project specific methodology is applied	*qP_{B1} Quantity of steam produced in boiler 1*	*qP_{B1} Quantity of steam produced in boiler 1*	*§ 2.2 Table 5*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3 IRL#6*
Project specific methodology is	*qP_{B2} Quantity of steam*	*qP_{B2} Quantity of steam*	*§ 2.2 Table 6*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3*

Parameters					
Meth/tool	PDD	MR	Included in table	Compliance	Conclusion and IRL
applied	*produced in boiler 2*	*produced in boiler 2*			*IRL#6*
Project specific methodology is applied	*CV_a Calorific value of coal*	*CV_a Calorific value of coal*	*§ 2.3 Table 7*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3* *IRL#6*
Project specific methodology is applied	*CV_b Calorific value of fuel oil*	*CV_b Calorific value of fuel oil*	*§ 2.3 Table 8*	*Compliant with project specific methodology, PDD and Monitoring Report*	☑ *IRL#3* *IRL#6*

2.2. Parameters measured directly with instruments in the field

Table 1

Parameter and instrumentation Information					
	PDD	Meth/Tool	MR	Verification Findings	Conclusion and IRL
Parameter title	*Quantity of coal consumed in boiler 1*	*-*	*Quantity of coal consumed in boiler 1*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Parameter ID (if available)	*$fP_{a,B1}$*	*-*	*$fP_{a,B1}$*	*Parameter ID is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*

Data Unit	*tonnes*	-	*tonnes*	*Data Unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (reading)	-	-	*Hourly*	*Measurement frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (recording)	*Daily*	-	*Daily*	*Recording frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Calibration require-ments	*No require-ments*	-	*The calibration of the monitoring equipment is per-formed by observing the specific legal regulations and issu-ing the related met-rological control cer-tificate*	*Calibration requirements are consistent with Monitoring Report.* *Calibration is performed once a year according to the JI 006 version 2 procedure by AMC Labora-tory of SC CET Iasi S.A..* **Corrective Action Request #1.** *Include in the Monitoring Report detail information on calibration (dates when the meter was dissembled and/or calibrated, calibrating company, calibration certifi-cate number etc) for each meter, sensor (or other device) used for monitoring.* **Clarification Request #7.** *Present copies of calibration certificates for all meters.*	☑ *IRL#3* *IRL#6* *IRL#14* *IRL#27*
Uncertainty level	*Low*	-	*Low*	*Uncertainty level is low, because metering is sim-*	☑

				ple and reliable metering equipment is used. *Within the range of 0.06 – 600 000 imp/min for belt speed metering.* *It is consistent with PDD and Monitoring Report*	*IRL#3* *IRL#6* *IRL#32*
Measurement Principle (if applicable)	*Data calculated in accordance with specific procedures*	-	*An indirect method that take in consideration:* *- the coal conveyor speed,* *- the volume of the coal disposed along a linear meter deposited on the band,* *- the reference coal density.*	*According to the procedure JI 006 version 2. Mechanical adjustment of coal layer height and direct measurement of belt velocity.* *The calculation unit calculates the hourly consumption in tonnes. The standard density of hard coal established during the refurbishment of boilers by the consultant (Finnish FORTUM). The figure 803.57 kg/m^3 is used.* *However it should be mentioned that the same figure was used to calculate the baseline as well.* **Clarification Request #8.** *Provide the copy of the consultant's report establishing the standard density of hard coal.* *.* *Measurement principle is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6* *IRL#31*
	Technical aspects				Conclusion and IRL
Instrument Type:	*Frequency/Current Adapter*				☑ *IRL#32*
Serial Number:	*3XM5H -001;* *3XM5H –002;*				☑ *IRL#32*

	3XM5H –003; *3XM5H –004*	
Manufacturer Model Nr.:	*3XM5H TRUCK: Redller Revolution-Mill no.1, Redller Revolution-Mill no.2, Redller Rev-olution-Mill no.3, Redller Revolution-Mill no.4*	☑ *IRL#32*
Specific Location:	*On the coal conveyor belts feeding the boiler 1.*	☑
Measurement Range:	*Measurement range for tones of coal is not defined, however for belt velocity 0.06-1000 rpm.* **Clarification Request #9.** *Present technical data sheets for all meters for verification.*	☑ *IRL#32*
Gaps in operating time of instrument :	Period: *Verified on-site that there were no gaps.*	☑
	Default value used: *N/A*	☑
	Justification: *N/A*	☑
	QA/QC aspects	Conclusion and IRL
Source of data	Type*: Manually taken readings from Data Control System (Damatic or DCS).*	☑
	Procedures: *The district heating operator reads the coal meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic coal consumption meters in the boilers" form code F JI 005 – 02.*	☑ *IRL#13*
	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Ms. Carmen Antonovici is responsible for data acquisition.*	☑

Archiving of raw data and protection measures	*Data archiving is described in the MP.* *The original log book (hard copy) is stored in Companies Central Archive for 5 years.* *All relevant reports are archived as hard copy and electronic files. Electronic files are saved on Project Managers computer and on the computer of Energy Department as well until 2018.*	☑ *IRL#8*
Data transfer and protection of input data for calculations	*Data from manual daily forms are transferred manually to calculation tool (excel sheet) according to the attached procedure. This fuel consumption and heat production data is documented daily and entered into readymade input data excel sheets for each boiler which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL
Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Quantity of coal consumed in boiler 1 was verified by checking the data on project data sheets.* *No discrepancies were identified.*	☑ *IRL#34*
	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*Quantity of coal consumed in boiler 1 was cross-checked by monthly coal stock inventory reports.* **Clarification Request #10.** *Present copies of monthly inventory reports of coal stock.* *No significant discrepancies were found.*	☑ *IRL#35*

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Table 2

Parameter and instrumentation Information					
	PDD	Meth/Tool	MR	Verification Findings	Conclusion and IRL
Parameter title	*Quantity of coal consumed in boiler 2*	-	*Quantity of coal consumed in boiler 2*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Parameter ID (if available)	*$fP_{a,B2}$*	-	*$fP_{a,B2}$*	*Parameter ID is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Data Unit	*tonnes*	-	*tonnes*	*Data Unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (reading)	-	-	*Hourly*	*Measurement frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (recording)	*Daily*	-	*Daily*	*Recording frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Calibration requirements	*No requirements*	-	*The calibration of the monitoring equipment is performed by observing the specific legal regulations and issu-*	*Calibration requirements are consistent with PDD and Monitoring Report.* *Calibration is performed once a year according to the JI 006 procedure by AMC Laboratory of SC CET Iasi S.A.* *See Corrective Action Request #1 and Clarifica-*	☑ *IRL#3* *IRL#6* *IRL#27*

			ing the related metrological control certificate	*tion Request #7.*	
Uncertainty level	*Low*	-	*Low*	*Uncertainty level is low, because metering is simple and reliable metering equipment is used.* *Within the range of 0.06 – 600 000 imp/min for belt speed metering.* *It is consistent with PDD and Monitoring Report*	☑ *IRL#3* *IRL#6* *IRL#32*
Measurement Principle (if applicable)	*Data calculated in accordance with specific procedures*	-	*An indirect method that take in consideration:* *- the coal conveyor speed,* *- the volume of the coal disposed along a linear meter deposited on the band,* *- the reference coal density.*	*According to the procedure JI 006 version 2. Mechanical adjustment of coal layer height and direct measurement of belt velocity.* *The calculation unit calculates the hourly consumption in tonnes. The standard density of hard coal established during the refurbishment of boilers by the consultant (Finnish FORTUM). The figure 803.57 kg/m^3 is used.* *However it should be mentioned that the same figure was used to calculate the baseline as well.* *See Clarification Request #8.* *Measurement principle is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6* *IRL#31*
	Technical aspects				Conclusion and IRL
Instrument Type:	*Frequency/Current Adapter*				☑ *IRL#32*
Serial Number:	*3XM5H -001;* *3XM5H –002;*				☑ *IRL#32*

	3XM5H –003; *3XM5H –004*	
Manufacturer Model Nr.:	*3XM5H TRUCK: Redller Revolution-Mill no.1, Redller Revolution-Mill no.2, Redller Rev-olution-Mill no.3, Redller Revolution-Mill no.4.*	☑ *IRL#32*
Specific Location:	*On the coal conveyor belts feeding the boiler 2.*	☑
Measurement Range:	*Measurement range for tonnes of coal is not defined, however for belt velocity 0-1000rpm.* *See Clarification Request #9*	☑ *IRL#32*
Gaps in operating time of instrument :	Period: *Verified on-site that there were no gaps.*	☑
	Default value used: *N/A*	☑
	Justification: *N/A*	☑
	QA/QC aspects	Conclusion and IRL
Source of data	Type*: Manually taken readings from Data Control System (Damatic or DCS).*	☑
	Procedures: *The district heating operator reads the coal meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic coal consumption meters in the boilers" form code F JI 005 – 02.*	☑ *IRL#13*
	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Ms. Carmen Antonovici is responsible for data acquisition.*	☑
Archiving of raw data and protection meas-	*Data archiving is described in the MP.* *The original log book (hard copy) is stored in Companies Central Archive for 5 years.*	☑ *IRL#8*

ures	*All relevant reports are archived as hard copy and electronic files. Electronic files are saved on Project Managers computer and on the computer of Energy Department as well until 2018..*	
Data transfer and protection of input data for calculations	*Data from manual daily forms are transferred manually to calculation tool (excel sheet) according to the attached procedure. This fuel consumption and heat production data is documented daily and entered into readymade input data excel sheets for each boiler which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL
Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Quantity of coal consumed in boiler 1 was verified by checking the data on project data sheets.* **Corrective Action Request #2.** *Correct the values of coal used in boiler 2 for February 17 and 25. There are typing mistakes.*	☑ *IRL#34*
	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*Quantity of coal consumed in boiler 1 was cross-checked by monthly coal stock inventory reports.* *See Clarification Request #10.* *No significant discrepancies were found.*	☑ *IRL#35*

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Table 3

Parameter and instrumentation Information					
	PDD	Meth/Tool	MR	Verification Findings	Conclusion

					and IRL
Parameter title	*Quantity of fuel oil consumed in boiler 1*	-	*Quantity of fuel oil consumed in boiler 1*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Parameter ID (if available)	*$fP_{b,B1}$*	-	*$fP_{b,B1}$*	*Parameter ID is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Data Unit	*tonnes*	-	*tonnes*	*Data Unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (reading)	-	-	*Hourly*	*Measurement frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (recording)	*Daily*	-	*Daily*	*Recording frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Calibration requirements	*No requirements*	-	*The calibration of the monitoring equipment is performed by observing the specific legal regulations and issuing the related metrological control certificate*	*Calibration requirements are consistent with PDD and Monitoring Report.* *Calibration is performed once a year according to the JI 008 procedure by AMC Laboratory of SC CET Iasi S.A.* *See Corrective Action Request #1.* **Corrective Action Request #3.** *Include the description of metering principle of the fuel oil and calibration of meters into the Monitoring Report.*	☑ *IRL#3* *IRL#6* *IRL#16* *IRL#28*

Uncertainty level	*Low*	-	*Low*	*0.5% for sensor and 1.5% for the indicator.* *It is consistent with PDD and Monitoring Report*	☑ *IRL#3* *IRL#6* *IRL#32*
Measurement Principle (if applicable)	*Data calculated in accordance with specific procedures*	-	*See Corrective Action Request #3*	*According to the procedure JI 008. Direct measurement of pressure on oil return pipes. Establishment of flow using the nomogrammes.* *See Corrective Action Request #3.* *Measurement principle is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
	Technical aspects				Conclusion and IRL
Instrument Type:	*Pressure Sensor / Indicator*				☑ *IRL#32*
Serial Number:	*Sensors: 4707 and 2506* *Indicators: 2755-83 and 2434-83*				☑ *IRL#32*
Manufacturer Model Nr.:	*Boiler 1 FE1GM Forward Fuel Oil Pressure / AI 96 Forward Fuel Oil Pressure*				☑ *IRL#32*
Specific Location:	*On the return oil pipes feeding the boiler 1.*				☑
Measurement Range:	*For pressure gauges 0-50 bar / 4-20mA.* *See Clarification Request #9*				☑ *IRL#32*
Gaps in operating time of instrument :	Period: *Verified on-site that there were no gaps.*				☑
	Default value used: *N/A*				☑

	Justification: *N/A*	☑
	QA/QC aspects	Conclusion and IRL
Source of data	Type*: Manually taken readings from Data Control System (Damatic or DCS).*	☑
	Procedures: *The district heating operator reads the oil meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic oil consumption meters in the boilers" code F – 204 -012.*	☑
	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Mrs. Carmen Antonovici is responsible for data acquisition.*	☑
Archiving of raw data and protection measures	*Data archiving is described in the MP.* *The original log book (hard copy) is stored in Companies Central Archive for 5 years.* *All relevant reports are archived as hard copy and electronic files. Electronic files are saved on Project Managers computer and on the computer of Energy Department as well until 2018..*	☑ *IRL#8*
Data transfer and protection of input data for calculations	*Data from manual daily forms are transferred manually to calculation tool (excel sheet) according to the attached procedure. This fuel consumption and heat production data is documented daily and entered into readymade input data excel sheets for each boiler (Holboca CET IASI II_Monitoring Plan_year.xls), which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL
Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Quantity of oil consumed in boiler 1 was verified by checking the data on project data sheets*	☑ *IRL#34*

	Corrective Action Request #4. *Correct the value for February 06, there is a typing error.* *No discrepancies were found.*	
	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*Quantity of oil consumed in boiler 1 was cross-checked from monthly fuel oil stock inventory reports.* **Clarification Request #11.** *Provide copies of monthly fuel oil stock inventory reports.* *No major discrepancies were found.*	☑ *IRL#36*

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Table 4

Parameter and instrumentation Information					
	PDD	Meth/Tool	MR	Verification Findings	Conclusion and IRL
Parameter title	*Quantity of fuel oil consumed in boiler 2*	-	*Quantity of fuel oil consumed in boiler 2*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Parameter ID (if available)	$fP_{b,B2}$	-	$fP_{b,B2}$	*Parameter ID is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Data Unit	*tonnes*	-	*tonnes*	*Data Unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3*

					IRL#6
Monitoring frequency (reading)	*-*	*-*	*Hourly*	*Measurement frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (recording)	*Daily*	*-*	*Daily*	*Recording frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Calibration requirements	*No requirements*	*-*	*The calibration of the monitoring equipment is performed by observing the specific legal regulations and issuing the related metrological control certificate*	*Calibration requirements are consistent with PDD and Monitoring Report.* *Calibration is performed once a year according to the JI 008 procedure by AMC Laboratory of SC CET Iasi S.A.* *See Corrective Action Request #1 and Corrective Action Request #3.*	☑ *IRL#3* *IRL#6* *IRL#16* *IRL#28*
Uncertainty level	*Low*	*-*	*Low*	*0.5% for sensor and 1.5% for the indicator.* *It is consistent with PDD and Monitoring Report*	☑ *IRL#3* *IRL#6* *IRL#32*
Measurement Principle (if applicable)	*Data calculated in accordance with specific procedures*	*-*	*See Corrective Action Request #3*	*According to the procedure JI 008. Direct measurement of pressure on oil return pipes. Establishment of flow using the nomogrammes.* *See Corrective Action Request #3.* *Measurement principle is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*

	Technical aspects	Conclusion and IRL
Instrument Type:	*Pressure Sensor / Indicator*	☑ *IRL#32*
Serial Number:	*Sensors: 2317 and 135* *Indicators: 3680-83 and 3681-83*	☑ *IRL#32*
Manufacturer Model Nr.:	*Boiler 2 FE1GM Forward Fuel Oil Pressure / AI 96 Forward Fuel Oil Pressure*	☑ *IRL#32*
Specific Location:	*On the incoming and return oil pipes feeding the boiler 2.*	☑
Measurement Range:	*For pressure gauges 0-50 bar / 4-20mA.* *See Clarification Request #9*	☑ *IRL#32*
Gaps in operating time of instrument :	Period: *Verified on-site that there were no gaps.*	☑
	Default value used: *N/A*	☑
	Justification: *N/A*	☑
	QA/QC aspects	Conclusion and IRL
Source of data	Type*: Manually taken readings from Data Control System (Damatic or DCS).*	☑
	Procedures: *The district heating operator reads the oil meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic oil consumption meters in the boilers" code F – 204 -012.*	☑

	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Mrs. Carmen Antonovici is responsible for data acquisition*	☑
Archiving of raw data and protection measures	*Data archiving is described in the MP.* *The original log book (hard copy) is stored in Companies Central Archive for 5 years.* *All relevant reports are archived as hard copy and electronic files. Electronic files are saved on Project Managers computer and on the computer of Energy Department as well until 2018..*	☑ *IRL#8*
Data transfer and protection of input data for calculations	*Data from manual daily forms are transferred manually to calculation tool (excel sheet) according to the attached procedure. This fuel consumption and heat production data is documented daily and entered into readymade input data excel sheets for each boiler (Holboca CET IASI II_Monitoring Plan_year.xls), which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL
Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Quantity of oil consumed in boiler 1 was verified by checking the data on project data sheets.* *No discrepancies were identified.*	☑ *IRL#34*
	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*Quantity of oil consumed in boiler 1 was cross-checked from monthly fuel oil stock inventory reports.* *See Clarification Request #11* *No major discrepancies were found.*	☑ *IRL#36*

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Table 5

Parameter and instrumentation Information					
	PDD	Meth/Tool	MR	Verification Findings	Conclusion and IRL
Parameter title	*Quantity of steam produced in boiler 1*	-	*Quantity of steam produced in boiler 1*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Parameter ID (if available)	*qP_{B1}*	-	*qP_{B1}*	*Parameter ID is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Data Unit	*tonnes*	-	*tonnes*	*Data Unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (reading)	-	-	*Hourly*	*Measurement frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (recording)	*Daily*	-	*Daily*	*Recording frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Calibration requirements	*No requirements*	-	*The calibration of the monitoring equipment is performed by observing the specific legal regulations and issuing the related met-*	*Calibration requirements are consistent with PDD and Monitoring Report.* *Calibration is performed once a year according to the NTM-3-163-94 document and procedure JI-007 by AMC Laboratory of SC CET Iasi S.A..* *See Corrective Action Request #1*	☑ *IRL#3* *IRL#6* *IRL#15* *IRL#28*

			rological control certificate		
Uncertainty level	*Low*	-	*Low*	*0.5%* *It is consistent with PDD and Monitoring Report*	☑ *IRL#3* *IRL#6* *IRL#32*
Measurement Principle (if applicable)	*Data calculated in accordance with specific procedures*	-	*The pressure variable drop method:* *restrictor device as primary element for obtaining the pressure drop,* *- differential pressure electronic transducer used for ΔP measurement,* *- connection pipelines between the primary element and ΔP measurement transducer,* *- operational blocks for processing the transducer output signal, installed on DCS Control Panel for displaying*	*According to the procedure JI 007. Direct measurement of pressure drop on steam flow.* *Measurement principle is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
	Technical aspects				Conclusion

		and IRL
Instrument Type:	*Differential Pressure Transducer / Pressure Transducer/ Voltage-Current Adapter*	☑ *IRL#32*
Serial Number:	*12W606158 020;* *12W606159 020/ 842-95;* *648-95/ 3F001852;* *3F001862*	☑ *IRL#32*
Manufacturer Model Nr.:	*EJA110A, Yokogava: Live steam Flow-left; Live steam Flow-right / TPRM: Live steam Pressure –left; Live steam Pressure –right/ TMD 833AB2AK: Live steam Temperature –right; Live steam Temperature -left*	☑ *IRL#32*
Specific Location:	*On the produced steam pipes of the boiler 1.*	☑
Measurement Range:	*For pressure gauges 0-100Kpa 4-20mA/ 0-200 bar* *See Clarification Request #9*	☑ *IRL#32*
Gaps in operating time of instrument :	Period: *Verified on-site that there were no gaps.*	☑
	Default value used: *N/A*	☑
	Justification: *N/A*	☑
	QA/QC aspects	Conclusion and IRL
Source of data	Type*: Manually taken readings from Data Control System (Damatic or DCS).*	☑
	Procedures: *The district heating operator reads the oil meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic oil consumption meters in the boilers" code F – 204 -012.*	☑

	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Mrs. Carmen Antonovici is responsible for data acquisition.*	☑
Archiving of raw data and protection measures	*Data archiving is described in the MP.* *The original log book (hard copy) is stored in Companies Central Archive for 5 years.* *All relevant reports are archived as hard copy and electronic files. Electronic files are saved on Project Managers computer and on the computer of Energy Department as well until 2018..*	☑ *IRL#8*
Data transfer and protection of input data for calculations	*Data from manual daily forms are transferred manually to calculation tool (excel sheet) according to the attached procedure. This fuel consumption and heat production data is documented daily and entered into readymade input data excel sheets for each boiler, which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL
Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Quantity of steam produced by boiler 1 was verified by checking the data on project data sheets.* **Corrective Action Request #5.** *Correct values for February 04 and April 26, there are typing mistakes.*	☑ *IRL#34*
	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*Quantity of steam produced by boiler 1 was cross-checked from log-book for turbine operation.*	☑ *IRL#37*

	Clarification Request #12. *Present copies of log-book for turbines operation for full year 2009.* *No significant discrepancies were found.*	

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Table 6

Parameter and instrumentation Information					
	PDD	Meth/Tool	MR	Verification Findings	Conclusion and IRL
Parameter title	*Quantity of steam produced in boiler 2*	-	*Quantity of steam produced in boiler 2*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Parameter ID (if available)	qP_{B2}	-	qP_{B2}	*Parameter ID is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Data Unit	*tonnes*	-	*tonnes*	*Data Unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (reading)	-	-	*Hourly*	*Measurement frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Monitoring frequency (recording)	*Daily*	-	*Daily*	*Recording frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3*

					IRL#6
Calibration requirements	*No requirements*	-	*The calibration of the monitoring equipment is performed by observing the specific legal regulations and issuing the related metrological control certificate*	*Calibration requirements are consistent with PDD and Monitoring Report.* *Calibration is performed once a year according to the NTM-3-163-94 document and procedure JI-007 by AMC Laboratory of SC CET Iasi S.A.* *See Corrective Action Request #1*	☑ *IRL#3* *IRL#6* *IRL#15* *IRL#28*
Uncertainty level	*Low*	-	*Low*	*0.5%* *It is consistent with PDD and Monitoring Report*	☑ *IRL#3* *IRL#6* *IRL#32*
Measurement Principle (if applicable)	*Data calculated in accordance with specific procedures*	-	*The pressure variable drop method:* *restrictor device as primary element for obtaining the pressure drop,* *- differential pressure electronic transducer used for ΔP measurement,* *- connection pipelines between the primary element and ΔP measurement*	*According to the procedure JI 007. Direct measurement of pressure drop on steam flow.* *Measurement principle is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*

			transducer, *- operational blocks for processing the transducer output signal, installed on DCS Control Panel for* *displaying*		
	Technical aspects				Conclusion and IRL
Instrument Type:	*Differential Pressure Transducer / Pressure Transducer/ Voltage-Current Adapter*				☑ *IRL#32*
Serial Number:	*12A725390 129;* *12A725391 129/646-95;* *635-95/3F001895;* *3F001900*				☑ *IRL#32*
Manufacturer Model Nr.:	*EJA110A, Yokogava: Live steam Flow-left; Live steam Flow-right / TPRM: Live steam Pressure –left; Live steam Pressure –right/ TMD 833AB2AK: Live steam Temperature –right; Live steam Temperature -left*				☑ *IRL#32*
Specific Location:	*On the produced steam pipes of the boiler 2.*				☑
Measurement Range:	*For pressure gauges 0-100Kpa 4-20mA / 0-200 bar* *See Clarification Request #9*				☑ *IRL#32*
Gaps in operating time of instrument :	Period: *Verified on-site that there were no gaps.*				☑
	Default value used: *N/A*				☑

	Justification: *N/A*	☑
	QA/QC aspects	Conclusion and IRL
Source of data	Type*: Manually taken readings from Data Control System (Damatic or DCS).*	☑
	Procedures: *The district heating operator reads the oil meters at every 8 hours (hours 8, 16 and 24) and records the readings of the coal meters in the form "Reading of Damatic oil consumption meters in the boilers" code F – 204 -012.*	☑
	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Mrs. Carmen Antonovici is responsible for data acquisition.*	☑
Archiving of raw data and protection measures	*Data archiving is described in the MP.* *The original log book (hard copy) is stored in Companies Central Archive for 5 years.* *All relevant reports are archived as hard copy and electronic files. Electronic files are saved on Project Managers computer and on the computer of Energy Department as well until 2018.*	☑ *IRL#8*
Data transfer and protection of input data for calculations	*Data from manual daily forms are transferred manually to calculation tool (excel sheet) according to the attached procedure. This fuel consumption and heat production data is documented daily and entered into readymade input data excel sheets for each boiler (Holboca CET IASI II_Monitoring Plan_year.xls), which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL
Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Quantity of steam produced by boiler 2 was verified by checking the data on project data sheets.*	☑ *IRL#34*

	No discrepancies were identified.	
	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*Quantity of steam produced by boiler 1 was cross-checked from log-book for turbine operation.* *See Clarification Request #12* *No significant discrepancies were found.*	☑ *IRL#37*

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2.3. Parameters measured through sampling

Table 7

Sampling information					
	PDD	Meth/Tool	MR	Verified	Conclusion and IRL
Parameter title	*Calorific value of coal*	-	*Calorific value of coal*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3 IRL#6*
Parameter ID (if available)	*CV_a*	-	*CV_a*	*Parameter ID is consistent with PDD and Monitoring Report.*	☑ *IRL#3 IRL#6*
Data Unit	*Kcal/kg*	-	*Kcal/kg*	*Parameter unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3 IRL#6*
Sampling frequency	*Daily*	-	*Daily*	*Sampling frequency is consistent with PDD and Monitoring Report.*	☑ *IRL#3 IRL#6*
Sampling point	*Not specified*	-	*Not specified*	**Corrective Action Request #6.** *Add the description of sampling method and of location of coal sampling point to Monitoring Report.*	☑ *IRL#3 IRL#6*

Uncertainty level	*Not specified*	-	*Not specified*	*The relative experimental standard deviation is of 0.04%, and the measurement uncertainty is of 0.32%.*	☑ *IRL#3* *IRL#6* *IRL#33*
	Technical aspects				Conclusion and IRL
Sampling Principle:	*According to the procedure JI 009* *Mixed daily sample*				☑ *IRL#17*
Methodology of Sampling:	*According to the procedure JI 009* *Periodicity of collecting the elementary samples is shown by a shovel at every five minutes, during the feeding with coal, namely about 2kg of fuel. The samples taken off within an interval of 24 hours are collected, grinded and mixed up to the homogenization, the resulted coal weight representing the representative sample; it is deposited in plastic bags*				☑ *IRL#17*
Sample Analysed by:	*Laboratory of Iasi CET II at Holboca*				☑
Certification of Analyser/ Laboratory:	*Laboratory itself is certified (by Romanian National Institute of Metrology) to serve only the needs of Holboca CET II. The certificate is issued for calorimetric system. The analysing equipment is certified.* **Clarification Request #13.** *Provide copy of certificate for calorimetric system.*				☑ *IRL#29* *IRL#30*
Methodology of Sample Analysis (if applicable)	*Description is given in the procedure JI 009: the heating power test consists in the complete combustion in the calorimetric bomb of a known quantity of fuel, the heat released by combustion being delivered to the calorimetric system that includes a known quantity of water, whose temperature increase is registered.*				☑ *IRL#17*
Measurement Range:	*N/A*				☑

Gaps in sampling frequency	Period: *No gaps.*	☑
	Default value used: *N/A*	☑
	Justification: *N/A*	☑
	QA/QC aspects	Conclusion and IRL
Source of data	Type*: Daily analysis certificates*	☑
	Procedures: *The operation of coal sampling is done according to the procedure JI-009.*	☑ *IRL#17*
	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Mrs. Carmen Antonovici is responsible for data acquisition for the sampling and analysis*	☑
	Representativeness: *The samples have been collected and analysed daily, therefore the data is representative for a full verification period.*	☑
	Reproducibility: *One sealed (witness) sample of the supplied coal is stored for 3 month period. Daily samples are stored for one week.*	☑
Archiving of raw data and protection measures	*Archiving of raw data is made in the analysis report - document code F-167-01, which is stored in the Laboratory, At Energy dpt. and JI Project archive.*	☑
Data transfer and protection of input data for calculations	*Data from the analysis report are transferred manually to calculation tool (excel sheet) according to the attached procedure. The LHV data is documented daily and entered into readymade input data excel sheets for each boiler, which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL

Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Calorific value of coal was verified by checking the data on project data sheets.* **Corrective Action Request #7.** *Correct the value for December 15, there is a typing error.*	☑ *IRL#34*
	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*Calorific value of coal was cross-checked with the respective information from invoices of supplied coal.* *No significant discrepancies were found. The calorific value stated by the supplier was similar or slightly higher than established by CET laboratory.*	☑ *IRL#38*

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Table 8

Sampling information					
	PDD	Meth/Tool	MR	Verified	Conclusion and IRL
Parameter title	*Calorific value of fuel oil*	-	*Calorific value of fuel oil*	*Parameter title is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Parameter ID (if available)	CV_b	-	CV_b	*Parameter ID is consistent with PDD and*	☑

				Monitoring Report.	*IRL#3* *IRL#6*
Data Unit	*Kcal/kg*	*-*	*Kcal/kg*	*Parameter unit is consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Sampling frequency	*Daily*	*-*	*Weekly*	*Weekly, which is also described in the standard procedure JI-009.* *The use of fuel oil is quite low, the storing capacity on CET is sufficient. Fuel oil is purchased seldom and therefore daily sampling is not required. Neither it has significant impact on ER calculation. It is auditor's opinion, that sampling frequency can be considered consistent with PDD and Monitoring Report.*	☑ *IRL#3* *IRL#6*
Sampling point	*Not specified*	*-*	*Not specified*	*It was verified on site that the sampling for fuel oil is on the transportation pipelines towards the boilers located in fuel oil pumping station building.* **Corrective Action Request #8.** *Add the description of sampling method and location of fuel oil sampling point to Monitoring Report.*	☑ *IRL#3* *IRL#6*
Uncertainty level	*Not specified*	*-*	*Not specified*	*The relative experimental standard deviation is of 0.04%, and the measurement uncertainty is of 0.32%.*	☑ *IRL#3* *IRL#6*

					IRL#33
	Technical aspects				Conclusion and IRL
Sampling Principle:	*According to the procedure JI 009* *One sample (200 g) is taken.*				☑ *IRL#17*
Methodology of Sampling:	*According to the procedure JI 009* *One sample (200 g) is taken.*				☑ *IRL#17*
Sample Analysed by:	*Laboratory of Iasi CET II at Holboca*				☑
Certification of Analyser/ Laboratory:	*Laboratory itself is certified (by Romanian National Institute of Metrology) to serve only the needs of Holboca CET II. The certificate is issued for calorimetric system. The analysing equipment is certified.* *See Clarification Request #13*				☑ *IRL#29* *IRL#30*
Methodology of Sample Analysis (if applicable)	*Description is given in the procedure JI 009: the heating power test consists in the complete combustion in the calorimetric bomb of a known quantity of fuel, the heat released by combustion being delivered to the calorimetric system that includes a known quantity of water, whose temperature increase is registered.*				☑ *IRL#17*
Measurement Range:	*N/A*				☑
Gaps in sampling frequency	Period: *No gaps*				☑
	Default value used: *N/A*				☑
	Justification: *N/A*				☑
	QA/QC aspects				Conclusion and IRL
Source of data	Type*: Calorific value certificates issued by Holboca CET II laboratory.*				☑

	Procedures: *The operation of fuel oil sampling is done according to the procedure JI-009.*	☑ *IRL#17*
	Implementation of procedure: *Procedures are implemented, it was verified on site.*	☑
	Responsibility: *JI Project Manager Mrs. Carmen Antonovici is responsible for data acquisition for the sampling and analysis*	☑
	Representativeness: *The samples have been collected and analysed daily, therefore the data is representative for a full verification period.*	☑
	Reproducibility: *The control sample on reception of fuel oil is taken for storage of 3 months. The weekly samples are not stored.*	☑
Archiving of raw data and protection measures	*Archiving of raw data is made in the analysis report - document code F-167-01, which is stored in the Laboratory, At Energy dpt. and JI Project archive.*	☑
Data transfer and protection of input data for calculations	*Data from the analysis report are transferred manually to calculation tool (excel sheet) according to the attached procedure. The LHV data is documented daily and entered into readymade input data excel sheets for each boiler, which are the main part of the Monitoring Report.*	☑
	Quality of evidence	Conclusion and IRL
Completeness of data	*Completeness has been verified on-site, since all days are included in the presented data.*	☑
Data verification	Consistency of raw data with calculation tool: *Calorific value of fuel oil was verified by checking the data on project data sheets.* **Corrective Action Request #9.** *Correct the value for February 2, there is a typing error.*	☑ *IRL#34*

	Consistency of calculation tool with monitoring report: *The data in the monitoring report is consistent with the calculation tool.*	☑
Crosscheck (if available)	*No cross-check is available as calorific value of fuel oil was not indicated on the purchase invoices. However the values are in the same range used for estimation of emission reductions in the PDD of this project and other Romanian project "Energy Efficiency Improvement of the District Heating System in Drobeta Turnu-Severin" (RO1000133).* **Clarification Request #14.** *Provide copies of the invoices for purchased fuel oil indicating the calorific value of oil used in 2009*	☑ *IRL#39*

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2.4. Parameters obtained through external sources and accounting data

Not applicable

2.5. Other parameters not included in the methodology/tool but included in the PDD

Not applicable

3. Data Processing and ER calculation

Description of data processing from transferred data to final results in the calculation tool		
Step	Description	Conclusion and IRL
Consistency	*All abbreviations and units are consistent with the PDD and Methodology and traceable to the raw data. However Baseline Emissions, Project Emissions and Total Emission Reductions (cells F21:F23 on Front Page) have no units indicated.* **Corrective Action Request #10.** *Indicate units for Baseline Emissions, Project Emissions and Total Emission Reductions on Front Page of the calculation tool.*	☑ *IRL#7*
Calculation Tool description	*The calculation tool in general is clearly described and transparent;* *The issuing date and revision number are not indicated; see Corrective Action Request #12.* *Are all formulae, intermediate steps and constants described transparently including correct units and in compliance with the methodology and the PDD.* *The data collected are further used for calculation. The calculation is done by means of excel data sheets.* *The calculation tool steps are presented in the document "Boiler efficiency improvement at Holboca CET Iasi II - Monitoring Plan Guidelines and Procedures"*	☑ *IRL#7*
Elimination of not plausible data (if applicable)	*N/A.*	☑
Transformation from useable data to in-put data for further	*All the data transferred to the sheet is directly useable*	☑

calculation (if applicalbe)		
Ex-ante data	*No ex-ante data is used*	☑
Default parameter	*Steam specific emissions for the boilers were predefined and fixed in the PDD as following:* *For boiler 1: qB_{B1} = 247.99071 kg CO_2/t and* *For boiler 2: qB_{B1} = 244.55855 kg CO_2/t.* *Standard density of hard coal 803.57 kg/m^3 is used. See Clarification Request #8*	☑ *IRL#31*
Formulae check	*All formulae included in the calculation tool are in compliance with the PDD.*	☑ *IRL#7*
Rounding functions	*N/A, no rounding functions are used*	☑ *IRL#7*
Calculation tool changes and protection measures	*The calculation tool has not protected formulae-cells in order to avoid unintentional errors.* **Corrective Action Request #11.** *Provide the calculation tool in two separate versions: one in protected format (all sheets) for official reference and another in unprotected format for auditing purposes.* **Corrective Action Request #12.** *The Monitoring Report and the calculation tool shall have issuing date and version number mentioned in both: file name and on the front page.*	☑ *IRL#7*
Reported data	*The results of the calculation tool are consistent with these mentioned in the MR. ERs for 2009 are in both documents stated to be 29 101 tCO_2e.*	☑ *IRL#6* *IRL#7*

4. Additional assessment

4.1. Internal Review

Description and performance of internal review		
	Description	Conclusion and IRL
Procedure	*According to the JI 003 procedure* *Project Manager coordinates the activity of the team constituted for the implementation of the Project "Boiler Efficiency Improvement at Holboca CET IASI II"; is responsible for the Monitoring Plan management; initiates the adjustment of this procedure any time, as necessary, after the Verifier prior Notification; Notifies the Verifier about any queries appeared regarding the data management and regarding the procedures adjustment necessity; supervises the activities related to the project.*	☑ *IRL#11*
Documentation	*The Monitoring Report is issued by CET IASI II.* *Documented instructions exist as "Monitoring Plan – Guidelines and Procedures" and several "JI Procedures" 001 – 009.*	☑ *IRL#6* *IRL#8*
Responsibilities	*The general manager Mr. Dorin Ivana makes the final internal approval of the Monitoring Report.*	☑

4.2. Peculiarities

Description of Peculiarities and unexpected Daily Events during the verification period		
	Description	Conclusion and IRL
Performance	*No major peculiarities neither major breakdowns took place.* *It was confirmed on-site from the log-book.*	☑

Documentation	*Manual log-book*	☑ *IRL#40*
Measures	*No major measures are needed initialized to stabilize the performance of the facility.*	☑

4.3. Further additional requirements

Description of additional requirements to be checked		
	Description	Conclusion and IRL
Environmental issues	*According to the Romanian legislation the local EPA should prepare a semi-annual Inspection Reports for JI Track 1 projects. This project became Track 1 in April 2010. The first Inspection Report will be issued in July 2010 and should be provided to the audit team.* **Clarification Request #15.** *Provide copy of the EPA Report*	☑ *IRL#41* *IRL#42*

4.4. Data Reporting

Description of the Monitoring Report		
	Comments and Results	Conclusion and IRL
Compliance with UNFCCC regulations	*The project is applying a project specific methodology approach. All requirements from the project specific methodology approach are fulfilled. The Methodology, Monitoring Plan in the PDD and the Monitoring Report are consistent.* *Monitoring report (Version 3 dated 27.07.2010) including excel sheet "Iasi Monitoring Report 2009.xls" (Version 3 dated 27.07.2010) is consistent with the PDD.* *The verified period is from the 01.01.2009 until 31.12.2009.*	☑ *IRL#3* *IRL#6* *IRL#7*
Completeness and Transparency	*The project description and implementation is complete and transparently explained in the Monitoring Report.*	☑
Correctness	*All the reported data is correctly represented in the Monitoring report and Calculation Tool.*	☑ *IRL#6* *IRL#7*

5. Compilation and Resolutions of CARs, CRs and FARs

Corrective Action Requests by audit team			
	Comments and Results	Ref	Conclusion and IRL
Issue	*Corrective Action Request #1* *Include in the Monitoring Report detail information on calibration (dates when the meter was dissembled and/or calibrated, calibrating company, calibration certificate number etc) for each meter, sensor (or other device) used for monitoring.*	*2.2*	☑ *IRL#6*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 1_2009 Monitoring Report).*		
Assessment	*Monitoring Report Version no. 2 / 18.06.2010 contains the detail information on calibration. The issue is closed.*		
Issue	*Corrective Action Request #2* *Correct the values of coal used in boiler 2 for February 17 and 25. There are typing mis-takes.*	*2.2*	☑ *IRL#7*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 2_2009 Monitoring Report).* *It should be noted that on February 17th and 25th, boiler 2 was in operation only a portion of the day, accordingly the coal consumption was lower.* *(On February 17th boiler 2 was shut down and restarted on February 25th, accordingly the coal consumption was lower).*		
Assessment	*Mentioned values (215 t and 415 t) were not corrected. On project data sheets respective values are 211 t and 479 t. Explain the difference. Where is the mistake: on calculation*		

	sheet or project data sheet?		
Response	*The Monitoring Report has been adjusted in accordance (respective information is attached in the Annex 1_CAR2.)*		
Assessment	*The respective values were corrected. The issue is closed.*		
Issue	*Corrective Action Request #3* *Include the description of metering principle of the fuel oil and calibration of meters into the Monitoring Report.*	*2.2*	☑ *IRL#6*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 1_2009 Monitoring Report).*		
Assessment	*The description of the metering principle is included into Monitoring Report Version no. 2 / 18.06.2010.* *However there are some cross-reference errors in the text (pages 5 and 6). Correct the errors.*		
Response	*The Monitoring Report has been adjusted in accordance and the errors have been corrected (respective information is attached in the Annex 1_CAR1.)*		
Assessment	*The cross-reference errors were corrected. The issue is closed.*		
Issue	*Corrective Action Request #4* *Correct the value for February 06, there is a typing error.*	*2.2*	☑ *IRL#7*
Response	*The requested correction, raw data for fuel oil consumption, has been made. The report can be found in Annex 1 (CAR 2_2009 Monitoring Report). Please also see Copies of project data sheets for 2009 in Annex 4 (18. Copies of project data sheets for 2009).*		
Assessment	*Mentioned value (1 t) is not corrected. On project data sheets respective value is 0 t (zero). Explain the difference. Where is the mistake: on calculation sheet or project data sheet?*		
Response	*The Monitoring Report has been adjusted in accordance (respective information is attached in the Annex 1_CAR4 and CAR2).*		

Assessment	*The respective value was corrected. The issue is closed.*		
Issue	*Corrective Action Request #5* *Correct values for February 04 and April 26, there are typing mistakes.*	*2.2*	☑ *IRL#7*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 2_2009 Monitoring Report). Please also see Copies of project data sheets for 2009 in Annex 4 (18. Copies of project data sheets for 2009).*		
Assessment	*The respective values were corrected in Monitoring Report Version no. 2 / 18.06.2010. The issue is closed.*		
Issue	*Corrective Action Request #6* *Add the description of sampling method and of location of coal sampling point to Monitoring Report.*	*2.3*	☑ *IRL#6*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 2_2009 Monitoring Report).*		
Assessment	*The description of sampling method and of location of coal sampling point was added Monitoring Report Version no. 2 / 18.06.2010. The issue is closed.*		
Issue	*Corrective Action Request #7* *Correct the value for December 15, there is a typing error.*	*2.3*	☑ *IRL#7*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 2_2009 Monitoring Report).* *Please also see Copies of project data sheets for 2009 in Annex 4 (18. Copies of project data sheets for 2009).*		
Assessment	*The value was corrected in Monitoring Report Version no. 2 / 18.06.2010. The issue is closed.*		
Issue	*Corrective Action Request #8* *Add the description of sampling method and location of fuel oil sampling point to Monitoring*	*2.3*	☑

	Report.		*IRL#6*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 1_2009 Monitoring Report).*		
Assessment	*The description of sampling method and location of fuel oil sampling point was added to Monitoring Report Version no. 2 / 18.06.2010. The issue is closed.*		
Issue	*Corrective Action Request #9* *Correct the value for February 2, there is a typing error.*	*2.3*	☑ *IRL#7*
Response	*According to the fuel oil calorific value for the period 29.01.2009 - 02.02.2009, which can be found in Annex 1 (10_Laboratory analysis certificates for calorific values coal & fuel oil), it should be noted that the fuel oil calorific value was 9,591 Kcal/kg. This value is mentioned in both documents namely in the Copies of project data sheets for 2009, Which can be found in Annex 4 (18. Copies of project data sheets for 2009) as well as in the respective Monitoring Report, which can be found in Annex 1 (CAR 1_2009 Monitoring Report). Accordingly there is no discrepancy between these documents.*		
Assessment	*In the calculation sheet for Boiler II there is a fuel oil calorific value 9551. Correct the misprint.*		
Response	*The Monitoring Report has been adjusted in accordance (respective information is attached in the Annex 1_CAR2).*		
Assessment	*The respective values were corrected. The issue is closed.*		
Issue	*Corrective Action Request #10* *Indicate units for Baseline Emissions, Project Emissions and Total Emission Reductions on Front Page of the calculation tool.*	*3*	☑ *IRL#7*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 2_2009 Monitoring Report).*		
Assessment	*The units (t CO2) were indicated in calculation tool Version no. 2 / 18.06.2010. The issue is closed.*		

Issue	*Corrective Action Request #11* *Provide the calculation tool in two separate versions: one in protected format (all sheets) for official reference and another in unprotected format for auditing purposes.*	*3*	☑ *IRL#7*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 2_2009 Monitoring Report).*		
Assessment	*The calculation tool Version no. 2 / 18.06.2010 was provided in two versions. Data is protected from unintentional errors now. The issue is closed.*		
Issue	*Corrective Action Request #12* *The Monitoring Report and the calculation tool shall have issuing date and version number mentioned in both: file name and on the front page.*	*3*	☑ *IRL#6*
Response	*The Monitoring Report has been adjusted in accordance. The report can be found in Annex 1 (CAR 1_2009 Monitoring Report and CAR 2_2009 Monitoring Report).*		
Assessment	*The issuing date and version number were added to Monitoring Report and the calculation tool Version no. 2 / 18.06.2010. The issue is closed.*		
Clarification Requests by audit team			
	Comments and Results	Ref	Conclusion and IRL
Issue	*Clarification Request #1* *Present technical data sheets for boilers including manufacturer, commissioning dates and serial numbers*	*1.1*	☑ *IRL#20*
Response	*Respective information is attached in Annex 1 (CL 1_No 11_Technical data sheets for boilers).*		
Assessment	*The information provided is sufficient. The issue is closed.*		
Issue	*Clarification Request #2*	*1.1*	☑

	Present technical information for Therma Chem FS 12 injection system including their capacity, manufacturer data, serial numbers and commissioning dates.		*IRL#21*
Response	*Respective information is attached in Annex 1 (CL 2_No 12_Technical information for Therma Chem injection system).*		
Assessment	*The information provided is sufficient. The issue is closed.*		
Issue	*Clarification Request #3* *Present invoices for purchase of Therma Chem chemical.*	*1.1*	☑ *IRL#22*
Response	*Respective information is attached in Annex 1 (CL 3_No 25_Invoices for Therma Chem chemical for 2009):* *1. CET Iasi, has prepared its own yearly operating plans from 2007-2012, based on the JI Project Documents (PDD) and the existing ERPA,* *2. The payments for emissions reductions to be achieved yearly, are a very important factor in the financial planning and execution of the project,* *3. The JI Project budget has been design so as the payments received in accordance with ERPA Contract, corresponding to the Emission Reductions for 2008 to be allocated for 2009 project budget, respectively for the payments due for the Therma Chem chemicals,* *4. The payments for the Emission Reduction corresponding to 2008 at present are pending accordingly it was not possible to make the payments for the Therma Chem chemicals consumed during 2009.*		
Assessment	*The response does not give clear understanding whether the chemical was used in 2009 or not.* *Provide documents proofing the usage of Therma Chem chemical in 2009 (copies of invoices, delivery documents etc).*		
Response	*Respective information is attached in the Annex 1_CL3.*		
Assessment	*The invoices and consumption reports of Therma-Chem chemical were provided. The issue is closed.*		

Issue	*Clarification Request #4* *Present technical information for installed ash electrostatic precipitation system including its capacity, manufacturer data, serial numbers and commissioning dates.*	*1.1*	☑ *IRL#23*
Response	*Respective information is attached in Annex 1 (CL 4_No 13_Technical information for ESP).*		
Assessment	*The information provided is sufficient. The issue is closed.*		
Issue	*Clarification Request #5* *Provide the list of the operational licences and copies of these licences.*	*1.1*	☑ *IRL#24*
Response	*Respective information is attached in Annex 1 (CL 5_No 14_List of operational licences).*		
Assessment	*The information provided is sufficient. The issue is closed.*		
Issue	*Clarification Request #6* *Provide a copy of the training programme and the copies of the training certificates (including laboratory personnel).*	*1.3*	☑ *IRL#25* *IRL#26*
Response	*Respective information is attached in Annex 2 (CL 6_No 15_Copy of training program and copies of training certificates).*		
Assessment	*The information provided is sufficient. The issue is closed.*		
Issue	*Clarification Request #7* *Present copies of calibration certificates for all meters.*	*2.2*	☑ *IRL#27* *IRL#28* *IRL#29* *IRL#30*
Response	*Respective information is attached in Annex 2 (CL 7_No 4_Copies of the calibration certificates for all the meters (coal, fuel oil and steam)).*		
Assessment	*Certificates for balances, coal volume metering system, steam and oil metering systems and calorimetric system (including calorimetric bomb) were presented. The issue is closed.*		
Issue	*Clarification Request #8* *Provide the copy of the consultant's report establishing the standard density of hard coal.*	*2.2*	☑ *IRL#31*

Response	*Respective information is attached in Annex 2 (CL 8_No 17_Copy of Consultant's report establishing the standard density of hard coal).*		
Assessment	*The document provided describes how the standard density of coal was established. The explanation is sufficient. The issue is closed.*		
Issue	*Clarification Request #9* *Present technical data sheets for all meters for verification.*	*2.2*	☑ *IRL#32* *IRL#33*
Response	*Respective information is attached in Annex 2 (CL 9_No 3_Copies of technical data sheets for all the meters (coal, fuel oil and steam)).*		
Assessment	*The information provided includes technical data for meters. The issue is closed.*		
Issue	*Clarification Request #10* *Present copies of monthly inventory reports of coal stock.*	*2.2*	☑ *IRL#35*
Response	*Respective information is attached in Annex 2 (CL 10_No 19_Copies of monthly inventory reports of coal stock).*		
Assessment	*The inventories of coal stock were provided. Respective cross-checks were made. Issue is closed.*		
Issue	*Clarification Request #11* *Provide copies of monthly fuel oil stock inventory reports.*	*2.2*	☑ *IRL#36*
Response	*Respective information is attached in Annex 3 (CL 11_Mo 20_Copies of monthly inventory reports of fuel oil stock).*		
Assessment	*The inventories of fuel oil stock were provided. Respective cross-checks were made. Issue is closed.*		
Issue	*Clarification Request #12* *Present copies of log-book for turbines operation for full year 2009.*	*2.2*	☑ *IRL#37*
Response	*Respective information is attached in Annex 3 (CL 12_No 21_Copy of log-book for turbines*		

	operation for 2009).		
Assessment	*The log book was provided. Respective cross-checks were made. Issue is closed.*		
Issue	*Clarification Request #13* *Provide copy of certificate for calorimetric system.*	*2.3*	☑ *IRL#30*
Response	*Respective information is attached in Annex 3 (CL 13_No 22_Certificates for calorimetric system).*		
Assessment	*The valid certificate was provided. Issue is closed.*		
Issue	*Clarification Request #14* *Provide copies of the invoices for purchased fuel oil indicating the calorific value of oil used in 2009*	*2.3*	☑ *IRL#39*
Response	*Respective information is attached in Annex 3 (CL 14_No 23_Copy of the invoice for fuel oil).*		
Assessment	*The invoices provided did not contain information about calorific value of fuel oil. Therefore cross-check is not available. The issue is closed.*		
Issue	*Clarification Request #15* *Provide copy of the EPA Report*	*4.3*	☑ *IRL#41* *IRL#42*
Response	*Respective information is attached in Annex 3 (CL 15_No 24_Copy of the EPA Report).*		
Assessment	*Two letters from local EPA confirming the fulfilment of environmental regulations were provided. The issue is closed.*		
Forward Action Requests by audit team			
	Comments and Results	Ref	Conclusion and IRL
Issue	*Forward Action Request #1*	*1.4*	☑

	The ash removal system shall be in-stalled as it was the part of the Project described in PDD. In case PP will reconsider to install it, the deviation from the Project Design Document will be mentioned.		
Response			
Assessment	*The installation of ash removal system shall be checked during next verification.*		

Annex 2: Information Reference List

Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in JI Context)
1.	11/06/2010	On-site interviews conducted by TÜV SÜD. **Validation Team:** Madis Maddison – JI Auditor **Interviewed Persons:** Ion Asavoae – Plant Director CET Iasi Ivana Dorin – General Director CET Iasi Carmen Antovici – JI Project Manager CET Iasi Marina Balaita – Assistant to JI Project Manager CET Iasi Florea Vasile – Head of Laboratory AMC CET Iasi Bobu Boris – Eng. S.C. ENERGIC-SERV Hunea Traian – Head of boilers department Musteata Ioan – Head of chemical department Mihai Brasoveanu – Danish Environmental Agency /Local Project Coordinator Romania	TÜV SÜD	
2.	09/06/2010	First JI Track 1 Verification Report no: 600500085	TUV SUD	Previous Verification Report, FAR#1
3.	24/09/2008	PDD Version 4, RO1000132, http://ji.unfccc.int/JIITLProject/DB/P0TQKX18ZWNH3BO84RICO3WBQX5HDI/details	CET Iasi	
4.	08/02/2010	Monitoring Report for JI Project – "Boiler Efficiency Improvement at Holboca C.E.T. Iasi II", Version 1	CET Iasi	First published Monitoring Report
5.	08/02/2010	Excel file "MR_Spreadsheet Iasi 2009.xls", Version 1	CET Iasi	ER calculation workbook for First published Monitoring Report
6.	27/07/2010	Monitoring Report for JI Project – "Boiler Efficiency Improvement at Holboca C.E.T. Iasi II", Version	CET Iasi	Final Monitoring Report
7.	27/07/2010	Excel file "Iasi Monitoring Report 2009.xls", Version 3	CET Iasi	ER calculation workbook

Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in JI Context)
				for Final Monitoring Report
8.	24/09/2008	MP Guidelines and Procedures Version 3 No.080729	GRUE&HORNSTRUP	Monitoring Plan
9.	12/09/2006	JI 001 Procedure - Training of the Staff with Responsibilities under the Project “Boiler Efficiency Improvement at Holboca CET Iasi II“ – Version 1	CET Iasi	
10.	15/09/2006	JI 002 Procedure - The Features of the Used Fuels at CET Iasi II Boilers – Version 1	CET Iasi	
11.	10/10/2007	JI 003 Procedure - Monitoring of the Greenhouses Gases Emission Reductions at CET Iasi II – Version 2	CET Iasi	
12.	12/09/2006	JI 004 Procedure - Monitoring Report of the Greenhouses Gases Emission Reductions at CET Iasi II – Version 1	CET Iasi	
13.	10/10/2007	JI 005 Procedure - Registration of the Main Parameters at the Boilers of 420 t/h on Mineral Coal – Version 2	CET Iasi	
14.	10/05/2009	JI 006 Procedure - Coal Flow Checking And Calibration In The DCS Damatic System at CET II – Version 2	CET Iasi	
15.	15/09/2006	JI 007 Procedure - Checking and Calibration of the Differential Pressure Transducers; Measurement of the Boilers Live Steam at CET II – Version 1	CET Iasi	
16.	12/09/2006	JI 008 Procedure - The Calculation of the Fuel Oil Flow Spent at the Boilers of 420 t/h on Mineral Coal – Version 1	CET Iasi	
17.	10/10/2007	JI 009 Procedure - The Coal Sampling on the Boilers' Feeding Bands, the Fuel Oil Sampling and the Settlement Of The Fuels Heating Power – Version 1	CET Iasi	
18.	01/11/2008	JI 010 Procedure - Settlement of the Main Parameters in Case the Boilers Measurement Devices Afferent to the JI Project from CET Iasi II are out of Order – Version 1	CET Iasi	
19.	13/05/2009	JI 011 Procedure - Electronic Data Integrity and Security for JI Project “Boiler Efficiency Improvement at Holboca CET IASI II” – Version 2	CET Iasi	
20.	23/06/2010	Boiler Technical Data Sheet	CET Iasi	CR#1
21.	23/06/2010	Therma-Chem Technology	CET Iasi	CR#2, Process description
22.	29/07/2010	Therma-Chem invoices and consumption reports	CET Iasi	CR#3

Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in JI Context)
23.	23/06/2010	Boiler Electrostatic Precipitators Data Sheet	CET Iasi	CR#4
24.	23/06/2010	List of Operational Licences	CET Iasi	CR#5
25.	03/02/2009	Training slide presentations	GRUE&HORNSTRUP	CR#6
26.	03/02/2009	Training certificates for staff	GRUE&HORNSTRUP	CR#6
27.	13, 17, 23/11/2009	Testing protocols for coal quantity meters	CET Iasi	CR#7
28.	26/06/2009 28/07/2009 30/07/2009 14/09/2009 15/09/2009 17/09/2009 18/09/2009 21/09/2009 30/09/2009 01/10/2009 02/10/2009 13/10/2009	Testing protocols for fuel oil and steam quantity meters	CET Iasi	CR#7
29.	11/11/2008	Metrological testing protocols for laboratory balances meters, No: 0030181	Romanian Bureau of Legal Metrology	CR#7
30.	06/07/2009	Metrological testing protocols for calorimetric system, No: 0042938	Romanian Bureau of Legal Metrology	CR#7, CR#13
31.	14/12/2001	Consultant's report establishing the standard density of hard coal	Fortum Oy, Erkki Mäki-Mantila	CR#8
32.	23/06/2010	Technilcal data sheet for boiler related measuring equipment	CET Iasi	CR#9
33.	23/06/2010	Technilcal data sheet for calorific value related measuring equipment	CET Iasi	CR#9
34.	11/06/2010	Project data sheets for 2009	CET Iasi	Verification of raw data

Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in JI Context)
35.	23/06/2010	Coal stock inventory reports	CET Iasi	CR#10, Cross-check of quantity of used coal
36.	23/06/2010	Fuel oil stock inventory reports	CET Iasi	CR#11, Cross-check of quantity of used fuel oil
37.	23/06/2010	Registration sheets for the main operational parameters of boiler no.1 - 420 t/h and boiler no.2 - 420 t/h running on hard coal	CET Iasi	CR#12, Cross-check of quantity of produced steam
38.	13/01/2009	Invoices on purchased coal	Unicom Top Energy	Cross-check of calorimetric value for coal
39.	05/10/2007 24/11/2007	Invoices on purchased fuel oil	SC Rafinaria Steaua Romana SA	CR#14, Cross-check of calorimetric value of fuel oil
40.	2009	Manually filled operation log book	CET Iasi	Cross-check of peculiarities in operation of boilers
41.	21/06/2010	EPA QA checklist, No:6146	Iasi Environment Protection Agency	CR#15
42.	08/03/2010	Letter No: 657	Iasi Environment Protection Agency	CR#15