



Validation Opinion on a Revision in Monitoring Plan

As per “Procedures for Revising Monitoring Plans in Accordance with Paragraph 57 of the Modalities and Procedures for the CDM” (Version 01 – EB26 Report – Annex 34), and “Clarification for Project Participants on When to Request a Revision, Clarification to an Approved Methodology or Deviation” (Version 02 – EB31 Report – Annex 12), Bureau Veritas Certification kindly request the acceptance from the Chair of the Methodology Panel, in consultation with the Chair of the Board, of this request for revision in monitoring plan.

Project Reference: **“Waste Heat based 7 MW Captive Power Project”**

Project Participant: Godawari Power & Ispat Limited – Host Country – India.

Registration details

Date of Registration: 16/04/2006

Registration No. 0264

Reason for request for revision in monitoring plan:

Godawari Power & Ispat Limited has commissioned Bureau Veritas Certification verify the emissions reductions of its CDM project “Waste Heat based 7 MW Captive Power Project” (hereafter called “the project”) at Siltara, Raipur District, Chhattisgarh, India. During the issuance of the CER’s for the period 01/01/2006 to 31/12/2006, CDM-EB required the Project Participant to file a revised monitoring plan before the subsequent verification (EB-32, Page No.16, Para 79 (d) (<http://cdm.unfccc.int/EB/032/eb32rep.pdf>)). Hence this revised Monitoring Plan is submitted to CDM-EB for approval.

Existing installations during this project activity, was that there was 1 WHRB (WHRB#1) of 30 TPH capacity along with an AFBC boiler of 70 TPH capacity supplying steam through a common steam header to 2 turbines (TG#1 and TG#2) of 10 MW each. There was some steam venting which was conservatively deducted from WHRB steam quantity.

Later, WHRB#2, which is a part of another CDM project activity (Ref No: 0772), was commissioned in January 2006. WHRB#2 includes one Waste Heat Recovery Boiler of 50 TPH supplying steam through the same common steam header to another two turbines (TG#3 and TG#4) of 10 MW and 30 MW respectively.

In this context, steam from WHRB2 supplied to common steam header and steam consumed by TG#3 and TG#4 had also to be monitored, as they all are connected to the same common steam header (Schematic diagram of this set up is attached in the revised monitoring plan) to arrive at the contribution of steam from WHRB#1; as well as the power generated by TG#3 & TG#4 had also to be monitored to arrive at the net power generation due to the contribution of steam from WHRB#1.

Now the project participant has revised the monitoring plan to include following:

1. Daily monitoring of steam parameters (Pressure, temperature and flow) from WHRB#2 along with WHRB#1, AFBC boiler, to TG#3 and TG#4 along with TG#1 & TG#2.
2. Daily monitoring of electrical parameters i.e. power generation from TG#3 and TG#4 also along with TG#1 & TG#2, as well as the total auxiliary power consumption.

Provision was already there for estimating the total steam vented in the captive power plant (CPP) to be considered as vent steam due to the WHRB#1 (i.e. Project Activity).

How the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revisions;

The revised monitoring plan now includes monitoring of steam parameters (Pressure, temperature and flow) from WHRB#2, which is feeding steam into the common header and steam consumed in TG#3 & TG#4; as well as power generated in TG#3 & TG#4 also. Hence, if

1. Gross Enthalpy supplied by WHRB#1 is H1
2. Effective Enthalpy supplied by WHRB#1 is H1e (after deducting the vent steam¹)
3. Total Enthalpy supplied by WHRB#2 is H2,
4. Total Enthalpy supplied by AFBC is H3,
5. Total Enthalpy consumed by TG#1, TG#2, TG#3 & TG#4
6. $EG_{GEN\ CPP}$ is the total power generated by CPP (Including TG#1, TG#2, TG#3 & TG#4),
7. EG_{AUX} is the total Auxiliary power consumed by CPP (Including WHRB#1, AFBC, WHRB#2, TG#1, TG#2, TG#3 & TG#4)

Then,

$$EG_{GEN} \text{ (MWh)} = \frac{EG_{GEN\ CPP} \times (H1e^2)}{(H1 + H2 + H3)} \dots\dots\dots (1)$$

$$EG_{AUX} \text{ (MWh)} = \frac{EG_{AUX\ CPP} \times (H1^3)}{(H1 + H2 + H3)} \dots\dots\dots (2)$$

Net Generation from WHRB#1 is:

$$\begin{aligned} EG_y \text{ (MWh)} &= (1) - (2) \\ &= EG_{GEN} - EG_{AUX} \end{aligned}$$

Hence proposed revision in monitoring plan will not alter the process of verification in any manner..

¹ For calculation of vent steam please refer page 3 of Annex 4.
² Taking H1e as effective enthalpy for calculating EG_{GEN} is conservative.
³ Taking H1 as effective enthalpy for calculating EG_{AUX} is conservative.

Based on parameters, their frequency, proposed quality control measures the level of accuracy and completeness in monitoring is envisaged.

How the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity.

Approved methodology applicable to project activity is ACM0004 and AM_REV_0033 (which the Meth panel approved on 30/03/2007).

Parameters under proposed monitoring plan are additional to those, which were part of approved monitoring plan of the project activity and are according to the monitoring methodology.

How the findings of previous verification reports, if any, have been taken into account

Monitoring of steam parameters of WHRB#2 and TG#3, TG#4, as well as monitoring of power generated due to TG#3 and TG#4 was initially not required as the project activity (WHRB#1) was commissioned in 2002 along with 2 TG's (TG#1 and TG#2) of 10 MW each. The AFBC boiler was commissioned in September 2003. The PDD was validated on dated 27 October 2005. The project activity was registered on dated 16/06/2006 and the first issuance of CER's for 1st September 2002 to 31 December 2005 was done on dated 04 August 2006. Whereas WHRB#2 along with TG#3 (10 MW) and TG#4 (30 MW) was commissioned in January 2006.

Later during 2nd verification, for the period of 01/01/2006 to 31/12/2006, CER's were issued based on the above calculations. However, while issuing the CER's, *"EB noted that due to changes in the system that affect the monitoring of parameters of the project, the DOE should submit a request for revision of the monitoring plan prior to the next request for issuance"*.

Validation Opinion

Bureau Veritas Certification has validated these revisions in monitoring plan. Monitoring plan is found to be complete and transparent in monitoring and calculation of emission reductions and therefore can be accepted.

The revised sections in the monitoring plan are attached in the PDD template with this request.