

VERIFICATION REPORT

The Carbon Finance Unit
The World Bank

3rd Periodic Verification of
**Xiaogushan Hydropower Project in
People's Republic of China**

CDM Reference No. 0378

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JACO CDM

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Approved by: Yasunori SHIMOI CEO & President, JACO CDM	Project No.: UNFCCC ref. No. 0378
Client: Carbon Finance Unit (ENVCF)	Client ref.:
<p>Summary:</p> <p>JACO CDM has performed a verification of the CDM project "Xiaogushan Hydropower Project in People's Republic of China". The verification is based on the currently valid documentation of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords".</p> <p>The management of Xiaogushan Hydropower Company Limited is responsible for the preparation of the GHG emission data and the reported GHG emissions reductions of the "Xiaogushan Hydropower Project in People's Republic of China" on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version dated February 2006 and the latest Monitoring Plan (2nd revision, dated Nov. 05, 2008). 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.</p> <p>The verifier confirms that the project is operated as planned and described in the validated and registered PDD. 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.</p> <p>The verifier can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:</p> <p><u>Reporting period:</u> From 01-01-2008 to 31-12-2008</p> <p><u>Verified emission in the above reporting period:</u></p> <p>Baseline emissions: 374,039 tCO₂ equivalents Project emissions: 0 tCO₂ equivalents Emission reductions: 374,039 tCO₂ equivalents</p>	

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Develop Mechanism
CER	Certified Emission Reduction
CFB	The Carbon Finance Business
CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reduction
FAR	Forward Action Request
GHG	Green House Gas
GPBRCC	Gansu Provincial Power Bureau Regulation and Communication Center
GPGC	Gansu Province Grid Company
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
MW	Megawatt
PDD	Project Design Document
PGTC	Grid Power Trading Center under Gansu Provincial Power Company
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention for Climate Change
VVM	Validation and Verification Manual
WB	The World Bank
XHC	Xiaogushan Hydropower Company
XHP	Xiaogushan Hydropower Project

Table of Contents		Page
1	IINTRODUCTION	3
1.1	Objective	3
1.2	Scope	3
1.3	GHG Project Description	4
2	METHODOLOGY	5
2.1	Review of documentation	7
2.2	On-site inspections	7
2.3	Resolution of Corrective and Forward Action Requests	8
3	PERIODIC VERIFICATION FINDINGS	
3.1	Completeness of Monitoring	8
3.2	Accuracy of Emission Reduction Calculations	9
3.3	Quality of Evidence to Determine Emission reductions	10
3.4	Management System and Quality Assurance	12
4	PROJECT SCORE CARD	14
5	VRIFICATION STATEMENT	15
6	REFERENCES	16
	Appendix 1: Verification Checklist	A – 1 to 13

1. INTRODUCTION

1.1 Objective

The Carbon Finance Unit (ENVCF) of the World Bank has commissioned an independent verification by JACO CDM., Ltd of its CDM project “Xiaogushan Hydropower Project in People’s Republic of China”.

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

The objective of verification can be divided in Initial Verification and Periodic Verification.

(1) Initial Verification

- to verify that the project has been implemented as planned, that the monitoring systems and procedures are in compliance with the monitoring systems and procedures of the monitoring plan,
- to assess adjustments and amendments to the monitoring plan that may have become necessary during the detailed design and construction of the project;

(2) Periodic Verification

- to evaluate the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is “free” of material misstatements,
- to verify that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records.
- If no prior initial verification has been carried out, the objective of the first periodic verification also includes the objectives of the initial verification.

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

The verification follows UNFCCC criteria; refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

As the project has already been initially verified in August 2007 (JACO CDM’s Verification Report No. GR07W0004D), the assessment presented herewith only covers the tasks to be performed in the periodic verification described above.

1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by the Designated Operating Entity of the monitored reduction in GHG emissions. The verification is based on validated project design document including baseline. These documents are reviewed against Kyoto Protocol requirements, UNFCCC rules, approved methodology ACM0002, ver.5 and associated interpretations. JACO CDM, based on the recommendations in the Validation and Verification Manual, employs a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of CERs.

The verification is not meant to provide any consulting towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

The verification team has been provided with a Draft Monitoring Report on February 01, 2009, covering the period January 01, 2008 to December 31, 2008 which has been made publicly available on the UNFCCC web site (http://cdm.unfccc.int/Issuance/Monitoring_Reports) and serves as the basis for the assessment presented herewith.

3rd Periodic Verification Report

Based on this Monitoring report dated January 05, 2009, a document review and a fact finding mission in form of an on-site assessment has taken place.

JACO CDM conducted the 3rd periodic verification for the CDM project “Xiaogushan Hydropower Project in People’s Republic of China” based on the Kyoto Protocol requirements, modalities as agreed in Marrakech Accords and decisions of UNFCCC CDM EB, using the Validation and Verification Manual (VVM).

Verification team

The verification team for the verification was made considering the need of knowledge for the team members in the following aspects:

- Knowledge of the Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing
- Quality assurance
- Technical aspects of hydropower
- Monitoring concepts
- Political, economical and technical conditions in host country

According to these requirements JACO CDM has composed following verification team in accordance with the appointment rules of the JACO CDM QC Manual. The results of verification team activity were reviewed by the internal verifiers.

Verification team

Teruo FUKUDA	JACO CDM Team Leader
Osamu KOBAYASHI	General Manager of JACO CDM Team Member

Internal verifiers

Yoshihiro OTSUKA	Board Director & General Manager of JACO CDM
Shigekazu OKA	JACO CDM Team Member

Duration of verification

Document Review: From Feb., 2009 to Sep. 2009

On-site Assessment: From May 20, 2009 to May 23, 2009

Reporting: From Jun., 2009 to Sep., 2009

1.3 GHG Project Description

The Xiaogushan Hydropower Project (“XHP” or the “Project”) is a run-of-river hydro project consist of a diversion weir, an intake power tunnel (9.1 km), water fall of 117 m, a powerhouse, a 110 kV high voltage switchyard and 27 km of 110 kV transmission lines. It is located on the Heihe River in the Sunan Yugu Autonomous County of Zhangye City, Gansu province, China. The original engineering design proposed the project has an installed capacity of 98MW with expected output of 380 gigawatt-hours per year and a net supply of 357 gigawatt-hours per year to Gansu grid in long-term average.¹

Based on refined study on hydrological conditions of the river, the XHP Company upgraded the generation capacity to 102 MW, resulting in an increased output of 394 gigawatt-hours per year, and a net supply of 370 gigawatt-hours per year to the Gansu grid in long-term average terms.

¹ Source: Xiaogushan Preliminary Engineering Design, Page 10, The Gansu Province Water Conservancy & Hydraulic Power Survey Design Institute

The 102 MW Project will provide additional capacity to the interconnected Gansu Power Grid, which is part of the Northwest Power Network in China. XHP will be supplying reliable power to the Zhangye prefecture, which the current capacity is only 94.5MW thus heavily depends on daily import from the Gansu Power Grid. The XHP transmission lines, in addition to going to the Gansu Power Grid, will connect the nearby townships and villages in a highly impoverished area dominated (98%) by the Zang (Tibetan) minority.

The XHP will reduce emissions of greenhouse gases (GHGs) by avoiding operation of existing thermal power plant and future capacity expansion of fossil fuel-based generation by the regional Gansu Power Grid in Northwest China. The privately owned hydropower plant will sell electricity to the grid as well as supplying reliable power to nearby villages. The proposed XHP project is considered under the CDM modalities as a renewable energy project.

The XHP is one of China's first proposed CDM activities given its combination of positive environmental, economic, and sustainable development benefits. Given this combination of socio-economic and environmental benefits, the Xiaogushan Hydropower Project is the first-ever renewable energy power loan provided for the Northwest region of China from the Asian Development Bank (ADB). In terms of environmental and power benefits, the Project supports China's policy of harnessing zero-impact renewable energy resources and avoiding investment in high-GHG emission coal power plants.

The 10 years non renewable crediting period of the project started August 11, 2006, when the project was registered.

The monitoring report for the first monitoring period of this project activity was verified in 2007 (Verification Report GR07W0004D). The second verification was conducted in 2008 (Verification Report GR08W0004D). This periodic verification covers the third monitoring period which directly follows the second one. There is no change in the project since second verification in 2008.

2. METHODOLOGY

The proposed assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual (for further information, see www.vvmanual.info), an initiative for all Applicant Entities, which aims to harmonize the approach, and quality of all such assessments.

In order to ensure transparency, a verification checklist was customized for the project, according to the Validation and Verification Manual. The checklist shows, in a transparent manner, criteria (requirements), means of verification and the results. The verification checklist serves the following purposes:

- It organizes, details and clarifies the requirements a CDM/JI project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been proved and the result of verification.

The verification checklist consists of 3 tables. The different columns in these tables are described in Figure 1.

Figure 1 Verification Checklist Tables

Periodic Verification Checklist		
Table1: Data Management System/Controls		
Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)

<p>The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.</p>	<p>A score is assigned as follows:</p> <p>Full all best-practice expectations are implemented.</p> <p>Partial a proportion of the best practice expectations is implemented</p> <p>Limited this should be given if little or none of the system component is in place.</p>	<p>Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications.</p>
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<p>Periodic Verification Checklist</p>		
<p>Table 2: GHG calculation procedures and management control testing</p>		
<p>Identification of potential reporting risk</p>	<p>Identification, assessment and testing of management controls</p>	<p>Areas of residual risks</p>
<p>Identification of potential reporting risks based on an assessment of the emission estimation procedures.</p> <p>Identification of key source data. Focus on those risks that impact the accuracy, completeness and consistency of the reported data.</p>	<p>Identification of the key controls for each area with potential reporting risks. Assessment of adequacy of the key controls and eventually test that the key controls are actually in operation.</p> <p>Internal controls include, Understanding of responsibilities and roles, Reporting, reviewing and formal management approval of data, Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc.</p>	<p>Identification of areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks</p> <p>Areas where data accuracy, completeness and consistency could be improved are highlighted.</p>

<p>Periodic Verification Checklist</p>		
<p>Table 3: Detailed audit testing of residual risk areas and random testing</p>		
<p>Areas of residual risks</p>	<p>Additional verification testing performed</p>	<p>Conclusions and Areas Requiring Improvement (including FARs)</p>
<p>List of residual areas of risks of Periodic Verification Checklist Table II-2 where detailed audit testing is necessary.</p>	<p>The additional verification testing performed is described. Testing may include:</p> <ul style="list-style-type: none"> • Sampling cross checking of manual transfers of data 	<p>Having investigated the residual risks, the conclusions are noted here. Errors and uncertainties are highlighted.</p>

<p>In addition, other material areas may be selected for detailed audit testing.</p>	<ul style="list-style-type: none"> • Recalculation • Spread sheet ‘walk throughs’ to check links and equations • Inspection of calibration and maintenance records for key equipment • Check sampling analysis results • Discussion with process engineers who have detailed knowledge of process uncertainty/error bands 	
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The completed verification checklist is enclosed in Appendix 1 to this report.

2.1 Review of Documentation

The monitoring report submitted by the client and additional background documents related to the project performance was reviewed. A complete list of all documents reviewed is shown in References (chapter 6 of this report).

2.2 On-site inspections

Verification team visited XHC office in Zhangye city and project site on May 20 – May 23, 2009. Interviewed organizations and topics are summarized in table 1 below.

Table 1 Interviewed Organization and Topics at First Periodic Verification

Interviewed organizations/ visited sites	Interview topics/ Inspected items
XHC Office	Open issues in the Initial Verification & 1 st periodic Verification Monitoring plan Monitoring Report and relevant documents GHG calculation and reporting procedures Environment and socio-economic impacts Stakeholders comments Compliance with National laws and regulations
XHC Power Station	Operation of facilities Monitoring equipment Observation of operators
GPGC Heihe Switch Yard	Main meters and data acquisition system
Bajiaowan village (Primary school, Villagers)	Socio-economic and Environmental Impacts
PGTC ² office in Lanzhou city	Original documents for “power purchase settlement notice”

²PGTC: Grid Power Trading Center under Gansu Provincial Power Company

2.3 Resolution of Corrective and Forward Action Requests

The objective of this phase of the verification was to resolve the requests for corrective actions and any other outstanding issues which needed to be clarified for JACO CDM's positive conclusion on the GHG emission reduction calculation.

Findings established during the initial verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CAR) is issued, where:

- i) there is a clear deviation concerning the implementation of the project as defined by the PDD;
- ii) requirements set by the MP or qualifications in a validation opinion have not been met: or,
- iii) there is a risk that the project would not be able to deliver (high quality) CERs.

Forward Action Requests (FAR) are issued, where:

- iv) the actual status requires a special focus on this item for the next consecutive verification,
or
- v) an adjustment on the MP is recommended.

The verification team may also use the term **Clarification Request (CL)**, which would be where:

- vi) additional information is needed to fully clarify an issue.

To guarantee the transparency of the verification process, the concerns raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the verification checklist in Appendix 1.

3. Periodic VERIFICATION FINDINGS

3.1 Completeness of Monitoring

3.1.1 Discussion

The joint meter reading of the main meter by PGTC and XHC was changed from July, 2008. (/1b/)

From January to June, 2008, PGTC had been monitoring by remote automation system on main meter. On the other hand, XHC had been monitoring the main meter by visiting the spot (PGTC's Heihe switch yard). Therefore, the monitoring of PGTC and XHC could not happen right at the same time and the time latency leads to the discrepancy of monthly data.

From July, the new rules were adopted. PGTC head office will get the main meter monitored data through remote monitoring system as before and this main meter record is monitored by both XHC and PGTC's Zhangye branch. This record is used for PGTC to prepare the Power Purchase Settlement Notice (the Notice). XHC will compare above main meter record monitored by XHC and compare with the Notice and finalize the monthly production of electricity, if there are no significant errors.

The verification team considers that the change will reduce the possibility of discrepancies between the monitoring of PGTC and XHC and improve the quality and accuracy of the monitored data. After the change, the monitoring practice is still in full compliance with the latest monitoring plan and methodology.

The reporting procedures in the revised CDM manual (version 2) correctly apply the monitoring plan of the PDD. (/10/)

3rd Periodic Verification Report

The allocation of responsibilities is documented in a written form. The necessary procedures for fixing the monthly generation amount are also documented in the revised CDM manual (version 2) of XHP including emergency provisions.

In the 2nd verification report (GR08W0004D), the verifier pointed out FAR 1 “The project participants will prepare education & training programme to avoid careless mistakes and keeping the consistent monitoring and reporting”.

3.1.2 Findings

Corrective Action Request 1

All the parameters required in the revised monitoring plan are to be indicated in the monitoring report.

Clarification Request 1

CDM Manual for Zhangye Xiaogushan Hydropower Plant (“XHP CDM Manual”) had been provided at the initial verification. Are there any changes in the organization in XHC and XHP project operation? (/10a/)

(i) Monitoring report, P4: What are local people?

(ii) CDM manual, P6: Are there any changes in the process such as 1st block “Staff for copying the data will copy the data on main meter at metering spot at 24:00 ---“?

Clarification Request 2

Regarding the FAR 1 of the 2nd verification report (GR08W0004D), “To keep the consistent monitoring in future, it is recommended to implement a programme and recording of education/ training for monitoring”, training record in 2008 is to be checked.

3.1.3 Conclusion

CAR 1

Monitoring report was revised. (/1b/)

All the parameters listed in the 2nd revised monitoring plan, that is, EG_y, EG_{plant}, ES_{plant} and EG_{aux}, are indicated in the revised monitoring report, version 2.

CL1

(i) PP explained “local people” means “XHC staff”. However, the description of the portion will be fully revised, considering the situation that visiting/reading the main meter by XHC staff was replaced by the reading of remote monitoring system data, since July 2008. (/10a/)

(ii) From the 1st block description of page 6: “will copy the data on main meter at main metering spot at 24:00 o'clock.....”, “at the main metering spot” will be deleted. (/10b/)

CL 2

Training record of 2008 provided. (/14/)

The project participants had prepared and education and training programme to avoid careless mistakes and keep the consistent monitoring and reporting. The record of the training was provided concerning CDM project activity conducted for XHC members (4 times in 2008) in addition to the hydropower plant operation and maintenance (13 times in 2008). The verification team considers the training is appropriate.

The project complies with the requirements.

3.2 Accuracy of Emission Reduction Calculations

3.2.1 Discussion

The reporting procedures reflect the monitoring plan content. There is no greenhouse gas emission from the project. The critical parameters for the determination of GHG emissions are the generation amount of electricity, which is measured by calibrated meters.

3rd Periodic Verification Report

The carbon emission factor is calculated in accordance with the procedure of ACM0002 as indicated in the PDD and this factor is a fixed value throughout the crediting period.

3.2.2 Findings

Clarification Request 3

- (1) Is there any case that XHC imported the electricity from the grid?
- (2) Monthly generation data for the line 1117 & 1118 and the power purchase settlement notice are to be checked.

3.2.3 Conclusion

CL 3

- (1) No, it can be confirmed by settlement notice. (/2/)
- (2) Monthly generation data for the line 1117 & 1118 was provided in terms of XHC's record of main meters ($EGy_{(XH)}$) for the line 1117 & 1118. (/4/)

The verification team confirmed that the $EGy_{(XH)}$ (electricity supplied to the grid monitored by XHC) in the monitoring report coincides with the original record of $EGy_{(XH)}$. The verification team also confirmed that $EGy_{(PG)}$ (electricity supplied to the grid monitored by PGTC) in the monitoring report coincides with the original Power Purchase settlement Notice (/2/) and Invoice of XHC (/3/).

The project complies with the requirements.

3.3 Quality of Evidence to Determine Emission Reductions

3.3.1 Discussion

The critical parameters for the determination of GHG emissions are the generation amount of electricity, which is measured by calibrated meters. As for the calibration frequency of the main meters and auxiliary meters, it is indicated in the PDD that they are recalibrated once every year.

In case of main meters of the project, calibration had been conducted 4 times in 2008, that is, March 05, June 25, September 26 and December 17. All the calibration results show that the maximum error is within the permissible range of 0.2 class meter. The calibration of auxiliary meters had been conducted once in August, 2008. (/6/, /7/)

In case of the auxiliary meters, the data and record of these meters are used if the main meter record was found to be wrong. In the original metering system, the accuracy of the auxiliary meters was 0.5S and this is in accordance with the requirement in China (DL/T 448-2000). Also, the auxiliary meters had been installed in the central control room of the power plant and the total length from the central control room to the second voltage circuit cable is 450m which is comparatively long. According to the suggestion of PGTC, XHC had rectified the metering system to harmonize the accuracy of the main meter. The rectification includes the meter improvement from 0.5S to 0.2S bi-directional multifunctional meters with 0.2s accuracy and the location of auxiliary meters from central control room to 110kV step up station. (/9/)

This improvement would affect the monitored data if the main meter record was found to be wrong. However, the verification team confirms that there had not been any case that the main meter record was found to be wrong in the past. Therefore, the rectification shown above does not affect the results of previous monitoring reports.

At on-site assessment, the verification team confirmed this rectification had been appropriately introduced and the monitored data of auxiliary meters are reasonable as shown in the table 3 of the monitoring report. The verification report of the auxiliary meters issued by the Gansu provincial power metering center dated October 30, 2008 was provided to the verification team.

The Notices (above (1)) of January to December, 2008 corresponding to the 3rd periodic verification period is enclosed as attachment 1 to the monitoring report.

3rd Periodic Verification Report

The verification team confirmed that the “Monthly power sold to the grid ($EG_{y(PG)}$)” for CER calculation indicated in the table 4 of the monitoring report coincide with data of the Notice (Attachment 1 of the monitoring report) and also the Invoice by XHC to GPGC.

Verification team confirmed that data are provided in the monitoring report for all parameter required by the 2nd revised monitoring plan D.2.1.3.

3.3.2 Findings

Clarification Request 4

(1) Calibration record: to be provided for main and auxiliary meters.

(2) The replacement of the main meters is to be confirmed as it is indicated in the 2nd revised monitoring plan which describes that “the meters are recalibrated once every year and will be replaced once every three years”

The project was commissioned in March, 2006 and the replacement period of the main meters was renewed in March, 2009.

Clarification Request 5

(1) Internal verification record: To be clarified.

(2) Internal validation record: To be clarified.

(3) Data protection: To be clarified.

Clarification Request 6

Calculated CERs in the year of 2008 is 374,039 tCO₂ and approx. 117% of annual estimation of emission reduction in tCO₂e of the PDD (319,277 tCO₂e). The reason of this increase is to be clarified.

3.3.3 Conclusion

CL 4

(1) Main meter calibration record was provided. Calibration was carried out every 3 months.

Auxiliary meters calibration was carried out on 08-8-28 and the calibration record was provided.

(2) PP explained although DL/T448-2000 prescribes the replacement of every 3 to 4 years, this is applicable to the mechanical type WH meters, not to the digital type WH meters. The policy and practice is adjusted for digital type WH meters by the Grid Company.

PP received from the Grid Company an official memorandum (attached below, dated May 25, 2009) on current policy / practice. The memorandum certifies that given the high level of accuracy of the meters, the current policy/ practice as for the replacement of meters is that no replacement is needed if the required strict calibration procedures are properly followed.

Grid Company’s official memorandum is summarized as follows. (/8/)

In recent years, the designed life of power meter with high accuracy (category I WH meter) is generally 10 to 15 years and the policy of the grid company is below.

- (i) Category I WH meter in operation should be calibrated every quarter regularly at site.
- (ii) Category I WH meter will be taken every 5 years to the lab of provincial metering center to carry out full performance inspection, if the result and the data are qualified and accurate, then it will be re-sealed and renew the validity period.
- (iii) If the above strict calibration activity had been passed, the power meter can continue to be used and it is not necessary to replace the meter.

The verification team concludes that for the monitoring period of calendar year 2008, the above explanation and evidence provided by PP and the grid company is acceptable. The monitoring activity complies with the description about the replacement in the 2nd revised monitoring plan.

CL 5

- (1) After notice received, Mr. Wang of XHC assesses the notice
- (2) As for the report related to CDM project activity by XHC, Mr. Ding, project manager of XHC, will check the draft.
- (3) Electronic data and hardcopy data are both protected. Electronic data is accessible to the limited persons and new rules will be prepared for more detailed protection in this year. Hardcopies are kept in the special cabinets.

CL 6

Major reasons of the increased CERs are as follows.

- (1) Water flow of Heihe River in 2008 was approximately 116.7% compared to the average year. By this increased water flow, the electricity generation in 2008 was larger than expected annual generation.
- (2) Good performance of the power station and achievement of higher availability than expected. The power station had been running smoothly throughout the year of 2008.

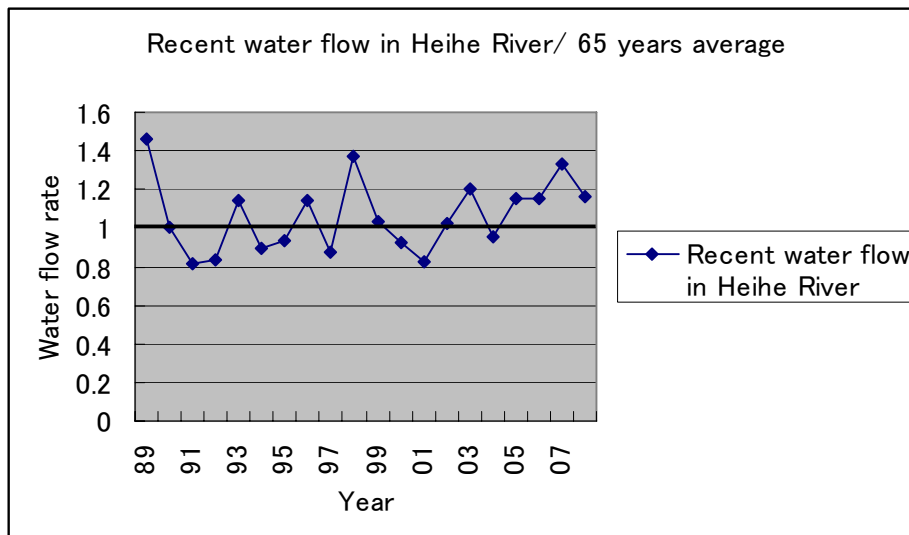
Verification team confirmed that above reasons are reasonable by the following assessment of the water flow statistics during 1944 to 2008 for the Heihe River and the performance record of the power plant. (/12a/, /12b/)

It was also confirmed by the interview at PGTC that there had not been any cases that XHC imported electricity from the grid in 2008.

Average water flow of Heihe River = $158000 \times 10^4 \text{ m}^3 / \text{year}$ (1944 to 2008)

Water flow of Heihe River in 2008 = $184000 \times 10^4 \text{ m}^3$

$$\therefore 184/158 = 1.167$$



CL4, CL5 and CL6 were clarified.

The project complies with the requirements.

3.4 Management System and Quality Assurance

3.4.1 Discussion

CDM Manual for Zhangye Xiaogushan Hydropower Plant (CDM Manual of XHP) was provided. In this manual position and role of each person/ division are defined.

The key parameters are measured by calibrated meters. It was confirmed that the calibration of meters are carried out properly by the calibration reports.

The verification team confirmed that the data are kept protected in the project office of XHC and the generation operation department of XHC.

Both at XHC and PGTC office, the IT system is based on standard PC and MS-office solutions. Hence, the verification team feels confident about its use.

As for the FAR 1 of the 2nd verification report, "To keep the consistent monitoring in future, it is recommended to implement a programme and recording of education/ training for monitoring", please refer to discussion in section 3.1 above. (CL. 2)

As for the environmental impacts, verification team confirmed by the on-site assessment that the plantation at the project site is growing as planned and confirmed at Bajiaowan village (school master and villagers) there is no environmental negative impact by the project.

As for the socio-economic impacts, verification team confirmed by the report³ prepared by Lanzhou University and the interviews to local stakeholders⁴ that the project contributes to the local community and is received well by the local community. Also, it was confirmed by the report "Resettlement Completion Report⁵", independent consultant's report to Asian Development Bank, that the resettlement of the project is successful.

3.4.2 Findings

None

3.4.3 Conclusion

The project complies with the requirements.

³ : Monitoring and Evaluation Report on Resettlement Work (2007), School of Economics, Lanzhou University, Nov. 2007

⁴ : Interview to Village director, primary school teacher

⁵ : Loan 2032-PRC: Gansu Clean Energy Development Resettlement Completion Report (Draft) April 20, 2009

4. PROJECT SCORE CARD

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Calculated Emission Reductions	
Completeness	Source coverage/ boundary definition	✓	✓	✓	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently The indicated CAR 1, 2 were resolved.
Accuracy	Physical Measurement and Analysis	✓	✓	✓	Meters used for measuring power are calibrated.
	Data calculations	✓	✓	✓	Emission reductions are calculated correctly
	Data management & reporting	✓	✓	✓	Data management system is in place PP will prepare education & training programme.
Consistency	Changes in the project	✓	✓	✓	There are no change in the project

5. VERIFICATION STATEMENT

JACO CDM has performed a verification of the CDM project "Xiaogushan Hydropower Project in People's Republic of China". The verification is based on the currently valid documentation of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords".

The management of Xiaogushan Hydropower Company Limited is responsible for the preparation of the GHG emission data and the reported GHG emissions reductions of the "Xiaogushan Hydropower Project in People's Republic of China" on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version dated February 2006 and the 2nd revised monitoring plan dated Nov. 05, 2008 and approved in December, 2008 by the CDM EB. 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.

The verifier confirms that the project is operated as planned and described in the validated and registered PDD. 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 verifier can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01-01-2008 to 31-12-2008

Verified emission in the above reporting period:

Baseline emissions:	374,039 tCO ₂ equivalents
Project emissions:	0 tCO ₂ equivalents
Emission reductions:	374,039 tCO ₂ equivalents

Date: September 14, 2009

Yasunori SHIMOI
CEO, President of JACO CDM

6. References

Category 1 Documents:

List documents provided by the Client that relate directly to the GHG components of the project. These should have been used as direct sources of evidence for the initial verification conclusions, and are usually further checked through interviews with key personnel.

- /1a/ Monitoring Report (for January 01,2008 to December 31,2008), dated January 5, 2009
- /1b/ Monitoring Report, version 02, dated September 9, 2009
- /2a/ Power purchase Settlement Notice by Gansu Grid (Original)
- /2b/ Power purchase Settlement Notice by Gansu Grid (Translation)
- /3a/ Invoice (Original)
- /3b/ Invoice (Translation)
- /4/ XHC 2008 monthly production report
- /5/ XHC 2008 monthly station supply record
- /6/ Calibration Report of main watt-hour meters
- /7/ Calibration Report of auxiliary watt-hour meters
- /8/ PGTC clarification for watt hour meter replacement and calibration
- /9/ PGTC report "Site detection report on status of Power Measurement Devices at XHP"
- /10a/ CDM manual of Zhangye Xiaogushan Hydropower Plant
- /10b/ CDM manual of Zhangye Xiaogushan Hydropower Plant Version 2
- /11/ Power Purchase Agreement (signed by GPGC and XHC)

- /12a/ Water flow statistics in Heihe Yingluo Gorge for 1944 – 2007 by Gansu Province
- /12b/ Water flow record in Heihe Yingluo Gorge for 2008.
- /13/ Loan 2032-PRC: Gansu Clean Energy Development Resettlement Completion Report (Draft) April 20, 2009
- /14/ 2008 training record in XHC

Category 2 Documents:

List background documents related to the design and/or methodologies employed in the design or other reference documents. Where applicable, Category 2 documents should have been used to cross-check project assumptions and confirm the validity of information given in the Category 1 documents and in verification interviews.

- /16/ Schematic View of Xiaogushan run-of-river power plant
- /17/ Drawings of the power house and ratings of major electric equipments
- /18/ Executive summary of Environmental Impact Assessment
- /19/ Technical Management Standard for Watt-hour meter (DL/T 448-2000)
- /20/ Approved methodology ACM0002, ver.5
- /21/ Registered PDD
- /22/ Validation Report (by JCI)
- /23/ 2nd Revised monitoring plan
- /24/ VVM

Persons interviewed:

List persons interviewed during the initial verification, or persons contributed with other information that are not included in the documents listed above.

- /31/ XHC, Mr. Zhu Xingji, Chairman of the Board
- /32/ XHC, Mr. Xu Qing Nian, Deputy General Manager
- /33/ XHC, Mr. Ding Jianjun, Deputy General Manager
- /34/ XHC, Mr. Zhu Lei, Maintenance Department, Chief
- /35/ XHC, Mr. PU Jin Cheng, Interpreter/Deputy Director, Lanzhou Liaison Office
- /36/ XHC, Mr. Liu Meng De
- /37/ XHC, Ms. Shao Yan Yun
- /38/ XHC, Ms. Zhou Xuan
- /39/ PGTC, Mr. Duan Chang Gang, Deputy Division Director

3rd Periodic Verification Report

- /40/ PGTC, Mr. Wang Li Dong, Longshou Non-ferrous Metallurgy Plant
- /39/ Bajiaowan Village, Mr. Huang Junfeng, Xishui Center Primary School, School Master
- /40/ Bajiaowan Village, Hu Zheng Ming, Herdsman, shop keeper

JACO CDM

DRAFT 3RD PERIODIC VERIFICATION CHECKLIST

GR09W0011D Appendix 1

September 14, 2009

Introduction

This document contains a generic Periodic Verification Checklist for CDM and JI projects, which must be seen in conjunction with the *Validation and Verification Guidelines* and the *Periodic Verification Report Template*.

This periodic verification checklist ensures a transparent periodic verification process by inducing the verifier to document how emission reductions have been verified and the conclusion that have been reached.

Before this generic checklist can be applied for the periodic verification of a specific project, the verifier must review and adjust/amend the checklist to make it applicable to individual project characteristics and circumstances as well as individual investor criteria. Particular attention must be given to make sure that the emissions/performance reporting system is in compliance with the project's monitoring plan, and that all issues that may cause risk for material misstatement of emission reductions are identified through the use of a project-specific checklist. The application of the verifier's professional judgement and technical expertise should ensure that checklist amendments cover all necessary specific project requirements that have impact on project performance. Given the above, the checklist is neither exhaustive nor prescriptive.

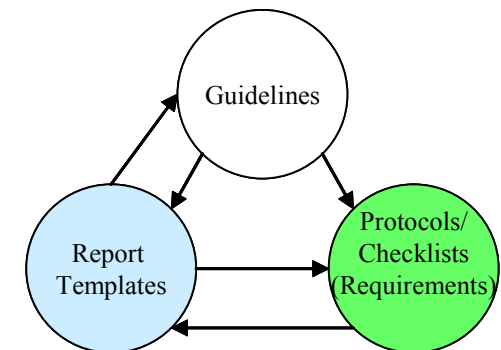


Table 1: Data Management System/Controls

The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table. A score is assigned as follows:

- Full - all best-practice expectations are implemented.
- Partial - a proportion of the best practice expectations is implemented
- Limited - this should be given if little or none of the system component is in place.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
1. Defined organisational structure, responsibilities and competencies		
1.1. Position and roles Position and role of each person in the GHG data management process is clearly defined and implemented, from raw data generation to submission of the final data. Accountability of senior management must also be demonstrated.	Partial	Deputy General Manager of XHP, Mr. Ding Jianjun is responsible for the implementation of monitoring and verification coordination activities. Clarification Request 1 CDM Manual for Zhangye Xiaogushan Hydropower Plant ("XHP CDM Manual") had been provided at the initial verification. Are there any changes in the organization in XHC and XHP project operation? (i) Monitoring report, P4: What are local people? (ii) CDM manual, P6: Are there any changes in the process such as 1 st block "Staff for copying the data will copy the data on main meter at metering spot at 24:00 ---"?
1.2. Responsibilities Specific monitoring and reporting tasks and responsibilities are included in job descriptions or special instructions for employees.	Partial	Ditto

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
<p>1.3. Competencies needed Competencies needed for each aspect of the GHG determination process are analyzed. Personnel competencies are assessed and training programme implemented as required.</p>	Partial	<p><u>Clarification Request 2</u> Regarding the FAR 1 of the 2nd verification report (GR08W0004D), training record in 2008 is to be checked.</p>
<p>2. Conformance with monitoring plan</p>		
<p>2.1. Reporting procedures Reporting procedures should reflect the monitoring plan content. Where deviations from the monitoring plan occur, the impact of this on the data is estimated and the reasons justified.</p>	Partial	<p><u>Corrective Action Request 1</u> All the parameters required in the revised monitoring plan are to be indicated in the monitoring report.</p>
<p>2.2. Necessary Changes Necessary changes to the monitoring plan are identified and changes are integrated in local procedures as necessary.</p>	Full	No changes in reporting procedures of XHP CDM Manual.
<p>3. Application of GHG determination methods</p>		
<p>3.1. Methods used There are documented description of the methods used to determine GHG emissions and justification for the chosen methods. If applicable, procedures for capturing emissions from non-routine or exceptional events are in place and implemented.</p>	Partial	<p>The methods used to determine GHG emissions are described in the XHP CDM Manual and the methods reflect the monitoring plan content.</p> <p><u>Clarification Request 3</u></p> <p>(1) Is there any case that XHC imported the electricity from the grid?</p> <p>(2) Monthly generation data for the line 1117 & 1118 and the power purchase settlement notice are to be checked.</p>

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
<p>3.2. Information/process flow An information/process flow diagram, describing the entire process from raw data to reported totals is developed.</p>	Full	<p>Joint meter reading of the main meter by PGTC and XHC was changed from July, 2008.</p> <p>From January to June, 2008, PGTC had been monitoring by remote automation system on main meter. On the other hand, XHC had been monitoring the main meter by visiting the spot (PGTC's Heihe switch yard). Therefore, the monitoring of PGTC and XHC could not happen right at the same time and the time latency lead to the discrepancy of monthly data.</p> <p>From July, the new rules were adopted. PGTC head office will get the main meter monitored data through remote monitoring system as before and this main meter record is monitored by both XHC and PGTC's Zhangye branch. This record is used for PGTC to prepare the Power Purchase Settlement Notice (the Notice). XHC will compare above main meter record monitored by XHC and compare with the Notice and finalize the monthly production of electricity, if there are no significant errors.</p>
<p>3.3. Data transfer Where data is transferred between or within systems/spreadsheets, the method of transfer (automatic/manual) is highlighted - automatic links/updates are implemented where possible. All assumptions and the references to original data sources are documented.</p>	Full	Ditto
<p>3.4. Data trails Requirements for documented data trails are defined and implemented and all documentation are physically available.</p>	Full	<p>Necessary procedures and data format have been defined in the XHP CDM Manual.</p> <p>The changes from the initial & 2nd verification are limited to the joint meter reading process indicated in 3.2 above.</p>
4. Identification and maintenance of key process parameters		
<p>4.1. Identification of key parameters The key physical process parameters that are critical for the determination of GHG emissions (e.g. meters, sampling methods) are identified.</p>	Full	<p>The critical parameters for the determination of GHG emissions are the produced amount of electricity, which is measured by a calibrated meter.</p>

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
<p>4.2. Calibration/maintenance Appropriate calibration/maintenance requirements are determined.</p>	<p>Partial</p>	<p>As for the calibration frequency of the main meters and auxiliary meters, it is indicated in the 2nd revised monitoring plan that they are calibrated once every year.</p> <p>Clarification Request 4</p> <p>(1) Calibration record: to be checked for main and auxiliary meters.</p> <p>(2) The replacement of the main meters is to be confirmed as it is indicated in the 2nd revised monitoring plan which describes that “the meters are recalibrated once every year and will be replaced once every three years”</p> <p>The project was commissioned in March 2006 and the replacement period of the main meters was renewed in March, 2009.</p>
<p>5. GHG Calculations</p>		
<p>5.1. Use of estimates and default data Where estimates or default data are used, these are validated and periodically evaluated to ensure their ongoing appropriateness and accuracy, particularly following changes to circumstances, equipment etc. The validation and periodic evaluation of this is documented.</p>	<p>Full</p>	<p>The carbon emission factor is calculated in accordance with the procedure of ACM0002 as indicated in the PDD and it is constant during the crediting period of the project.</p>

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
<p>5.2. Guidance on checks and reviews</p> <p>Guidance is provided on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented. This includes spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.</p>	Full	<p>The Guidance is provided in the XHP CDM Manual.</p> <p>It was confirmed that following checks and reviews has been conducted.</p> <p>From January to June, 2008, PGTC had been monitoring by remote automation system on main meter. On the other hand, XHC had been monitoring the main meter by visiting the spot (PGTC's Heihe switch yard). Therefore, the monitoring of PGTC and XHC could not happen right at the same time and the time latency lead to the discrepancy of monthly data.</p> <p>From July, the new rules were adopted. PGTC head office will get the main meter monitored data through remote monitoring system as before and this main meter record is monitored by both XHC and PGTC's Zhangye branch. This record is used for PGTC to prepare the Power Purchase Settlement Notice (the Notice). XHC will compare above main meter record monitored by XHC and compare with the Notice and finalize the monthly production of electricity, if there are no significant errors.</p>
<p>5.3. Internal verification</p> <p>Internal verifications include the GHG data management systems, to ensure consistent application of calculation methods.</p>	Partial	<p><u>Clarification Request 5</u></p> <p>(1) Internal verification record: To be clarified.</p>
<p>5.4. Internal validation</p> <p>Data reported from internal departments should be validated visibly (by signature or electronically) by an employee who is able to assess the accuracy and completeness of the data. Supporting information on the data limitations, problems should also be included in the data trail.</p>	Partial	<p><u>Clarification Request 5</u></p> <p>(2) Internal validation record: To be clarified.</p>
<p>5.5. Data protection measures</p> <p>Data protection measures for databases/spreadsheets should be in place (access restrictions and editor rights).</p>	Partial	<p><u>Clarification Request 5</u></p> <p>(3) Data protection: To be clarified.</p>

*This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template.
The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.*

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
5.6. IT systems IT systems used for GHG monitoring and reporting should be tested and documented.	Full	It was confirmed that there is no change in IT systems.

Table 2: GHG calculation procedures and management control testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>1. Potential reporting risks based on an assessment of the emission estimation procedures can be expected to occur in the following field of action.</p> <ul style="list-style-type: none"> ➤ Raw data collection ➤ Reports/ database from which data is obtained ➤ Calculation methods <p>Key source data applicable to the project assessed are hereby:</p> <ul style="list-style-type: none"> · Metering records (for electricity production) · Accounting records (from invoices raised for electricity export) · Correct use of data determined in validation <p>Appropriate calibration and maintenance of equipment resulting in a high accuracy of data supplied should be in place.</p> <p>It is hereby needed to focus on those risks that impact the accuracy, completeness and consistency of the reported data. Risks are weakness in the GHG calculation systems and may includes:</p> <ul style="list-style-type: none"> ➤ Manual transfer of data ➤ Unclear origins of data ➤ Accuracy due to technological limitations 	<p>1. Regarding the potential risks identified in the left column, following mitigation measures are observed during the document review and the on-site assessment.</p> <p>As the project is hydro power based, the amount of electricity exported to the grid remains to be the only parameters to be obtained for the GHG calculation.</p> <p>Key source data for this parameter are:</p> <ul style="list-style-type: none"> • Joint meter reading • Invoices <p>The main meters are installed at the interface in the Heihe Switchyard of the Gansu Grid Company. The switchyard is connected to the Xiaogushan Power Station with 27km 110kV transmission lines and the auxiliary consumption during operation is excluded from the GHG emission reductions.</p> <p>The main meters are world-widely used ELSTER of USA make with sufficient accuracy class (0.2s) and installed in the sealed metal enclosure. They are calibrated every 3 months according to the Chinese National regulations. Each main meter is sealed properly.</p> <p>The necessary procedures have been defined in the power purchase agreement and additional internal documents relevant for the determination of the electricity exported to the grid.</p> <p>In the PGTC, the monitoring of the main meter is carried out by the Dispatching Centre using remote sensing</p>	<p>1. No areas of residual risks anticipated.</p>

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p><u>Corrective Action Request 1</u> All the parameters required in the revised monitoring plan are to be indicated in the monitoring report.</p> <p><u>Clarification Request 1</u> Clarification about organization change in XHC and XHP project operation: (i) Monitoring report, P4: What are local people? (ii) CDM manual, P6: Are there any changes in the process such as 1st block “Staff for copying the data will copy the data on main meter at metering spot at 24:00 ---“?</p> <p><u>Clarification Request 2</u> In the 2nd verification report (GR08W0004D), the verifier pointed out FAR 1 “The project participants will prepare education & training programme to avoid careless mistakes and keeping the consistent monitoring and reporting”. In this connection, training record in 2008 is to be checked.</p> <p><u>Clarification Request 3</u> (1) Is there any case that XHC imported the electricity from the grid? (2) Monthly generation data for the line 1117 & 1118</p>	<p>facilities and the data are checked by Settlement Centre of the PGTC before sending to XHC. The allocation of responsibilities in XHC is documented in the CDM manual of XHP.</p> <p>CAR.1 Monitoring report was revised. All the parameters listed in the 2nd revised monitoring plan are indicated in the revised monitoring report, version 2.</p> <p>CL.1 (i) PP explained “local people” means “XHC staff”. However, the description of the portion will be fully revised, considering the situation that visiting/reading the main meter by XHC staff was replaced by the reading of remote monitoring system data, since July 2008. (ii) From the 1st block description of page 6: “will copy the data on main meter at main metering spot at 24:00 o’clock.....”, “at the main metering spot” will be deleted.</p> <p>CL.2 The record of the training was provided concerning CDM project activity conducted for XHC members (4 times in 2008) in addition to the hydropower plant operation and maintenance (13 times in 2008). The verification team considers the training is appropriate.</p> <p>CL.3 (1) The verification team confirmed by the assessment of the power purchase settlement notice and the interview to the local representative of PGTC, that in 2008 there was no such case that XHC imported the</p>	<p>CAR 1 was resolved.</p> <p>CL 1 was clarified.</p> <p>CL 2 was clarified.</p> <p>CL3 was clarified.</p>

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

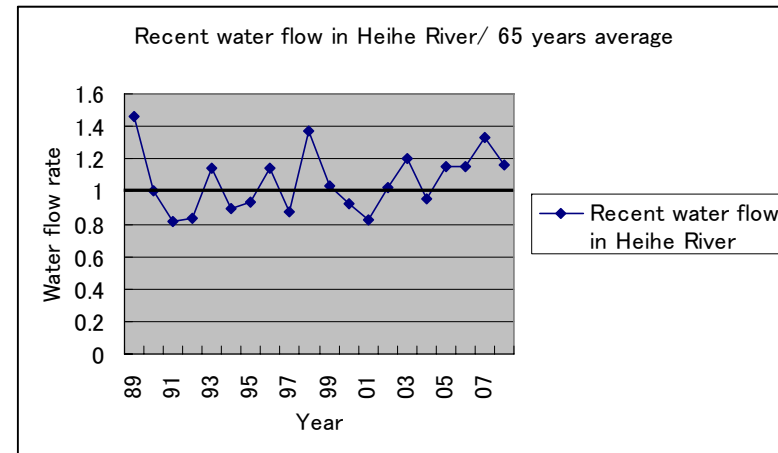
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>and the power purchase settlement notice are to be checked.</p> <p>Clarification Request 4</p> <p>(1) Calibration record: to be checked for main and auxiliary meters.</p> <p>(2) The replacement of the main meters is to be confirmed as it is indicated in the 2nd revised monitoring plan which describes that “the meters are recalibrated once every year and will be replaced once every three years”</p> <p>The project was commissioned in March, 2006 and the replacement period of the main meters was renewed in March, 2009.</p>	<p>electricity from PGTC due to good performance of the XHP power plant.</p> <p>(2) Monthly generation data for the line 1117 & 1118 was provided in terms of XHC’s record of main meters (EGy_(XH)) for the line 1117 & 1118. (12/-/4/)</p> <p>The verification team confirmed that the EGy_(XH) (electricity supplied to the grid monitored by XHC) in the monitoring report coincides with the original record of EGy_(XH).</p> <p>CL. 4</p> <p>(1) Main meter calibration record was provided. Calibration was carried out every 3 months. Auxiliary meters calibration was conducted on 08-8-28, calibration record was provided.</p> <p>(2) PP explained although DL/T448-2000 prescribes the replacement of every 3 to 4 years, this is applicable to the mechanical type WH meters, not to the digital type WH meters. The policy and practice is adjusted for digital type WH meters by the Grid company. PP received from the Grid Company an official memorandum (dated May 25, 2009) on current policy / practice. The memorandum certifies that given the high level of accuracy of the meters, the current policy/ practice as for the replacement of meters is that no replacement is needed if the required strict calibration procedures are properly followed. Grid company’s official memorandum (attached below) is summarized as follows. (8/)</p> <p>In recent years, the designed life of power meter with high accuracy (category I WH meter) is generally 10 to 15 years and the policy of the grid company is below.</p> <p>(i) Category I WH meter in operation should be</p>	<p>CL 4 was clarified.</p>

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>Clarification Request 5</p> <p>(1) Internal verification: To be clarified. (2) Internal validation: To be clarified. (3) Data protection: To be clarified.</p> <p>Clarification Request 6</p> <p>Calculated CERs in the year of 2008 is 374,039 tCO₂ and approx. 117% of annual estimation of emission reduction in tCO₂e of the PDD (319,277 tCO₂e).</p>	<p>calibrated every quarter regularly at site.</p> <p>(ii) Category I WH meter will be taken every 5 years to the lab of provincial metering center to carry out full performance inspection, if the result and the data are qualified and accurate, then it will be re-sealed and renew the validity period.</p> <p>(iii) If the above strict calibration activity had been passed, the power meter can continue to be used and it is not necessary to replace the meter.</p> <p>The verification team concludes that for the monitoring of year 2008 the explanation by PP and the grid company is acceptable. The monitoring activity complies with the description about the replacement of the main meters in the 2nd revised monitoring plan.</p> <p>Auxiliary Meters were replaced by new class 02s meters in Oct. '08 for better matching with the Class 02s</p> <p>CL.5</p> <p>(1) After notice received, Mr. Wang of XHC assesses the notice (2) As for the report related to CDM project activity by XHC, Mr. Ding, project manager of XHC, will check the draft. (3) Electronic data and hardcopy data are both protected. Electronic data is accessible to the limited persons and new rules will be prepared for more detailed protection in this year. Hardcopies are kept in the special cabinets.</p> <p>CL. 6</p> <p>Major reasons of the increased CERs are as follows. (1) Water flow of Heihe River in 2008 was approximately 116. 7% compared to the average year. By this increased water flow, the electricity generation in 2008 was larger than expected annual generation.</p>	<p>CL 5 was clarified.</p> <p>CL 5 was clarified.</p> <p>CL 6 was clarified.</p>

This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
	<p>(2) Good performance of the power station and achievement of higher availability than expected. The power station had been running smoothly throughout the year of 2008.</p> <p>Average water flow of Heihe River = $158000 \times 10^4 \text{ m}^3$ / year (1944 to 2008) Water flow of Heihe River in 2008 = $184000 \times 10^4 \text{ m}^3$</p> <p>$\therefore 184/158 = 1.167$</p> <p>Verification team confirmed that the explanation by PP is reasonable by the assessment of the water flow statistics during 1944 to 2008 for the Heihe River (/12/) and the performance record of the power plant.</p> <p>It was also confirmed by the interview at PGTC that there had not been any cases that XHC imported electricity from the grid in 2008.</p>	



This periodic verification checklist must be seen in conjunction with the Validation and Verification Guidelines and the periodic verification report template. The entries in the checklist should be adjusted and amended as appropriate to prepare for the periodic verification of a particular project.

Table 3: Detailed audit testing of residual risk areas and random testing

Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
CAR 1 was resolved. All clarifications (CL.1 to CL.6) were clarified. No residual risks are anticipated.	No additional verification testing was performed.	The verification team concludes that the GHG emission reduction is calculated without material misstatements.