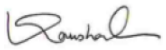
Verification and certification report form for CDM project activities

(Version 02.1)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	Title: Shri Bajrang WHR CDM Project UNFCCC Ref. No: 0528
Version number of the verification and certification report	02
Completion date of the verification and certification report	30/03/2019
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 11 Duration: 01/09/2014 to 31/08/2015 (inclusive of both day)
Version number of the monitoring report to which this report applies	3.0
Crediting period of the project activity corresponding to this monitoring period	01/09/2005 – 31/08/2015
Project participants	Shri Bajrang Power and Ispat Ltd.(India) Agrinergy Ltd.(United Kingdom of Great Britain and Northern Ireland) Noble Carbon Credits Limited .(United Kingdom of Great Britain and Northern Ireland) Agrinergy Ltd.(Switzerland) Bunge Emissions Holdings SARL (Switzerland)
Host Party	India
Applied methodologies and standardized baselines	ACM0004- Version 02, Consolidated methodology for waste gas and/or heat for power generations. Standardized baseline not applicable
Mandatory sectoral scopes linked to the applied methodologies	01: Energy industries (Renewable -/ Non-renewable sources)
Conditional sectoral scope(s) linked to the applied methodologies	09: Metal Production
Estimated amount of GHG emission reductions or GHG removals for this monitoring durationin the registered PDD	113,351 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	65,729 tCO_2e
Name and UNFCCC reference number of	Name: KBS Certification Services Pvt. Ltd.

the DOE	UNFCCC Reference Number: E-0051
Name, position and signature of the approver of the verification and certification report	 Kaushal Goyal Managing Director KBS Certification Services Pvt. Ltd.

SECTION A. Executive summary

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Purpose and general description:

The "Shri Bajrang Power and Ispat Ltd." has commissioned KBS Certification Services Pvt. Ltd. (hereafter referred to as "KBS") to carry out the 11th periodic verification of "Shri Bajrang WHR CDM Project" in India (hereafter referred to as "the Project", UNFCCC reference No.0528) covering the monitoring period from 01/09/2014 to 31/08/2015.

The project involves generation of electricity by utilizing the waste heat from the two sponge iron kilns at the Shri Bajrang Power & Ispat plant located at Borjhara, Raipur district, Chhattisgarh state, India. The steam generation capacity of the waste heat recovery boilers are 38 tons per hour at 62 bar pressure each. The project activity consists of two numbers of waste heat recovery boilers. The boilers were manufactured by Thermax India. There are two turbines of 8 MW and 10 MW capacities. The electricity thus generated is utilized for inhouse consumption of the plant and the surplus electricity is supplied to the grid.

From 01/09/2008, steam generated from adjacent CDM project (UNFCCC #2128) is fed into a common header to which the steam from the project activity is fed. As per the revised PDD approved on 26/11/2010, the emission reduction from the increased electricity generation due to the additional steam (from CDM project UNFCCC # 2128) source shall not be claimed. The monitoring plan in the revised PDD has been applied for the verification period (01/09/2014 to 31/08/2015). The project activity was commissioned two phase namely 8 MW STG on 12/07/2005 and 10 MW STG on 31/08/2005. The PP has chosen fixed crediting period for the project activity which is from 01/09/2005 to 31/08/2015. The project activity was registered on UNFCCC on 08/10/2006. The project has been operated normally and there has been no events or situations that occurred which may impact the applicability of the applied methodology.

The verification is based on the currently valid documentation of the United Nations Framework Convention on Climate Change (UNFCCC). The verification process includes three phases: 1) desk review of documents; 2) on-site inspection and follow-up interviews with the relevant personnel; 3) resolution of outstanding issues and the issuance of final verification report and opinion.

Three CARs (CAR 01, CAR 02, CAR 03) and three CLs (CL 01, CL 02, CL03) were raised during the verification process and successfully closed upon the project participant taken actions and submitted the revised monitoring report and supporting evidence. No Forward Action Request (FAR) was raised during this monitoring period.

In summary, KBS confirms that the project is implemented as planned and described in the validated and revised/registered project design document. The registered monitoring plan is in accordance with the applied methodology and the monitoring system is in place and functional. The installed equipments for measuring parameters required for calculating emission reductions are calibrated appropriately. The project is generating GHG emission reductions. The GHG emission reductions are calculated without material misstatements. The project was operational during the current monitoring period (01/09/2014 to 31/08/2015) which results to net emission reductions of 65,729 tCO_{2e}.

Verification Objective and Scope:

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

The objective of the verification is to have an independent review ex-post determination by a Designated Operational Entity (DOE) of the monitored reduction in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period.

Certification is the written assurance by the DOE that, during a specific time period, a proposed CDM project activity has achieved the reductions in anthropogenic emissions by sources of GHGs as verified.

The scope of the verification is to verify that:

- the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- the reported GHG emission data is sufficiently supported by evidences.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable UNFCCC criteria for CDM in order to be certified. UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, SSC project - the simplified modalities and procedures for small-scale CDM project activities and the subsequent decisions by the CDM Executive Board.

Verification process:
Verification is conducted using KBS procedures in line with the requirements specified in the latest version of the CDM Validation and Verification Standard for project activities, relevant decisions of the CDM EB and applying standard auditing techniques. KBS assesses and determines that the implementation and operation of the project activity, and steps taken to report emission reductions comply with the CDM criteria and relevant guidance provided by the Board. The verification assessment involved a document review of relevant documentation and the on-site visit. Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

Conclusion:
KBS confirmed the above project design during the verification of the project activity. It is noticed that all the project related equipment have been implemented and are operational at site during the monitoring period. All the installed equipment have been verified by KBS at the project site

In conclusion, it is KBS's opinion that the project activity "Shri Bajrang WHR CDM Project", as described in the Monitoring report, version 3.0, dated 30/03/2019, meets all relevant requirements for CDM project activities and all relevant host Party criteria and correctly applies the approved baseline and monitoring methodology (ACM0004- Version 02, Consolidated methodology for waste gas and/or heat for power generations).

SECTION B. Verification team, technical reviewer and approver

B.1. Verificationteam member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verificationfindings

1.	Team Leader and Technical Expert (TA 1.1)	IR	Badaya	Rohit	Central Office	✓	✓	✓	✓
2.	Technical Expert (TA 9.2)	EI	Prasad	Lakshman	Central Office		✓	✓	

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer (TA 1.1)	IR	Kandari	Sanjay	Central Office
2.	Technical Expert (TA 9.2)	EI	Sitaramaih	S.	Central Office
3.	Manager Technical & Certification	IR	Sharma	Chetan Swaroop	Central Office
4.	Authorizer	IR	Goyal	Kaushal	Central Office

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human Errors	Medium	Human error is likely to occur if the monitoring personnel are not trained well or inexperienced in data recording procedures and monitoring processes.	Wherever there is a greater likelihood of errors and chances of incorrect transfer of data, effective data verification should be done on those days/months data. Noted that the data recording is performed by trained personnel and all the personnel involved in data storage and archiving are undergone regular trainings.
2.	Design of data management	Medium	Use of spreadsheets without adequate data control, changes/updates, version tracking, traceability and security	Depending on how data is generated, processed, and reported, place greater emphasis on verifying data captured and processed manually and/or in spreadsheets versus those that are generated from an automated system
3.	Manual data	Low	Typographic errors in the spreadsheets and log books while recording.	Require the PPs to assess all the data again and confirm that no further errors are made

C.2. Consideration of materiality in conducting the verification

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In order to detect errors, omissions or misstatements in emission reductions or removals being claimed by project participants in the monitoring report, the materiality have been applied by KBS as per clause 9.1.2.3 of CDM VVS for project activities, version 02.0. The project is a large scale CDM project activity and 2 percent materiality threshold is applied.

1. In planning the verification, KBS is able to understand the environment in which the project activity operates, the sources of project emissions within the project boundary and the leakage, the monitoring activities, the equipment used to monitor or measure activity data, the origin and application of data used to calculate or measure the emissions, data flow, the

internal quality control system, and the overall organization with respect to monitoring and reporting.

2. A verification plan has been designed to minimize risks that a material discrepancy would not be detected. The project activity happens at a single site and 100% data is available for verification. The data which directly affect emission reduction calculations are monitored and measured by calibrated meters, hence 100% verifiable. The data log sheets of all the parameters used in ER calculations were verified 100%. The use of spreadsheets shows the adequate controls related to data updates, version tracking, traceability and security.
3. During the course of the verification, no errors related to the materiality threshold of 2 per cent have been identified in the data set. Further, any individual or aggregate errors, omission or misstatement identified, which resulted in discrepancies have been considered material and requested to be corrected.

KBS confirms that the claimed emission reductions are free from material errors, omissions or misstatements, with a reasonable level of assurance, and proceeds with the verification as defined in the verification plan.

SECTION D. Means of verification

D.1. Desk/documentreview

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The Monitoring report/1/ was firstly made available on the UNFCCC CDM dedicated website on 25/10/2018. A desk review of the MR (version 1.0 dated 25/10/2018) /1/ and supporting documents /2/ was conducted by the verification team. The aim of the desk review of the documentation was to verify the completeness of the data and the information presented, to carry out the compliance check of the MR with respect to the monitoring plan and the applied methodology. Particular attention was given to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures. The evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions was also conducted.

In addition to the monitoring documentation provided by the project participants, the DOE reviews:

(a) The revised/registered PDD/30/ and the monitoring plan;
(b) The validation report /30/;
(c) Previous verification reports /32/;
(d) The applied monitoring methodologies /23/24/25/;
(e) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board /27/28/;
(f) Other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, laboratory analysis or national regulations) /33/.

Appendix 3 of this verification report contains a complete list of all documents and proofs reviewed by the verification team.

D.2. On-site inspection

Duration of on-site inspection:22/01/2019				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	During the on-site assessment of the project, KBS assessed the implementation and operation of the project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and plant data. The values used in the ER calculations were confirmed by means of checking the records provided by the client. Checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. There were no hindrances or barriers that were faced by the verification team while carrying out the site visit and all equipment and processes of the project activity were accessible.	22/01/2019	22/01/2019	Rohit Badaya Lakshman Prasad

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Goyal	Shravan Kumar	Director, SBIPL	22/01/2019	Project implementation status, construction and actual operation Monitoring plan and monitoring parameters for this monitoring period Emission Reduction calculations QA/QC procedures Environmental Impacts ER calculations and calibration details	RohitBadaya Lakshman Prasad
2.	Sharma	Sandeep	Senior Manager, SBIPL	22/01/2019		RohitBadaya Lakshman Prasad
3.	Nand Singh	Bibeka	Senior General Manager, SBIPL	22/01/2019		RohitBadaya Lakshman Prasad
4.	Kumar	Anil	Senior General Manager, SBIPL	22/01/2019		RohitBadaya Lakshman Prasad
5.	Singh	Upendra	AGM, SBIPL	22/01/2019		RohitBadaya Lakshman Prasad
6.	Chawla	M. K.	Senior Manager, SBIPL	22/01/2019		RohitBadaya Lakshman Prasad

D.4. Sampling approach

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N/A

D.5. Clarification requests (CLs), corrective action requests(CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	-	CAR 01	-
Compliance of the project implementation and operation with the registered PDD	CL 02	-	-
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologiesincluding applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	CL 01	CAR 02	-
Compliance with the calibration frequency requirements for measuring instruments	CL 03	-	-
Assessment of data and calculation of emission reductions or net removals	-	CAR 03	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	03	03	00

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Through cross-check and comparison, to confirm that the applied monitoring report form is valid and in compliance with the latest form /29/ as available on the UNFCCC website. Through document review of the provided monitoring report (MR) /1/ and comparison with the latest MR template /29/ available on the UNFCCC website, the verification team confirm that: • The MR used the latest MR template available at UNFCCC website. • The MR is complete and meet all the requirements of "Instructions for filling out the monitoring report form" (version 06.0) /29/ and "CDM Project Standard for project activities" (version 02.0) /28/.
Findings	CAR 01 was raised during the verification process which was successfully closed. For more information, please refer Appendix-4 of this report.
Conclusion	The latest version of MR form available on UNFCCC website is 06.0 and the same has been used by the project proponent for the preparation of monitoring report. According to the paragraph 352 of CDM VVS for project activities (version 02.0) /27/, KBS verification team confirms that the monitoring report is in compliance with the relevant monitoring form and the instructions for filling the monitoring form therein.

E.2. Remaining forward action requests from validation and/or previous verifications

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No remaining issues were identified from previous validation/verification after the project was registered/issued and made publicly available. There are no FAR(s) from validation or previous verification reports /32/ that needs to be closed during this verification.

E.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	The Project has been registered as CDM activity on 08/10/2006 having the reference number 0528 (https://cdm.unfccc.int/Projects/DB/TUEV-SUED1152883936.57/view). This project activity involves generating renewable electricity using waste heat and

it is located in, Raipur in Chattisgarh, India. The latitude is 21º18‟30.8” N (21.3085) and longitude is 81º35‟6.8”E (81.5852) E. The same was confirmed during the site visit, document review /16/ and found to be correct.

The power generated from two condensing turbines (8 MW and 10 MW) is consumed in captive requirements and surplus is exported to the grid. The energy generated in the project is measured by meters installed at both STGs in the power plant. The project activity was commissioned in phase wise wherein the 8 MW STG started operating on 12/07/2005 and 10 MW STG started operating on 31/08/2005 and has been operating till date on regular basis /10/. The electricity is generated at 11 kV /16/ which is then stepped up to 132 kV in the plant before being fed through a 132 kV sub-station (Urla substation). This was confirmed during the site visit and review of the SLD /16/. The energy generated in the project is measured by meters installed at the STG in the power plant.

The list of major equipments installed under the project activity are as follows:

Turbine Details	**Make**
8 MW condensing TG	Triveni, India
10 MW condensing TG	Triveni, India
Boiler Details	**Make**
2 x 38 TPH, 62 bar, 485 ± 5^0 C	Thermax India

The following points have been checked to verify the applicability of the methodology ACM0004 Version 2 /05/ to the project activity.

1. The project activity generates electricity from waste heat.
2. The electricity generated by the project activity will displace electricity generation from fossil fuels in the electricity grid as steel manufacturing company has historically purchased electricity from the grid.
3. There will be no fuel switch in the sponge iron process after implementation of the project activity.
4. The project activity takes place in a new facility which is permitted under the applicability conditions of ACM0004.

The power plant utilises waste heat produced in two sponge iron kilns at the project site for the generation of electricity for captive use and the surplus will be exported to the grid thereby displacing electricity from the Chhattisgarh State Electricity Board (CSEB) grid which is a part of the erstwhile western regional electricity grid of India. Thus emission reductions are claimed for the electricity displaced by the project activity. The PP has chosen fixed crediting period for the project activity which is start from 01/09/2005 to 31/08/2015. The project activity was registered on UNFCCC on 08/10/2006 /01/. The project activity has used waste heat resulting the reported emission reduction of 65,729 tCO_2 in this reported monitoring period. The operation of the project activity complies with all applicable statutory requirements /13/.

From 01/09/2008 onwards, steam generated from adjacent CDM project (UNFCCC ref no: 2128) is fed into a common header to which the steam from the project activity is fed. As per the revised PDD approved on 26/11/2010 /01/, the emission reduction from the increased electricity generation due to the additional steam (from CDM project UNFCCC # 2128) source shall not be claimed. The monitoring plan in the revised and approved PDD has been applied for the verification period (01/09/2013 to 31/08/2014). The same was discussed through interviews of the plant personnels and confirmed during the physical inspection of the installed equipments during the site visit and found correct.

The project emission reported in this project activity is 63 tCO2 considering the consumption of fossil fuel during the reported monitoring period which was confirmed during the site visit and document review /23/.

There is no event or situation occurred during this monitoring period which has impacted the applicability of methodology /05/. There was no diversion from the implementation details given in the approved PDD /01/ during this reported monitoring period. The reported outage record of the project activity was checked

	and found to be correct by the verification team through document assessment The DOE has verified during the site visit and from the document /01/ /03/ /10/that the project activity has been operated as per the approved revised PDD /01/ and the monitoring plan /03/. All physical features of the project activity are in place during this reported monitoring period (01/09/2014 to 31/08/2015 (including both days). The management and operational systems are in place. QA/QC procedures stipulated in the revised/registered PDD have been followed. Emergency plan /18/ was in place. The staffs were well-trained and qualified /21/. During the site visit, KBS was able to confirm that data collection and management system /19/20/ were in place and it is effective. The monitoring report version 1.0 dated 25/10/2018 was web hosted on UNFCCC website in accordance with §314of VVS Version 02.0 /06/. The verification team has verified the implementation of the project activity as per §354-356 of VVS ver 02.0 /06/ and found correct. The project activity has been implemented and operated as stated in the proved revised PDD /01/ which has been verified during the site visit. In summary, the monitoring period is reasonable and the actual implementation of the project activity is appropriate to its CDM development.
Findings	CL 02was raised during the verification process which was successfully closed. For more information, please refer Appendix-4 of this report.
Conclusion	The project has been implemented according to the description presented in the revised/registered PDD. According to paragraph 354-356 of CDM VVS for project activities (version 02.0), KBS verification team confirms that: • Implementation status and equipment installation /14/15/ of the project activity are consistent with the revised/registered PDD. • The actual operation of the CDM project activity is as per the revised PDD. • Information (data and variables) provided in the monitoring report is in accordance with that stated in the revised PDD. • The actual emission reductions achieved during this monitoring period is much lower than the estimation anticipated in the registered CDM-PDD.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologiesor applied standardized baselines

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There are no temporary deviations from registered monitoring plan in the approved revised PDD or applied methodology. This has been verified during the on-site of the project activity and the review of documents.

E.4.2. Corrections

>>
There are no corrections to the project information or parameters fixed at validation for the project activity during this monitoring period. This has been verified during the on-site visit of the project activity and through the review of documents.

E.4.3. Change to the start date of the crediting period of the project activity

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There are no changes in the start date of the crediting period of the project activity. This has been verified during the on-site visit of the project activity and through the review of documents.

E.4.4. Inclusion of a monitoring plan

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There is no inclusion of a monitoring plan in the approved revised PDD or applied methodology. This has been verified during the on-site of the project activity and the review of documents.

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the appliedmethodologies, standardized baselines or other applied standards or tools

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There are no changes from the registered monitoring plan or applied methodology. This has been verified during the on-site visit of the project activity and through the review of documents.

E.4.6. Changes to the project design

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There was a post registration change to the registered PDD which was approved by the UNFCCC on 26/11/2010 /01/. The change was occurred on 13/08/2008, when adjacent biomass based AFBC boiler and power plant was commissioned & steam from AFBC boiler has been supplied to the present project activity though the AFBC boiler & power plant has been separately registered under CDM project activity (CDM reference no. 2128): however the commercial operation of the same was started from 01/09/2008. Thus the design change was effective from 01/09/2008 onwards.

E.4.7. Changes specific to afforestation and reforestation project activities

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Not Applicable

E.5. Compliance of the registered monitoring plan with the methodology including applicable tools and standardized baselines

Means of verification	The monitoring plan /01/ and monitoring system implemented are in accordance with the approved methodology applied by the proposed CDM project activity i.e. ACM0004, version 2 /05/ as per the requirement of §357-359 of VVS, version 02.0. All parameters stated in the monitoring plan are monitored and reported appropriately. The monitoring report lists each parameter required by the approved revised monitoring plan and the information flow (i.e. from data generation, aggregation to recording, calculation and reporting) for these parameters is provided in the monitoring report /03/. Continuous monitoring is done through electricity meters and monthly recording is done as specified in the monitoring plan /01/. The verification team checked the monitoring data presented in the monitoring report and it is as per the monitoring plan which is in compliance with the monitoring methodology. The verification team checked parameters like amount of fossil fuel consumed, emission factor of fossil fuel combusted, NCV of fossil fuel, oxidation factor, total electricity generated, auxiliary electricity consumed, net electricity supplied, Energy content of steam from waste gas boilers, Energy content of steam from AFBC boiler, Temperature of steam from waste heat boiler, Pressure of steam from waste heat boiler, Quantity of steam from waste heat boiler, Temperature of steam from AFBC boiler, Pressure of steam from AFBC boiler, Quantity of steam from AFBC boiler, Quantity of steam going to new 8 MW turbine from AFBC boiler, Quantity of steam entering the common steam header from AFBC boiler, Temperature of feedwater to waste heat boiler, Temperature of feedwater to AFBC, Temperature of steam from AFBC boiler to new 8 MW turbine and Pressure of steam from AFBC boiler to new 8 MW turbineand found monitoring is done as per the monitoring methodology. The verification team has onsite checked the monitoring report, plant records and respective calibration records and monitored values and confirms that the value used for ER calculation is correct. Please refer Section E.6 below for details on monitoring method, frequency and other details of monitoring parameters. The verification team has verified the revised monitoring plan, including the data and parameters required to be monitored, measurement procedures, monitoring frequency and QA/QC procedures and the verification team is able to confirm that

	the revised monitoring plan is in accordance with the approved methodology ACM0004, version 02.
Findings	Nil
Conclusion	KBS verification team confirms that the parameters monitored and monitoring plan in the revised/registered PDD is in accordance with the applied methodology: *ACM0004- Version 02, Consolidated methodology for waste gas and/or heat for power generations and applicable tools*. Therefore, the project is in compliance with the requirements of paragraph 357-359 of the VVS for project activities, version 02.0

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	The monitoring has been carried out in accordance with the monitoring plan contained in the revised PDD (version 11 dated 02/12/2010, approved by UNFCCC on 26/11/2010) /01/. The data and parameters fixed ex-ante as reported in the monitoring report MR have been checked against the revised/registered PDD, the applied methodologies and other relevant CDM documentation by the verification team. The calculation of net emission reductions from the project activity during the monitoring period have been done, taking into account the baseline emissions and project emissions. No leakage is attributed to the project activity as verified from the registered PDD after the design change of the project activity and during the site visit. KBS further confirmed the following: 1. The monitoring plan stated in revised approved PDD and the applied methodology has been properly implemented by the project participants. 2. The following parameters stated in the monitoring plan have been sufficiently monitored and updated as applicable, including: (i) Project emission parameters: Mass of fossil fuel (diesel) combusted, emissions factor of fossil fuel (diesel) combusted and net calorific value of fossil fuel (diesel) combusted and Oxidation factor (%) of diesel, Please refer section E.6.2 below for details on monitoring method, frequency and other details of monitoring parameters. (ii) Baseline emission parameters: total electricity generated, auxiliary electricity consumed, net electricity supplied, Energy content of steam from waste gas boilers, Energy content of steam from AFBC boiler, Temperature of steam from waste heat boiler, Pressure of steam from waste heat boiler, Quantity of steam from waste heat boiler, Temperature of steam from AFBC boiler, Pressure of steam from AFBC boiler, Quantity of steam from AFBC boiler, Quantity of steam going to new 8 MW turbine from AFBC boiler, Quantity of steam entering the common steam header from AFBC boiler, Temperature of feedwater to waste heat boiler, Temperature of feedwater to AFBC, Temperature of steam from AFBC boiler to new 8 MW turbine and Pressure of steam from AFBC boiler to new 8 MW turbine. Please refer section E.6.2 below for details on monitoring method, frequency and other details of monitoring parameters. (iii) Leakage parameters: In line with the applicable methodology and monitoring plan of the PDD there is no leakage emission in the project activity. The monitoring has been carried out in accordance with the approved revised monitoring plan contained in the revised PDD. All parameters were monitored and determined as per the monitoring plan. The DOE confirms through on-site verification and from the document review, the actual monitoring system complies with the monitoring plan /01/. According to the monitoring plan, there are 21 monitoring parameters required to be monitored. The substantiation of this

	conformity on information flow for these parameters including the values in the monitoring reports is reported in the following sections. The accuracy of equipment used for monitoring is in accordance with the monitoring plan /17/. The details of accuracy of measuring equipment, monitoring and recording frequency and quality assurance and quality control procedures has been discussed in the section E.6.2 below. The monitoring has been carried out in accordance with the approved monitoring plan contained in the approved PDD. All parameters were monitored and determined as per the approved monitoring plan. The verification team confirms through on-site verification and from the document review, the actual monitoring system complies with the monitoring plan /01/. In accordance with paragraph 360-364 of the VVS version 02.0, the verification team confirms that the monitoring activities is in compliance with the approved monitoring plan.
Findings	Nil
Conclusion	In conclusion, according to the para 360 and 361 of CDM VVS for project activities (version 02.0) and based on KBS's local and sectoral knowledge, KBS confirms that: The data and parameters fixed ex-ante have been listed correctly. The parameters fixed ex-ante have been verified by checking the information flow and in compliance with the monitoring plan of the revised/registered PDD

E.6.2. Data and parameters monitored

Means of verification

The procedure for the monitoring of the parameters has been clearly described in the monitoring plan under section D.2 and Appendix. The monitoring plan of the project activity has been duly implemented by the PP at the project activity site in accordance with the monitoring plan of the project activity.

During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method, the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. After appropriate corrections, carried out by the project participant, it is confirmed that all monitoring parameters have been measured/ determined without material misstatements and are in line with all applicable standards and relevant requirements. The monitoring mechanism, including the data collection system, is found to be effective and reliable and it has been verified during the site visit of the project activity and through the document review.

The below tables provide a summary on the verification of every parameter listed in the registered monitoring plan.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	**Q_i**	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Mass of fossil fuel consumed (Diesel in DG sets)	The description is in accordance with the monitoring plan. During the interview with PP performing onsite assessment and through the documentation (diesel stock register), the verification team has confirmed that the quantity was consumed during the reported monitoring period. The fossil fuel consumed is measured in litres which are then converted to tonnes using the density of diesel as 0.00086 tonnes/litre as per the fuel supplier (IOCL) /01/ /23/

<table>
<tr><td>Value of monitored parameter</td><td>19.19 tones</td><td>The value is in accordance with the monitoring plan. During the interview with PP performing onsite assessment and through the documentation (diesel stock register /23/), the verification team has confirmed that the quantity reported is correct. The details of the quantity of diesel consumed are provided in the ER calculation sheet /04/ which has been checked and found to be correct.</td></tr>
<tr><td>Measured/ Calculated /Default</td><td>Measured</td><td>The parameter is measured. As confirmed during the onsite assessment the parameter is recorded monthly.</td></tr>
<tr><td>Source of data</td><td>Diesel stock register maintained by the stores department</td><td>The source of data has been checked by the verification team and it is in line with the monitoring plan and as observed during site inspection.</td></tr>
<tr><td>Monitoring equipment</td><td>Calibrated tank: the calibration as done on 12/06/2013</td><td>Quantity of diesel is measured in calibrated tank. The calibration was done by the office of the controller of Legal Metrology, Government of Chattisgarh which is a government organization hence accepted /18/
<table>
<tr><th>Calibrated on</th><th>Valid till</th><th>Calibration agency</th></tr>
<tr><td>12/06/2013</td><td>11/06/2018</td><td>Govt. of Chhattisgarh, Office of the Controller of Legal Metrology</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly measured</td><td>As confirmed during the onsite assessment the parameter is recorded monthly. Hence monitoring frequency is as per the monitoring plan.</td></tr>
<tr><td>Calculation method (if applicable)</td><td>litre*0.00086 tonnes/litre</td><td>Calculation is as per the monitoring plan hence accepted.</td></tr>
<tr><td>QA/QC procedures</td><td>Data is taken from purchase records, adjustments made for stock of fuel on-site. Quantity of diesel is measured in calibrated tank. The calibration was done by the office of the controller of Legal Metrology, Government of Chattisgarh which is a government organization</td><td>The diesel used by project activity has been monitored by volume measurement in the calibrated diesel tank. Diesel density has been sourced from diesel supplier data base/23/ From diesel density and volume, mass of diesel has been calculated. The data has been archived on monthly basis in the diesel stock register from which data has been taken for emission reduction calculation. The calibration was done by the office of the controller of Legal Metrology, Government of Chattisgarh which is a government organization. The same has been checked and found to be correct and hence accepted</td></tr>
</table>

Monitoring Parameter:	Implementation of the project	Conclusion on the compliance of the implementation with the monitoring plan.
Data/Parameter	CO_{EFi}	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Emission factor of fossil fuel combusted (Diesel in DG sets)	The description is in accordance with the monitoring plan. /01/
Value of monitored parameter	74.80 tCO2/TJ	This value is taken from IPCC 2006 (Table 1.4, page 1.23) which as per the monitoring plan. /01/. The same has been checked and found to be correct
Measured/ Calculated /Default	Default	It is a default value. The same has been checked and found to be correct.
Source of data	IPCC 2006 (Table 1.4, page 1.23)	The source is in accordance with the monitoring plan.
Monitoring equipment	-	-
Measuring/ Reading/ Recording frequency	Annually	As confirmed during the onsite assessment the parameter is annually referred and recorded in case it has changed.
Calculation method (if applicable)	Not Available	Not Applicable
QA/QC procedures	Data is taken from IPCC 2006	Data is taken from IPCC 2006 and same has been checked and found to be correct.

Monitoring Parameter:	Implementation of the project	Conclusion on the compliance of the implementation with the monitoring plan.
Data/Parameter	NCVi	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.

Description	Net calorific value of fossil fuel combusted (Diesel in DG sets)	The description is in accordance with the monitoring plan.
Value of monitored parameter	43.3 TJ/kt	This value is taken from IPCC 2006 (Table 1.2, page 1.18) which as per the monitoring plan /01/. The same has been checked and found to be correct
Measured/ Calculated /Default	Default	It is a default value. The same has been checked and found to be correct.
Source of data	IPCC 2006 (Table 1.2, page 1.18)	The source is in accordance with the monitoring plan.
Monitoring equipment	-	-
Measuring/ Reading/ Recording frequency	Monthly	As confirmed during the onsite assessment the parameter is monthly referred and recorded in case it has changed.
Calculation method (if applicable)	Not Available	Not Applicable
QA/QC procedures	Data is taken from IPCC 2006	Data is taken from IPCC 2006 and same has been checked and found to be correct

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	OXID	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Oxidation factor (Diesel in DG sets)	The description is in accordance with the monitoring plan.
Value of monitored parameter	100%	This value is taken from IPCC 2006 (Table 1.4, page 1.23) which as per the monitoring plan /01/. The same has been checked and found to be correct
Measured/ Calculated /Default	Default	It is a default value. The same has been checked and found to be correct
Source of data	IPCC 2006 (Table 1.4, page 1.23)	The source is in accordance with the monitoring plan.

Monitoring equipment	-	-
Measuring/ Reading/ Recording frequency	Annually	As confirmed during the onsite assessment the parameter is annually referred and recorded in case it has changed.
Calculation method (if applicable)	Not Available	Not Applicable
QA/QC procedures	Data is taken from IPCC 2006	Data is taken from IPCC 2006 and same has been checked and found to be correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	EG_{Gen}	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Total electricity generated	The description is in accordance with the monitoring plan.
Value of monitored parameter	130,686.774 MWh/yr	As specified in the PDD, the generation has been recorded continuously through cumulative energy meters and daily electricity generation values have been recorded in log book /23/. The monthly generation values have been consolidated from the daily data. The same has been checked and found to be correct.
Measured/ Calculated /Default	Measured	The parameter is measured. As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly. Hence monitoring frequency is as per the monitoring plan.
Source of data	Plant records at power plant	The value in the monitoring report has been verified based on the log books of WHR Power generation system

Monitoring equipment	Total electricity generated from the project activity are measured by different Energy meters, detailed below. The accuracy of all the energy meters are 0.5 and Calibration frequency is annual	The meter has been checked by the verification team and it is in line with the monitoring plan and as observed during site inspection. The calibration of all the Energy meter were carried out by CSPDCL **/**18**/**. CSPDCL is a government agency and accredited organization to perform the calibration.

Serial No	**Accuracy class**	**Calibration date**	**Valid till**	**Calibration Agency**
8 MW				
34120540812	0.5 Conzerv	02/04/2014	01/04/2015	CSPDCL
34133841017	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
34120540812 replaced with 34133841017 on 02/04/2015				
10 MW				
34120540813	0.5 Conzerv	02/04/2014	01/04/2015	CSPDCL
34133841018	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
34120540813 replaced with 34133841018 on 02/04/2015				
CSPDCL: Chhattisgarh State Power Distribution Company Limited				

Measuring/ Reading/ Recording frequency	Continuously, Daily reported and monthly aggregated	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly. Hence monitoring frequency is as per the monitoring plan.
Calculation method (if applicable)	-	-
QA/QC procedures	The calibration of all the Energy meter were carried out by CSPDCL **/**18**/**. CSPDCL is a government agency and accredited organization to perform the calibration.	The calibration of all the Energy meter were carried out by CSPDCL /18/. CSPDCL is a government agency and accredited organization to perform the calibration. Calibration detail of energy meter has been checked and it is calibrated annually.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	EG_{Aux}	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Auxiliaryelectricity	The description is in accordance with the monitoring plan.
Value of	10,408.378MWh	As specified in the PDD, the auxiliary consumption has

<table>
<tr><td>monitored parameter</td><td></td><td>been recorded continuously through cumulative energy meters and daily electricity generation values have been recorded /23/. The same has been checked and found to be correct.</td></tr>
<tr><td>Measured/ Calculated /Default</td><td>Measured</td><td>The parameter is measured. As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly. Hence monitoring frequency is as per the monitoring plan.</td></tr>
<tr><td>Source of data</td><td>Plant records at power plant</td><td>The value in the monitoring report has been verified based on the log books of WHR Power generation system</td></tr>
<tr><td>Monitoring equipment</td><td>Total electricity generated from the project activity are measured by different Energy meters /10/, detailed below. The accuracy of all the energy meters are 0.5 and Calibration frequency is annual</td><td>The meter has been checked by the verification team and it is in line with the monitoring plan and as observed during site inspection. The calibration of all the Energy meter were carried out by CSPDCL /18/. CSPDCL is a government agency and accredited organization to perform the calibration.
<table>
<tr><th>Location</th><th>Serial No</th><th>Accuracy class/make</th><th>Calibration date</th><th>Valid till</th><th>Calibration Agency</th></tr>
<tr><td rowspan="2">CWP-1</td><td>150554/1-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>213797/3737-2411</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/1-2008 replaced with 213797/3737-2411 on 02/04/2015</td></tr>
<tr><td rowspan="2">CWP-2</td><td>150554/3-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>213797/3742-2411</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/3-2008 replaced with213797/3742-2411 on 02/04/2015</td></tr>
<tr><td rowspan="2">CWP-3</td><td>150554/5-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>126752/231-2907</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/5-2008 replaced with 126752/231-2907on 02/04/2015</td></tr>
<tr><td rowspan="2">CWP-4</td><td>150554/6-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>213797/3746-2411</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/6-2008 replaced with 213797/3746-2411 on 02/04/2015</td></tr>
<tr><td rowspan="2">CWP-5</td><td>150554/8-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>120445/201033-1707</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/8-2008 replaced with 120445/20103-1707 on 02/04/2015</td></tr>
<tr><td rowspan="2">BFP-1</td><td>150554/9-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>213797/3739-2411</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/9-2008 replaced with213797/3739-2411 on 02/04/2015</td></tr>
<tr><td rowspan="2">BFP-2</td><td>150554/10-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>213797/3740-2411</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/10-2008 replaced with213797/3740-2411 on 02/04/2015</td></tr>
<tr><td rowspan="2">BFP-3</td><td>150554/11-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
<tr><td>213797/3743-2411</td><td>0.5 Conzerv</td><td>31/03/2015</td><td>30/03/2016</td><td>CSPDCL</td></tr>
<tr><td colspan="6">150554/11-2008 replaced with 213797/3743-2411on 02/04/2015</td></tr>
<tr><td>AC-1</td><td>150554/12-2008</td><td>0.5 Conzerv</td><td>02/04/2014</td><td>01/04/2015</td><td>CSPDCL</td></tr>
</table>
</td></tr>
</table>

	214017/3835-2511	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
150554/12-2008 replaced with 214017/3835-2511on 02/04/2015					
AC-2	150554/13-2008	0.5 Conzerv	02/04/2014	01/04/2015	CSPDCL
	213797/3744-2411	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
150554/13-2008 replaced with213797/3744-2411 on 02/04/2015					
TA-1	150554/14-2008	0.5 Conzerv	02/04/2014	01/04/2015	CSPDCL
	34133820512	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
150554/14-2008 replaced with 34133820512on 02/04/2015					
TA-2	120445/20117-1707	0.5 Conzerv	02/04/2014	01/04/2015	CSPDCL
	34133841020	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
120445/20117-1707 replaced with34133841020 on 02/04/2015					
CTM	34122740238	0.5 Schneider	07/04/2014	06/04/2015	CSPDCL
	120445/20097-1707	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
34122740238replaced with 120445/20097-1707 on 06/04/2015					
DMP	213797/3745-2411	0.5 Conzerv	02/04/2014	01/04/2015	CSPDCL
	213797/3741-2411	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
213797/3745-2411 replaced with 213797/3741-2411on 02/04/2015					
MOV	120445/20094-1707	0.5 Conzerv	07/04/2014	06/04/2015	CSPDCL
	34120540821	0.5 Conzerv	31/03/2015	30/03/2016	CSPDCL
120445/20094-1707replaced with 34120540821on 06/04/2015					

Measuring/ Reading/ Recording frequency	Continuously, Daily reported and monthly aggregated	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly. Hence monitoring frequency is as per the monitoring plan.
Calculation method (if applicable)	-	-
QA/QC procedures	The calibration of all the Energy meter were carried out by CSPDCL /18/. CSPDCL is a government agency and accredited organization to perform the calibration	The calibration of all the Energy meter were carried out by CSPDCL. CSPDCL is a government agency and accredited organization to perform the calibration. Calibration detail of energy meter has been checked and it is calibrated annually

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**

Data/Parameter	EGy	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Net electricity supplied	The description is in accordance with the monitoring plan.
Value of monitored parameter	93,278.396 MWh/yr	As specified in the PDD, the net electricity supplied is computed through subtraction of auxiliary consumption from the electricity generated. The data is calculated from values which are recorded daily in log book. The monthly values are calculated. The same has been checked and found to be correct.
Measured/ Calculated /Default	Calculated	As confirmed during the onsite assessment the parameter is calculated by subtracting auxiliary consumption from the electricity generated
Source of data	Plant records at power plant	The source has been verified during site visit and found to be correct
Monitoring equipment	-	-
Measuring/ Reading/ Recording frequency	Computed daily on the basis of continuous measurements.	As confirmed during the onsite assessment the parameter is calculated based on continuous measurements. Hence recording frequency is as per monitoring plan.
Calculation method (if applicable)	EG_{Gen} - EG_{Aux}	The calculation formula has been checked and it is as per monitoring plan.
QA/QC procedures	Calculations are carried out based on data is measured by meters which are calibrated annually.	The calculations are carried out based on data which is measured by meters which are calibrated annually. Calibration detail of energy meter has been checked and it is calibrated annually

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	ST_{whr}	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Energy content of steam from waste gas boilers fed to common steam header	The description is in accordance with the monitoring plan.

Value of monitored parameter	252,183,604,536.328kCal	The value has been checked through plant records, emission reduction sheet and during the site visit /01/ /03/. The same has been checked and found to be correct.
Measured/ Calculated /Default	Calculated	As confirmed during the onsite assessment the parameter is calculated. The calculations have been checked and found to be correct.
Source of data	Plant records at power plant	The source of data has been checked and found to be correct. The value in the monitoring report has been verified based on daily temperature, pressure and steam data.
Monitoring equipment	-	-
Measuring/ Reading/ Recording frequency	Monthly (from the collation of the daily data)	As confirmed during the onsite assessment the parameter is calculated and recorded monthly. Hence recording frequency is as per the monitoring plan.
Calculation method (if applicable)	Energy content in the steam is calculated by multiplying enthalpy gain (using steam tables for the temperature and pressure of steam) by quantity of steam from the waste heat recovery boilers	The calculation method has been checked and found to be correct. The value in the monitoring report has been verified based on daily temperature, pressure and steam data.
QA/QC procedures	Calculated parameter	All input data were checked and found correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	ST_{Other}	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Energy content of steam from AFBC boiler fed to common steam header	The description is in accordance with the monitoring plan.
Value of monitored parameter	89,407,179,566.638kCal	The value has been checked through plant records, emission reduction sheet and during the site visit /01/ /03/. The same has been checked and found to be correct

Measured/ Calculated /Default	Calculated	As confirmed during the onsite assessment the parameter is calculated. The calculations have been checked and found to be correct
Source of data	Plant records at power plant	The source of data has been checked and found to be correct The value in the monitoring report has been verified based on daily temperature, pressure and steam data.
Monitoring equipment	-	-
Measuring/ Reading/ Recording frequency	Monthly (from collation of the daily data)	As confirmed during the onsite assessment the parameter is calculated and recorded monthly. Hence recording frequency is as per the monitoring plan.
Calculation method (if applicable)	Energy content in the steam is calculated by multiplying enthalpy gain (using steam tables for the temperature and pressure of steam) by quantity of steam from the AFBC boiler	The calculation method has been checked and found to be correct. The value in the monitoring report has beenverified based on daily temperature, pressure and steam data.
QA/QC procedures	Calculated parameter	All input data were checked and found to be correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Temp_{whr}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Temperature ofsteam fromwaste heatboiler	The description is in accordance with the monitoring plan.
Value of monitored parameter	$481.29^{0}C$	The value has been checked through plant records, emission reduction sheet and during the site visit /23/.
Measured/ Calculated /Default	Measured	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.
Source of data	Plant records at power plant	The data has been verified from the DCS log book /23/ and found to be correct

<table>
<tr><td>Monitoring equipment</td><td>Temperature transmitter with thermocouple</td><td>DCS records actual temperature (for steam and feed water) every second. The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditated institution. The calibration of the master calibrator /18/ (digital multi meter and loop calibrator) has also been verified during the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">11 TT - 1730</td><td rowspan="2">± 0.7°C</td><td>07/08/2014</td><td>06/08/2015</td><td rowspan="4">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>06/08/2015</td><td>05/08/2016</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td rowspan="2">22 TT - 1730</td><td rowspan="2">± 0.7°C</td><td>04/08/2014</td><td>03/08/2015</td></tr>
<tr><td>03/08/2015</td><td>02/08/2016</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from the collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct. As per the revised and approved PDD /31/, calibration frequency is annual.</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
<tr><td>QA/QC procedures</td><td>Data is taken from DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of Temperature transmitter with thermocouple is carried out annually.</td><td>Data is taken from DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of Temperature transmitter with thermocouple is carried out annually. The calibration records have been checked and found to be correct.</td></tr>
</table>

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Press_{whr}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.

<table>
<tr><td>Description</td><td>Pressure of steam from waste heat boiler</td><td>The description is in accordance with the monitoring plan.</td></tr>
<tr><td>Value of monitored parameter</td><td>64.40 kg/cm^2</td><td>The value has been checked through plant records /23/, emission reduction sheet and during the site visit.</td></tr>
<tr><td>Measured/ Calculated /Default</td><td>Measured</td><td>As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.</td></tr>
<tr><td>Source of data</td><td>Plant records at power plant</td><td>The data has been verified from the DCS log book and found to be correct.</td></tr>
<tr><td>Monitoring equipment</td><td>Pressure Transmitter :</td><td>The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditated institution. The calibration of the master calibrator /18/ (digital multi meter and digital pressure gauge) has also been verified during the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">11 PT - 1726</td><td rowspan="2">± 0.075%</td><td>07/08/2014</td><td>06/08/2015</td><td rowspan="4">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>06/08/2015</td><td>05/08/2016</td></tr>
<tr><td rowspan="2">22 PT - 1726</td><td rowspan="2">± 0.075%</td><td>04/08/2014</td><td>03/08/2015</td></tr>
<tr><td>03/08/2015</td><td>02/08/2016</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
</table>

QA/QC procedures	Data is taken from DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of Pressure transmitter is carried out annually.	Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found ok. Calibration of Pressure transmitter is carried out annually. The calibration records have been checked and found to be correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Quantity_{whr}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Quantity of steam from waste heat boiler	The description is in accordance with the monitoring plan.
Value of monitored parameter	362,699.80Tonnes	The value has been checked through plant records /23/, emission reduction sheet and during the site visit.
Measured/ Calculated /Default	Measured	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.
Source of data	Plant records at power plant	The data has been verified from the DCS log book and found to be correct.

<table>
<tr><td>Monitoring equipment</td><td>Differential pressure transmitter to measure the steam flow:</td><td>The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditated institution.

The calibration of the master calibrator /18/ (digital multi meter and digital pressure gauge) has also been verified during the site visit and found ok.

<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">11 FT - 1729</td><td rowspan="2">± 0.075%</td><td>06/08/2014</td><td>05/08/2015</td><td rowspan="4">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>05/08/2015</td><td>04/08/2016</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td rowspan="2">22 FT - 1729</td><td rowspan="2">± 0.075%</td><td>04/08/2014</td><td>03/08/2015</td></tr>
<tr><td>03/08/2015</td><td>02/08/2016</td></tr>
</table>
</td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
<tr><td>QA/QC procedures</td><td>Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of differential pressure transmitter is carried out annually.</td><td>Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct.. Calibration of differential pressure transmitter is carried out annually. The same has been checked and found to be correct.</td></tr>
</table>

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Temp_{Other}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.

<table>
<tr><td></td><td>Description</td><td>Temperature of steam from AFBC boiler</td><td>The description is in accordance with the monitoring plan.</td></tr>
<tr><td></td><td>Value of monitored parameter</td><td>492.83 °C</td><td>The value has been checked through plant records /23/, emission reduction sheet and during the site visit.</td></tr>
<tr><td></td><td>Measured/ Calculated /Default</td><td>Measured</td><td>As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.</td></tr>
<tr><td></td><td>Source of data</td><td>Plant records at power plant</td><td>The data has been verified from the DCS log book and found to be correct.</td></tr>
<tr><td></td><td>Monitoring equipment</td><td>Temperature transmitter with thermocouple</td><td>DCS records actual temperature (for steam and feed water) every second. The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditated institution. The calibration of the master calibrator /18/ (digital multi meter and loop calibrator) has also been verified during the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">33 TT - 0204</td><td rowspan="2">± 0.7^{o}C</td><td>08/08/2014</td><td>07/08/2015</td><td rowspan="2">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>07/08/2015</td><td>06/08/2016</td></tr>
</table></td></tr>
<tr><td></td><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from the collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct. As per the revised and approved PDD /01/, calibration frequency is annual.</td></tr>
<tr><td></td><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
</table>

QA/QC procedures	Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of Temperature transmitter with thermocouple is carried out annually.	Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of Temperature transmitter with thermocouple is carried out annually. The calibration records have been checked and found to be correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Press_{other}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Pressure of steam from AFBC boiler	The description is in accordance with the monitoring plan.
Value of monitored parameter	63.01 kg/cm^2	The value has been checked through plant records /23/, emission reduction sheet and during the site visit.
Measured/ Calculated /Default	Measured	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.
Source of data	Plant records at power plant	The data has been verified from the DCS log book and found to be correct.

<table>
<tr><td>Monitoring equipment</td><td>Pressure Transmitter</td><td>The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditated institution. The calibration of the master calibrator /18/ (digital multi meter and digital pressure gauge) has also been verified during the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">33 PT - 0202</td><td rowspan="2">± 0.075 %</td><td>08/08/2014</td><td>07/08/2015</td><td rowspan="2">SBPIL(Internal calibration) Refer Annex2 for Calibration details of master meter</td></tr>
<tr><td>07/08/2015</td><td>06/08/2016</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
<tr><td>QA/QC procedures</td><td>Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of Pressure transmitter is carried out annually.</td><td>Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of Pressure transmitter is carried out annually. The calibration records have been checked and found to be correct.</td></tr>
</table>

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Quantity_{other}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Quantity of steam from AFBC boiler	The description is in accordance with the monitoring plan.

<table>
<tr><td>Value of monitored parameter</td><td>339,066.62Tonnes</td><td>The value has been checked through plant records /23/, emission reduction sheet and during the site visit.</td></tr>
<tr><td>Measured/ Calculated /Default</td><td>Measured</td><td>As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation ofdaily data).. Hence monitoring frequency is as per the monitoring plan.</td></tr>
<tr><td>Source of data</td><td>Plant records at power plant</td><td>The data has been verified from the DCS log book. and found to be correct</td></tr>
<tr><td>Monitoring equipment</td><td>Differential pressure transmitter to measure the steam flow:</td><td>The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditated institution. The calibration of the master calibrator /18/ (digital multi meter and digital pressure gauge) has also been verified during the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">33 FT - 0202</td><td rowspan="2">± 0.065 %</td><td>07/08/2014</td><td>06/08/2015</td><td rowspan="2">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>06/08/2015</td><td>05/08/2016</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from collation of the daily data.</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct. .</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
<tr><td>QA/QC procedures</td><td>Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of differential pressure transmitter is carried out annually.</td><td>Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct Calibration of differential pressure transmitter is carried out annually. The same has been checked and found to be correct.</td></tr>
</table>

<table>
<tr><th>Monitoring Parameter:</th><th>Implementation of the project</th><th>Conclusion on the compliance of the implementation with the monitoring plan.</th></tr>
<tr><td>Data/Parameter</td><td>$Quantity_{8MW}$</td><td>The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.</td></tr>
<tr><td>Description</td><td>Quantity of steam going to new 8 MW turbine from AFBC boiler</td><td>The description is in accordance with the monitoring plan.</td></tr>
<tr><td>Value of monitored parameter</td><td>211,468.99Tonnes</td><td>The value has been checked through plant records /23/, emission reduction sheet and during the site visit.</td></tr>
<tr><td>Measured/ Calculated /Default</td><td>Measured</td><td>As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.</td></tr>
<tr><td>Source of data</td><td>Plant records at power plant</td><td>The data has been verified from the DCS log book and found to be correct.</td></tr>
<tr><td>Monitoring equipment</td><td>Differential pressure transmitter to measure the steam flow</td><td>The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditatedinstitution. The calibration of the master calibrator /18/ (digital multi meter and digital pressure gauge) has also been verifiedduring the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">33 FT - 0100</td><td rowspan="2">± 0.065 %</td><td>07/08/2014</td><td>06/08/2015</td><td rowspan="2">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>06/08/2015</td><td>05/08/2016</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from collation of the daily data.</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct.</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
</table>

QA/QC procedures	Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of differential pressure transmitter is carried out annually.	Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of differential pressure transmitter is carried out annually. The same has been checked and found to be correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Quantity_{CSH}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Quantity of steam entering the common steam header from AFBC boiler	The description is in accordance with the monitoring plan.
Value of monitored parameter	127,597.63Tonnes	The value has been checked through plant records, emission reduction sheet and during the site visit.
Measured/ Calculated /Default	Calculated	This is calculated value, difference between: $Quantity_{other}$-$Quanatity_{8MW}$ The calculation method has been checked and found to be correct.
Source of data	Plant records at power plant	The source of data has been checked and found to be correct.
Monitoring equipment	-	-
Measuring/ Reading/ Recording frequency	Monthly (from collation of the daily data	The data is recorded monthly from collation of daily data. The same has been checked and found to be correct

Calculation method (if applicable)	$Quanatity_{other}$ – $Quanatity_{8MW}$	The data has been verified from the DCS log book for the parameters and the difference between the $Quanatity_{other}$ and $Quanatity_{8MW}$ above has been accepted in line with the revised and approved PDD.
QA/QC procedures	It is a calculated parameter	It is a calculated parameter.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Temp_{fw,whr}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Temperature of feed water from waste heat boiler	The description is in accordance with the monitoring plan.
Value of monitored parameter	109.58^0C	The value has been checked through plant records /23/, emission reduction sheet and during the site visit.
Measured/ Calculated /Default	Measured	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.
Source of data	Plant records at power plant	The data has been verified from the DCS log book and found to be correct.
Monitoring equipment	Temperature transmitter with thermocouple	DCS records actual temperature (for steam and feed water) every second. The calibration has been performed internally by SBPILwith the help of master meter calibrated by a NABL accreditated institution. The calibration of the master calibrator **/**18**/** (digital multi meter and loop calibrator) has also been verified during the site visit and found ok.
Measuring/ Reading/ Recording frequency	Monthly (from the collation of the daily data)	The data is recorded monthly from collation of daily data. The same has been checked and found to be correct

Serial No	**Accuracy class**	**Calibration date**	**Valid till**	**Calibrating Agency**
11 TT - 1710	± 0.7^oC	07/08/2014	06/08/2015	SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter
		06/08/2015	05/08/2016	
22 TT - 1710	± 0.7^oC	06/08/2014	05/08/2015	
		05/08/2015	04/08/2016	

Calculation method (if applicable)	-	-
QA/QC procedures	Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of Temperature transmitter with thermocouple is carried out annually.	Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of Temperature transmitter with thermocouple is carried out annually. The calibration records have been checked and found to be correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Temp_{fw,other}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Temperature of feed water from AFBC boiler	The description is in accordance with the monitoring plan.
Value of monitored parameter	$107.99^{0}C$	The value has been checked through plant records /23/, emission reduction sheet and during the site visit.
Measured/ Calculated /Default	Measured	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.
Source of data	Plant records at power plant	The data has been verified from the DCS log book and found to be correct.

<table>
<tr><td>Monitoring equipment</td><td>Temperature transmitter with thermocouple</td><td>DCS records actual temperature (for steam and feed water) every second. The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accredited institution. The calibration of the master calibrator /18/ (digital multi meter and loop calibrator) has also been verified during the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">33 TT - 0101</td><td rowspan="2">± 0.7^{o}C</td><td>08/08/2014</td><td>07/08/2015</td><td rowspan="2">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>07/08/2015</td><td>06/08/2016</td></tr>
</table>
</td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from the collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct</td></tr>
<tr><td>Calculation method (if applicable)</td><td>--</td><td>--</td></tr>
<tr><td>QA/QC procedures</td><td>Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of Temperature transmitter with thermocouple is carried out annually.</td><td>Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of Temperature transmitter with thermocouple is carried out annually. The calibration records have been checked and found to be correct.</td></tr>
</table>

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**

<table>
<tr><td>Data/Parameter</td><td>$Temp_{8MW}$</td><td>The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.</td></tr>
<tr><td>Description</td><td>Temperature of steam from AFBC boiler to new 8 MW turbine</td><td>The description is in accordance with the monitoring plan.</td></tr>
<tr><td>Value of monitored parameter</td><td>479.72°C</td><td>The value has been checked through plant records /23/, emission reduction sheet and during the site visit.</td></tr>
<tr><td>Measured/ Calculated /Default</td><td>Measured</td><td>As confirmed during the onsite assessment the parameteris daily monitored, and recorded monthly (fromcollation of daily data). Hence monitoring frequency is as per the monitoring plan.</td></tr>
<tr><td>Source of data</td><td>Plant records at power plant</td><td>The data has been verified from the DCS log book and found to be correct.</td></tr>
<tr><td>Monitoring equipment</td><td>Temperature transmitter with thermocouple</td><td>DCS records actual temperature (for steam and feed water) every second. The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditatedinstitution. The calibration of the master calibrator /18/ (digital multi meter and loop calibrator) has also been verified during the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">33 TT - 0103</td><td rowspan="2">± 0.7°C</td><td>08/08/2014</td><td>07/08/2015</td><td rowspan="2">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>07/08/2015</td><td>06/08/2016</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
</table>

QA/QC procedures	Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of temperature transmitter with thermocouple is carried out annually.	Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of temperature transmitter with thermocouple carried out annually. The calibration records have been checked and found to be correct.

Monitoring Parameter:	**Implementation of the project**	**Conclusion on the compliance of the implementation with the monitoring plan.**
Data/Parameter	$Press_{8MW}$	The parameter is in accordance with the registered monitoring plan, and has been checked during the site visit.
Description	Pressure of steam from AFBC boiler to new 8 MW turbine	The description is in accordance with the monitoring plan.
Value of monitored parameter	61.73 kg/cm2	The value has been checked through plant records /23/, emission reduction sheet and during the site visit.
Measured/ Calculated /Default	Measured	As confirmed during the onsite assessment the parameter is daily monitored, and recorded monthly (from collation of daily data). Hence monitoring frequency is as per the monitoring plan.
Source of data	Plant records at power plant	The data has been verified from the DCS log book and found to be correct.

<table>
<tr><td></td><td>
<table>
<tr><td>Monitoring equipment</td><td>Pressure Transmitter</td><td>The calibration has been performed internally by SBPIL with the help of master meter calibrated by a NABL accreditatedinstitution. The calibration of the master calibrator /18/ (digital multi meter and digital pressure gauge) has also been verifiedduring the site visit and found ok.
<table>
<tr><th>Serial No</th><th>Accuracy class</th><th>Calibration date</th><th>Valid till</th><th>Calibrating Agency</th></tr>
<tr><td rowspan="2">33 PT - 0100</td><td rowspan="2">± 0.065 %</td><td>08/08/2014</td><td>07/08/2015</td><td rowspan="2">SBPIL (Internal calibration) Refer Annex 2 for Calibration details of master meter</td></tr>
<tr><td>07/08/2015</td><td>06/08/2016</td></tr>
</table>
</td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Monthly (from collation of the daily data)</td><td>The data is recorded monthly from collation of daily data. The same has been checked and found to be correct</td></tr>
<tr><td>Calculation method (if applicable)</td><td>-</td><td>-</td></tr>
<tr><td>QA/QC procedures</td><td>Data is taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived for the verifier to test the results of the DCS. Calibration of Pressure transmitter is carried out annually.</td><td>Taken from calibrated meters through the DCS system. DCS records actual temperature (for steam and feed water) and pressure (for the steam only) every second and this data is archived and it was checked and found correct. Calibration of Pressure transmitter is carried out annually. The calibration records have been checked and found to be correct.</td></tr>
</table>

All parameters required to be monitored are recorded at the intervals required by the approved monitoring plan and the applied methodology. On the basis of review of source and nature of available evidences and records, the verification team confirms the quality of evidence for emission reduction provided is sufficient as per VVS, Version 02.0 /06/.

Corresponding to the paragraph 360 to 371 of VVS version 02.0, KBS can confirm that:

The monitoring of the project activity has been carried out in accordance with the monitoring plan provided in the approved PDD;

Parameter stated in the monitoring plan have been sufficiently monitored and correctly listed, the monitored data for requested parameters have been verified and found complete and consistent by checking the whole procedure for information aggregation.
</td></tr>
<tr><td>Findings</td><td>CAR 02 was raised during the verification process which was successfully closed. For more information, please refer Appendix-4 of this report.</td></tr>
</table>

Conclusion	Corresponding to the §360-371 of VVS V2/12/, the team confirm that the monitoring has been carried out in accordance with the approved PDD/3/. The monitoring system is in compliance with the information flow for the parameters as mentioned in monitoring plan in approved PDD/3/. The monitored data for the parameters has been verified by checking the procedure for information flow and found to be complete and consistent.

E.6.3. Implementation of sampling plan

Means of verification	Not applicable as no sampling is involved in monitoring.
Findings	N/A
Conclusion	N/A

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The monitoring period covers from 01/09/2014 to 31/08/2015. The calibration details and the frequency of the calibration are discussed above in section E.6.2, which have been checked by the assessment team. The meters, are calibrated as per the frequency requirements of the registered PDD, applied methodology "*ACM0004 (version 02), Consolidated methodology for waste gas and/or heat for power generations*" and relevant national or local standard. The verification team determined whether the calibration of the measuring equipment that has an impact on the claimed emission reductions is conducted by the PP at a frequency specified in the registered monitoring plan. The calibration records were verified to check the frequency of calibration of the measuring instruments. The calibration of the energy meter has been done annually. This complies with the requirement of para 365 of VVS version 02.0 /06/. The calibration details (including date of calibration, validity, accuracy class etc) of measuring instruments including main meter, various auxiliary meters, temperature transmitter with thermocouple, pressure transmitter, differential pressure transmitter are provided in section D.2 of this report. In line with the para 365 of VVS version 02.0, by checking the calibration Reports, KBS confirms that the calibration of meters and other equipments are carried out as per the frequency specified in the monitoring plan. Please refer above section D.2 for further details. Thus, same is in also line with the 365 to 371 of VVS version 02.0. Verification team checked all the calibration reports/16/ provided by calibration team and confirmed the calibration dates. Also, it is found that the next calibrations are done before the expiry date of the previous calibrations.
Findings	CL 03 was raised during the verification process which was successfully closed. Please refer the Appendix 4 for more details.
Conclusion	The calibration conducted for the equipments covers the monitoring period. Further the measuring equipments have been calibrated by the accredited agencies. This is consistent with the revised/registered PDD and CDM VVS for project activities, version 02.0. The verifier confirms that the calibration confirms the proper functioning of the monitoring equipment and is valid for the whole verification monitoring period. Further the verification team has checked calibration records to confirm that the frequency of calibration is carried out as specified in the registered monitoring plan Corresponding to the § 371 of VVS V2/12/,verification team has confirms that periodic calibration was carried out for all the required monitoring equipment's that have an impact on the claimed emission reductions. The frequency of calibration is annual. No calibration delay is envisaged during this monitoring period.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The verification team has checked whether calculations of baseline GHG emissions

calculation have been carried out in accordance with the formulae and methods described in the registered monitoring plan. KBS confirms that a complete set of data for the specified monitoring period is available.

In detail the following has been verified:
Transparency: It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.
Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.
Correctness: It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.
Completeness: It has been checked whether all calculations are complete and without omissions

The formulae used to calculate the baseline emissions are:

$$BE_y = f_{WCM} * EG_y * EF_y$$

Where:

EG_y: Net quantity of electricity supplied to the manufacturing facility by the projectduring the year y in MWh

$EF_{,y}$: CO_2 baseline emission factor for the electricity displaced due to the project activityduring the year y (tCO_2/MWh)

f_{WCM}: Fraction of total electricity generated by the project activity using waste gas.

and $$f_{WCM} = \frac{ST_{whr,y}}{ST_{whr,y} + ST_{other,y}}$$

Where:

$ST_{whr,y}$: Energy content of the steam generated in waste heat recovery boilerfed to turbine via common steam header

$ST_{other,y}$: Energy content of steam generated in other boiler (AFBC) fed toturbine via common steam header

EF_y = 0.972 tCO_2/MWh (fixed*ex-ante*)

Month	ST_{whr} Kcal	ST_{other} kcal	f_{WCM}	EG_y	BE_y
				MWh	tCO_2
Sep-14	22549438661	11936511385	0.6539	9928.743	6310.36
Oct-14	18179305132	12973125178	0.5836	8961.032	5082.88
Nov-14	19105775256	10526343372	0.6448	8342.903	5228.60
Dec-14	16011146197	12375905418	0.5640	7960.873	4364.45
Jan-15	20128603197	7871351509	0.7189	7697.475	5378.62
Feb-15	21415498937	5111528000	0.8073	7381.518	5792.31
Mar-15	22620507182	3905089693	0.8528	7226.195	5989.81
Apr-15	20831933814	17582403	0.9992	6198.697	6020.05
May-15	28233897089	1274015149	0.9568	5817.328	5410.31
Jun-15	21096152480	8252799666	0.7188	8862.400	6191.96
Jul-15	22653165979	1090234258	0.9541	4489.397	4163.32
Aug-15	19358180613	14072693535	0.5791	10411.835	5860.17

	Total				93278.396	65792.84

BE_y= 65,792.84 tCO_2e

= 65,792 tCO_2e (round down)
As per the monitoring plan in revised/registered PDD and internal procedures, the monitoring data collected are archived and would be kept at least for 2 years after the end of the crediting period. The daily records were accumulated into the monthly records.

Following paragraph 372-374 of VVS version 2.0, the assessment team checked that:
(a) A complete set of data required for the determination of emission reductions in this monitoring period were available. And the most conservative assumption theoretically possible has been adopted for the data monitored in compliance with the registered monitoring plan in revised/registered PDD.
(b) The reported data have been crosschecked between data and actual sales/purchase records and from sale/purchase invoice.
(c) The calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan.
(d) All assumptions, Emission factors, IPCC default values and GWPs and other references have been correctly justified in the MR.

PP has submitted the calculation in the excel sheet/2/. The baseline calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the approved PDD/3/ and the selected methodologies/6/.

Findings	CAR 03 was raised during the verification process which was successfully closed. For more information, please refer Appendix-4 of this report.
Conclusion	The verification team confirms the following: • The calculations of baseline GHG emissions have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology. • The emission factor applied is an ex-ante value valid for the fixed crediting period. • Any assumptions used in emission or removal calculations have been justified. • Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the baseline calculation is overall correct. • The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible. • Hence, the baseline emission reported in the monitoring report for the monitoring period (01/09/2014 to 31/08/2015) is verified to be correct

E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	The verification team has checked whether calculations of project GHG emissions calculation have been carried out in accordance with the formulae and methods described in the registered monitoring plan. In detail the following has been verified: Transparency: It has been checked whether the calculation of projectemissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet. Correctness: It has been checked whether the applied formulae and methods for calculating projectemissions are in accordance with the monitoring plan and the approved methodology. Completeness: It has been checked whether all calculations are complete and without omissions

	The project emissions due to the usage of fossil fuel are calculated as follows: $PE_y = Q_i \cdot COEF_i \cdot NCV_i \cdot OXID$ = 19.19 * 74.80* 0.043 * 100% = 62.14 tCO_2 = 63 tCO_2 (round up) Where: PE_y project emissions in year y, tCO_2e Q_i mass of fossil fuel combusted, t $COEF_i$ emissions factor of fossil fuel combusted, tCO_2/TJ NCV_i net calorific value of fossil fuel combusted, TJ/t OXID oxidation factor, % PE_y= 63 tCO_2 PP has submitted the calculation in the excel sheet/2/. The project emission calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the registered PDD/3/ and the selected methodologies/6/.
Findings	Nil
Conclusion	The verification team confirms the following: • The calculations of project GHG emissions have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology. • The emission factor applied is an ex-ante value valid for the fixed crediting period. • Any assumptions used in emission or removal calculations have been justified. • Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the project emission calculation is overall correct. • The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible. • Hence, the project emission reported in the monitoring report for the monitoring period (i.e., 63 tCO_2e) is verified to be correct The verification team checked the emission reduction calculations sheets and confirm that equations used have been correctly applied and as per the applied methodology and are consistent with site visit observations. The same was also cross checked with the PDD and found to be in order. The DOE confirms that the project activity during the monitoring period meets the requirements of paragraph 372-374 of the VVS for project activities, version 02.0.

E.8.3. Calculation of leakage GHG emissions

Means of verification	The verification team has reviewed the leakage calculations as per the revised/registered PDD and the applied methodology "ACM0004- version 02 - Consolidated methodology for waste gas and/or heat for power generations" In line with the baseline methodology no leakage is considered. Ly = 0 tCO_2e
Findings	No findings
Conclusion	Information on leakage emissions calculation provided in the monitoring report has been cross-checked with the revised/registered PDD, applied methodology "ACM0004- Version 02 - Consolidated methodology for waste gas and/or heat for power generations" and other relevant sources. Corresponding to the paragraphs 372-374 of VVS version 02.0, KBS verification team confirms that there are no leakage emissions applicable to the project activity during the monitoring period.

E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The verification team has reviewed the calculation of GHG emission reductions in

	the final MR /1/ and ER spreadsheet /2/ in line with the revised/registered PDD /30/ and the applied methodology. The emission reductions during the current monitoring period are determined as the difference between baseline emissions, project emissions and leakage emissions: Section E.4 of MR demonstrate the summary of GHG emission reductions for the monitoring period and calculated according to the applied methodologies as follows: $ER_y = BE_y - PE_y - L_y$ The ER calculation sheet and monitoring report is verified to check the calculation.
Findings	CAR 03 was raised during the verification process which was successfully closed. For more information, please refer Appendix-4 of this report.
Conclusion	The data presented in the monitoring report and emission reduction worksheet were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidences were presented and verified by KBS for the reported emission reductions as listed above. Corresponding to the paragraph 372-374 of VVS version 02.0, KBS verification team confirms that: (a) A complete set of data for the monitoring period is available. (b)All the data and parameters were monitored in accordance with the registered PDD and applied methodologies; (c)Information provided in the monitoring report has been cross-checked with other data sources; (d) Calculations of baseline emissions, project emissions and leakage emissions, as appropriate, been carried out in accordance with the formulae and methods described in the registered monitoring plan and the applied methodologies. (e) Thee mission factors, IPCC default values, GWPs and other reference values are correct. Appropriate emission factor of the power grid has been correctly applied. Emission factor and default values have been applied in the calculation in accordance to the registered PDD. (f) The first day in which CERs are being claimed has been confirmed and correctly specified. (g) Review of the calculations of emission reductions have been carried out in accordance with the formulae and methods described in the revised/registered PDD, and the applied methodology; Information on the emissions calculation provided in the monitoring report has been cross-checked with other sources. Calculations of emissions reductions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document. The verification team checked the emission reduction calculations sheets and confirm that equations used have been correctly applied and as per the applied methodology and are consistent with site visit observations. The same was also cross checked with the PDD and found to be in order. The DOE confirms that the project activity during the monitoring period meets the requirements of paragraph 372-374 of the VVS for project activities, version 02.0.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The verification team has checked whether the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD/3/. Section E.5 of the MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD

Emission reduction estimated as per the registered PDD/3/	Actual emission reduction achieved as per Monitoring report/1/
113,351tCO_2e	65,729 tCO_2e

Hence, the actual emission reduction achieved during the monitoring period is less

	than the estimation in the PDD.
Findings	Nil
Conclusion	The estimated emission reduction as per registered PDD and the actual emission reduction achieved for the monitoring period are correctly reported in the section E.5 of MR. The actual achieved emission reduction is lesser than the PDD estimation. The justification for the same is provided in the MR.

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The verification team has determined the CER achieved during this monitoring period with the estimated value and reason for increase if any. The actual emission reductions achieved during this monitoring period are lower than the estimated value in the monitoring period (as per the revised/registered PDD). The verification team confirmed that the actual emission reductions are much lower than that of the estimation in the registered PDD. The main reason for the difference in the actual CERs is due to the following reasons. • There has been a change in the project activity that has reduced the CERs achievable by the project (Fraction of total electricity generated by the project activity using waste gas i.e. $f_{WCM}$was assumed as 1, whereas the actual values observed during the monitored period was less than 1). (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1152883936.57/view) • In the change of the project activity the auxiliary consumption was assumed at 8% of total generation whereas during the monitoring period the auxiliary consumption was 10.04% as a result CERs got reduced. The back-up documentation related to the above said reasons has been verified by KBS. The estimated CERs for this monitoring period are 113,351 tCO2e however during this monitoring period the actual CERs are 65,729 tCO2e. This clearly demonstrates that the reported emission reductions are lower than that estimated in the CDM-PDD /01/. The verification team confirms that the emission reductions are real and measurable.
Findings	Nil
Conclusion	There is no increase in the emission reductions during the current monitoring period relative to the estimation in the registered CDM-PDD. The emission reductions achieved during the monitoring period are less than the estimated in the registered PDD.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The current monitoring period starts from 01/09/2014. The verification team has reviewed the monitoring report with the daily reading records, log books, invoices to assess whether the GHG emission reductions or removals has been correctly calculated. The GHG emission reductions have been correctly calculated. Total year-wise emission reductions:

Period	Emission Reductions (tCO_2e)
Upto 31st December 2012	N/A
From 1st January 2013 onwards	65,729

Findings	Nil
Conclusion	The actual monitoring period does not fall into the first commitment period. According to paragraph 71-77 of CDM Project Standard (version 02.0), KBS verification team confirms that the amount of emission reductions or removals achieved in the monitoring period from 1st January 2013 onwards is correctly calculated and reported. The emission reduction achieved up to 31/12/2012 is 0 tCO_2e and from 01/01/2013 is 65,729 tCO_2e and the same is verified form the ER calculation sheet.

E.9. Assessment of reported sustainable development co-benefits

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.10. Global stakeholder consultation

Means of verification	N/A
Findings	N/A
Conclusion	N/A

SECTION F. Internal quality control

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The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to UNFCCC. The final decision is taken by the Manager (Technical and Certification). The technical reviewer and Manager (Technical & Certification) can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager (Technical & Certification).

SECTION G. Verification opinion

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The verification team confirms that the evidence is of sufficient quantity, appropriate quality and reliable. The reported values, notation, units and sources in the monitoring report for all the monitoring parameters have been cross checked with the emission reduction sheet and revised/registered PDD. During the course of verification and on site visit, the data submitted by CDM PP was cross verified with log books, monitoring records generated during the monitoring period for the project activity. The procedure for data monitoring, recording, transfer and compilation was also verified and found in compliance with the monitoring plan as mentioned in the revised/registered PDD.

Evidences (Documents/interview/site visit) referred for verification of individual monitoring parameter and fixed parameters are defined in main section of report. It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in Appendix 3 of this report.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 65,729 tCO_2e emission reductions during period from 01/09/2014 to 31/08/2015.

SECTION H. Certification statement

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KBS has carried out the 11th periodic verification of the Project “Shri Bajrang WHR CDM Project” (UNFCCC reference No. 0528). This verification covers the period from 01/09/2014 to 31/08/2015 (first and last days included).
In the course of the verification three CARs (CAR 01, CAR 02 and CAR 03) and three CLs (CL 01, CL 02 and CL 03) were raised and successfully closed. No Forward Action Request (FAR) was

raised. The verification is based on the MR (version 1.0 dated 25/10/2018), the revised MR (version 3.0 dated 30/03/2019), ER Spreadsheet, the revised/registered PDD and the registered validation report, and supporting documents available to KBS.

As the result of the 11th periodic verification, KBS confirms that:

- The project activity has been implemented and operated as per the revised/registered PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- The monitoring report and other supporting documents provided are complete in accordance with the latest applicable version of the completeness checklist for requests for issuance of CERs and in accordance with applicable CDM requirements;
- The actual monitoring systems and procedures are in place and functional, and comply with the monitoring systems and procedures described in the registered monitoring plan;
- The monitoring plan is in accordance with the applied methodologies;
- The installed equipments for measuring parameters required for calculating emission reductions are calibrated appropriately.
- The GHG emission reductions are calculated without material omission, errors, misstatements and in a conservative and appropriate manner.

KBS hereby certifies that the project has achieved emission reductions as follows:

Reporting period: From 01/09/2014 to 31/08/2015 (including both the days)
Verified and Certified Emission Reductions in the above reporting period:

	Amount	Unit
Baseline emissions (BE)	65,792	tCO_2e
Project emissions (PE)	63	tCO_2e
Leakage emissions (LE)	0	tCO_2e
Certified emission reductions (CERs)	65,729	tCO_2e

Actual emission reduction for the monitoring period up to (and including) 31/12/2012	0 tCO_2e
Actual emission reduction for the monitoring period from (and including) 01/01/2013	65,729 tCO_2e
Total amount of GHG emission reductions or net GHG removals by sinks achieved in this monitoring period	65,729 tCO_2e

Appendix 1. Abbreviations

Abbreviations	Full texts
AMS	Approved Methodology for Small Scale project activities
BE	Baseline Emissions
BM	Build Margin
CAR	Corrective Action Request
CBID	Chhattisgarh Boiler Inspection Department
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CECB	Chhattisgarh Environment Conservation Board
CH4	Methane
CL	Clarification request
CM	Combined Margin
CO2e	Carbon Dioxide Equivalent
COP	Conference of Parties
CSPDCL	Chhattisgarh State Power Distribution Company Limited
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	Executive Board
EF	Emission factor
EI	External Individuals
ER	Emission Reductions
ETN	Electricity Transaction Notes
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
KP	Kyoto Protocol
kWh	Kilo Watt Hour
LE	Leakage emissions
MERs	Monthly Electricity Reports
MP	Monitoring Plan
MR	Monitoring Report
MW/MWh	Megawatt / Megawatt hour
OM	Operating Margin
O & M	Operation and Maintenance
PCP	Project Cycle Procedure for project activities
PDD	Project Design Document
PE	Project Emissions
PP	Project Participant
PPA	Power Purchase Agreement
PS	Project Standard for project activities
QA/QC	Quality Assurance/Quality Control
SEB	State Electricity Board
S/N	Serial Number
tCO2e	Tonnes of Carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard for project activities

Appendix 2. Competence of team members and technical reviewers

Personnel Name:		**RohitBadaya**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Solid waste and wastewater TA 13.2 Manure		
Approved by	Manager Competency & Training		
Approval date:	16/10/2017		

Personnel Name:		**Laxman Prasad**	
Qualified to work as:			
Team Leader	☐	Technical Expert	☒
Validator/Verifier	☐	Financial Expert	☐
Technical Reviewer	☐	Local Expert	☐
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Metal production	TA 9.2 Iron, steel and Ferro-alloy production		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	31/12/2014		

Personnel Name:		**Sanjay Kandari**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		

Approved by (Manager C & T)	Akhilesh Joshi
Approval date:	11/12/2015

Personnel Name:		**S Sitaramaiah**	
Qualified to work as:			
Team Leader	☐	Technical Expert	☒
Validator/Verifier	☐	Financial Expert	☐
Technical Reviewer	☐	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy industries (renewable/non-renewable sources)		TA 9.1: Metal production	
Approved by (Manager C & T)		Sanjay Kandari	
Approval date:		10/11/2016	

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	SBPIL	Shri Bajrang Power and Ispat Ltd.; CDM-PDD of the Project Activity titled "Shri Bajrang WHR CDM Project", Version 11 dated 02/12/2010	Version 11 dated 02/12/2010	UN website
2	TUV SUD DNV	TUV SUD: Validation Report for the project activity "Shri Bajrang WHR CDM Project", Report No. 806972, Revision 01 (2006, July 13) DNV; Validation report for the project activity "Shri Bajrang WHR CDM Project", Report No. PRJC-192868-2009-CCS-IND dated 30/07/2010	Report No. 806972, Revision 01 (2006, July 13) Report No. PRJC-192868-2009-CCS-IND dated 30/07/2010	UN website
3	SBPIL	Shri Bajrang Power and Ispat Ltd.; Monitoring Report for the Project Activity titled "Shri Bajrang WHR CDM Project" for monitoring period starting from 01/09/2013 to 31/08/2014 (webhosted version 01 and revised MR version 02)	Version 01, dated 25/10/2018 (webhosted) Version 03, dated 30/03/2019 (final)	SBPIL

4	SBPIL	Shri Bajrang Power and Ispat Ltd.; Emission Reductions Sheet	Version 01, dated 25/10/2018 (webhosted) Version 03, dated 30/03/2019 (final)	SBPIL
5	SBPIL	CDM-EB: ACM0004, Version 02, "Consolidated methodology for waste gas and/or heat for power generations"	Version 02	UN website
6	UN website	CDM-EB; Monitoring Report Form (F-CDM-MR), Version 06.0	Version 06.0	UN website
7	SEB	Shri Bajrang Power and Ispat Ltd.; Commissioning certificate of 8 MW and 10 MW WHR based power plant and connectivity permission from grid	-	SBPIL
8	-	Shri Bajrang Power and Ispat Ltd.; Calibration certificates of all generation and auxiliary energy meters during the period 1 September 2013 to 31 August 2014	-	SBPIL
9	-	Shri Bajrang Power and Ispat Ltd.; Calibration report of all measuring equipment used including temperature transmitters with thermocouple, pressure transmitter and differential pressure transmitter..		SBPIL
10	CECB	Shri Bajrang Power and Ispat Ltd.; Air and water consent for the project activity	-	SBPIL
11	CSPDCL	Shri Bajrang Power and Ispat Ltd.; Power Purchase agreement signed between SBPIL and Chattisgarh State Power Distribution Company Limited dated 10/03/2014	Dated 10/03/2014	SBPIL
12	CECB	Chhattisgarh State Electricity Board; Letter dated 13/7/2005 regarding synchronization with grid	Dated 13/7/2005	SBPIL
13	SBPIL	Shri Bajrang Power and Ispat Ltd.; Equipment Purchase evidences such as Purchase order, specification of equipment used in project activity,		SBPIL
14	PP	Shri Bajrang Power and Ispat Ltd.; Signal Line Diagram of the project activity, Photograph of equipments like boilers, turbines, generators, and meters, with nameplate visible in photograph Shri Bajrang Power and Ispat Ltd.; Shut down evidences for the verification period 1 September 2013 to 31 August 2014	-	SBPIL
15	CBID	Chattisgarh Boiler Inspection Department; Boiler Inspection Certificate for Shri Bajrang Power and Ispat Ltd	-	SBPIL
16	SBPIL	Shri Bajrang Power and Ispat Ltd.; Supportive evidences (plant records) for total electricity generated and auxiliary consumption by WHR project activity	-	SBPIL

17	SBPIL	Shri Bajrang Power and Ispat Ltd.; Energy content of steam from waste gas boilers fed to common steam header calculations as part of emission reduction excel spreadsheet	-	SBPIL
18	SBPIL	Shri Bajrang Power and Ispat Ltd.; Energy content of steam from AFBC boiler fed to common steam header calculations as part of emission reduction excel spreadsheet	-	SBPIL
19	SBPIL	Shri Bajrang Power and Ispat Ltd.; Plant Records of the following covering reported monitoring period: 1. Temperature of steam from waste heat boiler 2. Pressure of steam from waste heat boiler 3. Quantity of steam from waste heat boiler 4. Temperature of steam from AFBC boiler 5. Pressure of steam from AFBC boiler 6. Quantity of steam from AFBC boiler 7. Quantity of steam going to new 8 MW turbine from AFBC boiler 8. Quantity of fossil fuel consumed	-	SBPIL
20	SGS DNV URS	Verification report for 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th,10thMonitoring period	-	SBPIL

Appendix 4. Clarification requests, corrective action requests and forward action requests

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

~~**FAR ID**~~	~~xx~~	~~**Section no.**~~	~~E.2~~	~~**Date:**DD/MM/YYYY~~
~~**Description of FAR**~~				
~~**Project participant response**~~				~~**Date:**DD/MM/YYYY~~
~~**Documentation provided by project participant**~~				
~~**DOE assessment**~~				~~**Date:**DD/MM/YYYY~~

Table 2. CL from this verification

CL ID	01	**Section no.**	Section C	**Date:**04/02/2019
Description of CL				
1. As per the Section C of MR (*QA/QC procedures*), "*the management also conducts internal audit and the date for the last internal audit was 22/09/2015*". The PP is requested to clarify whether the audit conducted on 22/09/2015 cover the entire monitoring period (01/09/2014-31/08/2015). PP is further requested to provide the date of internal audit which falls under the monitoring period.				

Project participant response	**Date:**19/02/2019
Earlier a training cum audit session was organised on 06/10/2014 which is within monitoring period. The attendance record is being provided. Also audit conducted on 22/09/2015 covers the entire monitoring period QA/QC procedures.	
Documentation provided by project participant	
Training Attendance record	
DOE assessment	**Date:**04/03/2019
The PP has now additionally clarified on the previous internal audit/trainings conducted which also falls within the monitoring period. The internal audit/training records have been checked and found appropriate. Further the latest audit was conducted on 22/09/2015 which also covers the monitoring as was discussed and confirmed during the site visit. Hence the issue is closed.	

CL ID	02	**Section no.**	-	**Date:**04/02/2019
Description of CL				
1. PP is requested to submit the following supporting documents: - Technical details/specifications of all the major equipments (boilers, TGs etc.) and all meters/measuring instruments/devices corresponding to the project activity. - Training records corresponding to the monitoring period. -Boiler Certificate.				
Project participant response				**Date:**21/02/2019
Supporting documents is being provided				
Documentation provided by project participant				
Boiler Specifications, Technical details of Turbine - 8 MW & 10 MW and Instrument certificate reports				
DOE assessment				**Date:**04/03/2019
The technical details/specifications of the major equipments and training records have been submitted and the same was also confirmed during the site visit. Hence the issue is closed.				

CL ID	03	**Section no.**	Section D.2	**Date:**04/02/2019
Description of CL				
The records for the calibration conducted on 02/04/2014 has been submitted to the DOE. Based on the summary of results, it has been observed that some of the meters were found defective, however no such details are traceable in the monitoring report. Hence PP is requested to clarify on the defective meters found during the calibration conducted on 02/04/2014.				
Project participant response				**Date:**22/02/2019
The meter change details already been updated in the MR section D.2. Those defective were the spare meters and not used in any of the monitoring duration.				
Documentation provided by project participant				
New Meter Certificates, MR V2				
DOE assessment				**Date:**04/03/2019
The serial number of the meters changed during the monitoring period has been checked and also the calibration certificate records have been checked and found that the defective meters were not used for the monitoring purpose during the monitoring period. Hence the issue is closed.				

Table 3. CAR from this verification

CAR ID	01	**Section no.**	Section D.2	**Date:**04/02/2019
Description of CAR				
The template of the Monitoring table (*Purpose of data/parameter)* under Section D.2 of the MR has been altered which needs to be corrected to the original template. The corrections shall be provided in the Monitoring tables under Section D.2 of the MR.				
Project participant response				**Date:**22/02/2019
Template has been corrected				
Documentation provided by project participant				
MR V2				
DOE assessment				**Date:**04/03/2019
The original template of the monitoring table has been restored in the Section D.2 of the MR. Hence the issue is closed.				

CAR ID	02	Section no.	Section D.2	Date:04/02/2019
Description of CAR				
1. As per the registered PDD, for the parameter “NCVi”, the value shall be sourced from the Sales contract. In case the Sales contract is not available, then “Indian National Communication data” will be used. However the PP has not provided any justification for the choice of source of data in the PDD. Appropriate justification shall be included in the PDD.				
Project participant response				**Date:**22/02/2019
Due to unavailability of sales contract the “NCVi” values is sourced from Indian National Communication data which refers to IPCC 2006 data. MR has been updated.				
Documentation provided by project participant				
MR V2				
DOE assessment				**Date:**04/03/2019
PP has now clarified on the non-availability of the sales contract and hence sourcing the data based on the Indian National Communication data which also refers to IPCC 2006 data is acceptable. The same was also discussed and confirmed during the site visit. Hence the issue is closed.				

CAR ID	03	Section no.	ERs Excelsheet	Date:04/02/2019
Description of CAR				
The Emission Reductions Excelsheet is protected and hence it is not possible to check the formula for the calculations in the Excelsheet. Hence the Excelsheet shall be submitted in the unprotected mode for the verification purpose.				
Project participant response				**Date:**22/02/2019
Excel sheet is being provided in unprotected mode.				
Documentation provided by project participant				
ER sheet				
DOE assessment				**Date:**04/03/2019
The Emission Reductions Excelsheet has now been provided in the unprotected mode and it is now possible to check the formula used in the ERs Excelsheet. Hence the issue is closed.				

Table 4. FAR from this verification

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

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Document information

Version	*Date*	*Description*
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.

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