

VERIFICATION REPORT

“Biomass based Renewable Energy Generation at Karnal”

VCS ID: 1303



Document Prepared By
Lloyd's Register Quality Assurance Limited

Project Title	Biomass based Renewable Energy Generation at Karnal
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Report Title	Verification Report “Biomass based Renewable Energy Generation at Karnal”
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Prepared By	Lloyd's Register Quality Assurance Limited
Contact	1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom Email address: climate-change@lr.org

Approved By	Telephone: +44 (0) 24 7688 2287 Website: www.lrqa.com
	 Ketan Deshmukh
Work Carried Out By	Sanjay Kumar Agarwalla (Team Leader) (till 15/01/2015) Ankush Jain (Team Leader) (from 16/01/2015 onwards)

Summary:

Lloyd’s Register Quality Assurance Limited (LRQA) has been contracted by Modern Dairies Limited (MDL), the project participant (PP), to undertake the 1st periodic verification of the registered project activity, “Biomass based Renewable Energy Generation at Karnal” project reference number 1303 with regard to the requirements of VCS Programme Guidelines & Standard (VCS standard version 3.5 & VCS program guide version 3.5) for VCS projects. The scope of verification was an independent and objective review of the monitored emission reductions (ERs) against the verification requirements of the VCS. The monitoring period covers from 03/10/2012 to 30/04/2014 (both days inclusive). The verification has been performed by document review based on the Monitoring Report Version 01 dated 19/03/2014, on-site assessment and interviews with the stakeholders, resolution of outstanding issues and issuance of the verification report. LRQA reviewed the final version of the monitoring report (version 05 dated 21/09/2015) to confirm that all changes agreed had been incorporated.

The project activity involves the retrofitting of three pet coke fired boilers of capacities 12 TPH, 12 TPH and 3 TPH to rice husk fired boilers of the same capacities at the project site of MDL in Karnal district of Haryana state in India. The biomass (rice husk) used in the project activity is locally available within a radial distance of 100 km from the project site. The steam produced by the boilers is consumed for captive consumption in the dairy plant of the PP.

Reporting period: From 03/10/2012 to 30/04/2014 (both date inclusive)

In the course of the verification 3 Corrective Action Requests (CARs) and 1 Forward Action Request (FAR) were raised and all CARs were successfully closed.

As the result of the 1st periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. LRQA herewith confirms that the project has achieved emission reductions in the above mentioned reporting period and requests the issuance of, the reported ERs amounting to 60,857 tCO₂e to the VCS Registry.

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1 INTRODUCTION

1.1 Objective

Lloyd's Register Quality Assurance Limited (LRQA) has been contracted by Modern Diaries Limited (MDL), the project participant (PP), to undertake the 1st periodic verification of the registered project activity, "Biomass based Renewable Energy Generation at Karnal" project reference number 1303 covering the monitoring period from 03/10/2012 to 30/04/2014 (both days inclusive).

Through the verification activities, it is being confirmed that:

- the project activity has been implemented and operated as described in the validated and registered Project Description and that all physical features of the project activity are in place
- the monitoring report (MR) and other supporting documents provided are complete and verifiable, and in accordance with applicable VCS standard requirements.
- actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan (MP), (except the deviation listed in section 3.3 of the report), and the approved methodology; and
- the data is recorded and stored as per the monitoring methodology.

The verification followed the requirements of the current version of the VCS Standard Version 3.5 and VCS program guide 3.5 to ensure the quality and consistency of the verification work and the report.

1.2 Scope and Criteria

The scope of verification was an independent and objective review of the monitored emission reductions (ERs) against the verification requirements of the VCS. LRQA followed a risk-based approach in the verification, focusing on the identification of significant risks for implementation of the registered monitoring plan and the resultant emission reductions. The verification statement shall become final after final review by the decision maker of LRQA Ltd.

The criteria of the verification are:

- VCS Program Guide version 3.5
- VCS Standard version 3.5 and other relevant requirements defined by VCSA.
- The approved methodology AMS-I.C.: Mechanical energy for the user with or without electrical energy, Version 19.

The verification has ensured that reported emission reductions are complete and accurate.

1.3 Level of Assurance

The verification has been planned and organised to achieve a

- Reasonable level of assurance with 5% materiality as per VCS standard 3.5.

Limited level of assurance

1.4 Summary Description of the Project

1.4.1 Project Characteristics

Project title	Biomass based Renewable Energy Generation at Karnal		
VCS reference	1303		
Project Start Date	03/10/2012		
Applied methodology	AMS-I.C, Version 19: Mechanical energy for the user with or without electrical energy,		
Crediting period	03/10/2012 to 02/10/2022 (both days inclusive)		
Project location	Host Country	India	
	State/District/Taluka	Haryana, Karnal	
	Latitude	29°46'19.57" North	
	Longitude	76°57'43.71" East	
Project participants	Modern Diaries Limited		
Monitoring period	03/10/2012 to 30/04/2014 (both days inclusive)		

1.4.2 Technical Description of the Project

The project activity, "Biomass based Renewable Energy Generation at Karnal" implemented by Modern Diaries Limited (MDL), reduces emission by utilisation of biomass instead of pet coke in its boilers. The PP requires process steam for its dairy processing plant at Karnal which is being supplied from pet coke fired boilers prior to the project activity. This is same as the baseline scenario for supply of steam. In the project activity, the project proponent has retrofitted a total of three existing boilers; two of which are of 12 TPH capacities each and one of 3TPH from pet coke fired to rice husk fired. The two 12 TPH boilers produce steam at 17.5 kg/cm² and one 3 TPH boiler at 10.5 kg/cm². There was no change in the capacity of the boilers after retrofitting. The PP has also kept one standby boiler of capacity at 8 TPH which is pet coke fired for exigencies; this boiler was also present in the baseline scenario as standby. The biomass used in the project activity is available locally within a distance of 100 km from the project site.

The commissioning dates of the three project boilers are as follows:

Boiler	Make	Original commissioning date	Commissioning date after retrofitting	End of life time date (Date _{baseline retrofit})
12 TPH (Boiler 1)	Thermax	13 March 2007	03 Oct 2012	12 March 2032

12 TPH (Boiler 2)	IBL	29 June 1999	03 Jan 2013	28 June 2024
3 TPH (Boiler 3)	Thermax	06 March 2003	28 May 2013	05 March 2028

2 VERIFICATION PROCESS

2.1 Method and Criteria

Through the verification activities, the verification team was to confirm that:

- 1) the project activity has been implemented and operated as described in the validated and registered PD and that all physical features of the project activity are in place
- 2) the monitoring report (MR) and other supporting documents provided are complete and verifiable, and in accordance with applicable VCS requirements
- 3) actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan (MP) and the approved methodology; and
- 4) the data is recorded and stored as per the monitoring methodology.

Verification is based on the criteria laid down by VCS Version 3.

LRQA's verification of the project documentation provided by the project proponent was based on both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted to LRQA. Qualitative information is made up of the information on internal management controls, calculation procedures, and procedures for transfer of data, frequency of emission reports, and review and internal audit of emission reduction calculations.

2.2 Document Review

During the document review, LRQA has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

- a review of data and information presented by the PP to verify their completeness
- a review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- an evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report version 01 dated 19/03/2014 was initially reviewed and LRQA requested the PP to present the supporting information and documents and such additional information and documents that were also reviewed by LRQA. The documents reviewed by LRQA are listed in Appendix A.

Through the process of the verification, the revised monitoring report and the supporting documents were evaluated to confirm the actions taken by the PP to the CLs issued by LRQA. The documents reviewed by LRQA are listed in Appendix A. LRQA reviewed the final version of the monitoring report (version 04 dated 07/07/2015) to confirm that all changes agreed had been incorporated.

2.3 Interviews

The detail of the on-site assessment is as follows:

Date	Location	Team Members on site	Subjects covered	Persons interviewed
27-28/05/2014	Modern Dairies Limited, Karnal	Sanjay Kumar Agarwalla	<ul style="list-style-type: none"> • Project implementation and management • Site tour • Confirmation of technical specifications of the project boilers • Baseline discussion • Additionality discussion • Data management and reporting systems • Data verification • QA/QC, management systems, calibration, training • Data archiving • Environmental and social issues • Local stakeholder consultation process discussion 	<ul style="list-style-type: none"> - A K Aggarwal /Executive Director/MDL; - V K Nayyar / GM Engineers/MDL; - Abhishek Srivastava /Consultant; - Bhopal Singh/ Senior Forman/Boiler/MDL; - Krishna Kumar/ Senior Boiler Attendant/MDL; - Sunil Kumar/ Boiler Attendant/MDL - Vinod Kumar/ Local stakeholder - Jaipal/ Local stakeholder

2.4 Site Inspections

LRQA has conducted on-site inspection in order to confirm all physical features of the project activity proposed in the registered VCS PD are in place and the project proponent has operated and correctly monitored all parameters of the project activity as per the registered VCS PD during this monitoring period.

An on-site assessment was conducted on 27-28/05/2014 as a part of validation activity which involved:

1. an assessment of the implementation and operation of the project activity as per the registered Project Description
2. a review of information flows for generating, aggregating and reporting of the monitoring parameters
3. interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the MP
4. a cross-check between information provided in the MR and data from other sources
5. a check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the Project Description and the applied methodology
6. A review of calculations and assumptions made in determining the GHG data and ERs, and
7. An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

LRQA, during this verification, identified issues related to the monitoring, implementation or operation of the VCS project that could impair the capacity of the proposed VCS project to achieve emission reductions or influence the reporting of emission reductions. LRQA has identified, discussed and concluded these issues within the Verification report in Appendix B.

- Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.
- Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

Team identified 3 CARs during the assessment. All CARs raised by LRQA during this verification, have been resolved. If this was not completed, the ERs cannot be certified and recommended for issuance to the VCS Registry.

Details of the findings are included in Appendix B below.

2.5.1 Forward Action Requests

Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and / or adjustment for the next verification period. FARs does not relate to VCS requirements for issuance of ERs achieved during the subject monitoring.

LRQA has raised one FAR during this verification related to monitoring of NCV of biomass used. For details refer to Finding Log in Appendix G.

2.6 Eligibility for Validation Activities

The project activity falls under sectoral scope 1 and LRQA is accredited for validation/verification of project activities under this scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity is not participating in any other program.

3.2 Methodology Deviations

Though the registered PD requires quarterly monitoring of NCV of rice husk, the PP has undertaken the monitoring only once in this monitoring period. Non availability of NCV will not adversely impact the conservativeness of the GHG emission reduction. Therefore, it can be considered a methodology deviation in accordance with section 3.5 of VCS Standard Version 3.5.

As per the applied methodology, GHG emission reductions are based on the net energy delivered, i.e. steam for the project activity, and not NCV. Further, the applied methodology and registered PD requires that NCV value will only be monitored in the first year and fixed for the remaining part of the crediting period. NCV value can only be used to cross check the amount of net energy delivered by assuming the boiler efficiency and using quantity of biomass consumed. Therefore, in absence of NCV monitoring results as per the registered PD does not adversely impact the GHG emission reduction.

The PP has used rice husk as biomass in this project. Rice husk being industrial waste from the rice milling industry, its NCV does not vary significantly as industrial processes are standardized. It was also confirmed that the NCV measured by the external laboratory during the project operation was similar to that in the PD (PD states 2800 kcal/kg and monitored value was 2752 kcal/kg which is less than 2% variation).

The PP has further confirmed that NCV of rice husk will be monitored during the next verification which will be fixed for the remaining part of the crediting period. Therefore, LRQA is of the opinion that non-monitoring of NCV of biomass will not adversely impact the GHG emission reduction.

3.3 Project Description Deviations

No project description deviation was applied.

3.4 Grouped Project

Not applicable

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is thermal energy generation using renewable biomass. The project activity involves retrofitting three existing boilers; two of which are of 12 TPH each and one of 3 TPH from pet coke fired to rice husk fired. The two 12 TPH boilers produce steam at 17.5 kg/cm² and the 3 TPH boiler at 10.5 kg/cm². There was no change in the capacity of the boilers after retrofitting. Team confirms the capacity of the boilers from the commissioning certificate issued by chartered engineer, and the name plate capacity. The steam, generated using the retrofitted boilers, is being consumed in the dairy processing plant at Modern Diaries Limited, Karnal.

The project activity was started from 03/10/2012 (after commissioning of 12 TPH boiler) and was operating since then. Based on the review by the team, there were no emergencies found during the monitoring period from 03/10/2012 to 30/04/2014.

The verification team has carried out the desk review of project description, validation report, monitoring report and supporting documents and assessed the project implementation during on-site visit. The monitoring report has outlined the monitoring procedure implemented for the project over the period (03/10/2012 to 30/04/2014) and summarises consolidated data over the whole monitoring period in accordance with the monitoring plan of the registered Project Description.

Based on the monitoring plan, the PP has monitored the following parameters: Quantity of biomass used; Quantity, temperature and pressure of steam; temperature of feed water, total energy supplied by the project activity, and total electricity consumed by the project activity.

Validation team confirms, based on the review, that the monitoring plan is in accordance with the applied monitoring methodology and except monitoring of biomass NCV, it has been implemented as per the monitoring plan.

Verification of each monitoring parameter is described below.

Data / Parameter (as in the MP)		$Q_{\text{biomass},i,y}$ (Quantity of rice husk consumed annually)
Value	Ex ante	0, It was explained in the registered PD that actual values will be considered in the periodic verifications
	Ex-post	87,058
Measuring frequency		Daily
Reporting frequency		Daily
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes
Recording (Manually / electronically / ...)		Recording electronically/paper
QA/QC How are values verified? (Cross-checked, double-checked,...)		The weigh bridge is calibrated by Haryana Government, weights and measures department. Further, the data was cross checked with purchased quantity of rice husk.
Type of Monitoring Equipment and Identification number or Reference in the PD		Serial number: 13ES00/93 Type: Electronic Accuracy: 1.0
Is accuracy of the monitoring equipment as stated in the PD? If not stated in the PD, does it represent good monitoring practices?		Yes.
Period of operating time		575 days
Instrument type		Weighbridge

Data / Parameter (as in the MP)	Q _{biomass,i,y} (Quantity of rice husk consumed annually)	
Manufacturer, model and serial number	Make: Avery Serial number 13ES00/93	
Specific location	At the plant gate	
Calibration dates	Calibration date	Validity
	06/01/2012	05/01/2015
	11/01/2013	10/01/2016
	22/01/2014	21/01/2017
Company performing the calibration	Haryana Government	
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Yes, calibration frequency is once in three years as per the registered PD.	
Is calibration valid for the whole reporting period?	No	
Maintenance	The weighbridge was found to be in working condition during the visit.	
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes	
Key reporting risks	Low risk.	

Data / Parameter (as in the MP)	Q _{steam} (Quantity of steam generated from project activity biomass fired boiler annually)	
Value	Ex ante	Boiler 1: 95,040 Boiler 2 : 95,040 Boiler 3: 23,760
	Ex-post	Boiler 1: 133,254.71 Tonnes Boiler 2 : 112,279.04 Tonnes Boiler 3: 16,759.11 Tonnes
Measuring frequency	Continuous monitoring hourly recording and daily averaging	
Reporting frequency	Continuous monitoring hourly recording and daily averaging	
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?	Yes	
Recording (Manually / electronically / ...)	Recording electronically/paper	
QA/QC How are values verified? (Cross-checked, double-checked,...)	Steam flow meters were internally calibrated.	

Data / Parameter (as in the MP)	Q _{steam} (Quantity of steam generated from project activity biomass fired boiler annually)		
Type of Monitoring Equipment and Identification number or Reference in the PD		S. No.	Accuracy
	Steam flow meter 1	990230	0.5
	Steam flow meter 2	7011	0.5
	Steam flow meter 3	8505B702000	0.5
Is accuracy of the monitoring equipment as stated in the PD? If not stated in the PD, does it represent good monitoring practices?	Yes.		
Period of operating time	575 days		
Instrument type	Steam flow meter		
Manufacturer, model and serial number		Make	S. No.
	Steam flow meter 1	KROHNE	990230
	Steam flow meter 2	Rousemount	7011
	Steam flow meter 3	Endress + Hauser	8505B702000
Specific location	At the boiler pipe		
Calibration dates		Calibration date	Due date
	Steam flow meter 1	25/09/2012	24/09/2015
		24/09/2014	23/09/2017
	Steam flow meter 2	25/09/2012	24/09/2015
		24/09/2014	23/09/2017
	Steam flow meter 3	25/09/2012	24/09/2015
24/09/2014		23/09/2017	
Company performing the calibration	Calibration performed by Gorla Automation Engineers, a third party.		
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Yes. The manufacturer has not specified any calibration frequency The PP has used calibration frequency as specified in the registered PD.		
Is calibration valid for the whole reporting period?	Yes		
Maintenance	The meters are maintained by MDL. The meters were found to be working during the visit.		
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes		
Key reporting risks	Low risk.		

Data / Parameter (as in the MP)		T _{steam} (Temperature of steam generated)
Value	Ex ante	Boiler 1: 204 °C Boiler 2: 204 °C Boiler 3: 179 °C

Data / Parameter (as in the MP)		T _{steam} (Temperature of steam generated)																												
	Ex-post	Boiler 1: 202 °C Boiler 2: 201 °C Boiler 3: 168 °C																												
Measuring frequency		Continuous monitoring hourly recording and daily averaging																												
Reporting frequency		Continuous monitoring hourly recording and daily averaging																												
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes																												
Recording (Manually / electronically / ...)		Recording electronically/paper																												
QA/QC How are values verified? (Cross-checked, double-checked,...)		Temperature gauges were internally calibrated.																												
Type of Monitoring Equipment and Identification number or Reference in the PD		<table border="1"> <thead> <tr> <th></th> <th>Id. No.</th> <th>Accuracy</th> </tr> </thead> <tbody> <tr> <td>Temperature gauge 1</td> <td>STI-1</td> <td>0.1</td> </tr> <tr> <td>Temperature gauge 2</td> <td>STI-2</td> <td>0.1</td> </tr> <tr> <td>Temperature gauge 3</td> <td>STI-3</td> <td>0.1</td> </tr> </tbody> </table>				Id. No.	Accuracy	Temperature gauge 1	STI-1	0.1	Temperature gauge 2	STI-2	0.1	Temperature gauge 3	STI-3	0.1														
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		Temperature gauge 1	STI-1	0.1																										
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Temperature gauge 3	STI-3	0.1																												
Is accuracy of the monitoring equipment as stated in the PD? If not stated in the PD, does it represent good monitoring practices?			Yes. The PD states the accuracy of 0.2 whereas actual implemented meters are of accuracy 0.1 which represents good monitoring practice. Therefore, it was acceptable.																											
Period of operating time		575 days																												
Instrument type		Temperature gauge																												
Manufacturer, model and serial number		Manufacturer: Forbes Marshall																												
		Make and model: SELEC/PIC-101																												
		<table border="1"> <thead> <tr> <th></th> <th>Id. No.</th> <th>S. No. (Manufacturer)</th> </tr> </thead> <tbody> <tr> <td>Temperature gauge 1</td> <td>STI-1</td> <td>1209J09-164</td> </tr> <tr> <td>Temperature gauge 2</td> <td>STI-2</td> <td>1209J15-181</td> </tr> <tr> <td>Temperature gauge 3</td> <td>STI-3</td> <td>1201J12-051</td> </tr> </tbody> </table>				Id. No.	S. No. (Manufacturer)	Temperature gauge 1	STI-1	1209J09-164	Temperature gauge 2	STI-2	1209J15-181	Temperature gauge 3	STI-3	1201J12-051														
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Specific location			At the boiler pipe																											
Calibration dates		<table border="1"> <thead> <tr> <th></th> <th>Calibration date</th> <th>Due date</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Boiler 1</td> <td>12/09/2012</td> <td>11/09/2015</td> </tr> <tr> <td>12/03/2013</td> <td>11/03/2016</td> </tr> <tr> <td>12/09/2013</td> <td>11/09/2016</td> </tr> <tr> <td>12/03/2014</td> <td>11/09/2017</td> </tr> <tr> <td rowspan="3">Boiler 2</td> <td>01/01/2013</td> <td>31/12/2015</td> </tr> <tr> <td>01/07/2013</td> <td>31/06/2016</td> </tr> <tr> <td>01/01/2014</td> <td>31/12/2016</td> </tr> <tr> <td rowspan="3">Boiler 3</td> <td>14/04/2013</td> <td>13/04/2016</td> </tr> <tr> <td>14/10/2013</td> <td>13/10/2016</td> </tr> <tr> <td>14/04/2014</td> <td>13/10/2017</td> </tr> </tbody> </table>				Calibration date	Due date	Boiler 1	12/09/2012	11/09/2015	12/03/2013	11/03/2016	12/09/2013	11/09/2016	12/03/2014	11/09/2017	Boiler 2	01/01/2013	31/12/2015	01/07/2013	31/06/2016	01/01/2014	31/12/2016	Boiler 3	14/04/2013	13/04/2016	14/10/2013	13/10/2016	14/04/2014	13/10/2017
			Calibration date	Due date																										
		Boiler 1	12/09/2012	11/09/2015																										
			12/03/2013	11/03/2016																										
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			12/03/2014	11/09/2017																										
		Boiler 2	01/01/2013	31/12/2015																										
			01/07/2013	31/06/2016																										
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14/10/2013	13/10/2016																													
14/04/2014	13/10/2017																													

Data / Parameter (as in the MP)	T _{steam} (Temperature of steam generated)						
Company performing the calibration	Calibration performed internally by Modern Diaries Limited. Reference meter used for calibration is Digital Calibrator. The calibration was performed by Electronics Test and Development Centre, Mohali and calibration date are: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Meter ID</th> <th>Calibration date</th> <th>Due date</th> </tr> </thead> <tbody> <tr> <td>9753018</td> <td>23/08/2012</td> <td>22/08/2015</td> </tr> </tbody> </table>	Meter ID	Calibration date	Due date	9753018	23/08/2012	22/08/2015
Meter ID	Calibration date	Due date					
9753018	23/08/2012	22/08/2015					
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Yes.						
Is calibration valid for the whole reporting period?	Yes						
Maintenance	The meters are maintained by MDL. The meters were found to be working during the visit.						
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes						
Key reporting risks	Low risk.						

Data / Parameter (as in the MP)	P _{steam} (Pressure of steam generated)												
Value	Ex ante Boiler 1: 17.5 Kg/cm ² Boiler 2: 17.5 Kg/cm ² Boiler 3: 10.5 Kg/cm ²												
	Ex-post Boiler 1: 16.64 Kg/cm ² Boiler 2: 16.69 Kg/cm ² Boiler 3: 9.28 Kg/cm ²												
Measuring frequency	Continuous monitoring hourly recording and daily averaging												
Reporting frequency	Continuous monitoring hourly recording and daily averaging												
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?	Yes												
Recording (Manually / electronically / ...)	Recording electronically/paper												
QA/QC How are values verified? (Cross-checked, double-checked,...)	Pressure gauges were internally calibrated.												
Type of Monitoring Equipment and Identification number or Reference in the PD	<table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>S. No.</th> <th>Accuracy</th> </tr> </thead> <tbody> <tr> <td>Pressure gauge 1</td> <td>5505-P7-17</td> <td>0.1</td> </tr> <tr> <td>Pressure gauge 2</td> <td>5505-P7-15</td> <td>0.1</td> </tr> <tr> <td>Pressure gauge 3</td> <td>1178PG/00031</td> <td>0.1</td> </tr> </tbody> </table>		S. No.	Accuracy	Pressure gauge 1	5505-P7-17	0.1	Pressure gauge 2	5505-P7-15	0.1	Pressure gauge 3	1178PG/00031	0.1
	S. No.	Accuracy											
Pressure gauge 1	5505-P7-17	0.1											
Pressure gauge 2	5505-P7-15	0.1											
Pressure gauge 3	1178PG/00031	0.1											

Data / Parameter (as in the MP)	P_{steam} (Pressure of steam generated)																		
Is accuracy of the monitoring equipment as stated in the PD? If not stated in the PD, does it represent good monitoring practices?	Yes. The PD states the accuracy of 0.5 whereas actual implemented meters are of accuracy 0.1 which represents good monitoring practice. Therefore, it was acceptable.																		
Period of operating time	575 days																		
Instrument type	Pressure gauge																		
Manufacturer, model and serial number	Make/model: WAREE/ Dial type <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>S. No.</th> <th>Accuracy</th> </tr> </thead> <tbody> <tr> <td>Pressure gauge 1</td> <td>5505-P7-17</td> <td>0.1</td> </tr> <tr> <td>Pressure gauge 2</td> <td>5505-P7-15</td> <td>0.1</td> </tr> <tr> <td>Pressure gauge 3</td> <td>1178PG/00031</td> <td>0.1</td> </tr> </tbody> </table>		S. No.	Accuracy	Pressure gauge 1	5505-P7-17	0.1	Pressure gauge 2	5505-P7-15	0.1	Pressure gauge 3	1178PG/00031	0.1						
	S. No.	Accuracy																	
Pressure gauge 1	5505-P7-17	0.1																	
Pressure gauge 2	5505-P7-15	0.1																	
Pressure gauge 3	1178PG/00031	0.1																	
Specific location	At the boiler pipe																		
Calibration dates	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Calibration date</th> <th>Due date</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Boiler 1</td> <td>01/10/2013</td> <td>30/09/2014</td> </tr> <tr> <td>12/09/2014</td> <td>11/09/2015</td> </tr> <tr> <td rowspan="2">Boiler 2</td> <td>01/10/2013</td> <td>30/09/2014</td> </tr> <tr> <td>12/09/2014</td> <td>11/09/2015</td> </tr> <tr> <td rowspan="2">Boiler 3</td> <td>01/10/2013</td> <td>30/09/2014</td> </tr> <tr> <td>12/09/2014</td> <td>11/09/2015</td> </tr> </tbody> </table>		Calibration date	Due date	Boiler 1	01/10/2013	30/09/2014	12/09/2014	11/09/2015	Boiler 2	01/10/2013	30/09/2014	12/09/2014	11/09/2015	Boiler 3	01/10/2013	30/09/2014	12/09/2014	11/09/2015
	Calibration date	Due date																	
Boiler 1	01/10/2013	30/09/2014																	
	12/09/2014	11/09/2015																	
Boiler 2	01/10/2013	30/09/2014																	
	12/09/2014	11/09/2015																	
Boiler 3	01/10/2013	30/09/2014																	
	12/09/2014	11/09/2015																	
Company performing the calibration	Calibration performed internally by Modern Diaries Limited using dead weight tester, S. No. T7D202. Reference meter used for calibration and its calibration dates are: <table border="1" style="width: 50%; border-collapse: collapse; margin-left: auto;"> <thead> <tr> <th>Calibration date</th> <th>Due date</th> </tr> </thead> <tbody> <tr> <td>12/09/2012</td> <td>11/09/2013</td> </tr> <tr> <td>01/10/2013</td> <td>30/09/2014</td> </tr> </tbody> </table>	Calibration date	Due date	12/09/2012	11/09/2013	01/10/2013	30/09/2014												
Calibration date	Due date																		
12/09/2012	11/09/2013																		
01/10/2013	30/09/2014																		
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Yes.																		
Is calibration valid for the whole reporting period?	Yes																		
Maintenance	The meters are maintained by MDL. The meters were found to be working during the visit.																		
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes																		
Key reporting risks	Low risk.																		

Data / Parameter (as in the MP)	T_{FW} (Temperature of feed water in the boiler)
Value	Ex ante Boiler 1: 85 °C Boiler 2: 85 °C Boiler 3: 85 °C
	Ex-post Boiler 1: 85 °C Boiler 2: 85 °C Boiler 3: 81 °C

Data / Parameter (as in the MP)	T_{FW} (Temperature of feed water in the boiler)																													
Measuring frequency	Continuous monitoring hourly recording and daily averaging																													
Reporting frequency	Continuous monitoring hourly recording and daily averaging																													
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?	Yes																													
Recording (Manually / electronically / ...)	Recording electronically/paper																													
QA/QC How are values verified? (Cross-checked, double-checked,...)	Temperature gauges were internally calibrated.																													
Type of Monitoring Equipment and Identification number or Reference in the PD	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%;">Id. No.</th> <th style="width: 20%;">Accuracy</th> </tr> </thead> <tbody> <tr> <td>Temperature gauge 1</td> <td>FWTI-1</td> <td>0.1</td> </tr> <tr> <td>Temperature gauge 2</td> <td>FWTI-2</td> <td>0.1</td> </tr> <tr> <td>Temperature gauge 3</td> <td>FWTI-3</td> <td>0.1</td> </tr> </tbody> </table>		Id. No.	Accuracy	Temperature gauge 1	FWTI-1	0.1	Temperature gauge 2	FWTI-2	0.1	Temperature gauge 3	FWTI-3	0.1																	
	Id. No.	Accuracy																												
Temperature gauge 1	FWTI-1	0.1																												
Temperature gauge 2	FWTI-2	0.1																												
Temperature gauge 3	FWTI-3	0.1																												
Is accuracy of the monitoring equipment as stated in the PD? If not stated in the PD, does it represent good monitoring practices?	Yes. The PD states the accuracy of 0.5 whereas actual implemented meters are of accuracy 0.1 which represents good monitoring practice. Therefore, it was acceptable.																													
Period of operating time	575 days																													
Instrument type	Temperature gauge																													
Manufacturer, model and serial number	<p>Boiler 1 Temperature gauge 1 (Identification No. FWTI-1) Make/model: AUTONIX/PP35 S. No. : 130214/0746</p> <p>Boiler 2 Temperature gauge 1 (Identification No. FWTI-2) Make/model: AUTONIX/PP35 S. No. : 130218/0748</p> <p>Boiler 3 Temperature gauge 1 (Identification No. FWTI-3) Make/model: SELEC/PIC152 S. No. : 1112N11-066</p>																													
Specific location	At the boiler pipe																													
Calibration dates	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 30%;">Calibration date</th> <th style="width: 30%;">Due date</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Boiler 1</td> <td>12/09/2012</td> <td>30/09/2015</td> </tr> <tr> <td>12/03/2013</td> <td>11/03/2016</td> </tr> <tr> <td>12/09/2013</td> <td>11/09/2016</td> </tr> <tr> <td rowspan="3">Boiler 2</td> <td>12/03/2014</td> <td>11/03/2017</td> </tr> <tr> <td>01/01/2013</td> <td>31/12/2015</td> </tr> <tr> <td>01/07/2013</td> <td>30/06/2016</td> </tr> <tr> <td rowspan="4">Boiler 3</td> <td>01/01/2014</td> <td>31/12/2016</td> </tr> <tr> <td>14/04/2013</td> <td>13/04/2016</td> </tr> <tr> <td>14/10/2013</td> <td>13/10/2016</td> </tr> <tr> <td>14/04/2014</td> <td>13/04/2017</td> </tr> <tr> <td></td> <td>14/10/2014</td> <td>13/10/2017</td> </tr> </tbody> </table>		Calibration date	Due date	Boiler 1	12/09/2012	30/09/2015	12/03/2013	11/03/2016	12/09/2013	11/09/2016	Boiler 2	12/03/2014	11/03/2017	01/01/2013	31/12/2015	01/07/2013	30/06/2016	Boiler 3	01/01/2014	31/12/2016	14/04/2013	13/04/2016	14/10/2013	13/10/2016	14/04/2014	13/04/2017		14/10/2014	13/10/2017
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	14/10/2013	13/10/2016																												
	14/04/2014	13/04/2017																												
	14/10/2014	13/10/2017																												

Data / Parameter (as in the MP)	T_{FW} (Temperature of feed water in the boiler)						
Company performing the calibration	Calibration performed internally by Modern Diaries Limited. Reference meter used for calibration is Digital Calibrator. The calibration was performed by Electronics Test and Development Centre, Mohali and calibration date are: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Meter ID</th> <th style="text-align: left;">Calibration date</th> <th style="text-align: left;">Due date</th> </tr> <tr> <td>9753018</td> <td>23/08/2012</td> <td>22/08/2015</td> </tr> </table>	Meter ID	Calibration date	Due date	9753018	23/08/2012	22/08/2015
Meter ID	Calibration date	Due date					
9753018	23/08/2012	22/08/2015					
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Yes.						
Is calibration valid for the whole reporting period?	Yes						
Maintenance	The meters are maintained by MDL. The meters were found to be working during the visit.						
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes						
Key reporting risks	Low risk.						

Data / Parameter (as in the MP)	$EG_{thermal,y}$ (Net quantity of thermal energy supplied by the project activity during the year Y)
Value	Ex ante Boiler 1: 232 TJ Boiler 2: 232 TJ Boiler 3: 58 TJ
	Ex-post 727.48 TJ
Measuring frequency	Calculated from the measured data and using steam table.
Reporting frequency	Monthly reporting
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?	Yes
Recording (Manually / electronically / ...)	Recording electronically/paper
QA/QC How are values verified? (Cross-checked, double-checked,...)	Data is calculated using steam table.
Type of Monitoring Equipment and Identification number or Reference in the PD	NA
Is accuracy of the monitoring equipment as stated in the PD? If not stated in the PD, does it represent good monitoring practices?	Yes. Using standard steam table and the monitored data above.
Period of operating time	575 days

Data / Parameter (as in the MP)	$EG_{\text{thermal},y}$ (Net quantity of thermal energy supplied by the project activity during the year Y)
Instrument type	NA
Manufacturer, model and serial number	NA
Specific location	NA
Calibration dates	NA
Company performing the calibration	NA
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	NA
Is calibration valid for the whole reporting period?	NA
Maintenance	NA
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes. The enthalpy of steam is calculated using the saturated steam table. The values were checked using online steam table at http://www.tlv.com/global/TI/calculator/steam-table-pressure.html
Key reporting risks	Low risk.

Data / Parameter (as in the MP)	$EC_{PJ,I,y}$ (Quantity of electricity consumed by the project activity in the year y)	
Value	Ex ante	0
	Ex-post	1940.61 MWh
Measuring frequency	Continuous monitoring hourly recording and daily averaging	
Reporting frequency	Continuous monitoring hourly recording and daily averaging	
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?	Yes	
Recording (Manually / electronically / ...)	Recording electronically/paper	
QA/QC How are values verified? (Cross-checked, double-checked,...)	Electricity meters were externally calibrated.	
Type of Monitoring Equipment and Identification number or Reference in the PD	S. No. SI635/1206/P2899 Accuracy class: 0.5	
Is accuracy of the monitoring equipment as stated in the PD? If not stated in the PD, does it represent good monitoring practices?	Yes. The accuracy of 0.5 represents good monitoring practice	

Data / Parameter (as in the MP)	EC _{PJ,t,y} (Quantity of electricity consumed by the project activity in the year y)	
Period of operating time	575 days	
Instrument type	Temperature gauge	
Manufacturer, model and serial number	S. No. SI635/1206/P2899	
Specific location	At the boiler house area	
Calibration dates	Calibration date	Validity
	26/09/2012	25/09/2015
	24/09/2013	24/09/2016
Company performing the calibration	Goria automation engineers.	
Required calibration frequency: Is it in line with the MP? Or represent good monitoring practices?	Yes.	
Is calibration valid for the whole reporting period?	Yes	
Maintenance	The meters are maintained by MDL. The meters were found to be working during the visit.	
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes	
Key reporting risks	Medium risk.	

During the site visit, team reviewed the monitoring and recording system, interview of site operative staff to confirm the implementation of monitoring activities. Team confirms that the PP has installed steam flow meter, temperature and pressure gauge for each boiler. Hourly readings were taken for each parameter by the shift operator. These hourly readings were reviewed by the shift in-charge and averaged to daily readings and were reviewed by manager maintenance. A daily average was calculated for steam flow, temperature and pressure readings which were used to determine the total enthalpy. The enthalpy figures for each temperature and pressure values were confirmed from the online steam tables for saturated steam (Ref: <http://www.tlv.com/global/TI/calculator/steam-table-pressure.html>). Temperature and flow of Incoming water is also measured using dedicated water flow meter, and temperature gauge which is used to calculate enthalpy of feed water. Electricity is measured at the dedicated meter installed at the boiler unit. Further, rice husk is weighted at the factory gate at weighbridge.

During the visit, team interviewed the boiler operator, and shift in-charge; and found that they were adequately trained for data capturing and recording. Apart from on the job training, regular in-house informal trainings were also provided to ensure competence. Lastly, internal review mechanism was found to be in place and adequate. Based on the samples reviewed by LRQA, no error was identified.

LRQA confirms that the GHG emission reductions or removals generated by the project have not been included in an emission trading program or any other mechanism that includes GHG allowance trading. LRQA confirms that the project has not received or sought any other form of

environmental credit, or has become eligible to do so since validation. LRQA also confirms that the project has not participated or been rejected under any other GHG programs since validation.

LRQA confirms that the project has been implemented as described in the registered project description.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

LRQA has determined that:

- (a) a complete set of data for the specified monitoring period is available;
- (b) Information provided in the monitoring report has been cross-checked with other sources such as plant internal records, aggregated records;
- (c) calculations of baseline emissions, proposed VCS project activity emissions and leakage, as appropriate, have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document;
- (d) any assumptions used in emission calculations have been justified; appropriate emission factors, IPCC default values and other reference values have been correctly applied.

LRQA has checked the monitoring records during the visit to confirm ER calculation. LRQA has determined the threshold for materiality at five percent with respect to the aggregate of errors, omissions and misrepresentations relative to the total reported GHG emission reductions and/or removals for the project activity as per the requirement 5.3.1 (4) of VCS standard 03.5. The sample size based on the materiality level has been developed from ISO 2859-1:1999. Based on ISO 2859-1:1999, the verification team has checked complete set of documents (which includes steam pressure, feed water temperature, steam production among other parameters monitored daily) of 33 samples out of 575 samples and found all were correct. Based on the review it was confirmed that daily average values were transferred to the spreadsheet. The verification team checked the sample data in the excel sheet with their records over and above the samples checked during site visit. The team interviewed the person responsible for data transposition from hard copy to soft copy and found proper training has been provided. LRQA confirms that data collecting & handling is conducted in a transparent manner to secure high quality of data recording. Data collected and monitored are stored electronically in a secure and retrievable manner for at least two years after the end of the project crediting period. LRQA confirms that no manual transposition errors between data sets have occurred.

LRQA confirms that appropriate methods and formulae for calculating baseline emissions, projects emissions and leakage have been followed.

LRQA is of the opinion that all assumptions, emissions factors and default values that were applied in calculations have been justified. LRQA also confirms that GHG emission reduction and removals have been quantified correctly in accordance with the project description and applied methodology.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

When verifying the emission reduction, LRQA ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown in Appendix A.

When assessing the audit trails, LRQA also examined:

whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period

the source and nature of the evidence

if comparable information was available from sources other than that used in the monitoring report, LRQA cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix A.

LRQA also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology. The monitored data was confirmed from the review of log books, test reports etc. were checked during the visit. Team further reviewed the calibration records and procedures during the visit.

Team further interviewed the site operatives to confirm the suitability of the monitored data. It was confirmed that the daily log books are reported by the shift operators, reviewed by Maintenance engineer and Manager Engineering. Further, daily records from paper were averaged and transferred to electronic format by operator and reviewed by Manager. Maintenance engineer uses steam table to calculate the net energy supplied by the project activity. This information was reviewed by the Manager and external consultant. The PP has a system in place for measurement, recording and reviewing and gives confidence to the verification team on the data reported.

Team found that all the meters used for measurement were well maintained by the PP and found to be working. Team has also found that reference meters are in place and found to be functional. Team further, interviewed the maintenance engineer responsible for calibration and found that systems are in place and personnel involved are competent.

Team has independently confirmed the suitability of monitored data. Team has conducted water-steam balance across the system and confirms that values were correctly presented. In order to confirm the steam generation figure, team confirmed through calculation on the overall energy balance that the combined thermal efficiency of all the boilers was about 60% which is reasonable. Therefore, team reasonably confirms that the presented data is free from material errors.

LRQA confirms that the responsibilities and authorities in the management and operational system for monitoring and reporting are in accordance with the responsibilities and authorities stated in the registered PD.

LRQA confirms that the data used to determine the GHG emission and reduction is sufficient in quantity and of appropriate quality.

4.4 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

LRQA has undertaken the 1st periodic verification of the proposed project activity, “Promotion of Low cost Irrigation Device in Eastern States of India” covering the monitoring period from 03/10/2012 to 30/04/2014 (both days inclusive) based on VCS Version 3 requirements applicable to the proposed project activity including the host country’s legislation.

Through the verification process of document review, site visit and assessing the project activity against VCS standard 3.5 and VCS program guide 3.5, the verification team identified 3 CARs and 1 FAR. The PP has taken actions to address the CARs and submitted to LRQA the revised monitoring report Version 04 dated: 07/07/2015 and supporting evidence. The verification team is of the opinion that the project activity has been implemented in accordance with the registered project description, the MP with complies with the approved monitoring methodology, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct.

The verification team is of the opinion that the proposed project activity has been implemented in accordance with the registered PDD, the MP complies with the approved monitoring methodology, the monitoring complies with the MP (except the FAR issued) and the monitored data and calculation of ERs are free from material errors, omissions or misstatements, with a reasonable level of assurance.

Therefore LRQA hereby certifies, and requests the issuance of, the reported ERs of the project activity, “Promotion of Low cost Irrigation Device in Eastern States of India” during the monitoring period of 03/10/2012 to 30/04/2014 amounting to 60,857 tCO₂e to the VCS Registry.

Verification period: From 03-10-2012 to 30-04-2014

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2012	5,280	212	0	5,068
2013	42,427	1,568	0	40,858
2014	15,433	502	0	14,931
Total	63,140	2,282	0	60,857

APPENDIX A: LIST OF DOCUMENTS

Category A documents (documents from the PP)

1.	Monitoring Report, Version 01 dated: 19/03/2014, Version 02 dated: 27/01/2015, Version 04 dated: 07/07/2015 and Version 05 dated: 21/09/2015																								
2.	Emission Reduction Version 01 dated 19/03/2014																								
3.	Certificate of Incorporation for Modern Dairies Limited																								
4.	Commissioning certificates for the three boilers (both initial and after retrofitting) issued by Chartered Engineer including boiler efficiency (project start date)																								
5.	Biomass survey report																								
6.	Boiler log book																								
7.	Organisation chart for MDL																								
8.	<ul style="list-style-type: none"> • Consent to Operate certificate obtained from Haryana State Pollution Control Board – HSPCB/Water Consent/241, dated 02/07/2010 (valid till 31/03/2015) • Consent to Operate certificate obtained from Haryana State Pollution Control Board – HSPCB/Air Consent/243, dated 02/10/2010 (valid till 31/03/2015) • Boiler Operation Certificates issues by Chief Inspector of Boiler, Haryana, Chandigarh for the three project boilers as below: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Boiler Number</th> <th>Registration Number</th> <th colspan="4">Date of testing</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>HA-817</td> <td>25/05/2011</td> <td>12/06/2012</td> <td>08/05/2013</td> <td>14/05/2014</td> </tr> <tr> <td>2</td> <td>HA-1328</td> <td>23/04/2011</td> <td>10/04/2012</td> <td>09/04/2013</td> <td>29/04/2014</td> </tr> <tr> <td>3</td> <td>HA-1008</td> <td>29/05/2011</td> <td>10/04/2012</td> <td>04/06/2013</td> <td>05/03/2014</td> </tr> </tbody> </table>	Boiler Number	Registration Number	Date of testing				1	HA-817	25/05/2011	12/06/2012	08/05/2013	14/05/2014	2	HA-1328	23/04/2011	10/04/2012	09/04/2013	29/04/2014	3	HA-1008	29/05/2011	10/04/2012	04/06/2013	05/03/2014
Boiler Number	Registration Number	Date of testing																							
1	HA-817	25/05/2011	12/06/2012	08/05/2013	14/05/2014																				
2	HA-1328	23/04/2011	10/04/2012	09/04/2013	29/04/2014																				
3	HA-1008	29/05/2011	10/04/2012	04/06/2013	05/03/2014																				
9.	Internal calibration records																								
10.	NCV Test certificate for rice husk from Haryana Test House dated: 18/06/2013																								

Category B documents (other documents referenced)

1.	Approved CDM monitoring methodology AMS I.C, version 19.0, “ <i>Thermal energy production with or without electricity</i> ”
2.	VCS Version 3; Program Guidelines; VCSA Rules; and VCS Guidance Document issued on 08/10/2013
3.	Guidelines on the Demonstration of Additionality of Small Scale Project activities, version 09
4.	CDM Validation and Verification Standard, version 07.0
5.	ISO 2859-1 on Sampling
6.	Project Description VCS version 4 dated 26/09/2014
7.	Validation report (Ref: VCS-MUM-0062112) of the project “Biomass based Renewable Energy Generation at Karnal” dated 26/09/2014.

APPENDIX B: FINDINGS LOG

1. Grade / Ref:	CAR 01	2. Date:	28/06/2014	3. Status:	Closed
4. Requirement	VCS MR Template, Version 3.3 Sections 9.3 and 9.4.1 of CDM VVS Version 07.0				
5. Nature of the Issue Raised:					
During the on-site visit interview it was confirmed that commissioning date of the first boiler (project start date) is 03/10/2012 whereas in the MR Version 01, it has been stated as 30/09/2012 in various sections. Also monitoring period is being claimed from 30/09/2012. PP to provide evidence					
6. Nature of responses provided by the project participants:					
Commissioning date has been corrected to 03/10/2012 in accordance to PDD. Accordingly monitoring period has been revised to start from 03/10/2012. Commissioning certificates have been submitted.					
7. Assessment of such responses:					
The start date has been corrected to 03/10/2012 in the Monitoring report. This was in accordance with that confirmed during the site visit.					
8. References to resulting changes in the monitoring report or supporting annexes:					
Section 1.1 of MR					

1. Grade / Ref:	CAR 02	2. Date:	28/06/2014	3. Status:	Closed
4. Requirement	VCS MR Template, Version 3.3, VCS Standard Version 3.5				
5. Nature of the Issue Raised:					
In section 1.2 of the MR, version 01, the MR does not describe how the project activity falls under “Project” category has been stated because the project activity has less than 1,000,000 tCO ₂ e per year which is not in accordance with VCS Standard 3.					
6. Nature of responses provided by the project participants:					
Section 1.2 has been corrected. Now the activity type is categorized under “Project” with less than 3,00,000 tCO ₂ e per annum.					

7. Assessment of such responses:	
Section 1.2 of the MR was revised to correctly state that the annual GHG emission reduction will be less than 300,000 tCO ₂ e/annum to quality as “Project”. This was in accordance with section 3.9.1 of VCS Standard.	
8. References to resulting changes in the monitoring report or supporting annexes:	
Section 1.2 of MR	

1. Grade / Ref:	CAR 03	2. Date:	28/06/2014	3. Status:	Closed
4. Requirement	VCS MR Template, Version 3.3, VCS Standard Version 3.5				
5. Nature of the Issue Raised:					
<p>“Frequency of monitoring/recording” has not been specified for all the parameters.</p> <p>Date of calibration was inconsistent</p> <p>PP to clarify why enthalpy of feed water will not be deducted in calculation of the parameter EG_{thermal,y}.</p>					
6. Nature of responses provided by the project participants:					
<p>“Frequency of monitoring/recording” is now specified for all the parameters.</p> <p>Date of calibration is now included for all the parameters.</p> <p>EG_{thermal,y} was revised by deducting enthalpy of feed water.</p>					
7. Assessment of such responses:					
The revised MR now correctly includes the frequency of monitoring, and date of calibration. Further, in calculation of net thermal energy, enthalpy of feed water was correctly deducted.					
8. References to resulting changes in the monitoring report or supporting annexes:					
Section 3.2 of MR					

1. Grade / Ref:	FAR 01	2. Date:	30/01/2015	3. Status:	Open
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4. Requirement	VCS Standard Version 3.5
5. Nature of the Issue Raised:	
<p>Though NCV for rice husk was measured only on 18/06/2013, Test report No. 23682, it is not following the monitoring plan as well as monitoring methodology which requires quarterly testing with at least three samples for each quarter. Though NCV values are not directly used for emission reduction calculations and its absence does not impact the emission reductions. PP has further confirmed that NCV measurement will be done in the next verification. Records of NCV measurement to be checked during next verification and its value will then be fixed for the crediting period.</p>	
6. Nature of responses provided by the project participants:	
7. Assessment of such responses:	
8. References to resulting changes in the monitoring report or supporting annexes:	