



Voluntary Carbon Standard Version 2007

Verification Report of “28MW Jinkouba Hydropower Project”

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Client:	Project Title:
Gansu Huike center for Resource and Environmental Technology	28MW Jinkouba Hydropower Project
Summary:	
The verification team assigned by the DOE (TÜV Rheinland Japan Ltd.) has performed a verification of the 28MW Jinkouba Hydropower Project (hereafter referred to as "the Project") of Jintai Hydropower Co. Ltd of Wen County in Gansu Province (the project proponent) located on mainstream of Baishuijiang river, Jinkouba village, Hengdan Township, Wen County, Longnan District, Gansu Province, P.R. China on the basis of Voluntary Carbon Standard (VCS) 2007.1 and UNFCCC criteria for the CDM (with CDM Registration no. 1633), as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, as well as the host country criteria. The verification scope is defined as a periodic formal independent review by the Designated Operational Entity and ex-post determination of the monitored GHG emission reductions during the defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) on-site visit for verifying the monitoring procedures and data checking, and 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 by TÜV Rheinland Japan Ltd. The Project is a newly-built hydropower project with 28MW total installed capacity. The Project has been registered as a CDM project (No. 1633) with the starting crediting period from 18th February 2009. However, the Project started operation from 1st February 2008. Thus, the crediting period for this verification is from 1st February 2008 to 17th February 2009. The Project applied ACM0002/ Version 06 for the baseline and monitoring methodology for the proposed project. The monitoring process followed the requirement of ACM0002/Version 06 and is demonstrated in the registered PDD. According to the monitoring plan in the PDD, the main electricity meter is installed at the entrance of 110kV Yulei substation for measuring the import, export and net electricity supply from the project. All net power supply can be crosschecked from the electricity	

sales receipt. Another electricity meter is installed at the exit of the transformer station of the project for back-up purpose. When malfunction happens to the main meter, the measurement is based on the back-up meter. There was all measured by the main meter during the crediting period for this verification.

The verification team confirms that the actual monitoring plan is not changed compared with the plan described in the PDD which has been approved by the EB. Hence the actual monitoring plan is in compliance with the adopted CDM monitoring methodology ACM0002/ Version 06 by the project.

The verification team also confirms that the Project is implemented as planned and is described in VCS PD and in the registered CDM project design document (PDD). Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the Project generates GHG emission reductions. The GHG emission reduction is calculated without material misstatements.

Our opinion relates to the project's GHG emissions reductions, i.e. Voluntary Carbon Units (VCUs) are correctly reported; and the registered project baseline and monitoring, and its associated documents are applicable. Based on the information have been reviewed and evaluated, the verification team considers that the actual amount of VCUs associated with the project specific monitoring report that has been verified as following statement:

Reporting crediting period: 1st February 2008 – 17th February 2009
Baseline emissions: 100,512 tCO₂e
Project emissions: 0 tCO₂e
Emission Reductions : 100,512 tCO₂e (VCUs)

Work carried out by:	Number of pages:
Team Leader: Mr. Wilfred Chan Team Member: Mr. Harold Hai Technical Reviewer: Prof. Dr. Guenter Schock	22

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1. Introduction

The Gansu Huike center for Resource and Environmental Technology (GHCRE) has commissioned TÜV Rheinland Japan Ltd to verify the emission reductions of its voluntary emission reduction (VER) project, 28MW Jinkouba Hydropower Project(hereafter called “the Project”), located on mainstream of Baishuijiang river, Jinkouba village, Hengdan Township, Wen County, Longnan District, Gansu Province, P.R. China for the period from 01/02/2008 to 17/02/2009 prior to its CDM first crediting period.

TÜV Rheinland Japan Ltd as the verification body of the Project has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2007.

1.1 Objective

Based on the definition of the VCS program guideline 2007.1, verification is the periodic independent formal review by the verification body and ex-post determination of the monitored GHG emissions reductions during defined verification period. The objective of verification is one-off Periodic Verification for the VCUs generated by the Project during the defined verification period.

The project activity was registered as a CDM project on with the UNFCCC reference number as 1633. The detailed registration information of the Project please refer to the UNFCCC website: (<http://cdm.unfccc.int/Projects/DB/RWTUV1204123332.57>). The Project began generating electricity on 1st February 2008. Due to some delays it was not registered under the CDM until 18th February 2009. Hence the defined verification period of the Project is from 1st February 2008 to 17th February 2009.

According to VCS 2007.1 dated on 18th November 2008 and a Policy Announcement of Further Guidance for Projects that are registered in Two GHG Programs issued by the VCS Association on 19th March 2008, the Project registered under CDM program is eligible to claim Voluntary Carbon Units (VCUs) generated prior to the CDM program from 1st February 2008 to 17th February 2009. In compliance with the Policy Announcement from the VCS Association, The audit team has made one validation statement is to cover a validation of clauses 1.12, 1.13, 1.14, 8.1 and 8.2 set out in the VCS Project Description template for project validation and as an addendum to the CDM validation report of the Project for

completion of VCS validation. Please refer to the validation statement of this project.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the CDM Project Design Document (PDD), the project's baseline study and monitoring plan and report and other relevant documents. These documents have been reviewed and verified against VCS 2007.1 requirements, UNFCCC rules and associated interpretations.

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.

1.3 VCS Project Description

The project proponent, i.e. Jintai Hydropower Co. Ltd of Wen County in Gansu Province, (hereafter refer to as "the PP") is responsible for developing and operating the project. The proposed project is located on the mainstream of Baishuijiang river, Jinkouba village, Hengdan Township, Wen County, Longnan District, Gansu Province. The geographic coordinates of the Project are 104°53'18" east longitude and 32°50'52" north latitude.

The Project is a newly-built run-of-river hydropower project which contains a gravity dam with sand gates and flooding gates, a power house, a transformer station and administrative building. The design water flow is 147m³/s and design water head is 22 m. The Project consists of 2 sets of hydro turbines (Model no.: ZZ660-LH-300) and 2 sets of associated generators (Model no.: SF14-28/5100) with unit output of 14MW indicated in PD /8/. The total installation capacity of the hydro turbines is 28MW. All major equipments of the Project were supplied by a domestic manufacturer without foreign technology transfer involved.

According to the PD, the net annual electricity output from the project activity is 127,900MWh. The electricity generated from the project activity is expected to substitute the power supply from Northwest Region Power Grid (NWPG) which is mainly composed of fossil fuel-fired power plants. The expected GHG emission reductions of the project activity are 108,689 tCO₂e annually during the fixed 10-

year crediting period. There is no leakage considered in this project as this is a zero GHG emission project.

Being a renewable hydropower project, the project activity will reduce greenhouse gas (GHG) emissions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants. The project's system boundaries are clearly defined as project site and the northwest region power grid (NWPG).

During on-site visit (OSV), almost all structure construction was completed and under operation except the staff building which has not been constructed yet. Nevertheless, it does not affect the operation of the project. Both two water turbines and associated generators are under operation.

The project activity was registered as a CDM project with the UNFCCC reference number as 1633 under approved CDM methodology ACM0002/ Version 06. For the detailed registration information of the Project please refer to the UNFCCC website: (http://cdm.unfccc.int/Projects/DB/RWTUV_1204123332.57). The Project began generating electricity on 1st February 2008 which was verified by checking the electricity receipt of the signed power company.

1.4 Level of assurance

The verification report is based on VCS PD, VCS Monitoring Report, registered CDM PDD and supporting evidences made available to the verifier and information collected through performing interviews and during the on-site assessment. The verification conclusion is assured the credibility of all above.

2. Methodology

The verification consists of the following three phases:

- I a desk review of the project design documents, i.e. the registered PDD /5/ and VCS PD /8/; and monitoring report;
- II on-site visit and follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final verification report and opinion.

The following sections outline each step in more detail.

2.1 Desk Review of the Project Design Documentation and Monitoring Report

Table 1: The following table outlines the documentation reviewed during the verification process

/1/	UNFCCC, Clean Development Mechanism Validation and Verification Manual (Version 01.1), EB51 Annex 3.	
/2/	UNFCCC, ACM0002/Version 06 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", EB24, Annex 7	
/3/	UNFCCC, "Tool for the demonstration and assessment of additionality", Version 03, EB29	
/4/	UNFCCC, "Tool to calculate the emission factor for an electricity system", Version 01, EB35	
/5/	CDM Project Design Document (PDD), version 3.3, 23 rd December 2008 (registered version)	
/6/	CDM Validation Report (Report No. :QT-CDM01-06 – 06/57), 2 nd February 2009	
/7/	/7.1/	Monitoring Report of the project (MR), Version 1.0, 30 th September 2009
	/7.2/	MR, Version 4, 18 th May 2010
/8/	/8.1/	VCS Project Description (PD), Version 1.0, 8 th October 2009
	/8.2/	PD, Version 4, 18 th May 2010
/9/	Emission reductions calculation process spreadsheet of the project	
/10/	Jintai Hydropower Co. Ltd of Wen County in Gansu Province (GWJH), CDM Monitoring Plan, November 2007	
/11/	Monitoring Diagram for Jinkouba Hydropower plant, 9 th March 2008	
/12/	GWJH, Business License (License no.: 621222200000512(1-1)), 3 rd June 2009 (Remark: Company Establishment: 13 th April 2004)	
/13/	Gansu Bureau of Quality and Technical Supervision , Certificate of Metrological Authorization for Special Item (Cert. No.: [Gan]FaJi [2006]no.62055), 5 th January 2006 (Valid to 4 th January 2011)	
/14/	GWJH, Company Constitutions, 3 rd August 2007	
/15/	GWJH, Staff Training plan, May 2005; Staff Training records, September 2007, September 2008 and August 2009	
/16/	Certificates of Competent Authority for the Power Station Working Staff	
/17/	Gansu Provincial Power Company and GWJH, Grid-connected Regulation Agreement, 1 st April 2009	
/18/	Gansu Provincial Power Company and GWJH, Power Purchase Agreement, 1 st February 2008	
/19/	Gansu Grid Power Trading Center (GGPT), Electricity Purchase records for Jinkouba Hydropower Station from February 2008 to January 2009	
/20/	Gansu Grid Power Trading Center (GGPT), Power Generation Records in 30 th January to 26 th February 2009	

/21/	Longnan Power Supply Company, Records of Power Import to the Project from January 2008 to August 2009
/22/	GWJH, Irrigation and Drainage Record in January to September 2009
/23/	GWJH, Power Generation Record, October 2009
/24/	Nanning General Plant for Power Generation Equipment (NPGE), Product Instruction Manual of Water Turbine, 3 rd September 2005
/25/	GWJH, Equipment Assessment Advice, 25 th January 2008
/26/	Shaanxi Hanzhong Transformer (Group) Co., Ltd., Product Certification Report (Ref. No.: SZ9-M-20000/121 6#), May 2007
/27/	Nanning General Plant for Power Generation Equipment, Technical Data of Water Turbine (ZZ660-LH-300), August 2005
/28/	Jintai Hydropower Co. Ltd of Wen County in Gansu Province, Value Added Tax (VAT) Invoice, 23 rd April 2008 to 1 st March 2009
/29/	Jinkouba Hydropower Plant, Daily Operation Log Records, May 2008 and January 2009
/30/	Gansu Provincial Power Company (GPPC), Letter of Acceptance on grid-connection and power generation equipment after the construction, 25 th January 2008
/31/	Gansu Provincial Power Company (GPPC), Notice of the change of the monthly-end on power supply in Gansu Province, 11 th July 2008
/32/	GWJH, Electricity Sales Invoice for Value-Added Tax (VAT) payment, March 2008 to February 2009
/33/	Wen County Power Bureau, Description of no power import to the Project from the local agricultural transmission line, 20 th October 2009
/34/	Gansu Provincial Power Company – Electricity Measurement Center (GPCC – EMC), Calibration records of the main meter and back-up meter; Main meter (M2), serial no.: 36055681, 6 th November 2007 & 22 nd September 2008; Back-up meter (M1), serial no.: 36002888, 16 th September 2007 & 22 nd September 2008
/35/	Jintai Hydropower Co. Ltd of Wen County in Gansu Province (GWJH), Declaration of no participation on other GHG programme, 1 st December 2009
/36/	State Electric Power Supervising Committee, the Permit of Electric Power Generation/ Business (Permit no.: 1031108-00032), 27 th June 2008
/37/	Voluntary Carbon Standard Association (VCSA), VCS Program (http://www.v-c-s.org/policydocs.html#)
/37.1/	VCS 2007.1, 18 th November 2008; Updated on 21 st January 2010
/37.2/	VCS Program Guidelines 2007.1, 18 th November 2008
/37.3/	VCS Project Description (PD) Template, 19 th November 2007
/37.4/	VCS Validation Report (VR) Template, 19 th November 2007
/37.5/	VCS Verification Report (VER) Template, 19 th November 2007
/37.6/	VCS Project Proponent (PP) Registration Representation Template

/37.7/	VCS Project Proponent Issuance Representation Template
/37.8/	VCS Validation Statement
/37.9/	VCS Verification Statement

2.2 Follow-up Interviews with Project Stakeholders

Table 2: Identify any personnel who have been interviewed and/or provided additional information to the presented documentation.

	Date	Name and Title	Organization
/i/	2009/10/14 to 2009/10/15	Mr. Zhang Chun-xiong (Ass. Electrical Engineer)	Jintai Hydropower Co. Ltd of Wen County in Gansu Province
/ii/	2009/10/14 to 2009/10/15	Mr. Wang Ke-liang (Manager)	
/iii/	2009/10/14 to 2009/10/15	Mr. Li Xin-bin (Deputy General Manager)	
/iv/	2009/10/14	Mr. Zhang Yi-tao (On-duty Officer)	Yulei Substation (representative of grid-connected power company)
/v/	2009/10/14 to 2009/10/15	Mr. Wei Cheng-jin (VCS consultant)	Gansu Huike Center for transferring on Resource and Environmental. Technology
/vi/	2009/10/14 to 2009/10/15	Ms. Su Ying (VCS consultant)	

Table 3: Interview topic

	Date	Organization	Topic
/a/	2009/10/14 to 2009/10/15	Jintai Hydropower Co. Ltd of Wen County in Gansu Province (i.e. PP in host country)	➤ Project design ➤ Project related legal issues ➤ Technical equipment ➤ Crediting period ➤ Monitoring plan ➤ Training history ➤ Management system ➤ QA & QC ➤ Electricity sales and records ➤ Project Emission ➤ Emission Reductions Calculation ➤ Emergency Preparedness
/b/	2009/10/14 to 2009/10/15	Gansu Huike Center for transferring on Resource and Environmental. Technology (VCS consultant)	➤ Project design ➤ Crediting period ➤ Monitoring plan ➤ Project Description ➤ Emission Reductions Calculation

/c/	2009/10/14	Gansu Grid Power Company and its branch	➤ Project design ➤ Project related legal issues ➤ Project status ➤ Electricity Measurement and Records ➤ Meters Calibration ➤ Emergency Preparedness
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2.3 Resolution of Outstanding Issues

The objective of this phase of the verification is to resolve any outstanding issues which need be clarified prior to DOE's positive conclusion on the project design and monitoring results.

Findings established during the verification can either be seen as a non-fulfillment of CDM criteria and VCS 2007.1, or where a risk to the fulfillment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) CDM and/or methodology and/or VCS 2007.1 specific requirements have not been met; or
- iii) there is a risk that the emission reductions of the Project will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

2.4 Internal Quality Control

The verification report underwent a technical review before submitted to the project proponent(s). The technical review was performed by a technical reviewer qualified in TÜV Rheinland Japan Ltd in accordance with qualification scheme for CDM validation and verification, Golden Standard and VCS association.

2.5 Verification Team

Role	Full Name	Appointed for Sectoral Scopes	Affiliation
Team Leader	Mr. Wilfred Chan	1, 6, 13	TÜV Rheinland Hong Kong Ltd.
Team Members	Mr. Harold Hai	1, 13	
Technical Reviewer	Prof. Dr. Guenter Schock	1, 3, 4, 5, 8, 9, 10, 11, 12, 13	TÜV Rheinland Immissionsschutz und Energiesysteme

			GmbH
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3. Verification Findings

In the following sections, the findings of the verification are stated. The verification findings for each verification subject are presented as follows:

1) The findings from the desk review of the initial VCS PD /8/ and the findings (CARs, CLs and FARs) from interviews during the follow up visit are summarized. A more detailed record of the discussions and the conclusions that followed the possible corrective action requests are encapsulated in Appendix.

2) The conclusions for verification subject are presented.

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

Verification Opinion: No issue is remained from previous validation /6/. The verification team checked the registered CDM validation report /6/ of the Project and confirmed no forward action request (FAR) and thus no issue is left.

3.2 Project Implementation

Verification Opinion: The Project has been implemented and commissioned before the date of CDM registration. By reviewing the electricity supply records /19/ provided by the connected power grid, i.e. Gansu Grid Power Trading Center (GGPT), the power generators of the Project started to supply electricity to grid on 1st February 2008 (Generator #2) and on 15th February 2008 (Generator #1) respectively. All facilities and equipments as described in VCS PD /8/ and the registered CDM PDD /5/ have been installed, expect the staff building.

The project facilities and generation records of the turbines were verified against the on-site verification and found to be substantial and consistent with the description of VCS PD/8/ and registered CDM PDD/5/. The verification team has verified the nameplates of the turbines and generators as ZZ660-LH-300 & SF14-28/5100 supplied by a domestic manufacturer, i.e. Nanning General Plant for Power Generation Equipment (NPGE) /24/ /27/.

After checking the letter of acceptance /30/ on grid-connection and power generation equipment after construction issued by the inspection team of Gansu Provincial Power Company (GPPC) on 25th January 2008, the verification team confirms that the construction of the Project on grid connection and power generation are in accordance with the national and local requirements. The generated electricity has been delivered properly to the grid as agreed by the grid company /30/.

By referring to the Section 1.13 of the revised PD /8/, it describes that the Project only applies and registers as a CDM project. No other form of environmental credits has been created. During the document review and on-site verification, the verification team cannot view any information about the other form of environmental credits to be generated.

With reference to the Section 8.1 of the revised PD /8/, the PP claimed that the proof of title could be seen through the signed Power Purchase Agreement (PPA) between the PP (i.e. GWJH) and Gansu Provincial Power Company (GPPC). According to the VCS PD template, the proof of title can be evidenced by, “a right of use arising by contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals”. The PPA is the enforceable and irrevocable agreement between the project proponent and power company related to the purchase & sales of the generated electricity of the Project. Therefore, the PPA /18/ is one of suitable evidences to the proof of title.

By referring to the Section 8.2 of the revised PD /8/, the GHG emission reduction claimed in this period (1st February 2008 to 17th February 2009) will not participate in an emission trading programme. The verification team confirmed that the emission reduction in this VCS verification cannot be participated in CDM programme. No other GHG emission reduction programme is seen for this verification. In addition, the project proponent declares /35/ that no other GHG programme during this verification is participated.

3.3 Completeness of Monitoring

Verification Opinion: According to the VCS PD /8/ and the monitoring report /7/ the following internal parameters are needed to be monitored in accordance with the methodology ACM0002/Version06 /2/ which is also applied for CDM crediting period:

- (i) Electricity Exports (EG_{ex}); and
- (ii) Electricity Imports (EG_{im});

Net Electricity Exports (EG_y) can be calculated by Electricity Exports (EG_{ex}) minus Electricity Imports (EG_{im}).

The verification team is able to verify that the procedures for monitoring the above parameters have been well conducted in the routine monitoring activity of the power plant with effective support of grid side for data storage, data transmission and power transaction /18-21/.

According to the VCS PD/8/ and the registered CDM PDD/5/, letter of acceptance /30/ on grid-connection and power generation equipment after construction and signed PPA /18/, all of the generators are connected to the Yulei substation. The main electricity meter (M2) is installed at the inlet of Yulei substation which was confirmed during OSV. The back-up meter (M1) is installed at the outlet of the transformer station inside the plant.

The meters are calibrated at least once a year, and the responsibility for carrying out the calibration depends on the ownership of the meters. For instance, the main meter (M2) is owned by the grid company, i.e. GGPC and thus, the calibration of M2 is responsible by the GGPC; the back-up meter (M1) is owned by the PP, and the calibration of M1 is responsible by the PP. During OSV, it was confirmed by the PP /ii/ and the representative of GGPC /iv/ that the calibration was done within the crediting period for this verification (i.e. 1st February 2008 – 17th February 2009). The calibration records /34/ for both main meter (M2) and back-up meter (M1) are received. The verification team confirmed that the calibration was conducted by the qualified calibration body (i.e. Gansu Provincial Power Company – Electricity Measurement Center) before the project operation and annually which complied with the monitoring requirement in the PDD and the monitoring report.

The accuracy of the meters is 0.2s for the main and back-up meters (i.e. M2 and M1) which complies with the national requirement of “The Technical Administration Specification for Energy Measurement DL/T-448-2000”.

The reported data of VCS Monitoring Report (MR) /7/ about the electricity supply is based on the hourly readings and monthly recordings by the PP and the power company, i.e. GGPC. Both meters (M1 and M2) are bi-directional electricity

meters with a function of metering the electricity exported to the grid and imported from the grid simultaneously. According to the VCS PD/8/ and registered CDM PDD/5/, the emission reductions are to be calculated as per the net electricity delivered to the grid which are measured and calculated by the main meter (M2).

The real time data of the main meter (M2) are measured and monitored by the grid company through telemetric download and subject to double check against the corresponding electricity purchase receipts. During the OSV, the electricity supply to grid (EG_{ex}) can be checked by the electricity purchase records /19-20/ provided by GGPC each month; and the electricity import from grid (EG_{im}) can be checked from the electricity import records /21/ provided by the Longnan Power Supply Company (LPSC), which is the official branch of GGPC.

The actual monitoring is carried out in accordance with the monitoring plan of the registered CDM PDD /5/ and consistent with the relevant part in the monitoring report (MR)/ Version 4 /7/. The monitoring frequency is in compliance with the ACM0002/ Version 06 in connection to the “Tool to calculate the emission factor for an electricity system”, Version 01.

The emission reduction calculation spreadsheet for description of the monthly electricity supply /19-20/ and electricity import /21/ has been provided to the verification team. The indicated data in the spreadsheet have been crosschecked with the Value-added tax invoice issued by the PP to the local government /32/ and confirmed consistent.

During OSV, it was observed that another meter for emergency power import to the Project was installed. According to the response of PP /i/, the Project did not import any electricity from the emergency power cable during the crediting period for this verification; the validation team confirmed this by checking an official description /33/ provided by the connected local power grid. No power import for emergency use is noted during the crediting period for this verification (i.e. 1st February 2008 to 17th February 2009).

The VCS PD /8/ and the CDM Monitoring Management Manual /10/ have clearly prescribed the management and operational procedures for the various steps involved in the project, which includes monitoring, recording, archiving of the data and training procedure for all personnel involved in the Project. The procedures are available as a documentation which has been verified by verification team and found to be consistent with the registered CDM PDD /5/ and CDM monitoring

methodology ACM0002 version06 /2/. The CDM monitoring training plan and records /15/ were checked by the verification team and confirmed relevant monitoring knowledge has been provided to the operation staff before the project operation.

As a summary according to the verification findings, the verification team can confirm that the monitoring of the Project is complete and verifiable and in accordance with applicable requirements of CDM monitoring methodology ACM0002 version06 /2/.

3.4 Accuracy of Emission Reduction Calculations

Verification Opinion: The reporting procedures reflect the description of the VCS PD /8/. The monitoring mechanism with practicable procedures has been verified to be effective and reliable.

The documented evidences and records /9/ /19-21/ /31-33/ submitted by the project proponent to determine emission reductions have been verified as of sufficient quantity and appropriate quality.

With reference to the Section 1.12 of the revised PD /8/, it describes that the Project is a newly-built run-of-river hydropower project, which utilize the renewable hydro resource to generate electricity. According to the ACM0002/ Version 06 /2/, the Project may not generate significant project emission under power density lower than 10W/m^2 and no leakage to be considered. Thus, the implementation of the Project will not create GHG emissions.

3.5 Quality of Evidence to Determine Emission Reductions

Verification Opinion: During OSV, the validation team confirmed from the PP /ii/ and the representative of GGPC /iv/ that the monitoring meters (M1 and M2) have been calibrated within the crediting period for this verification (i.e. 1st February 2008 to 17th February 2009). The calibration records /34/ are available and confirmed that both main meter and back-up meter were calibrated before the project operation and annually. No abnormal situation happened to the both meters during the indicated crediting period. The calculation of emission reductions has been verified to be appropriate, conservative and in accordance with the CDM methodology ACM0002/Version 06 /2/. It also was verified by reviewing the electricity purchase records /19-20/ and VAT invoice /32/ of the

project.

According to the VCS PD /8/ and the registered CDM PDD/5/, the emission reductions for the Project are calculated as the baseline emissions with consideration of project emission (PEy) and leakage (Ly) to be zero:

Equation: $ER_y = BE_y - PE_y - Ly$;

$ER_y = BE_y$

$= EG_y * EF_y$

Where

ERy: Emission Reductions

BEy: Baseline emissions of Northwest Region Power Grid (NWPG) in year y

EG: The net electricity supplied to the grid

EFy: The CO₂ emission factor of the grid, i.e. 0.8498 calculated ex-ante and will not be changed during this reporting period (unit: tCO₂e/MWh)

The net electricity (EGy) exported to grid by the Project is based on the reading records of the main meter (i.e. M2) in terms of electricity exported to grid, minus electricity imported from the NWPG (import) during this reporting period. Therefore, the total net electricity exported (EGy) in this period will be calculated as bellow:

$EG_y = EG_{ex} - EG_{im}$ (Unit: MWh)

The reported data has thus been verified as below Table:

Period (DD/MM/YYYY)	Exported (MWh) a	Import (MWh) b	Net power supplied to the grid by the project (MWh) c=a-b	Net Emission Reductions d = c* EFy (tCO ₂ e)	Verification Remarks
01/02/2008 – 29/02/2008	3599.970	0	3599.970	3059.255	Note (1)
01/03/2008 – 31/03/2008	5448.300	0	5448.300	4629.965	/19/ /21/ /32/
01/04/2008 – 30/04/2008	9121.728	0.132	9121.596	7751.532	/19/ /21/ /32/
01/05/2008 – 31/05/2008	7325.068	0.792	7324.276	6224.170	/19/ /21/ /32/
01/06/2008 – 30/06/2008	9442.356	0.660	9441.696	8023.553	/19/ /21/ /32/
01/07/2008 – 31/07/2008	15447.828	0.396	15447.432	13127.227	/19/ /21/ /32/
01/08/2008 – 29/08/2008	13300.320	0	13300.320	11302.612	/19/ /21/ /32/
30/08/2008 – 28/09/2008	13860.000	0.132	13859.868	11778.115	Note (2) /19/ /21/ /31/ /32/
29/09/2008 – 29/10/2008	14444.000	0	14444.000	12274.511	/19/ /21/ /32/
30/10/2008 – 28/11/2008	9702.000	1.132	9700.868	8243.798	/19/ /21/ /32/
29/11/2008 – 29/12/2008	7760.892	0.264	7760.628	6594.982	/19/ /21/ /32/
30/12/2008 – 29/01/2009	5798.232	0	5798.232	4927.338	/19/ /21/ /32/
30/01/2009 – 17/02/2009	3030.436	0	3030.436	2575.265	Note (3) /20/ /21/ /32/
Total	118,281.130	3.508	118,277.622	100,512	

Note:

- (1) the 1st generator (generator #2) supplied electricity to grid on 1st February 2008; and 2nd generator (generator #1) supplied electricity to grid on 15th February 2008, which is confirmed from the electricity purchase records by the grid company, i.e. GGPC /19/;
- (2) By checking the electricity purchase records /19-20/, it was found that the monthly end was changed since August 2008 from the last day at 24:00 to last third day at 24:00 /31/;
- (3) By referring to the Power Generation Records in 30th January to 26th February 2009 /20/ issued by the GGPC, daily power supply records are seen so that the electricity supply from 30th January 2009 to 17th February 2009 can be precisely calculated.

Total amount of power supplied to the grid (EG_y) during the crediting period for this verification (1st February 2008 to 17th February 2009) is calculated as 118,277.622MWh;

The emission reductions claimed for this verification period is,
 $ER_y = EG_y * EF_y = 118,277.622 \text{ MWh} * 0.8498 \text{ tCO}_2\text{e/MWh} = \mathbf{100,512 \text{ tCO}_2\text{e}}$.

The verification team has ensured that the calculation is conservative and traceable. The all reported data have been verified and found to be correct.

3.6 Management and Operational System

Verification Opinion: The critical parameters used for the determination of the Emission Reductions are the reading records of the monitoring meters reflecting the electricity exchanged (export & import) with the grid which are verified against the receipts issued by the grid company /19/ /20/ and VAT invoice /32/ by PP in this reporting period.

The data pertaining to the above parameters is maintained in the identified records and consistent with the values stated in the VCS Monitoring Report/ Version 4 /7/.

3.7 Management System and Quality Assurance

Verification Opinion: Verification team has ensured that the quality management system for the Project is in place. The documented instructions including the responsibilities have been properly implemented and in line with the registered CDM PDD /5/. Internal review being a regular practice ensures the quality assurance of the monitoring procedures. The CDM project manager is responsible for data protection exclusively with access restrictions.

The readings of the monitoring meters have been ensured functioning well at rated accuracy. The reported data can also be internally reviewed by checking the readings of the back-up meter (M1) installed at the exit of the transformer station as per the signed PPA. The calibration records /34/ of both meters are received to confirm the conformity of calibration of monitoring equipments (i.e. M1 and M2) with the national calibration standards and the requirement of ACM0002/Version 06.

The PP claimed that the meters were not changed during the crediting period for this verification. Through crosschecking the data's continuity from the daily logbooks /29/, the verification team can confirm that back-up meter is no change. The calibration records /34/ were also provided for confirming both meters without change in the crediting period for this verification.

4. Verification conclusion

TÜV Rheinland Japan Ltd has performed a verification of Project 28MW Jinkouba Hydropower Project. The verification is based on the currently valid VCS Program 2007.1 released by Voluntary Carbon Standard Association on 18 November 2008.

The management of project proponent, i.e. Jintai Hydropower Co. Ltd of Wen County in Gansu Province (GWJH) is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions of the Project on the basis set out within the monitoring procedures in the VCS PD /8/. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the Project is the responsibility of the management of the project.

TÜV Rheinland Japan Ltd verified the VCS Monitoring Report /7/ for the crediting period for this verification as indicated below. TÜV Rheinland Japan Ltd confirms that the Project is implemented as planned and described in the VCS PD /8/. The installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately /25/. The monitoring system is in place and the Project generated GHG emission reductions (VCUs).

TÜV Rheinland Japan Ltd can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the project baseline, monitoring activity and its associated documents. Based on the information being reviewed and evaluated, the verification team considers that the actual amount of VCUs associated with the project specific monitoring report that has been verified as following statement:

Reporting crediting period: From 1st February 2008 – 17th February 2009

Baseline emissions: 100,512 tCO₂e

Project emissions: 0 tCO₂e

Emission Reductions : 100,512 tCO₂e (VCUs).

Appendix: List of Requests for Corrective Action (CAR) and Clarification (CLs)

No.	CAR/CL	Observation (CAR/CL)	Reference	Summary of project owner response	Validation team conclusion
1.	1	CAR01 Please provide the supporting document about no other form of environmental credits/ GHG programs (or certificates) to be generated or already applied in the proposed project.	Section 3.2	Project owner has not applied any other form of environmental credits/GHG programs. The declaration has been provided.	OK. The verification team checked the supporting document from the project proponent to declare except applying as CDM project, no other GHG program was applied. CAR is therefore closed.
2.	2	CL01 Please clarify how the legal status of the project operation is confirmed since the verification team has not received the full-inspection report for construction completion.	Section 3.2	The license for electric power business was issued for the Project in 2008. The clarification of the project operation legality was provided to DOE later.	OK. The verification team reviewed the official permit for electric power generation issued by the State Electric Power Supervising committee on 27 th June 2008 to confirm the legal status and legal power generation of the Project. Thus, the legal status of the project operation is confirmed. CL is therefore closed.
3.	3	CL02 The type, serial number, calibration records of the meter 1 and meter 2 should be clearly described in the	Section 3.3, 3.7	The monitoring report was revised. The calibration reports were provided to DOE later.	OK. The revised monitoring report and relevant supporting documents are checked by the verification team and confirmed the following, 1. Main meter (M2) and back-

			monitoring report. The calibration records should be provided for verification.			up (M1) were installed according to the monitoring plan in the PDD; 2. both meters were calibrated before the operation and annually; 3. the calibration works were done by the qualified calibration body. 4. No any abnormal situation occurred to the meters during the indicated crediting period. CL is therefore closed.
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