

Voluntary Carbon Standard Version 2007 Verification Report Template

19 November 2007

Verification Report:

Name of Verification company:	Date of the issue:
Bureau Veritas Holdings SAS	26/06/2009
Report Title:	Approved by:
Verification Report of '300 MW Hydro Power Project of JHPL'.	Mr Dinesh Shetty
Client:	Project Title:
Jai Prakash Hydro Power Limited (JHPL)	300 MW Hydro Power Project of JHPL.
Summary:	
Bureau Veritas Certification has made the verification of the '300 MW Hydro Power Project of JHPL' project of Jai Prakash Hydro Limited located at Kuppa in Himachal Pradesh State, India on the basis of Voluntary Carbon Standard 2007. The verification scope is defined as a periodic independent review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures. In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in validated and registered project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated without material misstatements.	
<u>Please treat our earlier versions of this report as null and void.</u>	
Work carried out by:	Number of pages:
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Abbreviations

Ver	Voluntary Emission Reductions
BMS	Bureau Veritas Certification's Management System
CAR	Corrective Action Request
FAR	Forward Action Request
CO ₂	Carbon Dioxide
DOE	Designated Operational Entity
DR	Document Review
GHG	Green House Gases
I	Interview
IETA	International Emissions Trading Association
MV	Means of Verification
MP	Monitoring Plan
NGO	Non Governmental Organisation
PD	Project Document
UNFCCC	United Nations Framework Convention for Climate Change
MU	Million Units
MW	Megawatt
HPSEB	Himachal Pradesh State Electricity Board.
PPA	Power Purchase agreement
JMR	Joint Meter Reading

1 Introduction

1.1 Objective

Verification is the periodic independent review and ex-post determination by the verifier of the monitored reductions in GHG emissions during defined verification period.

This is the first verification of the project activity and was combined along with the validation of the project activity. The objective of initial verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project has generated verifiable emission reductions.

The verification shall consider both qualitative and quantitative information on emission reductions. Quantitative data comprises the monitoring reports submitted to the verifier by the project entity and Qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emission reports, review and internal audit of calculations/data transfers.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the VCS project design document, the project's baseline study and monitoring plan, including the monitored data and other relevant documents. The verification follows VCS 2007 criteria

The verification is not meant to provide any consulting towards the Client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

The verification team was provided with a monitoring report, covering the period 1st January 2007 to 30th September 2008. Based on this documentation a document review and an on-site audit was conducted. The Monitoring Report – Version 1.1, dated 25/12/2008 covering the period 01st January 2007 to 30th September 2008 serves as the basis for the assessment presented herewith.

1.3 VCS project Description

The project is a run-of-the-river hydro-electric power plant with an installed capacity of 300 MW. The diversion barrage of the project is located across river Baspa, at Kuppa in Himachal Pradesh. The power house is located at Karcham village in Kinnaur District. The project activity is an initiative of Jaiprakash Hydro Power Limited (JHPL) a part of the Jaypee Group. Jaypee is a well-known business group of India and had entered into agreement with State Government of Himachal Pradesh to implement the project. The purpose of the project activity is to generate

electricity using renewable hydro energy and sell it to Himachal Pradesh State Electricity Board (HPSEB).

1.4 Level of assurance

Based on the process and procedures conducted, it can be concluded that the GHG assertion

- is materially correct and is not a fair representation of GHG data and information, and
- has been prepared in accordance with the VCS 2007 standard.

At the beginning of the verification process related to a project's GHG assertion, the level of assurance was sought by the verification team and the client.

The verification team considers the assurance level as 'limited' since some of the data used (E.g Emission Factors) in the verification process are from the publicly available databases such as the CEA database for emission factor, for which detailed testing of the GHG assertions is beyond the domain of the project proponent, stake holders and the verification team.

2 Methodology

The verification included a desk review and field visit in October 2008 including discussions and interviews with the project proponents, consultants and local stakeholders.

The verification protocol utilized for this verification was as per the requirement defined in the VCS protocol. In order to ensure transparency, a verification protocol is used as part of the verification. The protocol provides to the verification team, in a transparent manner, the criteria (requirements), means of verification and the results from verifying the identified criteria.

The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements the project is expected to meet; and
- it ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The verification protocol is summarized in this verification report and is not included with this report.

3 Verification Findings

3.1 Remaining issues, including any material discrepancy, from previous validation:

There were no remaining issues or material discrepancy from previous validation.

3.2 Project Implementation

The implementation of the project activity was observed to be conforming with the description of the VCS Project Document.

3.3 Completeness of Monitoring

The verification report is prepared based on the findings during the site visit and the monitoring report submitted by the Project Proponent, Version 1.1 dated 25/12/2008. The monitoring methodology used for the project activity is as per ACM 0002, Version 8 dated 28.11.2008. The title of the monitoring methodology is "Consolidated monitoring methodology for grid-connected electricity generation from renewable sources."

The parameter that is monitored for calculation of emission reductions is the net electricity supplied to the grid by the project activity.

Emission Reductions :

The following algorithm calculates the emission reductions,
 $ER_y = BE_y \cdot PEy1 \cdot PEy2 \cdot PEy3 \cdot Ly$

The emission factor is calculated based on the "Tool to calculate the emission factor for an electricity system" Version 1.1, as indicated in the approved methodology ACM 0002, Version 8. The value of the grid emission factor, utilized for the project activity, is based on the latest CEA (Central Electricity Authority) data for the NEWNE grid since the project activity would supply electricity to this grid.

The grid emission factor, calculated on the basis of the combined margin is 0.805 tCO₂/MWh and is fixed ex-ante.

The electricity generation is monitored at the sub-station, wherein there are two transmission lines connected to the project activity. Each of these transmission lines consists of a main meter and a check meter. Apart from this, there is a set of spare main and check meters, in case of any faults observed in the running meters. Thus there are a total of 2 main and 2 check meters, which are online and 2 main and check meters, which are spare. The meters are tri-vector meters of 0.2 accuracy class. The meters undergo an annual calibration, conducted by the Power Grid Corporation of India. The calibration certificates were verified and found to be correct and reliable.

The net electricity exported to the grid is based on the monthly readings (JMR's) taken by the officials of the State Electricity Board along-with representatives of the PP. Invoices are raised by the PP based on these JMR readings.

Apart from this system of monitoring the electricity exported to the grid, there is also a monitoring system in the powerhouse of the project activity wherein monitoring of these data on a real time basis is done.

The monitoring period is from 01st Jan 2007 to 30th September 2008, both days inclusive, as indicated in the monitoring report.

Project Emissions :

- The project activity generates project emissions due to the operation of DG sets (2 DG sets of 625 kVA each) at site. The monitoring of the diesel consumed in these DG sets is done by means of a graduated tube. The daily quantities of diesel used are recorded in the logbook. The project emissions are calculated based on the density of diesel and the emission factor as per the IPCC default values. Electricity is imported from the grid through a 22 kV line for the housing provided to the personnel at the project site to meet the daily electricity requirements. The energy meters at the substation measure the electricity import. Monthly bills are presented to the PP for payment of bills to the State Electricity Board
- There is a storage of SF₆ at site, in cylinders (5 no.s of cylinders in total, of which 4 cylinders are 38.4 kgs each and the 5th cylinder weighs 590 kgs), which is used as top-up material in the switchgear assembly, in case of any loss of SF₆. (The details of the weight measurement are provided in the Monitoring Report Excel Sheet). As per the Annexure 1 of the Monitoring report and PD, the leakage of SF₆ is regularly checked by a Digital Pressure Indicator (DPI 700), which measures the pressure in the switchgear and transmission systems. It is indicated that the SF₆ cylinders were weighed on a spring balance. The calibration procedure followed for the spring balance during the current monitoring period is inadequate presently. It is indicated in the monitoring report that since the start of the project activity, there has been no requirement for topping up or replacement of SF₆. The records of the spring balance also indicate the same.

3.4 Accuracy of Emission Reduction Calculations

Project participant provided the spreadsheet used for calculating the emission reductions, project emissions and leakage, including the

algorithms used in the calculations. The calculations of all the above parameters were checked in the spreadsheet and found to be correct.

There are no possible transposition errors between data sets since the monitoring of the net electricity generated is through electronic meters and also the monitoring of data internally takes place through sophisticated metering system, located in the power house. Also all the recorded data are verified by the personnel at the plant level and then forwarded to the top management at Head Office for review.

The default data used in the monitoring calculations is the grid emission factor. The values of the grid emission factor 0.805 tCO_{2e} is taken from the publicly available database of the Central Electricity Authority (CEA) and the same is considered to be appropriate by the verification team.

3.5 Quality of Evidence to Determine Emission Reductions

The critical parameters used for the determination of emission reductions are the Joint Meter Readings (JMRs) for determining the power export to the grid, project emissions due to the use of diesel for operation of the Diesel Generator sets and the electricity imports for use at the project site to meet the daily electricity requirements and leakage calculations due to the use of SF6.

The data pertaining to the above parameters are maintained in identified records for the entire monitoring period. All the data is in compliance with the figures stated in the monitoring report.

3.6 Management and Operational System

The organizational structure includes site shift-in-charges who are involved in the day to day operations of the plant. They are also responsible for the preparation of daily reports. Site supervisors are responsible for checking the reliability of data and also monthly report preparation. Staff (Officers & Technicians) at the Power plant were found to be competent. All the collated data are reviewed by the senior management at site and also by the top management at Head Office.

4 Verification conclusion

The verification scope is as an independent and objective review of the VCS project description document, the project's baseline study and monitoring plan and other relevant documents. The review is to verify the implementation of the monitoring plan as defined in the VCS PD. The period for the verification is from 01st Jan 2007 to 30th September 2008.

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The verification of the monitoring data indicates the total amount of emission reductions and the amount of emission reduction for the monitoring period is 1919161 tCO₂e.

The calculations of emission reductions are found to be correct. The baseline for the northern grid has been taken for arriving at emission reductions due to the project activity. The grid emission factor of 0.805 tCO₂/MWh was found to be correct.

Appropriate procedures for maintaining the confidentiality and safe custody of the validation or verification documentation and for retaining them for a period sufficient to meet the needs of the client, the responsible parties, the GHG programmes to which they subscribe, and in accordance with legal and professional requirements of record retention have been established.

The verification team confirms that the project is implemented as planned and described in the VCS PD. The reporting procedures reflect the content of the monitoring plan. The monitoring mechanism is effective and reliable. The reported data are accurate and correct based on all the records provided to the verification team during the verification. The installed equipments being essential for generating the emission reductions run reliably and the monitoring equipments are calibrated appropriately.

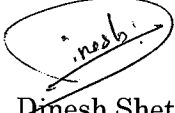
Reporting period: From 01/01/2007 to 30/09/2008

Verified emission in the above reporting period:

Project emissions	1,126 tCO ₂ equivalents (VCUs)
Baseline emissions	1,920,287 tCO ₂ equivalents (VCUs)
Emission reductions	1,919,161 tCO ₂ equivalents (VCUs)

These emission reductions are apportioned as indicated below:

01/01/2007 to 16/06/2007 –	3,15,000 tCO ₂ equivalents (VCUs)
17/06/2007 to 31/12/2007 –	705,408 tCO ₂ equivalents (VCUs)
01/01/2008 to 17/03/2008 –	60,000 tCO ₂ equivalents (VCUs)
18/03/2008 to 14/06/2008 –	240,000 tCO ₂ equivalents (VCUs)
15/06/2008 to 30/09/2008 –	598,753 tCO ₂ equivalents (VCUs)


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