

 <b>Validation report form for post-registration changes for CDM project activities</b> <b>(Version 01.0)</b>	
<i>Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for post-registration changes for CDM project activities" at the end of this form.</i>	
<b>VALIDATION REPORT ON POST-REGISTRATION CHANGES (PRCs)</b>	
<b>Title and reference number of the project activity</b>	Efficiency Improvement by Boiler Rehabilitation in fossil fuel-fired (Natural Gas) Steam Boiler System UN Ref. No. 10006
<b>Process track</b>	<input checked="" type="checkbox"/> Prior approval <input type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
<b>Version number of the validation report on PRCs</b>	3.0
<b>Completion date of the validation report on PRCs</b>	31/05/2016
<b>Type(s) of PRCs</b>	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan to a registered project activity <input checked="" type="checkbox"/> Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline <input checked="" type="checkbox"/> Changes to the project design of a registered project activity <input type="checkbox"/> Types of changes specific to afforestation and reforestation project activities
<b>Version number of PDD to which this report applies</b>	PDD Version 07
<b>Project participant(s)</b>	Al Jubail Fertilizer Company (Al Bayroni) Saudi Basic Industries Corporation (SABIC)
<b>Host Party</b>	Saudi Arabia
<b>Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)</b>	1, AM0056, Version 01 Efficiency improvement by boiler replacement or rehabilitation and optional fuel switch in fossil fuel-fired steam boiler systems
<b>Name of DOE</b>	Earthood Services Private Limited

Name, position and signature of the  
approver of the validation report on PRCs



Dr. Kaviraj Singh,  
Managing Director

## SECTION A. Executive summary

### Brief summary:

Earthood has performed the validation of the post registration changes of CDM project “Efficiency Improvement by Boiler Rehabilitation in fossil fuel-fired (Natural Gas) Steam Boiler System” having UNFCCC ref. number 10006. The purpose of the project activity is to improve energy efficiency by heat recovery from the exhaust gases. The project activity packaged boilers were modified to include new economizer, modified super heater and associated modifications in the convection ducts. The project is located in the facility Al Bayroni, in Jubail Industrial City, Eastern Province, Kingdom of Saudi Arabia.

### Scope of validation:

This validation is an independent and objective review of the post registration changes in registered PDD. The scope of the validation of post registration changes is to determine whether there are proposed or actual changes to the project design of the registered CDM project activity. Earthood also determined whether the description in the revised PDD submitted by project participants, which describe the nature and extent of the actual changes, accurately reflects the implementation, operation and monitoring of the modified project activity. The validation of post registration changed tests the data and assertions set out in the revised PDD based on the following:

- (i) Approved methodology AM0056 Version 01 /08/ and applied tools, applied in the PDD
- (ii) Revised PDD /01/
- (iii) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords
- (iv) CDM Validation and Verification Standard (Version 09) /05/
- (v) CDM Project Standard (Version 09) and /07/
- (vi) CDM Project Cycle Procedure (Version 09) /06/

Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the PA's reported emission reductions

### Validation process:

The validation process, for post registration changes, is conducted as per internal CDM Quality Manual, which includes the following steps;

- a) Contract with project participants and appointment of validation team and technical review team
- b) Desk review of the revised PDD and annexures by validation team and planning of onsite audit
- c) On site audit by validation team consisting of Team Leader and all Technical Experts, as a minimum
- d) Follow up activities e.g., interviews
- e) Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft validation report
- f) Independent technical review of the draft validation report and final/revised documentation (e.g., revised PDD, corresponding ER sheet and evidences)
- g) Reporting and closure of TR comments/findings (CARs/CLs/FARs) and final approval for the decision made
- h) Issuance of final validation report to contracted PP (or authorized representatives) and submission to UNFCCC for approval of post registration changes as appropriate.

### Conclusion:

The conclusion of the validation which includes the summary of proposed and assess changes is as under;

- a) There are three changes proposed as ‘Corrections’. All the proposed ‘Corrections’ are as per Appendix 1 of CDM PS Version 9. Therefore, prior approval by Board is not required/mandatory.
- b) There are three changes from proposed as ‘Permanent Changes from registered monitoring plan’. One of the proposed change does not fall under Appendix 1 of CDM PS Version 9. Therefore, prior approval by Board is required.
- c) There is one change pertaining to ‘Change in project design’, which does not affect the content of para 6(a to c). Therefore, prior approval by Board is not required/mandatory.

Considering the validation of post registration changes has occurred during the verification and considering one of the proposed change does not fall under Appendix 1 of CDM PS Version, therefore, collectively these would require prior approval from CDM EB. The validation confirms that the implementation of the post registration changes is in line with the applied methodology and all other applicable tools and guidance.

This report is the combined assessment opinion for all the changes that are proposed in the PDD and request is submitted for prior approval by CDM EB.

**SECTION B. Validation team, technical reviewer and approver****B.1. Validation team 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 review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Gautam	Ashok Kumar	Central Office	Y	Y	Y	Y
2.	Technical Expert TA1.1	IR	Gautam	Ashok Kumar	Central Office	Y	Y	Y	Y

**B.2. Technical reviewer and approver of the validation report on PRCs**

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	IR	Singh	Kaviraj	Central Office
2.	Technical Expert TA1.1	IR	Singh	Kaviraj	Central Office

**SECTION C. Means of validation****C.1. Desk review**

The validation is performed primarily as a document review of the available revised PDD version initially submitted by client and all other subsequent versions, if any, including final version. The desk review assessment is performed by an assessment team using a validation protocol and the submitted documents are revised against the applicable requirements. The non-conformities identified at this stage are clubbed with the findings on site, during the site visit, and issued to client. List all documents reviewed or referenced during the validation in Appendix 3 below.

**C.2. On-site inspection**

Duration of on-site inspection: 28/10/2015 and 29/10/2015				
No.	Activity performed on-site	Site location	Date	Team member
1.	Project implementation, including changes in project design	Jubail	28/10/2015	Ashok Gautam
2.	Compliance of monitoring plan in the PDD with monitoring methodology	Julbail	28/10/2015	Ashok Gautam
3.	Monitoring activities and verification of date	Jubail	28/10/2015	Ashok Gautam
4.	Emission reduction calculations	Jubail	29/10/2015	Ashok Gautam

**C.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Israfilof	Zaour	SABIC	28/10/2015	CDM	Ashok Gautam
2.	Shaffeulah	Azeez M	Al Jubail	28/10/2015	Environment	Ashok Gautam
3.	Al-Fayeeh	Abdullatif	Al Jubail	28/10/2015	EHSS	Ashok Gautam
4.	Jacob	Abraham	Al Jubail	28/10/2015	ECB	Ashok Gautam
5.	Shahzad	Rizwan	Al Jubail	28/10/2015	Process	Ashok Gautam
6.	Pandya	L. S.	Al Jubail	28/10/2015	Process	Ashok Gautam
7.	Takrouni	Omar	Al Jubail	28/10/2015	Management	Ashok Gautam
8.	Sung	Chyusu Hsu	Al Jubail	28/10/2015	Management	Ashok Gautam

**C.4. Clarification requests, corrective action requests and forward action requests raised**

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	Nil	Nil	Nil
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	Nil	Nil	Nil
Corrections	Nil	01	Nil
Changes to the start date of the crediting period	Nil	Nil	Nil
Inclusion of a monitoring plan to a registered project activity	Nil	Nil	Nil
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	Nil	Nil	Nil
Changes to the project design of a registered project activity	01	01	Nil
Types of changes specific to afforestation and reforestation project activities	Nil	Nil	Nil
Others (please specify)	Nil	Nil	Nil
<b>Total</b>	01	02	Nil

**SECTION D. Validation findings****D.1. Compliance with PDD form**

<b>Means of validation</b>	The revised PDD has been submitted in both tracked and clean versions/1 /. Latest PDD template version 06 (CDM-PDD-FORM) available on the UNFCCC website has been used. Both registered and revised PDD were reviewed for the consistency of the information and it is confirmed that information transferred from previous template to new template is materially the same as in the registered PDD except the content of proposed PRCs.
<b>Findings</b>	CL#01 and CAR#02 were raised and resolved.
<b>Conclusion</b>	The revised PDD applied the latest PDD template available and the information has been transferred to the new template is materially the same.

**D.2. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline**

<b>Means of validation</b>	NA
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<b>Findings</b>	NA
<b>Conclusion</b>	NA

**D.3. Corrections**

<b>Means of validation</b>	<p>Change #1: Change in the Data Unit from "tons per hour and tons per year" to "Tonnes per year". The proposed change in Data Unit is in accordance with the applied methodology. However, considering erstwhile "tons per hour" is not mandated by the applied methodology and "tonnes per year" was already included in the registered monitoring plan of the PDD, the verification team accepted the proposed change as correction.</p> <p>Change #2: The GWP of the CH<sub>4</sub> was erroneously considered as 21 in the registered PDD. The revised PDD includes GWP<sub>CH<sub>4</sub></sub> as ex ante parameter and corrected the value under B.6.3 for ex ante estimates of leakage emissions. The said change has been proposed as per para 1 of Appendix 1 of CDM PS Version 9. The verification team reviewed the proposed change and found it acceptable as correction.</p> <p>Change #3: Minor formatting changes in the revised PDD either as a consequence of using the latest PDD template or representing the correct information at various places in the revised PDD due to other proposed changes. The verification team reviewed all the changes and found them acceptable as correction.</p>
<b>Findings</b>	CAR#02 was raised and resolved.
<b>Conclusion</b>	<p>The assessment team confirms</p> <ul style="list-style-type: none"> <li>a) The corrected information given in the revised PDD is an accurate reflection of actual project information and consistent with the actual implementation;</li> <li>b) The corrected parameters are in accordance with the applied methodology and CDM PS Version 9.</li> <li>c) The proposed corrections were identified during the verification and none of these require prior approval by Board.</li> </ul>

**D.4. Changes to the start date of the crediting period**

<b>Means of validation</b>	NA
<b>Findings</b>	NA
<b>Conclusion</b>	NA

**D.5. Inclusion of a monitoring plan to a registered project activity**

<b>Means of validation</b>	NA
<b>Findings</b>	NA
<b>Conclusion</b>	NA

**D.6. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline**

<b>Means of validation</b>	<p>Change #1: Change of monitoring frequency for parameters <math>P_{P,j,k,y}</math> (System) and <math>TEMP_{P,j}</math> in the registered monitoring plan from 'Hourly' to 'Every 15 minutes' in the revised PDD. The change is necessitated in order to ensure compliance with the prescribed monitoring frequency in the applied methodology. The verification team reviewed the revised information in the revised PDD in this regard and found it consistent with the applied methodology (page 20, 21). The proposed change was found to be in accordance with para 5(g) of Appendix 1 of CDM PS Version 9 and thus, prior approval from CDM EB is not mandatory.</p> <p>Change #2: Inclusion of additional monitoring parameters viz., <math>NCV_{i,y}</math>, <math>FC_{i,j,y}</math> and <math>EF_{CO_2 i,y}</math> under section B.7.1 of the revised PDD. The inclusion is necessitated to properly determine the project emissions as prescribed in the registered PDD (page 29, 30) and "Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion" Version 2 /10/. The verification team found that in absence of aforesaid parameters ex post determination of project emissions is not possible. The revised PDD includes the parameters viz., <math>NCV_{i,y}</math>, <math>FC_{i,j,y}</math> and <math>EF_{CO_2 i,y}</math> under</p>
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	<p>section B.7.1 with sufficient details in line to the referred tool. The proposed change is not included under Appendix 1 of CDM PS Version 9, therefore, the prior approval is required in this regard.</p> <p>Change #3: Additional details for measurement methods has been included with regard to some parameters that are required to be monitored as per ASME PTC 4 Standard under Note 1 in the revised PDD. The changes made has been proposed as part of para 5(f) of Appendix 1 of CDM PS Version 9. The verification team reviewed the included additional information and found that it clarifies adequately as how the ASME PTC 4 Standard is to be applied by the PP while reporting the results of the parameters. Considering that primary information was already included in the registered PDD, the verification team accepted the proposed change as per para 5(f) of Appendix 1 of CDM PS Version 9, which does not require prior approval.</p>
<b>Findings</b>	CL#01 and CAR#02 were raised and resolved.
<b>Conclusion</b>	<p>The proposed permanent changes in the registered monitoring plan are identified by PP and the monitoring plan has been revised in line with the actual implementation of monitoring measures and procedures and QA/QC on site. None of these changes reduce the level of accuracy of the monitoring compared with the requirements contained in the registered PDD.</p> <p>The same version of the methodology has been considered by the PP. The proposed changes do not lead to any deviation from the applied methodology/tools. The proposed permanent changes are unlikely to lead to a reduction in the accuracy of the calculation of emission reductions.</p>

#### D.7. Changes to the project design of a registered project activity

<b>Means of validation</b>	<p>The description of the project activity in the registered PDD indicated that three existing boilers viz., 2008-U, 2008-UA and 2052-U were modified with new economizer, new modified super-heater and associated modifications in convection ducts. It was also demonstrated that the aforesaid modifications would lead to improvement in energy efficiency and thereby reduction in the fuel demand to produce the steam. During the first verification, it was found (based on the physical observations during the site visit and review of completion records /11,12/) that all three boilers were indeed modified in the same manner as indicated in the registered PDD.</p> <p>However, one of the applicability conditions of the applied methodology warranted that only one type of fossil fuel is to be used and the quantity of other auxiliary fuels, if used, shall not exceed 1% of total fuel used. However, during the verification, when monitoring data with regard to fuel consumption was being verified for one of the modified boiler i.e., 2052-U it was found /13/ that it consistently exceeded the quantity of other auxiliary fuel (non-fossil fuel) use above the limits prescribed in the methodology, due to operational reasons. The combustion of the auxiliary fuel is necessitated by operational constraints as found during the interview with the plant personnel. The other type of fuel was described as liquid waste that is waste product from internal processes. During the period under verification i.e., 01/10/2014 to 30/09/2015, the quantity of liquid waste was found to be constituting approximately 20% by weight when compared with the quantity of Natural Gas consumed in the same period by boiler number 2052-U. Taking note that the verification team raised the finding as part of verification to seek further information on this matter as it was a constraint prescribed by the applied methodology under applicability conditions. The verification considered the use of auxiliary fuel in excess of allowed 1% to be a parameter under the control of PP for whatsoever reason. Therefore, this was seen as change in project design and accordingly assessed.</p> <p>In response to the finding raised, with regards to fuel use, by verification team, the PP has proposed to remove the boiler i.e. 2052-U from the project boundary and project description in the revised PDD in order to ensure the compliance of the project description with the applied methodology. The verification team confirms that the other two boilers viz., 2008-U and 2008-UA are duly complying with</p>
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conditions given in the registered PDD and therefore retained in the project description. As a result of change in project design, the overall emission reductions of the project activity have got reduced as compared to registered PDD. The verification team has checked that several sections of the revised PDD were revised to correctly update the revised number of ERs. A corresponding revised ER sheet (with removal boiler 2052-U) was also reviewed by the verification team and was found to be appropriate.

Following text has been added in response to clarifications sought by UNFCCC via email received on 17/05/2016.

Taking note of the fact that a boiler 2052-U has been removed from the project description/design there are consequential changes in Section B.6.3 and B.6.4 of revised PDD. These are summarized as under;

Step 1: Information pertaining to boiler 2052-U has been removed.

Step 2: Column pertaining to boiler 2052-U has been removed from the Table B.6.1.

Step 3: Table B.6.2, B.6.3 and B.6.4 have been truncated to reflect the remaining boilers as part of project activity i.e., 2008-U and 2008-UA and associated values of the parameters. In addition, there are slight change in calculating FCBL<sub>i</sub>, PBL<sub>i</sub>, as it now considers only the relevant values (falling within the load class defined e.g., load class 6 refers to 101 to 120 MT/Hr, therefore formulae (logic function) has been inserted in the worksheet "Load Class (average)" to only use the values that are greater than 100 MT/Hr but lower than or equal to 120 MT/Hr – as an example for FCBL<sub>i</sub>, and similarly for other parameters) to calculate the average values. The registered PDD contained these values, which were directly punched and not reproducible and therefore were considered skewed by the verification team. As a consequence, the values reported for parameters SFC<sub>i,j</sub>, SEC and SEC Sys have also changed from the registered PDD in the table B.6.2, B.6.3 and B.6.4.

Step 4: Information pertaining to boiler 2052-U has been removed from Table B.6.5. The figures B.1 to B.2 were updated as per revised values, mentioned above.

Step 5: Table B.6.6 has been updated to list only two boilers i.e., 2008-U and 2008-UA. In addition, the logical function (as explained above for Step 3) has been inserted in the columns "F, G and H" of worksheet "System Load Classes & Emissions" to properly select and calculate the average values for Steam Production and Net Calorific Value of Fuel and NG Consumption. The values for Specific Energy Consumption and Specific Fuel Consumption have changed in the revised PDD and corresponding ER sheet, as a result. The revised values are correct, accurate and reproducible using the same primary data as was used during validation. There is no change in the primary data and same has been used as basis in the revised PDD with the exception that data for boiler 2052-U is not used anymore.

Step 6: Taking note of the outcome of the previous steps, as mentioned above, the values have changed in the Table B.6.7 for various parameters primarily on account of removal of one boiler i.e., 2052 U and associated steam production and fuel consumption data. The average fuel consumption (AFC) and average energy consumption (AEC) have changed as result of changes in the input variable as mentioned above. In addition, the values given in the registered PDD for AFC and AFC considered the values from all three boilers out of which one is removed (as part of this request). The verification team considers the values given in the revised PDD and corresponding ER as correct, accurate and reproducible.

The revised PDD therefore includes the updated figures for ERs (Baseline Emissions, Project Emissions and Leakages) under section B.6.3 and B.6.4 and at other places to consistently reflect the revised estimates based on change in project design as assessed above. The baseline emissions have reduced to 376,692 tCO<sub>2</sub>/year (from 482,358 tCO<sub>2</sub>/year in the registered PDD); project



	<p>emissions reduced to 339,984 tCO<sub>2</sub>/year (from 435,304 tCO<sub>2</sub>/year) and leakages 4850 tCO<sub>2</sub>/year (from 5223 tCO<sub>2</sub>/year). The overall ERs have reduced from 41831 tCO<sub>2</sub>/year (in registered PDD) to 31,857 tCO<sub>2</sub>/year in the revised PDD. The validation team considers that the revised values as included in the revised PDD are accurate, correct and complete reflection of the proposed change in project design/description.</p> <p>Based on the interview of the plant personnel and looking at the completion certificate of the boiler 2052-U, and date of registered PDD, it is unlikely that PP would have known it during the validation.</p>
<b>Findings</b>	CAR#03 was raised and resolved.
<b>Conclusion</b>	<p>The assessment team confirms that the changes in project design are not adversely affecting the additionality of the project as it remains additional. The additionality argument demonstrated in the registered PDD i.e., First of its kind, do not get adversely affected by the proposed change (removal of one of the boilers from project description).</p> <p>The changes do not affect the scale of the project, as the project activity remains the large scale project.</p> <p>The application and applicability of the applied methodology AM0056 Version 01 is duly respected in the revised PDD. The boiler i.e., 2052-U, has been removed from the project description, which was the critical component affecting the applicability condition of the applied methodology.</p> <p>The other changes brought into the monitoring plan are in compliance with applied monitoring methodology /08/ and/or tool /10/.</p> <p>It is further confirmed by the verification team that proposed changes include all types of changes with regard to completeness of the information.</p>

#### D.8. Types of changes specific to afforestation and reforestation project activities

<b>Means of validation</b>	NA
<b>Findings</b>	NA
<b>Conclusion</b>	NA

### SECTION E. Internal quality control

A draft validation report that is prepared by assessment team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the assessment team.

During the technical review process additional findings may be identified or the closed out findings may be opened, which needs to be satisfactorily resolved before the request for registration is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the assessment team. The decision taken by the Technical Reviewer is final and authorized on behalf of Earthood Services Private Limited.

**SECTION F. Validation opinion**

Earthood Services Private Limited (Earthood) has performed the validation of the post registration changes of the project activity Efficiency Improvement by Boiler Rehabilitation in fossil fuel-fired (Natural Gas) Steam Boiler System by Al Jubail Fertilizer Company (Al Bayroni).

The validation was performed on the basis of rules and requirements defined by UNFCCC for the CDM project activities. The review of the revised PDD, supporting documentation and subsequent follow-up actions (including onsite visit and interviews), have provided Earthood with sufficient evidence to determine the fulfilment of stated criteria.

The description in the revised PDD Version 08 dated 30/05/2016 meets all relevant UNFCCC requirements for the CDM and correctly applies the selected baseline and monitoring methodology.

This report is the combined assessment opinion for all the changes that are proposed in the PDD and request is submitted for prior approval by CDM EB.



Kaviraj Singh

Managing Director

for **Earthood Services Private Limited**

31/05/2016

Gurgaon, Haryana, India

## Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
CER	Certified Emission Reduction
CL	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	Executive Board
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MoV	Means of Verification
PDD	Project Design Document
PP	Project Participant
PRC	Project Registration Changes
QA/QC	Quality Assurance / Quality Control
AJFC	Al Jubail Fertilizer Company (Al Bayroni)
RMP	Revised Monitoring Plan
TA	Technical Area
UNFCCC	United Nations Framework Convention on Climate Change

## Appendix 2. Competence of team members and technical reviewers

Competence Statement	
<b>Name</b>	Ashok Gautam
<b>Country</b>	India
<b>Education</b>	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)
<b>Experience</b>	14 Years
<b>Field</b>	Energy, Climate Change & Environment
Approved Roles	
<b>Team Leader</b>	YES
<b>Validator</b>	YES
<b>Verifier</b>	YES
<b>Financial Expert</b>	NO
<b>Technical Reviewer</b>	YES

TA Expert (1.1)	YES		
TA Expert (3.1)	YES		
TA Expert (13.1)	YES		
Reviewed by	Abhishek Mahawar	Date	29/12/2014
Approved by	Kaviraj Singh	Date	29/12/2014

Competence Statement			
Name	Kaviraj Singh		
Country	India		
Education	Ph.D. (Environmental Engineering), IIT Delhi M.Phil. (Energy & Environmental), DAVV Indore		
Experience	8 Years		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.1)	YES		
TA Expert (1.2)	YES		
TA Expert (13.1)	YES		
TA Expert (13.2)	YES		
TA Expert (15.2)	YES		
Reviewed by	Abhishek Mahawar	Date	29/12/2014
Approved by	Ashok Gautam	Date	29/12/2014

### Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1.	PP	Revised PDD (Clean and Tracked)	Version 08 dated 30/05/2016	PP
2.	PP	Revised ER sheet	Corresponding to revised PDD	PP
3.	PP	Registered PDD	Version 06 dated 08/07/2014	Others
4.	SGS	Validation Report (Registered PDD)	Version 03 dated 14/07/2014	Others
5.	UNFCCC	CDM Validation and Verification Standard (VVS)	Version 09	Others
6.	UNFCCC	CDM Project Cycle Procedure (PCP)	Version 09	Others
7.	UNFCCC	CDM Project Standard (PS)	Version 09	Others
8.	UNFCCC	AM0056 Efficiency improvement by	Version 01	Others

	C	boiler replacement or rehabilitation and optional fuel switch in fossil fuel-fired steam boiler systems		
9.	UNFCCC C	CDM-PDD-Form, Version 06	<a href="https://cdm.unfccc.int/Reference/PDs_Forms/index.html">https://cdm.unfccc.int/Reference/PDs_Forms/index.html</a>	Others
10.	UNFCCC C	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion	Version 2	Others
11.	PP	Mechanical Completion Certificate for Boilers 2008-U and 2008-UA	16 May 2013	PP
12.	PP	Mechanical Completion Certificate for Boilers 2052-U	17 Feb 2014	PP
13.	PP	Monitored fuel consumption data for all fuel types and all three boilers	From 01/10/2014 to 30/09/2015	PP

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

**Table 1. CL from this validation**

CL ID	01	Section no.	Validation Report	Date	10/02/2016
<b>Description of CL</b>					
<p>CL#01 is raised on following accounts</p> <ul style="list-style-type: none"> <li>a) The PP shall clarify the reason for proposed changes, in particular those relating to change in project design, timing of such changes (when did it occur), whether the changes would have been known prior to registration of the project activity.</li> <li>b) The PP shall clarify how the proposed changes, pertaining to changes in project design, would impact the overall operation/ability of the project activity to deliver the emission reductions stated in the registered and revised PDD.</li> <li>c) The PP shall demonstrate the additionality of the project activity taking note of the proposed changes in the project activity, project description, and how these are still valid under new circumstances (project design change).</li> <li>d) The PP shall clarify as how, whether or not the proposed change in project design would have an adverse impact of the additionality.</li> <li>e) The PP shall clarify as how, whether or not the proposed change in project design affects the validated baseline scenario in the registered PDD and application and applicability of the applied methodology.</li> </ul>					
<b>Project participant response</b>				<b>Date</b> : 17/02/2016	

<p>a) Removal of the boiler 2052-U: the reason for this change in project design is the abnormally high consumption of waste fuel oil in the crediting period in this particular boiler. At the time of project registration (validation) it was envisaged that this boiler will use fuel other than natural gas in the quantities that would not exceed 1% of the total project fuel consumption which is in line with methodology. However, due to operational circumstances and constraints the 1% threshold was exceeded. PP does not expect this to occur again but to avoid doubts and to be conservative decision was made to remove this boiler permanently. Other changes in revised PDD (such as changing monitoring frequency of 2 parameters, monitoring parameter NCV) are corrective in nature since they do not concern project design. They are made to fully reflect monitoring practice and compliance with monitoring requirements. All changes were not known to PP prior to registration of project activity.</p> <p>b) Removal of the boiler 2052-U will not negatively impact the overall operation of the project activity as this component is only one of the three boilers and they are not dependent on each other. This change does not impact the operational efficiency, the baseline and emission reduction performance delivered by other two boilers included in the project boundary. The monitoring results reported within the crediting period for the 2 remaining boilers have been in the line with the baseline and emission reduction estimates outlined in the registered and revised PDDs.</p> <p>c) The additionality of the project activity considering the proposed changes in the project activity is not altered due to the “first of its kind” status obtained for this project from Saudi DNA. The version 05.0.0 of the “Combined tool to identify the baseline scenario and demonstrate additionality” has been applied with the same outcome. The underlying factors, baseline scenario, applicable geographical area, output, application of different technologies, identification of alternative scenarios, barrier analysis and outcomes remain the same. Therefore, additionality of the project activity with two boilers has not been altered as outlined in the registered and revised PDDs and remains valid.</p> <p>d) The underlying factors, baseline scenario, applicable geographical area, output, application of different technologies, identification of alternative scenarios, barrier analysis and outcomes remain the same. Therefore, the proposed change in project design does not have any impact on additionality of the project activity.</p> <p>e) The version 05.0.0 of the “Combined tool to identify the baseline scenario and demonstrate additionality” has been applied with the same outcome. The baseline scenario remains the same. The project methodology remains applicable as outlined in section B2. Even with removal of one boiler the total annual project saving is 143 GWH which is above 60GWH criteria stipulated for small installations in paragraph 28 of decision 1/CMP.2. Therefore, the criteria of different technology of the tool is met.</p>	
<b>Documentation provided by project participant</b>	
Sections B2, B4 of revised PDD	
<b>DOE assessment</b>	<b>Date: 10/03/2016</b>
<p>a) The revised PDD was reviewed and found acceptable. The explanation provided by the PP was found reliable. Closed.</p> <p>b) The explanation provided by PP was found acceptable. The verification team based on the explanation provided closed out the finding.</p> <p>c) The explanation provided by PP was accepted by verification team and finding was closed out.</p> <p>d) The verification team accepted the explanation provided by PP and closed out the finding.</p> <p>e) The revised PDD and explanation was found acceptable and finding was closed out.</p>	

Table 2. CAR from this validation

<b>CAR ID</b>	02	<b>Section no.</b>	Validation Report	<b>Date :</b> 10/02/2016
<b>Description of CAR</b>				

CAR#02 is raised on following accounts

- the changes are summarized under 5 bullet points, however, these are not categorized for their type e.g., correction/temporary deviation/permanent changes from registered monitoring plan/change in project design etc., as appropriate (further it is also not explained whether or not these/some of them are as per Appendix 1 of CDM PS Version 09)
- the worksheet 'system load classes and emissions' has error symbols in several rows e.g. row 11 (refer highlighted yellow cells)
- the row 'value applied' for some parameters has been removed/not depicted under section B.6.2 of revised PDD e.g. TEMP<sub>BLMIN</sub>, TEMP<sub>BLMIN</sub>, PRESS<sub>BLMAX</sub>, PRESS<sub>BLMIN</sub>, (please ensure that the table format is not altered)

**Project participant response****Date :** 17/02/2016

- Changes are categorized in Appendix 6 and reference to Appendix of CDM PS version 09 is made.
- Please note that error symbols ("DIV#" error) are deliberate. They are not to indicate calculation error but rather to demonstrate that there was no such Load Class/system when both boiler running on low load together.
- The row "value applied" reinstated for parameters

**Documentation provided by project participant**

Revised PDD

**DOE assessment****Date:** 10/03/2016

- The revised information in the PDD was found appropriate. Closed out.
- The explanation was found correct and finding was closed out.
- The revised PDD was found correct and finding was closed out.

<b>CAR ID</b>	03	<b>Section no.</b>	D.7	<b>Date :</b>	11/11/2015
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**Description of CAR**

One of the boilers i.e., 2052-U was seen firing the other fuels (waste liquid fuels) in excess of 1% of the total fuel. Therefore, PP are requested to demonstrate how the project activity has is complying or operating in accordance with the description given in the registered PDD, in particular when there is no mention of waste liquid fuel in PDD and also the applicability condition of applied methodology requiring other fuels to be less than 1%.

**Project participant response****Date :** 25/12/2015

*The PP operates three boilers within this project: the first two (identified as 2008-U and 2008-UA) are designed to use only natural gas as a fuel. The third one (identified as 2052-U) was designed to use primarily natural gas. It can also use waste liquid fuels as additional source of fuel. At the time of writing PDD, it was envisaged that boiler 2052-U would use waste liquid fuel in the quantities not exceeding 1% of all the fuel used in this project which is in accordance with methodology requirement. Due to operational necessity during the monitoring period, the boiler 2052-U has exceeded the use of waste liquid fuel by more than 1%. In order to comply with methodology requirements the Project Proponent excludes the boiler 2052-U from consideration of this monitoring report and would propose the PRC.*

**Documentation provided by project participant**

NA

**DOE assessment****Date:** 10/03/2016

Considering the boiler 2052-U has been removed from the project description and same has been proposed and assessed as post registration change, the finding was closed out.  
Note: This finding was raised as part of verification based on the site visit observations.

**Table 3. FAR from this validation**

<b>FAR ID</b>	xx	<b>Section no.</b>		<b>Date:</b>	DD/MM/YYYY
<b>Description of FAR</b>					
NA					
<b>Project participant response</b>					<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>					
<b>DOE assessment</b>					<b>Date:</b> DD/MM/YYYY

There is no FAR raised in this validation.

### Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory		
Document Type: Form		
Business Function: Registration		
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