VERIFICATION REPORT
LLC "ECO-ALLIANCE"

VERIFICATION OF THE
CMM utilisation on the Coal Mine № 22 "Kommunarskaya" of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass"

3rd periodic

REPORT NO. UKRAINE-VER/0467/2012

REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0467/2012

VERIFICATION REPORT

Date of first issue: 28/08/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: LLC “ECO-ALLIANCE”	Client ref.: Mr. Kasyanov

Summary:
Bureau Veritas Certification has made the 3rd verification of the “CMM utilisation on the Coal Mine № 22 “Kommunarskaya” of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass“, JI Registration Reference Number 0078, project of LLC “ECO-ALLIANCE” located in Donetsk region, Ukraine, and applying the methodology ACM0008 version 03, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

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

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

In summary, Bureau Veritas Certification confirms that the project is implemented as per determined changes. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 235 397 tonnes of CO_2 equivalent for the monitoring period from 16/03/2011 to 30/04/2012 (154 648 tonnes of CO_2 equivalent for the period 16/03/2011 – 31/12/2011 and 80 749 tonnes of CO_2 equivalent for the period 01/01/2012 – 30/04/2012).

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

Report No.: UKRAINE-ver/0467/2012	Subject Group: JI	
Project title: “CMM utilisation on the Coal Mine № 22 “Kommunarskaya” of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass“		
Work carried out by: Iuliia Pylnova – Team Leader, Lead Verifier Svitlana Gariyenchyk – Team Member, Lead Verifier Vladimir Kulish – Technical Specialist		
Work reviewed by: Ivan Sokolov – Internal Technical Reviewer Vasyl Kobzar – Technical Specialist		
Work approved by: Ivan Sokolov – Operational Manager		
Date of this revision: 17/09/2012	Rev. No.: 02	Number of pages: 40

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Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CH_4	Methane
CL	Clarification Request
CMM	Coal Mine Methane
CO_2	Carbon Dioxide
DVM	Determination and Verification Manual
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MP	Monitoring Plan
MR	Monitoring Report
DFP	Designated Focal Point
NMHC	Non methane hydrocarbons
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

1 INTRODUCTION

LLC “ECO-ALLIANCE” has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project “CMM utilisation on the Coal Mine № 22 “Kommunarskaya” of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass“ (hereafter called “the project”) in Donetsk region, Ukraine.

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

1.1 Objective

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

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

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

1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report, the determined project design document including the project’s baseline study, revised monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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

1.3 Verification Team

The verification team consists of the following personnel:

Iuliia Pylnova
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Svitlana Gariyenchyk
Bureau Veritas Certification Climate Change Lead Verifier

Vladimir Kulish
Bureau Veritas Certification Technical Specialist

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification Internal Technical Reviewer

Vasyl Kobzar
Bureau Veritas Certification Technical Specialist

2 METHODOLOGY

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

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

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

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

2.1 Review of Documents

The Monitoring Report (MR) submitted by LLC "ECO-ALLIANCE" and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Approved CDM methodology ACM0008 and Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be checked by an Accredited Independent Entity were reviewed.

The verification findings presented in this report relate to the Monitoring Report versions 1, 2, and project as described in the determined PDD.

2.2 Follow-up Interviews

On 15/05/2012 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Coal Mine № 22 "Kommunarskaya", Eco-Alliance LLC. and Carbon-TF B.V. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Coal Mine № 22 "Kommunarskaya"	Organizational structure Responsibilities and authorities Roles and responsibilities for data collection and processing Installation of equipment Data logging, archiving, and reporting Metering equipment control Metering record keeping system, database IT management Training of personnel Quality management procedures and technology Internal audits and check-ups
Consultant: Carbon-TF B.V., Eco-Alliance LLC.	Baseline methodology Revised monitoring plan Monitoring report

2.3 Resolution of Clarification, Corrective and Forward Action Requests

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

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

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

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

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

The Verification Team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the verification.

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

3 VERIFICATION CONCLUSIONS

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

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

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in

the Verification Protocol in Appendix A. The verification of the Project resulted in 22 Corrective Action Requests, 09 Clarification Requests, and 0 Forward Action Requests.

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

3.1 Remaining issues and FARs from previous verifications

There were two remaining issues: FAR 02 concerning keeping evidences of meters calibration status and FAR 01 concerning the issuance of a documented instruction/decree prescribing the storage of data monitored and required for ERUs calculation for two year after the last transfer of ERUs for the project. Now FAR 02 is closed; FAR 01 was transformed (within this verification) into CAR 14 and then successfully resolved.

3.2 Project approval by Parties involved (90-91)

The project was approved by the host Party, Ukraine, which is confirmed by the Letter of Approval of Ministry for Environmental Protection of Ukraine #3873/11/10-08, issued on 26/03/2008. The written project approval by the Netherlands, the other Party involved, has been issued by the DFP of that Party when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest (Approval of voluntary participation in a Joint Implementation Project of the Ministry of Economic Affairs of the Netherlands, Ref. 2008JI05, dated 22/04/2008).
The abovementioned written approvals are unconditional.

3.3 Project implementation (92-93)

In this project CMM (coal mine methane), which has been sucked out of the active coal mine Coal Mine Nr.22 Kommunarskaya, has been utilised in flares, a cogeneration unit, boilers and a ventilation air heater. The methane has been burned to less harmful CO_2. The cogeneration unit has generated power which has displaced conventionally produced power and gained an additional amount of CO_2 reductions. The ventilation air heater was working only for short period of time from November 2011 till March 2012.

In summer 2010 a second flare has been installed and started production at 10/08/2010. A third flare has been installed at the air shaft of the coal mine and started production at 29/10/2010.

The ventilation air heater was working only for short period of time till April 2011 and from December 2011 till April 2012.

The boiler house worked in summer mode until October 2011, after that it was switched into winter mode.

Amount of methane utilised for heat and power generation and flaring

Unit	*period*	*CH4 [t/period]*	*Heat generated [MWh]*	*Power generated [MWh]*
Flares	16/03/2011-30/04/2012	9,597	n.a.	n.a.
Boilers	16/03/2011-30/04/2012	1,867	14,040	n.a.
Ventilation air heater	16/03/2011-30/04/2012	304	4,163	n.a.
Cogeneration unit	16/03/2011-30/04/2012	973	n.a.	4,407
Total	2011-2012	12,741	18,203	4,407

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

The monitoring occurred in accordance with the PDD regarding which the determination has been deemed final and revised monitoring plan version 6 of 11/06/2012 which was positively determined in course of the current verification.

For calculating the emission reductions, key factors, such as availability and amount of extracted gas, concentration of methane in the extracted gas and others, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account.

Data sources used for calculating emission reductions such as appropriately calibrated measuring devices, equipment passports, the study of standardized emission factors for the Ukrainian electricity grid, sectoral standards, IPCC guidelines, laboratory analysis, are clearly identified, reliable and transparent.

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

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

3.5. Revision of monitoring plan (99-100)

There were several deviations determined during previous monitoring periods.

The calculation of the emission reductions is not calculated on a yearly basis, but for an individual period.
Flow data and flare efficiency as well as the methane amount destroyed by flaring MD_{Fl} are calculated in 15 min. intervals in Excel sheets. The main emissions variables for project emissions, baseline emissions and emissions reductions are calculated on a monthly basis. Yearly sums and a total sum for the monitoring are calculated.
The formula for the calculation of project emissions from uncombusted methane has been updated. Formulae from the «Methodological “Tool to determine project emissions from flaring gases containing methane”» [AM_Tool_07] have been applied. The calculation of project emissions from uncombusted methane from flaring is now more accurate.

The heat amount produced by the ventilation air heater and the power amount produced by the emergency power generation have not been measured but calculated using the utilised methane amount.

During this monitoring period there were also revisions to the monitoring plan (now detailed description of the revisions are provided in the Revised monitoring plan version 6 of 11/06/2012 which was positively determined in course of the current verification). The essence of the revision is following: new source for CO_2 emission factor of fuel used for captive power or heat was taken for more applicability as it was published by national authority. The factor is now calculated using the value for “Other Bituminous Coal” of 25.87 t C/TJ from “National Inventory Report of Anthropogenic Emissions from Sources and Absorption by Absorbers of

Greenhouse Gases in Ukraine for 1990-2009" Baseline carbon emission factor for other bituminous coal approved in Ukraine.

The project participants provided an appropriate justification for the proposed revision.

The proposed revision improves the accuracy and applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans.

3.6. Data management (101)

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

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

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

The evidence and records used for the monitoring are maintained in a traceable manner.

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

Two different but similar systems are used for electronically data collection.
Data from the boilers and the VAH are collected, processed and stored using a Siemens SIMATIC PLC S7 system and Siemens WINCC programming software. All data is stored in the internal memory about 2 GB. One time per hour the data are sent via GPS to an Internet-based Server data base. Eco-Alliance ensures regular back up's and archiving. The data can be read any time from the internet data base by authorised personnel. The utilised methane amount is automatically calculated and stored in the PLC. As all input data are stored, the automatically calculation can be checked in retrospect any time.
Data from the flare and the cogeneration unit are collected, processed and stored using a Siemens SIMATIC PLC S7 system and Siemens WINCC programming software. All data is stored in the internal memory about 2 GB. The data are read daily by Kuhse GmbH via GPS and stored in the Kuhse database in Germany. The data can be viewed any time

using special access software provided by Kuhse. Kuhse ensures regular back ups and archiving. The data are regularly reviewed by Carbon-TF and Eco-Alliance. Carbon-TF provides regularly storing and archiving of the data as well as regularly transfer to Excel sheets for analysis, evaluation and reporting procedures.
The data can be read any time from the Kuhse data base by authorised personnel. The utilised methane amount is automatically calculated and stored in the PLC. As all input data are stored, the automatically calculation can by checked in retrospect any time.
For plausibility checks and potential data back up, data recorded by coal mine personnel in hand written journals can be taken. The journals are stored by the coal mine.

3.7. Verification regarding programmes of activities (102-110)

Not applicable.

4. VERIFICATION OPINION

Bureau Veritas Certification has performed the initial, 3rd periodic verification of the "CMM utilisation on the Coal Mine Nr.22 Kommunarskaya of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass" Project in Ukraine, which applies the methodology ACM0008 version 03. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of LLC "ECO-ALLIANCE" is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the Monitoring Plan as per determined changes. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 02 of 16/06/2012 for the reporting period 16/03/2011 –

30/04/2012. Bureau Veritas Certification confirms that the project is implemented as per determined changes. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

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

Reporting period: From 16/03/2011 to 31/12/2011

Baseline emissions	: 182 899	tonnes of CO_2 equivalent.
Project emissions	: 28 250	tonnes of CO_2 equivalent.
Emission Reductions	: 154 648	tonnes of CO_2 equivalent.

Reporting period: From 01/01/2012 to 30/04/2012

Baseline emissions	: 96 186	tonnes of CO_2 equivalent.
Project emissions	: 15 438	tonnes of CO_2 equivalent.
Emission Reductions	: 80 749	tonnes of CO_2 equivalent.

For the monitoring period (16/03/2011 – 30/04/2012), total amount of emission reductions is 235 397 tonnes of CO_2 equivalent.

Project and baseline emissions which are stated above are rounded by monitoring report developers to the whole figure and are based on calculations which are demonstrated in excel file attached to the monitoring report.

5. REFERENCES

Category 1 Documents:
Documents provided by the project participants that relate directly to the GHG components of the project.

/1/ Project Design Document "CMM utilisation on the Coal Mine № 22 "Kommunarskaya" of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass", version 06 dated 06/07/2009
/2/ Monitoring Report "CMM utilisation on the Coal Mine № 22 "Kommunarskaya" of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass", version 1 dated 15/06/2012
/3/ Monitoring Report "CMM utilisation on the Coal Mine № 22 "Kommunarskaya" of the State Holding Joint-Stock Company „GOAO Shakhtoupravlenye Donbass", version 2 dated 16/07/2012
/4/ Revised Monitoring Plan version 6 of 11/06/2012
/5/ Excel-file "ER-K22-2011-03-16 to 2012-04-30.V1d"
/6/ Excel-file "ER-K22-2011-03-16_to_2012-04-30.V2"
/7/ Letter of Approval of Ministry for Environmental Protection of Ukraine #3873/11/10-08, issued on 26/03/2008
/8/ Approval of voluntary participation in a Joint Implementation Project of the Ministry of Economic Affairs of the Netherlands, Ref. 2008JI05, dated 22/04/2008
/9/ K22-F1_Measuring_Data_2011-03-16 to 2012-04-30.V1
/10/ K22-F2_Measuring_Data_2011-03-16 to 2012-04-30.V1
/11/ K22-F3_Measuring_Data_2011-03-16 to 2012-04-30.V1
/12/ K22-M1_Measuring_Data_2011-03-16 to 2012-04-30.V1
/13/ K22-VAH_Measuring Data_2011-03-16 to 2012-04-30.V1

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

/1/ Flare unit # 1 (Coal Mine № 22 "Kommunarskaya") operation logbook for the period from 15/10/2010 to 13/03/2011
/2/ Flare unit # 2 (Coal Mine № 22 "Kommunarskaya") operation logbook for the period from 30/12/2011 to 01/05/2012
/3/ Failure, interruption journal for the period from 18/07/2011 to 15/05/2012
/4/ Gas generator (Coal Mine № 22 "Kommunarskaya") emergency cases journal for the period since 01/10/2010 to 01/03/2012
/5/ Failure, interruption journal of flare unit # 1 for the period from 01/10/2010 to 06/04/2012
/6/ Failure, interruption journal of flare unit # 2 for the period from

25/08/2010 to 07/04/2012

/7/ Gas generator operation logbook (for 2012)

/8/ Gas generator operation logbook (for 2011)

/9/ Report on environmental protection for I quarter 2012. Form # 2-ТП (air) (per quarter)

/10/ Passport on standard orifice, registration # 491973, last calibration date–1/01/2011

/11/ Passport on resistance thermometer JUMO, fabrication # 98026, last calibration date–11/10/2011

/12/ Certificate # 2178 dated 11/10/2011 (valid till 11/10/2012) on pressure transmitter type P121-E02-311, fabrication # Ex812127126.

/13/ Certificate # 2179 dated 11/10/2011 (valid till 11/10/2012) on pressure transmitter type ST 3000, fabrication # 08W30C3088100001001.

/14/ Certificate # 2279 dated 18/11/2010 (valid till 18/11/2011) on pressure transmitter type ST 3000, fabrication # 08W30C3088100001001.

/15/ Certificate # 2278 dated 18/11/2010 (valid till 18/11/2011) on pressure transmitter type P121-E02-311, fabrication # Ex812127126.

/16/ Plan of air sampling on dust testing for 2011

/17/ Passport on standard orifice, registration # 486343, last calibration date–18/10/2011

/18/ Certificate # 2006 dated 18/10/2011 (valid till 18/10/2012) on pressure transmitter type P121-EB4-311, fabrication # Ex612124593.

/19/ Certificate # 2005 dated 18/10/2011 (valid till 18/10/2012) on pressure difference transmitter type ST 3000, fabrication # 0609C2801413001001.

/20/ Passport on infrared meter type BINOS 100, fabrication # 49939003, last calibration date–19/12/2011

/21/ Certificate # 2277 dated 18/10/2010 (valid till 18/10/2011) on pressure transmitter type P121-EB4-311, fabrication # Ex612124593.

/22/ Passport on standard orifice, registration # 501871, last calibration date–27/12/2011

/23/ Passport on infrared meter type BINOS 100, fabrication # 120482003016, last calibration date–01/12/2010

/24/ Certificate # 2484 dated 29/12/2011 (valid till 29/12/2012) on pressure transmitter type P121- E02-311, fabrication # Ex812126961.

/25/ Certificate # 2352 dated 09/12/2011 (valid till 09/12/2012) on pressure difference transmitter type ST 3000, fabrication # 08W18C3059154001001.

/26/ Passport on resistance thermometer type Pt 100, fabrication # 4571, last calibration date–18/10/2011

/27/ Certificate # 0478 dated 31/03/2010 (valid till 31/03/2011) on pressure difference transmitter type ST 3000, fabrication # 08W18C3059154001001.
/28/ Certificate # 2485 dated 20/12/2010 (valid till 20/12/2011) on pressure difference transmitter type ST 3000, fabrication # 08W18C3059154001001.
/29/ Certificate # 2486 dated 20/12/2010 (valid till 20/12/2011) on pressure transmitter type P121-E02-311, fabrication # Ex812126961.
/30/ Passport on standard orifice, registration # 39, last calibration date–17/04/2012
/31/ Certificate # 671 dated 11/04/2012 (valid till 11/04/2013) on pressure difference transmitter type Sitrans P, fabrication # N1-AO11-9174904.
/32/ Certificate # 679 dated 11/04/2012 (valid till 11/04/2013) on pressure transmitter type P121- EE5-311, fabrication # Ex812126972.
/33/ Passport on resistance thermometer type TSP U 1-3, fabrication # 09441, last calibration date–11/04/2012
/34/ Passport on standard orifice, registration # 40, last calibration date–17/04/2012
/35/ Passport on standard orifice, registration # 41, last calibration date–07/04/2012
/36/ Certificate # 1440 dated 05/07/2011 (valid till 05/07/2012) on pressure transmitter type Sitrans P, fabrication # AZB/XD188388.
/37/ Certificate # 1441 dated 05/07/2011 (valid till 05/07/2012) on pressure transmitter type Sitrans P, fabrication # AZB/XD188387.
/38/ Certificate # 676 dated 11/04/2012 (valid till 11/04/2013) on pressure transmitter type Sitrans P, fabrication # N1-A011-9174903.
/39/ Certificate # 680 dated 11/04/2012 (valid till 11/04/2013) on pressure transmitter type P121-E02-311, fabrication # Ex812127127.
/40/ Passport on resistance thermometer type TSP U 1-3, fabrication # 09453, last calibration date–11/04/2012
/41/ Certificate # 677 dated 11/04/2012 (valid till 11/04/2013) on pressure transmitter type Sitrans P, fabrication # AZB/XD188388.
/42/ Certificate # 678 dated 11/04/2012 (valid till 11/04/2013) on pressure transmitter type Sitrans P, fabrication # AZB/XD188387.
/43/ Passport on resistance thermometer type TSP U 1-3, fabrication # 09439, last calibration date–11/04/2012
/44/ Passport on resistance thermometer type TSP U 1-3, fabrication # 09454, last calibration date–11/04/2012
/45/ Plan on air composition testing after blind drift blasting at Coal Mine № 22 “Kommunarskaya”, PJSC “Colliery Group “DONBAS”, agreed as of 22/03/2012
/46/ Notification # 456 dated 03/05/2012 as per statement-assignment

on results of air composition testing at Coal Mine № 22 “Kommunarskaya”

/47/ Notification # 445 dated 26/04/2012 as per statement-assignment on results of air composition testing at Coal Mine № 22 “Kommunarskaya”

/48/ Notification # 1167 dated 16/12/2011 as per statement-assignment on results of air composition testing at Coal Mine № 22 “Kommunarskaya”

/49/ Agreement # 24/704-71/11 dated 28/03/2011 between Donetsk Scientific and Production Centre for Standardization, Metrology and Certification and Makiivka Scientific and Research Institute on Safety in Mines on providing metrological services

/50/ Agreement # 1792034317 dated 2012 between Makiivka Scientific and Research Institute on Safety in Mines and PJSC “Colliery Group “DONBAS” on providing research and technical services

/51/ Agreement # 82 dated 07/03/2011 between Sumy Scientific and Production Centre for Standardization, Metrology and Eco-Alliance LLC on providing metrological services

/52/ Statement dated 28/04/2011 on replacement of gas pressure difference transmitters at Coal Mine № 22 “Kommunarskaya” boiler house. Honeywell STD-3000 09W33C3180872001002 was replaced by Siemens SITRANS P DS III N1-AO11-9174903

/53/ Statement dated 29/04/2011 on replacement of gas pressure difference transmitters at Coal Mine № 22 “Kommunarskaya” VAH. Honeywell STD-3000 09W33C3180872001003 was replaced by Siemens SITRANS P DS III N1-AO11-9174904. Noeding P 121 EE5-311 Ex812127139 was replaced by Noeding P 121 EE5-311 Ex812126972

/54/ Sampling results of gas captivated by the vacuum pump station of Coal Mine № 22 “Kommunarskaya”

Persons interviewed:

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

/1/ Viktor Orlov - chief engineer of PJSC “COLLIERY GROUP “DONBAS”

/2/ Karl Woste – Senior consultant, Carbon-TF B.V.

/3/ Adam Hadulla – Director Business Development, Carbon_TF B.V.

/4/ Viktor Avtonomov – Monitoring Assistant of “Eco-Aliance” Ltd.

/5/ Mykola Shliakhta – Coal Mine #22 “Kommunarskaya” Chief Engineer

/6/ Tetiana Balashova – Mining Works Lead Engineer of the Coal Mine #22 “Kommunarskaya”

/7/ Andriy Zherdyev – coal mine Senior Power Engineer of the Coal Mine #22 “Kommunarskaya”

/8/ Mark Synhayevskiy – degassing department Head of the Coal Mine #22 “Kommunarskaya”

/9/ Victor Vasylevych – Heating Engineer of the Coal Mine #22 “Kommunarskaya”

/10/ Vitaliy Sobolyev – ventilation department Head of the Coal Mine #22 “Kommunarskaya”

VERIFICATION PROTOCOL

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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	The project has been approved by both the host Party (Ukraine) and the other Party involved (the Netherlands). The written project approvals were issued by DFPs of Parties involved see chapter 7 References in the verification report).	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	The written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed	**CAR 05.** Please, revise section A.7 of MR as now revisions (to the registered PDD) from the previous monitoring period (already determined) are mentioned in this	CAR 05	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	final and is so listed on the UNFCCC JI website?	section. **CAR 18.** Please, revise the MR Annex 4 as now revisions (to the registered PDD) from the previous monitoring period (already determined) are mentioned in the Annex.	CAR 18	OK
93	What is the status of operation of the project during the monitoring period?	**CL 01.** Please, specify the period related to the operation time (for this monitoring period) of every unit (particularly, winter and summer boilers) in the MR section A.3. Please, provide more detailed and clearer description of project activity in the section A.3 of the MR. **CAR 01.** Please, provide the document which confirms the change of the project owner name (from State-run Coal Mine Association "GOAO Shakhtoupravlenye Donbass" to Public Joint Stock Company "Colliery Group "Donbas"). Please, mention these documents in MR. **CAR 02.** Please, correct the phrase used in footnote #1 (there was not exactly the change of the coal mine name, but the	CL 01 CAR 01 CAR 02	OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		change of the project owner name). **CAR 03.** Please, interpret the abbreviation *CMM* where it appears for the first time in the monitoring report. See CL 01 of this table **CL 02.** Please, revise the sentence below the table on ventilation air heater (pg. 5 of MR) because there are some linguistic mistakes. **CAR 22.** Please, revise the table 2 of the MR as it is strongly recommended to distinguish heat and power generation.	CAR 03 See CL 01 CL 02 CAR 22	OK OK OK OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	No. The monitored occurred in line with the revised monitoring plan. **CAR 11.** Please, consider the change of the value of CO_2 emission factor of fuel used for captive power or heat as revision to the Monitoring plan.	CAR 11	OK
95 (a)	For calculating the emission reductions or enhancements of	**CL 08.** Please, submit the results of NMHC analysis of the captured gas and the	CL 08	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	accreditation certificate of the laboratory which undertakes the NMHC. Note, that lab's accreditation validity during the whole monitoring period must be confirmed. **CAR 10.** Please, revise the value of CO_2 emission factor of fuel used of captive power or heat as the value for this factor now should be taken from national sources available not from IPCC. Please, correct the information in the table 6 of MR section B.2.1. **CL 06.** Please, complete the tables 7, 8, and 9 of the MR by adding missing data for some parameters.	CAR 10 CL 06	OK OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	**CL 03.** Please, provide the documentation on the Siemens SIMATIC PLC S7 and Siemens WINCC programming software. **CAR 17.** Please, complete the list of references in the MR Annex 1 by providing reference to the National Inventory Agency.	CL 03 CAR 17	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	See CAR 10 of this table. See CAR 14 of this table.	See CAR 10 See CAR 14	OK OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	**CAR 04.** Please, update the numerical data used in the table 2 of the MR section A.3. **CAR 16.** Please, update data on emission reductions through the whole monitoring report. **CL 05.** Please, provide (in the MR) more detailed explanation of the difference between emission reductions planned in the PDD and actually achieved values of emission reductions indicated in the MR. See CL 06 of this table.	CAR 04 CAR 16 CL 05 See CL 06	OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CAR 19. Please, make consistent format of numbers throughout the MR (pay attention to using of commas and full stops).	CAR 19	OK
		CL 04. Please, pay attention to the title of the table of the MR section D.3.4 as project emissions and emission reductions in this table are related to the *3rd monitoring period*.	CL 04	OK
		CAR 21. Please, correctly indicate units for monitored emissions throughout the whole monitoring report (to write tCO_2eq/a is incorrect).	CAR 21	OK
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/A	N/A	N/A
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/A	N/A	N/A
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	**CAR 06.** Please, revise section A.8 of MR as now revisions (to the registered monitoring plan) from the previous monitoring period (already determined) are mentioned in this section. **CAR 20.** When describing the revision to Monitoring plan, please, state the essence of the change, the justification of the proposed revision and confirm whether the proposed revision improves the accuracy and/or applicability of information collected compared to the Monitoring plan (previously determined) without changing conformity with the relevant rules and regulations for the establishment of monitoring plans.	CAR 06 CAR 20	OK OK
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring	See CAR 06 of this table. See CAR 14 of this table.	See CAR 06 See CAR 14	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	plans?			
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	**CAR 15.** Please, provide reports on internal audits conducted at the coal mine Nr.22 Kommunarskaya during the monitoring period and work out in detail MR section C.3.	CAR 15	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, in order?	**CAR 07.** Please, update information on the last calibration of the monitoring equipment (section B.1.2 of MR). Also, please, differentiate (where necessary) dates of the last verification and dates of other previous verifications. **CAR 08.** Please, update the calibrator name where it is needed (please, see the last column of table 5 of MR section B.1.2). **CAR 09.** Please, provide the work contracts signed with MakNII Institute, Sumystandardmetrologya, Donetskstandardmetrologya and other calibrators (if there are any others).	CAR 07 CAR 08 CAR 09	OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CL 09. Please, provide the accreditation certificate of Sumystandardmetrologya and Donetskstandardmetrologya. Note, that the accreditation validity during the whole monitoring period must be confirmed. **CL 07.** Please, clarify whether there were measuring equipment replacement cases during the monitoring period or not. In case of yes, please, provide the records confirming the meters replacement.	CL 09 CL 07	OK OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	**CAR 14.** A documented instruction/decree prescribing the storage of data monitored and required for ERUs calculation for two years after the last transfer of ERUs for the project should be issued and communicated to all responsible persons.	CAR 14	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	**CAR 13.** At the coal mine Nr.22 Kommunarskaya the order concerning indication of the names of the personnel involved in the monitoring should be issued. **CAR 12.** Please, revise the section C.1.2 of MR by specifying and updating information on the training conducted	CAR 13 CAR 12	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		during the monitoring period. Also, please provide documentary evidence of the conducting training and mention these documents in MR.		
Verification regarding programmes of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/A	N/A	N/A
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/A	N/A	N/A
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/A	N/A	N/A
104	Does the monitoring period not overlap with previous monitoring periods?	N/A	N/A	N/A
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: − The types of JPAs; − The complexity of the applicable technologies and/or measures used; − The geographical location of each JPA; − The amounts of expected emission reductions of the JPAs being verified; − The number of JPAs for which emission reductions are	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	being verified; − The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/A	N/A	N/A
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?	N/A	N/A	N/A
109	Is the sampling plan available for submission to the secretariat for	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the JISC ex ante assessment? (Optional)			
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	N/A	N/A	N/A

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR 01. Please, provide the document which confirms the change of the project owner name (from State-run Coal Mine Association "GOAO Shakhtoupravlenye Donbass" to Public Joint Stock Company "Colliery Group "Donbas"). Please, mention these documents in MR.	93	The documents were sent to BV under SG project.	The issue is closed based on the documentation provided.
CAR 02. Please, correct the phrase used in footnote #1 (there was not exactly the change of the coal mine name, but the change of the project owner name).	93	MR was corrected. The footnote #1 was modified.	The issue is closed due to the amendments made.
CAR 03. Please, interpret the abbreviation *CMM* where it appears for the first time in the monitoring report.	93	MR was corrected. The abbreviation was interpreted.	CAR 03 is resolved as the required correction is made.
CL 01. Please, specify the period related to the operation time (for this monitoring period) of every	93	There are the same boilers which are used during winter and summer so the operation time is taken for the whole	Based on the explanation received, the issue

unit (particularly, winter and summer boilers) in the MR section A.3. Please, provide more detailed and clearer description of project activity in the section A.3 of the MR.		boilerhouse. MR was extended.	is closed.
CAR 04. Please, update the numerical data used in the table 2 of the MR section A.3.	95 (d)	Required amendments are now made in the table 2 of the MR.	The issue is closed due to the updates made.
CL 02. Please, revise the sentence below the table on ventilation air heater (pg. 5 of MR) because there are some linguistic mistakes.	93	MR was corrected. The misprint is deleted.	Based on the correction made, the issue is closed.
CAR 05. Please, revise section A.7 of MR as now revisions (to the registered PDD) from the previous monitoring period (already determined) are mentioned in this section.	92	Response #1. Section A.7 of the MR was updated and modified. Response #2. MR was corrected.	Conclusion on response #1. It is incorrect to use the word "project" with the world "installation" (see pg.6). Conclusion on response #2. The issue is closed based on the correction made.

CAR 06. Please, revise section A.8 of MR as now revisions (to the registered monitoring plan) from the previous monitoring period (already determined) are mentioned in this section.	99 (a)	Section A.8 of MR is correctly modified.	The issue is closed based on the corrections made in the section A.8 of MR.
CAR 07. Please, update information on the last calibration of the monitoring equipment (section B.1.2 of MR). Also, please, differentiate (where necessary) dates of the last verification and dates of other previous verifications.	101 (b)	Necessary modifications are made.	The issue is closed based on the corrections made.
CAR 08. Please, update the calibrator name where it is needed (please, see the last column of table 5 of MR section B.1.2).	101 (b)	Required modifications are made.	The issue is closed based on the corrections made in the MR of final version.
CAR 09. Please, provide the work contracts signed with MakNII Institute, Sumystandardmetrologya, Donetskstandardmetrologya and other calibrators (if there are any others).	101 (b)	The documents were sent to BV under SG project.	CAR 09 is closed based on the documentation provided.

CAR 10. Please, revise the value of CO_2 emission factor of fuel used of captive power or heat as the value for this factor now should be taken from national sources available not from IPCC. Please, correct the information in the table 6 of MR section B.2.1.	95 (a)	Required modification has been made. Please, see section B.2.1 of the monitoring report.	The issue is closed based on the correction made.
CAR 11. Please, consider the change of the value of CO_2 emission factor of fuel used for captive power or heat as revision to the Monitoring plan.	94	MR was corrected.	The issue is closed based on the correction made.
CL 03. Please, provide the documentation on the Siemens SIMATIC PLC S7 and Siemens WINCC programming software.	95 (b)	The documents were sent to BV under SG project.	Due to the documentation provided to the verification team, the issue is closed.
CAR 12. Please, revise the section C.1.2 of MR by specifying and updating information on the training conducted during the monitoring period. Also, please provide documentary evidence of the conducting training and mention these documents in MR.	101 (d)	As no new personnel were employed no trainings were conducted.	CAR 12 is closed based on the explanation provided.
CAR 13. At the coal mine Nr.22 Kommunarskaya the order	101 (d)	The document was sent to BV under SG project.	The issue is closed based on the

concerning indication of the names of the personnel involved in the monitoring should be issued.			documentation received.
CAR 14. A documented instruction/decree prescribing the storage of data monitored and required for ERUs calculation for two years after the last transfer of ERUs for the project should be issued and communicated to all responsible persons.	101 (c)	The document was sent to BV under SG project.	CAR 14 is closed due to the document provided to the verification team.
CAR 15. Please, provide reports on internal audits conducted at the coal mine Nr.22 Kommunarskaya during the monitoring period and work out in detail MR section C.3.	101 (a)	MR was extended.	Based on the information added to the MR, CAR 15 is closed.
CAR 16. Please, update data on emission reductions through the whole monitoring report.	95 (d)	The information in the monitoring report is updated.	Due to the modification made, CAR 19 is closed.
CL 04. Please, pay attention to the title of the table of the MR section D.3.4 as project emissions and emission reductions in this table are related to the *3rd monitoring period*.	95 (d)	MR was corrected. The misprint is deleted.	The issue is closed based on the amendments made.

CAR 17. Please, complete the list of references in the MR Annex 1 by providing reference to the National Environmental Investment Agency of Ukraine.	95 (b)	Necessary reference is provided. Please, see Annex 1 of the monitoring report.	The issue is closed based on the information added.
CAR 18. Please, revise the MR Annex 4 as now revisions (to the registered PDD) from the previous monitoring period (already determined) are mentioned in the Annex.	92	Response #1. MR was corrected. Response #2. MR was corrected.	Conclusion on response #1. Please, distinguish (in Annex 4) revisions related to different monitoring periods in order to make situation with revisions to PDD clearer. Conclusion on response #2. The issue is closed due to the modification made.
CL 05. Please, provide (in the MR) more detailed explanation of the difference between emission reductions planned in the PDD and actually achieved values of emission reductions indicated in the MR.	95 (d)	MR was corrected. Necessary information is added to the MR.	The issue is closed based on the explanation provided.

CAR 19. Please, make consistent format of numbers throughout the MR (pay attention to using of commas and full stops).	95 (d)	MR was corrected. Now the format of numbers are consistent throughout the whole MR.	Due to the corrections made, CAR 19 is closed.
CAR 20. When describing the revision to Monitoring plan, please, state the essence of the change, the justification of the proposed revision and confirm whether the proposed revision improves the accuracy and/or applicability of information collected compared to the Monitoring plan (previously determined) without changing conformity with the relevant rules and regulations for the establishment of monitoring plans.	99 (a)	MR was corrected. Now MR section A.8 is modified.	CAR 20 is closed based on the modifications made in the section A.8.
CL 06. Please, complete the tables 7, 8, and 9 of the MR by adding missing data for some parameters.	95 (a)	MR was corrected. The tables are completed with necessary information.	The issue is closed based on the information added to the MR.
CL 07. Please, clarify whether there were measuring equipment replacement cases during the monitoring period or not. In case of yes, please, provide the records confirming the meters	101 (b)	There were changes of pressure meters at VAH and boiler measuring points. The acts of change are attached: Kom22-1 - Acts.pdf MR was corrected.	The issue is closed based on the documentation provided.

replacement.			
CL 08. Please, submit the results of NMHC analysis of the captured gas and the accreditation certificate of the laboratory which undertakes the NMHC. Note, that lab's accreditation validity during the whole monitoring period must be confirmed.	95 (a)	The gas analysis is attached: Kom22-2 - Gas analysis .jpg The accreditation certificate was sent under SG project.	Due to the documents provided, CL 08 is closed.
CL 09. Please, provide the accreditation certificate of Sumystandardmetrologya and Donetskstandardmetrologya. Note, that the accreditation validity during the whole monitoring period must be confirmed.	101 (b)	The documents were sent to BV under SG project.	The issue is closed based on the accreditation certificate provided to the verification team.
CAR 21. Please, correctly indicate units for monitored emissions throughout the whole monitoring report (to write tCO_2eq/a is incorrect).	95 (d)	MR was corrected.	CAR 21 is closed as the mistake is corrected.
CAR 22. Please, revise the table 2 of the MR as it is strongly recommended to distinguish heat and power generation.	93	MR was corrected.	The issue is closed based on the modification made.