



VERIFICATION REPORT FOR

“1.6 MW BUNDLED RICE HUSK BASED
COGENERATION PLANT BY M/S MILKFOOD
LIMITED (MFL) IN PATIALA (PUNJAB) &
MORADABAD (U.P) DISTRICTS”



Document Prepared by Earthood Services Private Limited

Project Title	1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts
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Summary:

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by M/s Milk Food Limited to conduct the verification of the project “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts”, VCS ID 784, against VCS Standard Version 4.0.

The verification includes confirming the implementation of the monitoring plan of the registered VCS PD and MR (Project ID 784) and the application of the monitoring methodologies as per AMS I.C. version 18: “Thermal Energy production with or without electricity” & AMS I.D version 16: “Grid connected renewable electricity generation”. A site visit was conducted to verify the data submitted in the monitoring report.

The purpose of this project activity is to utilize rice husk (biomass) available in the region for cogeneration of steam and electricity for captive consumption at two locations of M/s Milk Food Limited viz. Patiala and Moradabad. The Enen Green Services Private Limited is a new project proponent which include in project as VCS Project Consultant & Support for VCS project execution.

A risk based approach has been followed to perform this verification. In the course of verification, 06 Corrective Action request (CARs) and 01 Clarification request (CLs) were raised and successfully closed.00 Forward Action Request (FARs) raised during the validation of renewal crediting period is also closed.

The review of the project design documentation, monitoring report and additional documents related to baselineand monitoring methodology; the subsequent background investigation, follow-up interviews andstakeholders have provided ESPL with sufficient evidence to validate thefulfilment of

the stated criteria.

ESPL confirms that the project is implemented in accordance with the registered VCS PD & MR. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the emission reductions from the project activity “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts” in India during the period 01-January-2018 to 05-May-2019 (including both days) amount to 89,925 tonnes of CO₂e.

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1. INTRODUCTION

1.1 Objective

ESPL has been contracted by M/s Milk Food Limited (project proponent), to undertake the verification of the renewable energy project titled “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts”(VCS ID- 784) The verifiers have reviewed the GHG data collected to date for the monitoring period from 01-January-2018 to 05-May-2019 (both days included) covered in this verification. The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the DOE. The verification process shall determine whether the proposed project activity complies with the requirements of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VCS Board.

1.2 Scope and Criteria

The scope of the verification was the independent and objective review and ex-post determination of the monitored reductions in GHG emissions from “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts”. The verification of this project was based on the registered project description/01/ & monitoring report /04/ and supporting documents submitted by the project proponent to the verification team. The documents were reviewed against the following guidance and protocols:

VCS Standard: VCS standard Version 4.0, dated 19-September-2019

Approved methodologies for small-scale CDM Project activities:

AMS I.C, version 18, Title “Thermal Energy production with or without electricity”

AMS I.D, version 16, Title “Grid connected renewable electricity generation”.

Validated VCS Project Description, version 2 dated 15-April-2011

VCS Program Guide, Version 4.0, 19-September-2019

ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions, 2006

The verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Level of Assurance

The level of assurance of the verification report falls under reasonable assurance engagements as selected by the Client. The verification team verified the complete monitoring data for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors. Materiality for the project is 5%.

1.4 Summary Description of the Project

The project activity utilizes rice husk available in the region for steam and electricity generation for captive consumption in industrial process of MFL. The project undertaken is a bundle of two cogeneration plants of capacity 1.0 MW (with 14TPH steam generation) and 0.6 MW (with 12 TPH steam generation) located at Bahadurgarh, Patiala in the state of Punjab and Mugalpur, Moradabad in the state of Uttar Pradesh respectively. The Enen Green Services Private Limited has joined as a new project proponent in VCS project which provided the VCS project consultancy and support for proper execution and management of VCS project. The project activity results in reductions of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and also plays beneficial role in the mitigation of climate change. The PP has monitored net electricity supplied to the electrical equipment and net steam supplied to process heat requirement during current monitoring period from 01-January-2018 to 05-May-2019. The calculation was assessed by the verification team and deemed as correct. Due to the project activity, the power supply had partially been displaced which was imported from NEWNE grid through respective state electricity grids and the steam generated from coal fired boiler had completely been displaced by the new rice husk based co-generation plant.

The project proponent has applied the baseline methodology for small scale project activities AMS-I.D “Grid connected renewable electricity generation”, version 16. The baseline scenario for the proposed project activity is the grid-connected power plants and by the addition of new generation sources into the NEWNE grid. As per CEA database version 05, the value 0.84 tCO₂e/MWh has been chosen as ex-ante emission factor of NEWNE regional grid of India and it has been used for the calculating the baseline emissions as per the methodology.

The project proponent has also applied the baseline methodology for small scale project activities AMS-I.C “Thermal Energy production with or without electricity”, version 18. The baseline scenario for the proposed project activity for steam generation was coal base boilers. The efficiency of the boiler using coal that would have been used in the absence of the project activity has been considered as 82% and chosen as ex-ante and it has been used for the calculating the baseline emissions as per the methodology.

The verification team has verified the two projects following turbines and boilers with below specifications:

Boilers:

Parameters	Units	Project I:Patiala –Punjab, India	Project II: Moradabad, Uttar Pradesh, India
Make	-	M/s Cheema Boilers Ltd.	M/S Industrial Boiler Ltd.
Design Capacity	TPH	14	12
Design Pressure	Kg/cm2	45	32
Steam Temperature	°C	420+/- 5	400+/-5°
Fuel Used	-	Rice Husk	Rice Husk

Turbines:

Parameters	Units	Project I:Patiala –Punjab, India	Project II: Moradabad, Uttar Pradesh, India
Make	-	M/S Pentagon Turbines Pvt. Ltd.	M/S I.B. Turbo Pvt. Ltd.
Design Capacity	W	1000	600
Inlet Steam Pressure	Kg/cm2	43	30
Inlet Steam Temperature	°C	430	360

ation was verified during physical site visit and found to be in line with the details provided in the registered PD /01/.

Location of the project was verified through Latlong.net (<https://www.gps-coordinates.net/>) and found consistent with the data provided in the registered PD /01/.

The project qualifies the start date requirements under VCS and successfully Commissioned on Project activities I & II was 06-May-2009 and 04-June-2009 respectively. It has been checked against the commissioning certificate. Further in line with VCS guidelines, crediting period starts from 06-May-2009 which is earlier commissioned in bundle and hence the crediting period is started from 06-May-2009 and end up-to 05-May-2019.The emission reductions from the project activity during the current monitoring period 01-January-2018 to 05-May-2019 (including both days) amount to 89,925 tonnes of CO_{2e}.

2 VERIFICATIONPROCESS

The registered VCS project is undergoing fourth verification under first crediting period, the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

Verification was conducted using ESPL's procedures in line with the requirements specified in the VCS standard Version 4.0 Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

It is to be assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation/verification process consist of the following three phases;

- A desk review of the VCS PD and VCS MR
- Site visit and follow up interviews with project stakeholders
- The resolution of outstanding issues and issuance of final report and opinion.

2.2 Document Review

The verification is performed primarily as a document review of the registered VCS PD/01/, previous MR and Verification report and associated documents as stated in details in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, VCS PD and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

The site visit for the project location, by the assessment team, was conducted on 05/03/2020 and the following stakeholders were interviewed.

S N	Name	Role	Organization
1	Mr. Amar Baljeet Singh	Executive Director (Technical)	MFL
2	Mr. Rajesh Shorey	GM (Q.C.)	MFL
3	Mr. Sanjay Khanna	DGM(Engg.)	MFL

4	Mr. Tejindra Kumar	Manger (A/CS)	MFL
5	Mr. Avinash Sharma	VCS Project Consultant& Support as a new project proponent in project	Enen Green Services Pvt. Ltd.

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording and archiving procedures. The assessment was drawn based on the feedback received during interview coupled with the documentation and on-site observations.

2.4 Site Inspections

Site Location visited: Patiala, Panjab & Moradabad, Uttar Pradesh in India.

A site visit was undertaken by the verification team on 05-March-2020 to carry out the following;

- An assessment of the implementation and operation of the registered project activity as per the registered VCS PD and VCS MR;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD;
- A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and onsite assessment. The verification team prepares and/or updates a verification protocol

(internal document) that records the conformities and non-conformities, which may be of following types;

CAR (Corrective Action Request) is raised if one of the following occurs:

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the ESPL during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

During the current verification, 06 Corrective Action request (CARs) and 01 Clarification request (CLs) and 00 Forward Action Request (FARs) were raised and successfully closed.

All the findings that are raised and communicated to project participant during the verification are included under Appendix 3. The section also includes the response, if provided, by the project participants and an assessment by the verification team if it was closed out or otherwise.

2.5.1 Forward Action Requests

Not applicable.

2.6 Eligibility for Validation Activities

Not applicable.

3 VALIDATION FINDINGS

Not applicable.

3.1 Participation under Other GHG Programs

The project is also registered under CDM mechanism of UNFCCC. Reference no of project is 5219. Credits from period 14-February-2012 – 31-January-2014 was claimed CERs under CDM verification. However for the current monitoring period there is no application for verification under CDM mechanism in order to avoid double counting. The PP also confirms that net GHG emission reductions or removals generated during this monitoring period (01-January-2018 to 05-May-2019) shall not be used for compliance under any other programs or mechanisms. This was confirmed through a declaration/15/ submitted by the PP and hence accepted by the assessment team.

3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period.

3.3 Project Description Deviations

No project deviation identified during the current monitoring period.

3.4 Grouped Project

Not applicable. The project activity is not a grouped project

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity involves the installation and operation of two cogeneration plants of capacity 1.0 MW (with 14TPH steam generation) and 0.6 MW (with 12 TPH steam generation) located at Bahadurgarh, Patiala in the state of Punjab and Mugalpur, Moradabad in the state of Uttar Pradesh respectively. The two project activities I & II are located at Milk food Limited at P.O. Bahadurgarh and Patiala District of Punjab with latitude 30°21' 55.23" N and longitude 76°28' 17.59" E and at Village: Mugalpur and Moradabad district of UP with latitude and longitude of 28° 57' 43.34" N and 78° 54' 20.65" E respectively. The implementation of the project activity was as described in the VCS validated PD, checked against supportive documents presented. The verification team was able to verify that there was no change in project design compared to the design presented in the VCS validated PD; version 02 dated 15–April-2011. The installation and specification of boiler and turbine has been checked with commissioning certificates/12/ and on-site assessment/19/. The commissioning has also been duly validated in the VCS validation report of the project activity/02/. There was no major breakdown or shut downs during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions.

Assessment team concludes the following:

- a) The implementation status of project activity was found to be in compliance with registered PD
- b) DOE has conducted the on-site visit to confirm the implementation status of the project.
- c) The commissioning date of the project activity was found to be accurately and consistently recorded.

- d) The actual operation of project activity was found to be in compliance with the flow diagram provided in registered PD.
- e) There was no increase in emission reduction from estimates made in registered PD, and hence no further justification to be provided for the same.
- f) The project is registered under VCS program only.

4.2 Safeguards

4.2.1 No Net Harm

There is no negative impact to any socio economic conditions of the region due to the project activity. As per the notifications issued by Ministry of Environment and Forest dated 01/12/2009 (ref: <http://moef.nic.in/downloads/rules-and-regulations/3067.pdf>), Environmental Impact Assessment for the biomass projects is not required to be done.

This project activity will not involve any negative environmental or socio-economic impacts, as the biomass based boiler are installed for generation of steam and power using biomass as fuel in boiler which is a clean source of energy. Hence no mitigation measures are required.

4.2.2 Local Stakeholder Consultation

Not applicable for this verification.

4.3 AFOLU-Specific Safeguards

Not Applicable

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The project monitoring has been carried in accordance with the registered VCS PD/01/ and the monitoring report/04/. The monitoring plan laid in the registered PD is being followed at the site/19/. The assessment team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the MR/04/.

The emission reductions are purely based on the net electricity and steam generated from project activity. PP has provided all the sufficient data for current monitoring period. The values of the parameter net electricity generation and steam generation by each project plant used in deriving the GHG emission reduction could be very well correlated between the data sets and ER spreadsheet/05& 06/ provided by PP. the verification of each monitoring parameter has been discussed later in section 4.5.

The calculation method and formulae used in calculating baseline emission and project emission is in compliance to the methodologies used i.e. AMS I.C version 18 and AMS I.D version 16 /10/.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The below tables describe how the parameter, that is to be measured according to the monitoring plan, has been verified to confirm that the actual monitoring complies with the monitoring plan, monitoring data has been thoroughly assessed and that the calibration requirements are met.

Parameter	Net Electricity (EG _{PJ,y})	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The electronic energy meter at the sent out point of the project activity plant is used to measure the data of net electricity generated.

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment : Energy meter Type : Electronic Accuracy : 0.5s Serial number of equipment : 1047071223-3706 Project – II (Moradabad, Uttar Pradesh, India): Equipment : Energy meters Type : Electronic <u>Accuracy</u> : 0.5s Serial number of equipment :104707/227-3706
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used is 0.5s, which is as per the registered PD/01/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the

		meters is once in 3 years.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited body./07/.	
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of meters is valid for the whole reporting period.	
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.	
	How were the values in the monitoring report verified?	Cumulative value of $EG_{PJ,y}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):5,129.44MWh. Project – II (Moradabad, Uttar Pradesh, India): 4,295.50MWh	

	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	CAR#3 raised and resolved successfully		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Quantity of fossil fuel (coal) of type i combusted in boiler in year y ($Q_{fossil, i, y}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measuring by Weigh bridge
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment : Weigh bridge Type : Electronic <u>Range:0 to 40 TON</u> Serial number of equipment :EB98H018 Project – II (Moradabad, Uttar Pradesh, India):

		Equipment : Weigh bridge Type : Electronic <u>Range:0 to 40 TON</u> Serial number of equipment : EB04W256	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used is 0.5s, which is as per the registered PD/01/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.	
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external agency NABL accredited /07/.	
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of meters is valid for the whole reporting period.	

	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.	
	How were the values in the monitoring report verified?	Cumulative value of $Q_{fossil, i, y}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):0 Tonnes. Project – II (Moradabad, Uttar Pradesh, India): 0 Tonnes	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	No finding has been raised		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Quantity of fossil fuel (diesel) combusted in boiler in year y (FCI,j,y)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measuring by Measurement through invoices.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Not Applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not Applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not Applicable
	Calibration frequency /interval:	Not Applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in	Not Applicable

	accordance with the local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not Applicable
	Is(are) calibration(s) valid for the whole reporting period?	Not Applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not Applicable
	How were the values in the monitoring report verified?	Cumulative value of FC_{i,j,y} for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala – Punjab, India): 59,035 liter Project – II (Moradabad, Uttar Pradesh, India): 57,730 liter
	If applicable, has the reported data been cross-checked with other available data?	It is crosschecked against invoices with plant log book data.
	Does the data management ensure correct transfer of data and reporting of emission	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data

	reductions and are necessary QA/QC processes in place? management system is effective and reliable.
Findings	CAR#4 raised and resolved successfully
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.

Parameter	Quantity of steam generated from project activity biomass fired boiler.(Q_{steam})	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Reading is directly taken from steam flow meter by boiler attendant supervisor on hourly basis.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment : Stem flow meter Type : Paper and Electronic Range: 0 to 18 Ton Serial number of equipment : 2K6100973 Project – II (Moradabad, Uttar

		Pradesh, India): Equipment : Stem flow meter Type : Paper and Electronic Range: 0 to 18 Ton Serial number of equipment : F3056	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.	
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.	
	Is(are) calibration(s) valid for the	Yes. Calibration of steam flow meter is valid for the whole	

	whole reporting period?	reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of Q_{steam} for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala – Punjab, India):140,895.60 Tonnes Project – II (Moradabad, Uttar Pradesh, India): 120,984.20 Tonnes
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No finding has been raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	Temperature of the steam generated(T_{steam})	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On site measurement taken from temperature gauge installed at steam outlet from the boiler.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala – Punjab, India): Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 1200 DEG. C</u> Serial number of equipment :170RP Project – II (Moradabad, Uttar Pradesh, India): Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 1200 DEG. C</u> Serial number of equipment :3440-M3-07
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.

	equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of temperature gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of T_{steam} for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER

		calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):396.86 °C Project – II (Moradabad, Uttar Pradesh, India): 400.49 °C	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	No finding has been raised		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Pressure of the steam generated .(P_{steam})	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On site measurement taken from pressure gauge installed at steam outlet from the boiler.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.

	Monitoring equipment	Project – I (Patiala –Punjab, India): Pressure gauge. Type : Electronic <u>Range: 0 to 80 bar</u>Serial number of equipment :DP150KA Project – II (Moradabad, Uttar Pradesh, India): Pressure gauge. Type : Electronic <u>Range: 0 to 80 bar</u> Serial number of equipment :424-P5-07	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment as per the registered PD/01/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.	
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	

	selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of pressure gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of P_{steam} for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):41.69 Kg/cm² Project – II (Moradabad, Uttar Pradesh, India): 31.67 Kg/cm²
	If applicable, has the reported data been cross-checked with other available data?	Not applicable

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No finding has been raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	Temperature of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side) ($T_{\text{steam,HP,I}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On-site measurement from temperature gauge installed at steam outlet from boiler
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment: temperature gauge. Type : Electronic <u>Range: 0 to 500 DEG. C</u> Serial number of equipment : 06D0023

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of temperature gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the	Cumulative value of $T_{\text{steam,HP},i}$ for

	monitoring report verified?	entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):318.19°C	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	No finding has been raised		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Quantity of steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side) ($Q_{\text{steam,HP,I}}$)	
Means of verification		
	Criteria/Requirements	Assessment/Observation

	Measuring /Reading /Recording frequency	Reading is directly taken from steam flow meter by boiler supervisor on hourly basis.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment: Steam flow meter. Type : Electronic <u>Range: 0 to 7.50 TPH</u> Serial number of equipment :0612220
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring	Yes. The calibration frequency is in line with the monitoring plan as outlined in the

	plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of steam flow meter is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $Q_{\text{steam,HP,I}}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala – Punjab, India):77,223.5 Tonnes
	If applicable, has the reported data been cross-checked with other available data?	Not applicable

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No finding has been raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	Pressure of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side) ($P_{\text{steam, HP,I}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On-site measurement from Pressure gauge installed at steam outlet from boiler
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment: Pressure gauge. Type : Electronic <u>Range: 0 to 60.00 KG/CM²</u> Serial number of equipment :04B0078

	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of Pressure gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the	Cumulative value of $P_{\text{steam,HP,I}}$

	monitoring report verified?	for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):17.72 kg/cm ²	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	No finding has been raised		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Quantity of steam used in the process at high pressure side.($Q_{\text{steam,HP,II}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Reading is directly taken from steam flow meter by boiler supervisor on hourly basis.

	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – II (Moradabad, Uttar Pradesh, India): Equipment: Steam flow meter. Type : Electronic <u>Range: 0 to 7.50 TPH</u> Serial number of equipment :08092501
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.

	specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of steam flow meter is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $Q_{\text{steam,HP,II}}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – II (Moradabad, Uttar Pradesh, India): 35,497.40 tonnes
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No finding has been raised	

Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.
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Parameter	Temperature of the steam used in the process at high pressure (at high pressure side).($T_{\text{steam,HP,II}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On-site measurement from temperature gauge installed at steam outlet from boiler
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – II (Moradabad, Uttar Pradesh, India): Equipment: temperature gauge. Type : Electronic <u>Range: 0 to 500 DEG. C</u> Serial number of equipment : 3440-M3-07
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.

	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of temperature gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $T_{\text{steam,HP,II}}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was

		verified as Project – II (Moradabad, Uttar Pradesh, India): 360 °C	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	No finding has been raised		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Pressure of the steam used in the process at high pressure (at high pressure side).($P_{\text{steam,HP,II}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On-site measurement from Pressure gauge.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.

	Monitoring equipment	Project – II (Moradabad, Uttar Pradesh, India): Equipment: Pressure gauge. Type : Electronic <u>Range: 0 to 8 KG/CM²</u> Serial number of equipment : 424-P5-07	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.	
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.	

	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of pressure gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $P_{\text{steam,HP,II}}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – II (Moradabad, Uttar Pradesh, India): 29.63 Kg/cm ²
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	CAR#1 raised and closed.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	Quantity of steam extracted from the turbine that is used in the process at low pressure (Exhaust Steam at the outlet of the turbine) (at Low pressure side).($Q_{\text{steam,LP}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On-site measurement from steam flow meter.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment : Stem flow meter Type : Paper and Electronic <u>Range: 0 to 7.50 TPH</u> Serial number of equipment :0612221 Project – II (Moradabad, Uttar Pradesh, India): Equipment : Stem flow meter Type : Paper and Electronic

		Range: 0 to 7.50 TPH Serial number of equipment : 08092502	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment as per the registered PD/01/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.	
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.	
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of steam flow meter is valid for the whole reporting period.	
	Is the calibration carried out for a measuring range comparable with the range for which	Yes. The calibration is carried out appropriately.	

	measurements have been carried out?	
	How were the values in the monitoring report verified?	Cumulative value of $Q_{\text{steam,LP}}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India): 63,668.5 Tonnes Project – II (Moradabad, Uttar Pradesh, India): 82,770.2 Tonnes
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No finding has been raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	Temperature of the steam extracted from the turbine that is used in the process(at low pressure side) ($T_{\text{steam,LP}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On-site measurement from temperature gauge installed at steam outlet from boiler.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 400 DEG. C</u> Serial number of equipment :06-0093/14 Project – II (Moradabad, Uttar Pradesh, India):

		Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 400 DEG. C</u> Serial number of equipment :91218274
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the	Yes. Calibration of temperature gauge is valid for the whole

	whole reporting period?	reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $T_{\text{steam,LP}}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala – Punjab, India): 218.35°C Project – II (Moradabad, Uttar Pradesh, India): 239.53 °C
	If applicable, has the reported data been cross-checked with other available data?	Not applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No finding has been raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	Pressure of the steam extracted from the turbine that is used in the process(at low pressure side).($P_{\text{steam,LP}}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On site measurement taken from pressure gauge installed at steam outlet from the boiler.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Pressure gauge. Type : Electronic <u>Range: 0 to 10 KG/CM²</u>Serial number of equipment :06-0093/06 Project – II (Moradabad, Uttar Pradesh, India): Pressure gauge. Type : Electronic <u>Range: 0 to 10 KG/CM²</u> Serial number of equipment :-05.5443
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.

	the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of pressure gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $P_{\text{steam,LP}}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER

		calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):3.75 Kg/cm² Project – II (Moradabad, Uttar Pradesh, India):4.03 Kg/cm²	
	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	No finding has been raised		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Temperature of the feed water in the boiler.(T_{FW})	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	On-site measurement from temperature gauge installed at feed water inlet.
	Is measuring and reporting frequency in accordance with	Yes. The reporting frequency is in line with the monitoring plan

	the monitoring plan and monitoring methodology? (Yes / No)	as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 1200 DEG.C</u> Serial number of equipment :03122 Project – II (Moradabad, Uttar Pradesh, India): Equipment: Temperature gauge. Type : Electronic <u>Range: 0 to 1200 DEG.C</u> Serial number of equipment :EC965
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment used as per the registered PD/01/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.

	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external accredited NABL agencies./07/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of temperature gauge is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of T_{FW} for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):99.28°C Project – II (Moradabad, Uttar Pradesh, India): 96.67 °C

	If applicable, has the reported data been cross-checked with other available data?	Not applicable	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.	
Findings	No finding has been raised		
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.		

Parameter	Quantity of rice husk consumed annually.(Q _{biomass, i,y})	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Measuringby Weigh bridge
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Project – I (Patiala –Punjab, India): Equipment : Weigh bridge Type : Electronic <u>Range: 0 to 40 TON</u> Serial number of equipment :EB98H018

		Project – II (Moradabad, Uttar Pradesh, India): Equipment : Weigh bridge Type : Electronic <u>Range: 0 to 40 TON</u> Serial number of equipment : EB04W256	
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment as per the registered PD/01/.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range.	
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.	
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by external agency NABL accredited /07/.	

	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of meters is valid for the whole reporting period.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $Q_{\text{biomass}, 1,y}$ for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as Project – I (Patiala –Punjab, India):26,875Tonnes. Project – II (Moradabad, Uttar Pradesh, India): 19,919 Tonnes
	If applicable, has the reported data been cross-checked with other available data?	The data were cross checked with the Invoices raised by biomass (rice husk) suppliers.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.
Findings	No finding has been raised	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded	

	consistently as per the approved frequency in the monitoring plan.
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Parameter	Net Calorific Value of biomass residue (rice husk). ($NCV_{biomass}$)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Net calorific value of biomass was checked through Govt. approved independent laboratory.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/10/.
	Monitoring equipment	Not Applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not Applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Not Applicable
	Calibration frequency /interval:	Not Applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in	Not Applicable

	accordance with the local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not Applicable
	Is(are) calibration(s) valid for the whole reporting period?	Not Applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not Applicable
	How were the values in the monitoring report verified?	Cumulative value of NCV_{biomass} for entire monitoring period is reported in the monitoring report/04/, however monthly values are reported in the ER calculation sheets/05/ & /06/. The monthly values were verified from the plant data and found to be consistent. Value of this parameter for the current monitoring period was verified as 2,944 Kcal/kg
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site assessment of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.

Findings	Not Applicable
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodologies. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.

Parameters fixed ex ante:

EF_{EF,CO_2} : it is the CO_2 emission factor per unit of energy of coal fixed at the time of project registration the mentioned value of $95.81tCO_2/TJ$ is consistent with the registered PD/01/.

$\eta_{BL, thermal}$: it is the efficiency of the boiler using coal fixed at the time of project registration the mentioned value of 82% is consistent with the registered PD/01/.

$EF_{grid,CM,y}$: it is the Combined margin CO_2 emission factor for NEWNE grid fixed at the time of project registration the mentioned value of $0.84tCO_{2e}/MWh$ is consistent with the registered PD/01/.

$COEF_{i,y}$: it is the CO_2 emission coefficient of fuel type I (Diesel) fixed at the time of project registration the mentioned value of $0.0032 tCO_{2e}/litre$ is consistent with the registered PD/01/.

PLF: it is the Plant Load Factor fixed at the time of project registration the mentioned value of 90% is consistent with the registered PD/01/.

$\eta_{BI, biomass}$: it is the efficiency of the project activity biomass based boiler fixed at the time of project registration the mentioned value of 78% is consistent with the registered PD/01/.

Calibration of meters:

During the verification assessment of the project activity, accuracy of all the metering have been checked and found appropriate. The installation and working conditions of the meters were checked during the on-site inspection and were found to be satisfactory. Details of meters are provided in below table:

Equipment Name	Meter location	Meter Serial No	Accuracy class/ Range of Equipment	Calibration Date	Calibration delay? (As per Registered PD once in 3 Years)
Digital Energy Meter	Steam Turbine	0 7880005	0.5s	01-June-2013 29-May-2014 28-May-2015 27-May-2016 26-May-2017& 25-May-2018	No
Digital Flow Indicator And Totaliser	Main Steam Line	N/A	Range: 0 to 18 Ton	01-April-2013 01-April-2014 31-March-2015 03-March-2016 29-March-2017 & 28-March-2018	No
Flow Transmitter	Main Steam Line	0 237802	Range: 0 to 7500 MM H ₂ O	10-February-2012 09-February-2015& 08-February-2018	No
Digital Pressure Indicator	Main Steam Line	DP150KA	Range: 0 to 60.00 KG/CM ²	08-April-2013 05-April-2014 04-April-2015 02-April-2016 01-April-2017& 31-March-2018	No
Pressure Transmitter	Main Steam Line	08D0011	Range: 0 to 80 bar	10-February-2012 09-February-2015& 08-February-2018	No

Equipment Name	Meter location	Meter Serial No	Accuracy class/ Range of Equipment	Calibration Date	Calibration delay? (As per Registered PD once in 3 Years)
Digital Pid Controller	Main Steam Line	T1P521531	Range: 0 to 1200 DEG. C	08-April-2013 06-April-2014	No
			Range: 0 to 600 DEG.C	30-June-2014 29-June-2015 28-June-2016 27-June-2017 & 26-June-2018	
Digital Flow Indicator And Totaliser	Bleed Steam Line	FTX55PL	Range: 0 to 750 TON	18-May-2013 17-May-2014 16-May-2015 14-May-2016 13-May-2017 & 12-May-2018	No
Flow Transmitter	Bleed Steam Line	91M728060	Range: 0 to 10000 MMH ₂ O	10-February-2012 09-February-2015 & 08-February-2018	No
Digital Pid Controller	Bleed Steam Line	04B0078	Range: 0 to 60.00 KG/CM ²	08-April-2013 05-April-2014 04-April-2015 02-April-2016 01-April-2017 & 31-March-2018	No
Pressure Transmitter	Bleed Steam Line	0 249655	Range: 0 to 60 bar	10-February-2012 09-February-2015 & 08-February-2018	No
Digital Pid Controller	Bleed Steam Line	06D0023	Range: 0 to 500 DEG. C	08-April-2013 06-April-2013	No

Equipment Name	Meter location	Meter Serial No	Accuracy class/ Range of Equipment	Calibration Date	Calibration delay? (As per Registered PD once in 3 Years)
				04-April-2015 02-April-2016 01-April-2017 & 31-March-2018	

Equipment Name	Meter location	Meter Serial No	Accuracy class/ Range of Equipment	Calibration Date	Calibration delay? (As per Registered PD once in 3 Years)
Digital Flow Indicator And Totaliser	Exhaust Steam Line	0 612221	Range: 0 to 7.50 TPH	08-April-2013 08-April-2014 07-April-2015 06-April-2016 05-April-2017 & 04-April-2018	No
Flow Transmitter	Exhaust Steam Line	0027111809/06	Range: 0 to 3800 MMH ₂ O	10-February-2012 09-February-2015 & 08-February-2018	No
Digital Pid Controller	Exhaust Steam Line	05L0012	Range : 0 to 10 KG/CM ²	31-January-2013 30-January-2014 29-January-2015 28-January-2016 27-January-2017 & 26-January-2018	No
Pressure Transmitter	Exhaust Steam Line	06G0098	Range: 0 to 8 KG/CM ²	10-February-2012 09-February-2015 & 08-February-2018	No
Temperature Gauge 4 Inch	Exhaust Steam Line	06-0093/14	Range: 0 to 400 DEG. C	07-April-2013 05-April-2014 04-April-2015 02-April-2016 01-April-2017 & 31-March-2018	No

Equipment Name	Meter location	Meter Serial No	Accuracy class/ Range of Equipment	Calibration Date	Calibration delay? (As per Registered PD once in 3 Years)
Pressure Gauge 4 Inch (Additional)	Exhaust Steam Line	06-0093/06	Range: 0 to 10 KG/CM ²	15-March-2013 13-March-2014 12-March-2015 11-March-2016 10-March-2017 & 09-March-2018	No
Digital Temp. Indicator	Steam Boiler	0 3122	Range: 0 to 1200 DEG.C	08-April-2013 08-April-2014 07-April-2015 06-April-2016 05-April-2017 & 04-April-2018	No
Digital Weighing Indicator	Weigh Bridge	14WB00381	Range: 0 to 40 TON	30-December-2013 22-December-2014 28-July-2015 26-July-2016 02-August-2017 & 01-August-2018	No

It is evident from the above table that calibration for the meters is carried out as per the frequency mentioned in the registered monitoring plan and hence no delay in calibration identified during the current monitoring period.

The details of monitoring equipment are involved in the project activity and their calibration details/07/ are mentioned in Appendix 1 of the VCS MR/04/. The meters have been physically inspected during the site visit and the meter details are found to be consistent with that observed during the site visit.

The assessment team has verified the monthly invoices, plant log book , NCV and calibration certificates and confirmed that only the data recorded through all meters is used to calculate parameters belongs to particular developer and consequently for ER calculations. As verified through the calibration certificates, that meters were working satisfactorily during the current monitoring period. The registered VCS PD/01/ & MR /04/ and site visit observations confirm that the metering equipment are sealed and maintained by the state utility.

In view of the above discussion the assessment team is able to confirm that evidence used to determine the GHG reductions and removals are sufficient and appropriate with respect to quality and quantity.

GHG Calculations

The emission reduction as per the applied methodologies equals the baseline emissions and project emissions (leakage emissions for such project activities is considered zero). The formula provided for the calculation of baseline emissions is:

A. Baseline Emission

Project I:

A. Baseline Emission

1. Baseline emissions for supply of electricity to and / or displacement electricity from a grid shall be calculated as per the procedures detailed in AMS I. D.

As per the Para 12 of the AMS.I.D version 16 and section 4 of validated VCS PD:

Combined margin emission factor is taken from the CEA data base and used guide version 05 (A publicly available official source), which provides CM equal to 0.84 tCO₂e/MWh.

Baseline emission (tCO₂) = Electricity generated (MWh) x 0.84 (tCO₂e/MWh).

Baseline emission (tCO₂) = Net Electricity generated (MWh) x 0.84 (tCO₂e/MWh).

$$= 5,129.44 \text{ MWh} \times 0.84 \text{ (tCO}_2\text{e/MWh)}.$$

$$= 4,308.73 \text{ tCO}_2\text{e}$$

2. For steam/ heat produced using fossil fuels the baseline emissions are calculated as follows:

As per the Para 16 of the AMS.I.C version 18 and section 4 of validated VCS PD:

The baseline emissions are calculated as follows:

$$BE_{\text{thermal, CO}_2, y} = (EG_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * EF_{\text{EF, CO}_2}$$

$$= (362.88 \text{ TJ} / \text{yr} / .82) \times 95.81 \text{ tCO}_2 / \text{TJ}$$

$$= 42,399.91 \text{ tCO}_2 \text{ e} / \text{yr}$$

The detailed calculation has been provided in the Excel Sheet.

“Since the project activity displaces both grid power and steam from coal fired boiler, the baseline is summation of both 1 and 2.”

$$\begin{aligned}\text{Total Baseline Emission Reduction} &= 4,308.73 \text{ tCO}_2\text{e} + 42,399.91 \text{ tCO}_2\text{e/ yr} \\ &= 46,708.64 \text{ tCO}_2 \text{ e / yr}\end{aligned}$$

Project II:

A. Baseline Emission

1. Baseline emissions for supply of electricity to and / or displacement electricity from a grid shall be calculated as per the procedures detailed in AMS I. D.

As per the Para 12 of the AMS.I.D version 16 and section 4 of validated VCS PD:

$$\begin{aligned}\text{Baseline emission (tCO}_2\text{)} &= \text{Net Electricity generated (MWh)} \times 0.84 \text{ (tCO}_2\text{e/MWh).} \\ &= 4,295.50 \text{ MWh} \times 0.84 \text{ (tCO}_2\text{e/MWh).} \\ &= 3,608.22 \text{ tCO}_2\text{e}\end{aligned}$$

2. For steam/ heat produced using fossil fuels the baseline emissions are calculated as follows:

As per the Para 16 of the AMS.I.C version 18 and section 4 of validated VCS PD:

The baseline emissions are calculated as follows:

$$\begin{aligned}\text{BE}_{\text{thermal, Co}_2, \text{y}} &= (\text{EG}_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * \text{EF}_{\text{EF, CO}_2} \\ &= (342.25 \text{ TJ / yr} / .82) \times 95.81 \text{ tCO}_2\text{e/ TJ} \\ &= 39,989.54 \text{ tCO}_2\text{e/ yr}\end{aligned}$$

“Since the project activity displaces both grid power and steam from coal fired boiler, the baseline is summation of both 1 and 2.”

$$\begin{aligned}\text{Total Baseline Emission} &= 3,608.22 \text{ tCO}_2\text{e} + 39,989.54 \text{ tCO}_2\text{e/ yr} \\ &= 43,597.76 \text{ tCO}_2\text{e/ yr}\end{aligned}$$

B. Project Emission:

The diesel consumption details are mentioned below:

Project I:

$$\begin{aligned}\text{Project Emission} &= \text{Total diesel consumption} * \text{NCV of Diesel} * \text{Emission factor of Diesel} \\ &= 59.04 \text{ m}^3 * 43.40 \text{ GJ/m}^3 * 0.07 \text{ tCO}_2\text{e/ GJ} \\ &= 191.65 \text{ tCO}_2\text{e}\end{aligned}$$

Project II:

$$\begin{aligned}
 \text{Project Emission} &= \text{Total diesel consumption} * \text{NCV of Diesel} * \text{Emission factor of Diesel} \\
 &= 57.73.04 \text{ m}^3 * 43.40 \text{ GJ/m}^3 * 0.07 \text{ tCO}_2\text{e / GJ} \\
 &= 187.37 \text{ tCO}_2\text{e}
 \end{aligned}$$

Total Project Emission =380 tCO₂e/ yr (round up Value)

C. Leakage: Leakage due to transfer of equipment was not applicable to the current project activity. The PP had demonstrated during validation that there was more than 25% excess biomass available in the region and hence was not required to calculate leakage emissions due to competing use of rice husk. As per Para 46 of AMS I C version 18 /10/, the leakage has to be considered if the biomass residue are transported over a distance of more than 200 Km due to the implementation of the project activity otherwise it can be neglected. The project activity is procuring and utilizing biomass available within the 50 Km radius from Milk Food Limited the same has been verified from rice husk purchase invoices. Hence leakage for this part is Zero.

Year wise Emission Reductions Calculations:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net emission reductions or removals (tCO ₂ e)	GHG
01-January-2018 – 31-December-2018	67,441	283	0	67,158	
01-January-2019 – 05-May-2019	22,864	97	0	22,767	
Total	90,305	380	0	89,925	

The actual emission reductions achieved during the current monitoring period is 3.89% lower than the estimated ERs in the registered PD for the comparable period (estimated 93,560 i.e. $69,693 \times (490/365)$). This is largely due to low plant load factor achieved during the current monitoring period. Considering, there is no increase in ERs than the estimated amount; it was found acceptable to the assessment team.

The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed. The assumptions, emission factors and default values that were applied in the calculations are justified. All the data were made available and have monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above.

4.6 Non-Permanence Risk Analysis

Not applicable for the project activity.

5 VERIFICATION CONCLUSION

Earthood Services Private Limited (also referred to as ESPL), contracted by M/s Milk Food Limited, to perform the independent verification of the emission reductions for the VCS project activity (VCS ID- 784) “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts” in India for the monitoring period 01-January-2018 to 05-May-2019 as reported in the Monitoring Report Version 2.0 dated 14-March-2020. The M/s Milk Food Limited and Enen Green Services Private Limited (a new Project Proponent) is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

ESPL commenced the verification on the basis of the baseline and monitoring methodologies AMS I.C version 18 /10/ and AMS I.D version 16 /10/, the monitoring plan contained in the registered VCS PD Version 02, dated 15-April-2011 and VCS guidelines version 4.0/18/, Monitoring Report Version 2.0 dated 14-March-2020 as per the process described under Section 2 of this report.

ESPL verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 01-January-2018 to 05-May-2019 are fairly stated in the Monitoring Report Version 2.0 dated 14-

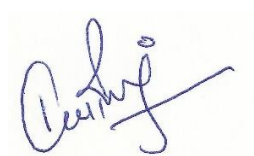
March-2020. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodologies AMS I.C version 18 /10/ and AMS I.D, Version 16 /10/, and the VCS standard Version 4.0 /17/.

Verification period: From 01-January-2018 to 05-May-2019 (including both days)

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

Year	Baseline emission s or removals (tCO ₂ e)	Project emission s or removals (tCO ₂ e)	Leakage emission s (tCO ₂ e)	Net GHG emission reduction s or removals (tCO ₂ e)	Buffer pool allocation	VCUs eligible for issuance
01-January- 2018 - 31- December- 2018	67,441	283	0	67,158	0	67,158
01-January- 2019 - 05- May-2019	22,864	97	0	22,767	0	22,767
Total	90,305	380	0	89,925	0	89,925

Approved by



Dr. Kaviraj Singh

Managing Director

Earthood Services Privated Limited

Date: 11/05/2020

Place: Gurgaon, India

APPENDIX 1: DOCUMENT REFERENCES

S.No	Title of Document	Version	Date
1.	Registered VCS PD	02	15-April-2011
2.	VCS Validation Report	02	03-May-2011
3.	Previous VCS Verification report (For Monitoring period: 01-February-2014 – 31-December-2017)	2.2	25-August-2018
4.	VCS Monitoring Report (Final)	2.0	14-March-2020
4.1	VCS Monitoring Report	1.0	05-March-2020
5.	ER spread sheet (5219 ER Spreadsheet (Moradabad)VER-2)	1.0	05-March-2020
6.	ER spread sheet (5219 ER Spreadsheet (Patiala)VER-2)	1.0	05-March-2020
7	Certificates of Calibration for all the meters belongs to project activity for energy meters, steam flow meters, temperature sensors, pressure sensors and Weighbridge	-	-
8.	Plant records for electricity consumption	For the period 01-January-2018 – 31-December-2018	-
9.	Biomass weightment records	For the period 01-January-2018 – 31-December-2018	-
10.	Methodology AMS I.C, “Thermal Energy production with or without electricity” AMS I.D, “Grid connected renewable electricity generation”	version 18 (AMS I.C.) and version 16 (AMS I.D)	-
11.	Consent to Operate issues by Punjab Pollution control board Consent to Operate issues by Uttar Pradesh Pollution control board	For the period 01-January-2018 – 31-December-2018	-
12.	Diesel NCV: http://www.ipcc.ch/meetings/session25/doc4a4b/vol2.pdf	-	-
13.	Density of Diesel: http://www.iocl.com/Products/DieselSpecifications.pdf	-	-
14.	VCS webpage for the project, VCS ID 784; http://www.vcsprojectdatabase.org/#/project_details/784	-	-
15.	Letter of declaration dated from PP regarding not having created or	-	13-March-

S.No	Title of Document	Version	Date
	sought any other form of environmental credit for the same period		2020
16.	Biomass consumption record (Moradabad) Biomass consumption record (Patiala)	-	-
17.	VCS Standard	Version 4.0	19-September-2019
18.	VCS Program Guide	Version 4.0	19-September-2019
19.	On site assessment – interviews of staff personnel, photographs, physical inspection of monitoring system	-	05-March-2020
20.	NCV of biomass – NABL accredited third party test reports for the verification period under consideration.	For the period 01-January-2018 – 31-December-2018	

APPENDIX 2: COMPETENCY STATEMENT

Competence Statement	
Name	Ravi Kant Soni
Country	India
Education	B. Tech. (Mechanical Engineering) M. Tech. (Energy Management)
Experience	8 Years +
Field	Energy and Climate Change
Approved Roles	
Team Leader	YES
Validator	YES
Verifier	YES
Methodology Expert	AMS-I.D., AMS-I.C., ACM0002
Local expert	YES (India)
Financial Expert	No
Technical Reviewer	No
TA Expert	YES (TA 1.2)

Reviewed by	Shreya Garg	Date	04/06/2019
Approved by	Anshika Gupta	Date	04/06/2019

Competence Statement			
Name	Anshika Gupta		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	3Year +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.A., AMS-II.G., ACM0002, AMS-III.A.V.		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	Yes (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

Competence Statement	
Name	Sanjeev Kumar
Country	India

Education	B. Tech. (Chemical Engineering) M.Tech. (Energy Management)		
Experience	13.5 years +		
Field	Climate Change, Environment, Energy		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (ACM0002, ACM0006, ACM0004, ACM0009, ACM0012, ACM0001, AMS I.D, AMS I.F, AMS I.C, AMS I.A, AMS II.D, AMS II.E, AMS III.H, AM0009, AM0013, AM0025, AM0056)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, 4.1, 13.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Kumar Gautam	Date	01/03/2018

APPENDIX 3: ABBREVIATIONS

Abbreviations	Full texts
ABT	Availability Based Tariff
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard

CDM VVS	Clean Development Mechanism Validation and Verification Standard
EB	Executive Board
EF	Emission Factor
EPC	Engineering ,Procurement and Construction
ER	Emission Reductions
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CR	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
FAR	Forward Action Request
GCEES	Green Carbon Energy and Environment Services
GHG	Greenhouse Gas(es)
GOI	Government of India
IPCC	Intergovernmental Panel on Climate Change
MGR	Monthly Generation Reports
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
NCV	Net Calorific Value
PD	Project Description
PP	Project Proponent
PS	Project Standard
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

APPENDIX 4: FINDINGS OVERVIEW

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	Section no.	NA	Date :DD/MM/YYYY
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Description of FAR	
N/A	
Project participant response	Date :DD/MM/YYYY
NA	
Documentation provided by project participant	
NA	
DOE assessment	Date: DD/MM/YYYY
NA	

Table 2. CL from this verification

CL ID	1	Section no.	MR	Date :11/03/2020
Description of CL				
Please submit the following documents:				
1. Undertaking 2. Calibration certificated 3. Monthly generation details				
Project participant response				Date: 14/03/2020
PP has submitted requested information to Assessment team on 14/03/2020.				
Documentation provided by project participant				
1. Undertaking letter from PP for double accounting 2. Calibration certificates 3. Monthly generation reports				
DOE assessment				Date: 14/03/2020
Assessment team confirm that PP has submitted required documents and all documents are inline with requirements.				
CL#1 Closed				

Table 3.CAR from this verification

CAR ID	01	Section no.	MR Front Page & section 1.6	Date :11/03/2020
Description of CAR				
PP is requested to include report id on front page.				
PP is requested to correct crediting period of project activity, it's not inline with registered PD				
Project participant response				Date: 13/03/2020
1. PP has included project internal id on front page 2. PP has corrected crediting period in section 1.6 of revised Monitoring report.				
Documentation provided by project participant				
Revised MR version 2 dated 14/03/2020				
DOE assessment				Date: 14/03/2020
1. Assessment team confirm that PP has included project internal id on front page. 2. Assessment team confirm that PP has corrected crediting period in section 1.6 of the revised monitoring report.				
CAR#1 Closed				

CAR ID	02	Section no.	MR section 4.1	Date :11/03/2020
Description of CAR				
PP is requested to include "Justification of choice of data or description of measurement methods and procedures applied" for all ex-ante parameters as defined in registered PD under section 4.1 of monitoring report				

Project participant response	Date: 14/03/2020
PP has included “Justification of choice of data or description of measurement methods and procedures applied” for all ex-ante parameters as defined in registered PD under section 4.1 of revised monitoring report.	
Documentation provided by project participant	
Revised MR version 2 dated 14/03/2020	
DOE assessment	Date: 14/03/2020
Assessment team confirm that PP has included “Justification of choice of data or description of measurement methods and procedures applied” for all ex-ante parameters as defined in registered PD under section 4.1 of revised monitoring report.	
CAR#2 Closed	

CAR ID	03	Section no.	MR Section 4.5	Date :11/03/2020
Description of CAR				
PP is requested to correct Serial Number of energy meter for project II in section 4.2 of monitoring report.				
Project participant response				Date: 14/03/2020
PP has corrected Serial Number of energy meter for project II in section 4.2 of revised monitoring report.				
Documentation provided by project participant				
Revised MR version 2 dated 14/03/2020				
DOE assessment				Date: 14/03/2020
Assessment team confirm that PP has corrected Serial Number of energy meter for project II in section 4.2 of revised monitoring report.				
CAR#3 Closed				

CAR ID	04	Section no.	MR Section 4.5	Date :11/03/2020
Description of CAR				
PP is requested to correct Data unit of parameter FC i,j,y in section 4.2 of monitoring report. As per registered PD it's Liter.				
Project participant response				Date: 14/03/2020
PP has corrected data unit of parameter FC i,j,y as “Litre” in section 4.2 of monitoring report inline with registered PD.				
Documentation provided by project participant				
Revised MR version 2 dated 14/03/2020				
DOE assessment				Date: 14/03/2020
Assessment team confirm that PP has corrected data unit of parameter FC i,j,y as “Litre” in section 4.2 of monitoring report inline with registered PD.				
CAR#4 Closed				

CAR ID	05	Section no.	MR & ER sheet	Date :11/03/2020
Description of CAR				
1. PP is requested to correct project emission value, project emission should be round up and also sum is not correct. 2. PP is requested to recheck baseline and project emission value it's not inline with ER sheet.				
Project participant response				Date: 14/03/2020

1. PP has corrected project emission calculation in ER sheet and same has been corrected in revised Monitoring report and taken project emission round up value.
2. PP has corrected baseline and project emission value inline with revised ER sheet.
Documentation provided by project participant
Revised MR version 2 dated 14/03/2020
DOE assessment Date: 14/03/2020
1. Assessment team confirm that PP has corrected project emission calculation in ER sheet and same has been corrected in revised Monitoring report and taken project emission round up value.
2. Assessment team confirm that PP has corrected baseline and project emission value inline with revised ER sheet.
CAR#5 Closed

CAR ID	06	Section no.	ER sheet	Date :11/03/2020
Description of CAR				
PP is requested to correct project emission calculation formula in ER sheet, it's not correct.				
Project participant response				Date: 14/03/2020
PP has corrected project emission formula and round up project emission value in revised monitoring report and ER sheet.				
Documentation provided by project participant				
Revised MR version 2 dated 14/03/2020				
Revised ER sheet version 2 dated 14/03/2020				
DOE assessment				Date: 14/03/2020
Assessment team confirm that PP has corrected project emission formula and round up project emission value in revised monitoring report and ER sheet.Hence accepted				
CAR#6 Closed				

Table 4. FAR from this validation

FAR ID		Section No.	MR	Date : DD/MM/YYYY
Description of FAR				
NA				
Project participant response				Date :DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

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