VERIFICATION REPORT
VEMA S.A.

VERIFICATION OF THE

MODERNIZATION OF ELECTRIC POWER DISTRIBUTION SYSTEM AT PJSC "PC "ZHYTOMYROBLENERGO"

THE SECOND PERIODIC
FOR THE PERIOD 01/01/2011 – 31/12/2011

REPORT NO. UKRAINE-VER /0484/2012

REVISION NO. 01

BUREAU VERITAS CERTIFICATION

VERIFICATION REPORT

Date of first issue: 13/04/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: VEMA S.A.	Client ref.: Fabian Knodel

Summary:
Bureau Veritas Certification has made the second periodic verification of the "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo", project of VEMA S.A., located in Zhytomyr city and Zhytomyr region, Ukraine, and applying JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria (but for the crediting period) refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Accredited Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the 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 (CL, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the emission reductions totalize 276 005 tonnes of CO_2 equivalent for the monitoring period from 01/01/2011 to 31/12/2011.
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/0484/2012	Subject Group: JI	
Project title: "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo"		
Work carried out by: Oleh Skoblyk - Team Leader, Lead Verifier Serhii Verteletskiy - Team Member, Verifier Trainee Daniil Ukhanov - Technical Specialist		
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer Viacheslav Yeromin – Technical Specialist		
Work approved by: Ivan Sokolov – Climate Change Operational Manager		
Date of this revision: 13/04/2012	Rev. No.: 01	Number of pages: 33

Table of Contents *Page*

1 INTRODUCTION

VEMA S.A. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" (hereafter called "the project") located in Zhytomyr city and Zhytomyr 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, as well as the host country criteria.

The verification covers the period from January 1, 2011 to December 31, 2011.

1.1 Objective

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

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

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

1.2 Scope

The verification scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and monitoring report, 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:
Oleh Skoblyk
Bureau Veritas Certification Team Leader, Lead Verifier

Serhii Verteletskiy
Bureau Veritas Certification Team Member, Verifier Trainee

Daniil Ukhanov
Bureau Veritas Certification Technical Specialist

This verification report was reviewed by:
Ivan Sokolov
Bureau Veritas Certification Internal Technical Reviewer

Viacheslav Yeromin
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 VEMA S.A. and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Determination Report of this project issued by Bureau Veritas Certification Holding SAS, No. UKRAINE-det/0272/2011 dated 12/07/2011, 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 for the period from 01/01/2011 to 31/12/2011 version 01 dated January 25, 2012 and version 02 dated April 02, 2012, and the project described in the determined PDD.

2.2 Follow-up Interviews

On 27/02/2012 Bureau Veritas Certification verification team conducted a visit to the project site and performed (on-site) interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of PJSC «PC «Zhytomyroblenergo» and VEMA S.A. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC «PC «Zhytomyroblenergo»	➢ Organizational structure ➢ Responsibilities and authorities ➢ Personnel training ➢ Quality control procedures and technology ➢ Equipment use (records) ➢ Metering equipment control ➢ Metering record keeping system, database
Consultant: VEMA S.A.	➢ Baseline methodology ➢ Monitoring plan ➢ Monitoring report ➢ Deviations from the PDD

2.3 Resolution of Clarification, Corrective and Forward Action Requests

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

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

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

(b) Clarification request (CL), requesting the project participants to provide additional information for the 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 12 Corrective Action Requests and 3 Clarification Requests.

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

3.1. Remaining issues and FARs from previous verifications

There aren't any remaining CLs, CARs and FARs from previous verifications.

3.2 Project approval by Parties involved (90-91)

The project obtained approval from the Host party (Ukraine) - Letter of Approval No. 2667/23/7, dated 21/09/2011 issued by the State Environmental Investment Agency of Ukraine and written project approval from the party – buyer of emission reductions units (Switzerland) - Letter of Approval No. J294-0485, dated 28/06/2011 issued by the Federal Office for the Environment (FOEN) of Switzerland.
The abovementioned written approvals are unconditional.

The identified areas of concern as to the project approval by Parties involved, project participants response and BVC's conclusion are described in Appendix A to this report (refer to CAR 01).

3.3 Project implementation (92-93)

The project is implemented at the Public Joint Stock Company «Power Company «Zhytomyroblenergo» (hereinafter - PJSC «PC «Zhytomyroblenergo»), provides for the implementation of the program on

the technical improvement of electrical grids and equipment, advanced technologies implementation, the transition to a higher level of organization of transmission and distribution of electric energy. These activities are aimed at improvement of the reliability and efficiency of power distribution grids of PJSC «PC «Zhytomyroblenergo». This, in turn, helps to reduce the amount of electricity that is lost during its transportation to the consumers of all forms of ownership, so the production of electricity at power plants decreases and thus GHG emissions into the atmosphere will decrease in comparison with the situation that would exist without the project implementation.

The project scenario provides for implementation of new energy efficient equipment and a set of organizational and technical measures aimed at reduction of process losses of electricity (hereinafter – PLE) in the course of electricity transmission. The project also provides for implementation of measures on development and improvement of methodological support of PLE reduction in the course of carrying out of licensed types of activity of electricity supply and transmission. These measures include modernization work and renewal work at the electricity grids as well as implementation of new energy efficient equipment; improvement of the reliability of electricity supply; introduction of automated system of electricity consumption commercial accounting (ASECCA) within the framework of the power supply company, ASECCA of consumers and sub-plants; implementation of a comprehensive Program of PLE reduction.

Implementation of project activities started in 2003, as specified in the determined PDD, version 02. However, emission reductions generated in 2003 were conservatively excluded from the calculation. Therefore, 01/01/2004 was taken as a starting date of the crediting period.
Project implementation status in the reporting period of 01/01/2011 – 31/12/2011 is provided in the Table 2 below.

Table 2 Status of project implementation during the monitoring period

No.	Measures	Number of units of work done in the period of 01/01/2011 – 31/12/2011 for each voltage class					
		0.38kV	6kV	10kV	35kV	110kV	154kV
1	Implementation of new or reconstruction of existing wires of cable electricity transmission lines, km	0.846	-	2.203	-	-	-
2	Replacement of insulators of electricity transmission lines, units	1125	4797	1692	3311	2090	-

3	Implementation of reactive power compensation devices, kV	5.4	10.8	0.9	-	-	-
4	Replacement of electricity meters, units	66838	9	39	2	-	-
5	Replacement of circuit breakers, units	1650	-	405	1	2	-
6	Implementation of new or reconstruction of existing double-winding transformers, units	-	-	321	-	-	-
7	Implementation of new or reconstruction of existing three-winding transformers, units	-	-	-	-	2	-
8	Implementation of new or reconstruction of existing wires of overhead electricity transmission lines, km	154.582	0.25	127.689	8	9.8	-

Status of project activity implementation during the appropriate monitoring period complies with the determined PDD version 02.

The verification team can confirm, through the visual inspection and document review that the JI project including data collecting and storage systems have been implemented according to the PDD.

The identified areas of concern as to the project implementation, project participants response and BVC's conclusion are described in Appendix A to this report (refer to CAR 02, CAR 03).

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

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

For calculating the emission reductions, key factors, such as electricity losses due to absence of the introduction of new or reconstruction of existing wires of electricity transmission lines; electricity losses due to absence of the replacement of defected insulators of electricity transmission lines; electricity losses due to absence of the replacement of electricity meters; electricity losses due to absence of the implementation

of reactive power compensation devices at consumer's site; electricity losses due to absence of the replacement of oil switches with vacuum and sulphur hexafluoride switches; electricity losses due to absence of the replacement or reconstruction of existing electric motors of power transformers blower cooling, etc., 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 (electricity meters), special institutional reporting forms 1B-TVE DAEK, official data on carbon dioxide emission factors for the Ukrainian power grid, etc., are clearly identified, reliable and transparent.

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

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

The monitoring periods per component of the project are clearly specified in the monitoring report and do not overlap with those for which verifications were already deemed final in the past.

The identified areas of concern as to the compliance of the monitoring plan with the monitoring methodology, project participants response and BVC's conclusion are described in Appendix A to this report (refer to CAR 04, CAR 05, CAR 06, CAR 07, CAR 08, CAR 09, CL 01).

3.5 Revision of monitoring plan (99-100)

Not applicable.

3.6 Data management (101)

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

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

The project monitoring is conducted according to standard operational practices established at PJSC «PC «Zhytomyroblenergo» within the framework of the existing data collection, accounting and reporting system. The scheme of data collection using automated system of electricity consumption commercial accounting (ASECCA) within the framework of the energy supply company is provided in Figure 8 of the

Monitoring Report. Scheme of data collection prior to implementation of the automated system of electricity consumption commercial accounting (ASECCA) is shown in Figure 9 of the MR. Detailed operational and management structure of the project is presented below in Figure 1.

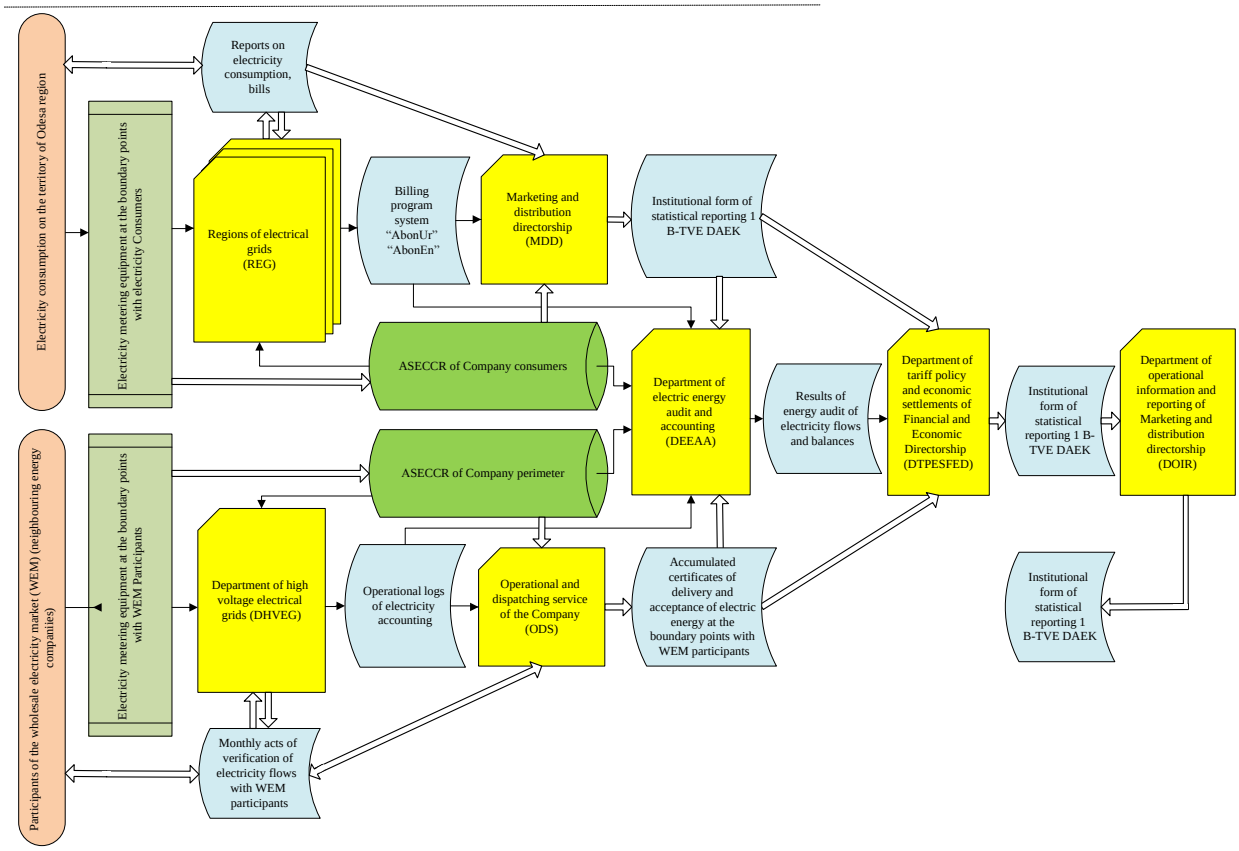

Figure 1 Scheme of project management operational structure

The function of the monitoring equipment, including its calibration status, is in order. The measurement equipment used for project monitoring is serviced, calibrated and maintained in accordance with the original manufacturer's instructions and industry standards; relevant records on measuring devices are kept as required. Staff of PJSC «PC «Zhytomyroblenergo» regularly participate in scheduled inspections of electricity meters within the boundary of calculation accounting points joint with energy generating companies. List of measuring instruments used in the monitoring, is provided in Annex No. 3 to the Monitoring Report (Excel file).

The evidence and records used for the monitoring are maintained in a traceable manner. All necessary information for monitoring of GHGs emission reductions is stored in paper or/and electronic formats.

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

The Monitoring Report provides sufficient information on the assigned roles, responsibilities and authorities for implementation and maintenance of monitoring procedures including control of data. The verification team confirms effectiveness of the existing management and operational systems and finds them eligible for reliable project monitoring.

The identified areas of concern as to the data management, project participants response and BVC's conclusion are described in Appendix A to this report (refer to CAR 10, CAR 11, CAR 12, CL 02, CL 03).

1.4 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the second periodic verification for the period from January 1, 2011 to December 31, 2011 of the "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" project, which applies JI specific approach. The verification was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The verification consisted of the following three phases: i) desk review of 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 management of VEMA S.A. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring Plan indicated in the final PDD version 02. The development and maintenance of records and reporting procedures are 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, for the reporting period from 01/01/2011 to 31/12/2011 as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

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

Reporting period: From 01/01/2011 to 31/12/2011

Baseline emissions	:	544 479	tonnes of CO_2 equivalent.
Project emissions	:	268 474	tonnes of CO_2 equivalent.
Emission Reductions	:	276 005	tonnes of CO_2 equivalent.

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 of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo", version 02 dated July 11, 2011
/2/	Monitoring Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period from 01/01/2011 to 31/12/2011, version 01 dated January 25, 2012
/3/	Monitoring Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period from 01/01/2011 to 31/12/2011, version 02 dated April 02, 2012
/4/	Annex 1 to the Monitoring Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period from 01/01/2011 to 31/12/2011. "Implementation of new and reconstruction of existing elements of the electrical grid at substations"
/5/	Annex 2 to the Monitoring Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period from 01/01/2011 to 31/12/2011. "Quantity of installed electrical equipment units"
/6/	Annex 3 to the Monitoring Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period from 01/01/2011 to 31/12/2011. "List of metering devices"
/7/	Annex 4 to the Monitoring Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period from 01/01/2011 to 31/12/2011. "Calculation of GHG emission reductions"
/8/	Package of accompanying documents No. 1 to the Monitoring Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period from 01/01/2011 to 31/12/2011.
/9/	Determination Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" No. UKRAINE-det/0272/2011, dated July 12, 2011 issued by Bureau Veritas Certification Holding SAS
/10/	Verification Report of the JI project "Modernization of electric power distribution system at PJSC "PC "Zhytomyroblenergo" for the period 01/01/2008 – 31/12/2010 issued by Bureau Veritas Certification Holding SAS No. UKRAINE-ver/0347/2011 as on September 21, 2011
/11/	Letter of Approval No. 2667/23/7 dated 21/09/2011 issued by the State Environmental Investment Agency of Ukraine
/12/	Letter of Approval No.J294-0485, dated June 28, 2011 issued by

	the State Environmental Investment Agency of Ukraine

Category 2 Documents:

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

/1/	"Guidance on criteria for baseline setting and monitoring", version 02, JISC
/2/	Order of the National Environmental Investment Agency of Ukraine (NEIA) No. 75 "On approval of carbon dioxide emission factors in 2011"
/3/	Acceptance certificate for repaired, reconstructed and modernized facilities dated March 29, 2012 (KTP-122 250 kVA Lubar urban village)
/4/	Acceptance certificate for repaired, reconstructed and modernized facilities dated March 23, 2012 (KTP-409 63 kVA v. Brataliv)
/5/	Acceptance certificate for repaired, reconstructed and modernized facilities dated July 29, 2011 (KTP-257 Narodychi urban village, transformer 63 kVA zav 1204035)
/6/	Acceptance certificate for repaired, reconstructed and modernized facilities dated September 30, 2011 (PL-0,4 kV dated KTP-34 Narodychi urban village – 0,44 km)
/7/	Acceptance certificate for repaired, reconstructed and modernized facilities dated April 6, 2012 (KTP-296 Zalissia village)
/8/	Certificate of power grid facility commissioning and complex capital repair dated July 25, 2011 (PL KTP 32 Narodychi)
/9/	Certificate of power grid facility commissioning and complex capital repair dated March 28, 2011(PL KTP 200 Narodychi)
/10/	Certificate of power grid facility commissioning and complex capital repair dated March 28, 2011 (PL KTP 16 Narodychi)
/11/	Certificate of power grid facility commissioning and complex capital repair dated January 26, 2011 (PL KTP 211 Narodychi)
/12/	Certificate of power grid facility commissioning and complex capital repair dated March 29, 2011 (PL 10 kV Bolotnitsia)
/13/	Structure of balance of electricity and process losses in the course of electricity transmission in power grids of 154-0,38 kV at «Zhytomyroblenergo» in 2011
/14/	Certificate of power grid facility commissioning after capital repair No. 296 dated May 31, 2011
/15/	Certificate of power grid facility commissioning after capital repair No. 302 dated May 31, 2011
/16/	Certificate of power grid facility commissioning after capital repair No. 147 dated March 03, 2011
/17/	Certificate of power grid facility commissioning after capital repair No. 116 dated March 01, 2011

/18/	Certificate of power grid facility commissioning after capital repair No. 88 dated February 25, 2011
/19/	Certificate of power grid facility commissioning after capital repair (KTP-422 Chopovichi urban village) dated May 31, 2011
/20/	Certificate of Completion issued by working commission (construction activities PL 110 kV on PC «Ignatpil» with reconstruction of VRP-100 kV (Reconstruction of measure PL 110 kV Lisova-Ovruch at PS 110 kV Ignatpil. The first construction line between the supports No. 1-189a, 1-187a, 23-34) dated 28/12/2011
/21/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-10 kV «Pischanitsya-1») dated 27/12/2011
/22/	Certificate of Completion issued by working commission (Reconstruction of measure PL 100 kV Lisova-Ovruch at PS 110 kV Ignatpil. The first line of construction of interstice between supports No.1-23) dated 11/05/2011
/23/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (KL-0,4kV TP-337 – philharmonic L-1, L-2) dated 28/11/2011
/24/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-0,4kV dated KTP-1.237) dated 29/08/2011
/25/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (KTP 10/0, 4 kV Loschin village, Zhytomyr region) dated 28/07/2011
/26/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-0,4 kV dated KTP-40) dated 29/06/2011
/27/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-0,4 kV dated KTP-169) dated 29/06/2011
/28/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-10kW, PL-0,4kV «Elinh», Berdichiv city) dated 27/09/2011
/29/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-0,4kV dated KTP-4295) dated 27/04/2011
/30/	Commissioning certificate on power distribution grid facilities the estimated cost of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-10kV «Zarichchia») dated 30/03/2011
/31/	Commissioning certificate on power distribution grid facilities the estimated cost

	of which doesn't exceed 1 mln UAH, issued by working technical commission (PL-10kV RP-1-TP-117) dated 30/03/2011
/32/	Certificate No. 365 on replacement and inspection of electric meters that are included in the scheme of accounting at connections: PS «Prohres» 110/10 kV, ZRU-10kV dated 07/06/2011
/33/	Certificate No. 492 replacement and inspection of electric meters that are included in the scheme of accounting at connections: PS «Kotovka» 35/10 kV ORU-10kV dated 25/07/2011
/34/	Certificate No. 494 replacement and inspection of electric meters that are included in the scheme of accounting at connections: PS «Rodomishl» 110/10kV, ORU-10kV dated 26/07/2011
/35/	Certificate No. 691 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: KRUN-10kV dated 12/10/2011
/36/	Certificate No. 115 on replacement and inspection of electricity meters, which are included in the scheme of accounting at connections: PS «Berdichivskyi» 110/35/10 apt. No. 10,16 dated 24/01/2011
/37/	Certificate No. 498 on replacement and inspection of electricity meters, which are included in the scheme of accounting at connections: PS «Brusykiv» - 35/10 dated 26/07/2011
/38/	Certificate No. 821 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: p/st. Pyrichchia 35/10 kV, ОРУ-10kV
/39/	Certificate No. 780 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: p/st. Halchyn 35/10 kV, ORU-10kV dated 03/11/2011
/40/	Certificate No. 815 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: p/st. Vodotiai 35/10 kV, ORU-10 kV dated 10/11/2011
/41/	Certificate No. 817 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: p/st. Pryvorottia 35/10 kV, ORU-10kV dated 11/11/2011
/42/	Act on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: p/st. Privorottia 35/10 kV, kom. No.7, 17 dated 29/06/2011
/43/	Certificate No. 263 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of

	accounting at connections: PS KRUN-10kV dated 26/04/2011
/44/	Certificate No. 807 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: p/st. Solovievka 35/10 kV, ORU-10кВ dated 19/11/2011
/45/	Certificate No. 264 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: PC KRUN-10kV dated 26/04/2011
/46/	Certificate No. 818 on performance of work aimed at technical inspection, replacement of electricity meters which are included in the scheme of accounting at connections: p/st. Brusiliv 35/10 kV, ORU-10kV
/47/	NIK 2102-04M2 meter calibration protocol dated 09/12/2011
/48/	NIK 2102-04M2 meter calibration protocol dated 07/12/2011
/49/	NIK 2102-04M2 meter calibration protocol dated 08/12/2011
/50/	Meter calibration protocol dated 06/12/2011
/51/	Meter calibration protocol dated 05/12/2011
/52/	NIK 2102-04M2 meter calibration protocol dated 01/12/2011

Persons interviewed:

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

	Name	Organization	Position
/1/	Nevmerzhytskyi S.M.	PJSC «PC «Zhytomyroblenergo»	Commercial director
/2/	Akhromkin A.O.	PJSC «PC «Zhytomyroblenergo»	Deputy commercial director
/3/	Samchuk T.A.	PJSC «PC «Zhytomyroblenergo»	Head of ASECCA department
/4/	Pavlovskyi Y.S.	PJSC «PC «Zhytomyroblenergo»	Technical Director
/5/	Romanenko M.V.	PJSC «PC «Zhytomyroblenergo»	Chief Operations Control Service
/6/	Bashynskyi Y.V.	PJSC «PC «Zhytomyroblenergo»	Head of Capital Construction
/7/	Nevmerzhytskyi I.I.	PJSC «PC «Zhytomyroblenergo»	Head of Production and Technical Department
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APPENDIX A: COMPANY PROJECT VERIFICATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

JI PROJECT 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 NFPs 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 parties. The Letters of Approval were presented to the verification team. **CAR 01.** In Section A.2. of the MR the number of the Letter of Approval from Ukraine is incorrect. Please, state correct number of the Letter of Approval.	**CAR 01**	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	Yes, the project has been implemented in accordance with the PDD, which is listed on the UNFCCC JI website. The project scenario provides for implementation of new energy efficient equipment and a set of organizational and technical measures aimed at reduction of process losses of electricity.	**CAR 02** **CAR 03**	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		3.049 km of cable line wire, 13 015 insulators, 66 888 electricity meters, 2 058 circuit breakers, 321 double-winding transformers, 2 three-winding transformers, 300.321 km of wire of overhead electricity transmission lines were implemented or reconstructed in the period from 01/01/2011 to 31/12/2011. Detailed information is provided in Annex 2 to the MR. **CAR 02.** In Section A.6 of the MR (Table 1), state voltage class of equipment that is to be installed according to the monitoring plan. **CAR 03.** Please, provide a comprehensive list of project measures in Section A.3. of the MR.		
93	What is the status of operation of the project during the monitoring period?	The Project was operational during the whole monitoring period, which is from 01/01/2011 to 31/12/2011.	OK	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	Yes, the monitoring was carried out 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. **CAR 04.** In Section A.5.1. of the MR it is stated that the dynamic baseline for this project was chosen according to a specific approach based on the requirements specified in paragraph 9 (a) of the Guidance on criteria for baseline setting and monitoring, version 03, while in the final determined version of the PDD the Guidance	**CAR 04** **CAR 05**	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Version 02 was used. **CAR 05.** Please, in Section A.5.2. of the MR provide a regulatory justification of energy losses, provided in the methodology of calculation of ERUs generated by the project.		
95 (a)	For calculating the emission reductions or enhancements of 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?	For calculating the emission reductions, key factors, such as electricity losses due to absence of the introduction of new or reconstruction of existing wires of electricity transmission lines; electricity losses due to absence of the replacement of defected insulators of electricity transmission lines; electricity losses due to absence of the replacement of electricity meters; electricity losses due to absence of the implementation of reactive power compensation devices at consumer's site; electricity losses due to absence of the replacement of oil switches with vacuum and sulphur hexafluoride switches; electricity losses due to absence of the replacement or reconstruction of existing electric motors of power transformers blower cooling, etc., 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.	OK	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable	Yes, data sources used for calculating emission reductions or enhancements of net removals are clearly identified, reliable and	**CAR 06** **CAR 07** **CAR 08**	OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	and transparent?	transparent. **CAR 06.** The name of CO_2 emission factor in Sections B and D of the MR is not in accordance with the NEIA Order No. 75. Please, make necessary corrections. **CAR 07.** In Table 3 of Section B.2.1. state a data source for parameter $W^{P}_{P,y,insul,i_4}$. **CAR 08.** In Table 4 of Section B.2.2. description of parameter $I^{P}_{C,y,tran(2),i}$ is not provided. Please, provide necessary information in the table.		
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Yes, emission factors, including default emission factors, that were used for calculating the emission reductions or enhancements of net removals, were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	OK	OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	Calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner. **CAR 09.** Please, in Section E.4. state how GHG emission reductions are calculated. **CL 01.** Please, provide appropriate justification for the difference between the emission reductions specified in the MR and the emission reductions stated in the PDD.	**CAR 09** **CL 01**	OK OK

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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	appropriate justification for the proposed revision?			
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	N/a	N/a	N/a
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	**CAR 10.** Please, provide information on the project management procedures. **CL 02**. Please, provide information on collection of data from meters at sub-stations that were not equipped with ASECCA.	**CAR 10** **CL 02**	OK OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	Yes, the function of the monitoring equipment, including its calibration status is in order. **CAR 11.** Please, provide information on the metering equipment calibration procedure. **CAR 12.** In Table 2 of the MR calibration interval is not stated for all equipment. Please, provide information regarding calibration interval for all equipment.	**CAR 11** **CAR 12**	OK OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Yes, the evidence and records used for the monitoring are maintained in a traceable manner.	OK	OK
101 (d)	Is the data collection and management system for the project in accordance with	The data collection and management system of the project is in accordance with the	**CL 03**	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the monitoring plan?	monitoring plan. Verification team confirms the effectiveness of existing management system and operating system and considers them to be suitable for reliable monitoring of the project. **CL 03.** Please check the numbering of tables and Figures in the MR.		
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/a	N/a	N/a
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/a	N/a	N/a
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/a	N/a	N/a
104	Does the monitoring period not overlap with previous monitoring periods?	N/a	N/a	N/a
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/a	N/a	N/a
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI Project. 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 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	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?			
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/a	N/a	N/a
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	N/a	N/a	N/a

TABLE 2 RESOLUTION OF CLARIFICATION AND CORRECTIVE ACTION REQUESTS

Clarification and corrective action requests issued by the verification team	Ref to checklist question in Table 1	Summary of project participant's response	Verification team conclusion
CAR 01. In Section A.2. of the MR the number of the Letter of Approval from Ukraine is incorrect. Please, state correct number of the Letter of Approval.	90	The project obtained written approval from Ukraine (the host country) on 21/09/2011; (Letter of Approval No. 2667/23/7, issued by the State Environmental Investment Agency of Ukraine).	The issue is closed based on necessary corrections made.
CAR 02. In Section A.6 of the MR (Table 1), state voltage class of equipment that is to be installed according to the monitoring plan.	92	Information about voltage class of equipment that is to be installed according to the monitoring plan is provided in Table 1 of the MR and Annex 2.	The issue is closed based on provision of necessary information.

CAR 03. Please, provide a comprehensive list of project measures in Section A.3. of the MR.	92	The list of these measures is provided below: - modernization works and implementation of new energy efficient equipment; - improvement of the reliability of electricity supply; - introduction of automated system of electricity consumption commercial accounting (ASECCA) within the framework of the power supply company, ASECCA of consumers and sub-plants; - implementation of a comprehensive Program of PLE reduction.	The issue is closed based on provision of necessary information in the MR version 02.
CAR 04. In Section A.5.1. of the MR it is stated that the dynamic baseline for this project was chosen according to a specific approach based on the requirements specified in paragraph 9 (a) of the Guidance on criteria for baseline setting and monitoring, version 03, while in the final determined version of the PDD the Guidance Version 02 was used.	94	Necessary corrections were made in the latest version of the MR.	Necessary corrections were made in the MR version 02. The issue is closed.

CAR 05. Please, in Section A.5.2. of the MR provide a regulatory justification of energy losses, provided in the methodology of calculation of ERUs generated by the project.	94	According to the Methodology calculation of process losses of electricity is based on the provisions of the following industry-specific regulatory documents: - Industry-specific regulatory document 34. 09.104-2003 Methodology of compiling the balance of power structure in electrical grids of 0.38-154 kV, analysis of its components and electricity process losses rate setting, approved by order #757 of the Ministry of Energy of Ukraine dated 17/12/03. - Industry-specific regulatory document 34.09.204-2004, Methodological guidance for electricity process losses analysis and the choice of measures aimed at their reduction, approved by order #300 of the Ministry of Energy of Ukraine dated 09/06/04. Relevant information is provided in Section A.5.2 of the MR.	The issue is closed based on provision of necessary information.
CAR 06. The name of CO_2 emission factor in Sections B and D of the MR is not in accordance with the NEIA Order No. 75. Please, make necessary corrections.	95 (b)	EF – carbon dioxide emission factor related to power losses in the course of power transmission to local power grids.	The issue is closed based on necessary changes made.
CAR 07. In Table 3 of Section B.2.1. state a data source for parameter $W^{P}_{P,y,insul,i_4}$.	95 (b)	The data source of parameter $W^{P}_{P,y,insul,i_4}$ is passport data of equipment (insulator).	The issue is closed based on provision of necessary information.

CAR 08. In Table 4 of Section B.2.2. description of parameter $I^{P}_{C,y,tran(2),i}$ is not provided. Please, provide necessary information in the table.	95 (b)	$I^{P}_{C,y,tran(2),i}$ - current of phase C in double winding transformer «*i*»	The issue is closed based on necessary changes made.
CAR 09. Please, in Section E.4. state how GHG emission reductions are calculated.	95 (d)	GHG emission reductions resulting from the project implementation are calculated as the difference between the baseline and the project emissions. Relevant information is presented in Section E.4 of the MR version 02.	The issue is closed based on provision of necessary information.
CAR 10. Please, provide information on the project management procedures.	101 (a)	Description of the project management procedures is shown in Figure 7 in Section C.1 of the MR version 02.	The issue is closed based on provision of necessary information.

CAR 11. Please, provide information on the metering equipment calibration procedure.	101 (a)	Procedures of calibration of metering equipment (including electricity meters) are set forth in the Law of Ukraine № 113/98-VR "On metrology and metrological activity" dated 11/02/1998 (hereinafter - the Law). Inter-verification interval for electricity meters is set by Scientific and Technical Committee of Technical Regulation Department of the Ministry of Economic Development and Trade of Ukraine in the process of registering them in the State register of metering equipment. Upon application of the producers of electricity meters or organizations that operate them, inter-verification interval can be reviewed. If the electricity meter has successfully passed the verification, the state verifier makes inspection mark on it. Detailed information relating to the procedure for calibration of meters is provided in Section B.1. of the MR.	The issue is closed based on information presented in the MR version 02.
CAR 12. In Table 2 of the MR calibration interval is not stated for all equipment. Please, provide information regarding calibration interval for all equipment.	101 (b)	Refer to Table 2 of the latest version of the MR and Annex 3.	Information was provided, the issue is closed.

CL 01. Please, provide appropriate justification for the difference between the emission reductions specified in the MR and the emission reductions stated in the PDD.	101 (a)	The actual emission reductions during the monitoring period are slightly different from the values, which were stated in the determined PDD version 02. This is due to the fact that at the PDD development stage it was impossible to accurately determine the duration of operation of the electrical equipment per year and the number of days when electrical equipment operated in conditions of temperature below 5 ^{0}C. So predicted values were provided. The difference between planned and actual values of these parameters also caused differences in the amount of estimated and actually received emission reductions.	The issue is closed based on provided clarification.
CL 02. Please, provide information on collection of data from meters at sub-stations that were not equipped with ASECCA.	101 (a)	At sub-stations not equipped with ASECCA, in the monitoring period, data collection was mainly performed manually by on-duty personnel; then the data were transferred by phone to the head office of the energy system (hereinafter - the EU) for further calculations. For more information, see. Figure 9 in the MR "Scheme of data collection through operational information complex (OIC)"	The issue is closed based on provided information.
CL 03. Please check the numbering of tables and Figures in the MR.	101 (d)	The numbering of Tables and Figures was reviewed. Appropriate corrections were made in the MR version 02.	The issue is closed based on changes made.