VERIFICATION REPORT OF "NANBA ASSOCIATED GAS PROCESSING PLANT AND THE AUXILIARY ENGINEERING

By ERM Certification and Verification Services (ERM CVS)
2nd Floor, Exchequer Court
33 St Mary Axe
London, EC3A 8AA

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Prepared By	ERM Certification and Verification Services (ERM CVS)
Contact	2nd Floor, Exchequer Court, 33 St Mary Axe, London, EC3A 8AA
Approved By	Melanie Eddis – Head of Climate Change Services
Work Carried Out By	Peter Huang (Lead Verifier), Gary Zhou (Verifier) Melanie Eddis (Technical Reviewer)

Summary:

- Nanba Associated Gas Processing Plant and the Auxiliary Engineering is located in Daqing City, Heilongjiang Province, People's Republic of China. The Project is developed by Daqing Oilfield Co., Ltd.. The purpose of the Project is to recover and utilise the associated gas from oil wells in the Second Oil Production Plant of Sanan Oilfield that would otherwise be vented, to process into dry gas and condensate.
- The project was registered as a CDM project on 07 December 2012 (Ref. No. 8598). The starting date of the CDM crediting period of the project is 07 December 2012. The commercial operation date was verified to be 29 May 2012 and this report presents the verification of pre-CDM emission reductions for the period 29 May 2012 -06 December 2012.
- The management of Daqing Oilfield Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.
- The verification scope is defined as an independent and objective review of the Monitoring Report for the VCU claim. The verification process consists of the independent third-party assessment of the project design and emission reduction assertion against the criteria stated in the Verified Carbon Standard (VCS) Version 3.4 as well as the approved CDM baseline and monitoring methodology AM0009, Version 06 "Recovery and utilization of gas from oil wells that would otherwise be flared or vented".
- During verification activities, the audit team has validated the VCS specific requirements necessary for pre-CDM VCS projects
- During the verification process, ERM CVS issued several clarification and corrective action requests, and all issues have been successfully addressed by the PPs – for details please see Appendix B.
- The GHG emission reductions set out in the monitoring report, (version 03, dated 14 April 2014) were found to be appropriately measured and calculated, utilizing monitored data obtained during the corresponding monitoring period, which is deemed to be in accordance with the applied CDM monitoring methodology "Recovery and utilization of gas from oil wells that would otherwise be flared or vented", AM0009 Version 06.0.0, and in accordance with the Monitoring Plan set out in the registered CDM Project Design Document (PDD), version 2.2, dated 19 October 2012 (CDM reference number 8598).
- Based on the verification activities undertaken, ERM CVS confirms that the project activity was implemented and operated as described in the registered PDD and in the VCS Project Description (PD) and that the reported emission reductions resulting from the project for the monitoring period from 29 May 2012 to 06 December 2012 as 224,553tCO_2e

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification Request
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
NCV	Net Calorific Value
PD	Project Description
PDD	Project Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention for Climate Change
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit

1 INTRODUCTION

ERM Certification and Verification Services (ERM CVS) was commissioned by Daqing Oilfield Co., Ltd. to verify and certify the emissions reductions reported for the period 29 May 2012 -06 December 2012 as set out in the monitoring report of the project activity 'Nanba Associated Gas Processing Plant and the Auxiliary Engineering' prior to its CDM first crediting period, on the basis of requirements of VCS Standard Version 3.4.

ERM CVS was also commissioned by Daqing Oilfield Co. Ltd to validate that VCS Project Design (PD) document /3/ which contains design description required by the VCS that are additional to the registered CDM Project Design Document (PDD) /4/.

1.1 Objective

Verification is the periodic independent review and ex post determination by the verifier of the monitored reductions in anthropogenic emissions by sources of greenhouse gases that have occurred as a result of a registered VCS project activity during the verification period. The verification report is the written assurance by the verifier that, during a specified time period, a project activity achieved the reductions in anthropogenic emissions by sources of greenhouse gases as verified.

The objective of the verification is to establish whether sufficient evidence exists to confirm, to reasonable assurance:

- Whether the project activity has been implemented and is being operated as per the VCS PD /3/ and CDM PDD /4/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project activity are in place.
- Whether the applied monitoring plan /5/ is in compliance with the relevant approved CDM monitoring methodology /8/
- Whether the monitoring report /1/ and other supporting documents provided are complete and verifiable and in accordance with the monitoring plan and applicable VCS rules.
- Whether the emission reductions as set out in the monitoring report /1/ have been measured, calculated and reported in accordance with the requirements of the monitoring plan /5/.
- Whether the reported data meet the key principles of data quality and are complete, reliable, consistent, accurate, valid, transparent and conservative.

1.2 Scope and Criteria

The verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions against the VCS Version 3.4.

Based on the key project information, the verification addresses the implementation and operation of the project activity as set out in the PDD /4/, and the information and reported emissions reductions set out in the monitoring report prepared by the project participant (PP) for this monitoring period.

The verification tests the data and assertions set out in the monitoring report prepared for this monitoring period by the PPs and is based on:

- the approved VCS methodology /8/ applied in project description (PD) /3/
- the registered CDM PDD /4/ and approved monitoring plan /5/
- The Verified Carbon Standard (VCS) Version 3.4
- the ISO 14064-2:2006, ISO 14064-3:2006 and ISO 14065:2007
- Relevant methodological tools applicable during monitoring of the project activity
- Relevant decisions, guidance and clarifications of the VCSA and any other information and references relevant to the project activity's reported emission reductions

The validation/verification body and validation/verification team meet the competence requirements set out in ISO 14065:2007, as shown in section 3.1.

The verification considers both quantitative and qualitative information on emission reductions. The monitoring report is assessed; using a rule based approach, against the principles of accuracy, relevance, credibility, reliability, completeness, consistency, and transparency. Conservativeness is applied throughout the process to ensure that emission reductions are not overstated.

ERM CVS conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification does not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

1.3 Level of assurance

The verification report expresses a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data are free from material misstatement.

1.4 Summary Description of the Project

The Nanba Associated Gas Processing Plant and the Auxiliary Engineering is developed by Daqing Oilfield Co., Ltd., which is located in Daqing City, Heilongjiang Province, People's Republic of China.

The Project is to recover and utilize the associated gas from oil wells in the Second Oil Production Plant of Sanan Oilfield that would otherwise be vented, to process into dry gas and condensate. The associated gas comes from the oil wells of the Second Oil Production Plant of Sanan Oilfield and is preliminary separated from the crude oil in Nanba Combined Station, Nan-II-1 Combined Station, and Nan-II-2 Combined Station (via 370 metering rooms, 50 transferring stations). The Project constructs the associated gas recovery system and associated gas processing and transport infrastructure, including gas collection facilities, booster station (Sanan Booster Station), processing plant and transportation pipelines, etc. The recovered associated gas is collected by the associated gas recovery system and transported to the gas processing plant. The associated gas processing plant applies the deep cooling treatment technology and the associated gas is separated into dry gas and condensate. The dry gas is transferred to the end-users via the transportation system. The condensate is transferred to storage tank (Guangming Pool) and then eventually sold to the end users.

The project was registered as a CDM project on 07 December 2012 (Ref. No. 8598) by the UNFCCC. The starting date of the CDM crediting period of the project is 07 December 2012. The commercial

operation date was verified to be 29 May 2012 and this report presents the verification of pre-CDM emission reductions for the period 29 May 2012 to 06 December 2012, i.e., the period prior to the registration of the project as a CDM project, which coincides with the considered monitoring period. ERM CVS has verified the evidences and the operation of the project activity by means of a site visit.

2 VERIFICATION PROCESS

2.1 Method and Criteria

ERM CVS employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions. The verification of this project is based on the VCS Version 3.4, the validated project design document, the monitoring report, emission reduction calculation spread sheet, the VCS Project Description (VCS-PD) and other supporting documents made available to the verifier, as well as information collected through performing interviews and during the on-site assessment.

This verification was performed:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- To ensure that reported emission reductions are complete and accurate in order to be verified.

The verification included a) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and b) the collection of evidence supporting the reported data.

ERM CVS's verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ERM CVS planned and performed the verification by obtaining evidence and other information and explanations that ERM CVS considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

Based on ERM CVS's review of the project a verification team was established that takes into account the coverage of the technical area(s), sectoral scope(s) and relevant host country experience for verifying the ER achieved by the project activity in the relevant monitoring period for this verification.
Personnel who undertook this verification were:

Verification Team	Role	CDM Knowledge	Coverage of Technical Area	Participated in site visit?
Peter Huang	Lead Verifier	Yes	No	Yes

Verification Team	Role	CDM Knowledge	Coverage of Technical Area	Participated in site visit?
Gary Zhou	Verifier	Yes	Yes	Yes

Technical Review	Role	CDM Knowledge	Knowledge relevant to the Technical Area
Melanie Eddis	Technical Reviewer	Yes	Yes

Peter Huang is a Lead Auditor based in Beijing with experience in the validation and verification of more than 90 CDM projects, including wind power, hydro power, LNG cogeneration and energy efficiency projects. He has been involved in more than 50 ACM0002 validation and verification projects. He received training in the carbon market, emission reduction monitoring, financial analysis, and CDM methodologies through case studies, and group work. He is fully competent as a lead for validation and verification of CDM projects. He has more than 5 years working experience for energy efficiency and energy conservation project. He has had responsibility to investigate new energy conservation technology, working together with the staffs on-site, establish and perform monitoring plan to confirm the actual effect of the technology, mainly focus on Boilers, Steam turbines, furnace efficiency, TRT, CDQ and Iron-steel production line, frequency control of motor speed, green light and efficiency of hydro turbines and then transfer to the relevant industry in China. Peter Huang is able to understand the relevant tool and requirements for financial validation and verification in CDM projects.

Gary Zhou is a lead assessor based in Beijing, China. Mr Zhou holds both Master and Bachelor Degree in Mining Engineering. Having three years direct working experience in coal mines in different discipline and capacities such as technician, assistant engineer, principal staff and certified safety engineer. He is knowledgeable in coal production system operating processes. Mr Zhou has completed the ERM CVS CDM Validation and Verification training course. He has an experience of more than four years' in CDM validation and verification. He has participated in more than 80 CDM validation/verification projects including sectors of wind power, solar PV, hydropower and CMM utilization.

Melanie Eddis, Head of Climate Change at ERM CVS, has over 20 years' experience in environmental management, primarily in the oil and gas and cement sectors and over 10 years' experience of GHG assessment, inventories and verification. She has extensive experience of the oil and gas industry, including process activities and associated GHG emissions associated with more than 20 upstream oil and gas installations, refineries, gas processing plants and LNG facilities. Melanie is a lead verifier who has been involved in more than 50 verifications across a range of GHG programs, including CDM, EU ETS, UK ETS, and company /sector specific schemes.

2.2 Document Review

A detailed desk review was undertaken prior to the site visit. This included the registered PDD, including the monitoring plan and the corresponding validation report, the applied monitoring methodology, VCS version 3.4, VCS PD, VCS monitoring report, relevant external data and reports, on-site documents,

relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board. All monitoring procedures were discussed prior to the site visit.

A complete list of all documents reviewed is contained in A.1 of Annex A.

2.3 Interviews

The verification team carried out interviews in order to confirm evidence associated with the data generation, aggregation, calculation and reporting of the monitoring parameters, to assess the information included in the project documentation, and to gain additional information regarding the compliance of the project with the relevant criteria applicable for the VCS.

A detailed interviewee list is contained in A.2 in Annex A to this report.

2.4 Site Inspections

A site visit to the project activity was undertaken on 05 November and 07 November 2013. The site visit addressed:

- Assessment of the project implementation as per the registered PD (including site walk through to confirm physical existence and operation of project components);
- Practical implementation of all aspects of the monitoring plan and conformance with the VCS approved methodology;
- Review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan; a list of all interviewees is included in A.2 in Annex A;
- Cross-check between information provided in the Monitoring Report and data from other sources such as log books to establish the existence of a clear audit trail and records that validate or invalidate the stated data;
- Check monitoring equipment including calibration performance and observations of the monitoring practices against the requirements of the PD and the selected methodology;
- Review calculations and assumptions made in determining the GHG data and emission reductions;
- Review of on-site documentation, including the calibration report for the monitoring equipment, on site log book, sales receipts and net calorific value (NCV) test reports; and
- Identification of quality control and quality control procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

After the site visit, a draft report is prepared with the preliminary findings of the verification. Where issues are identified relating to the monitoring, implementation and operation of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence

the monitoring and reporting of emission reductions, these issues are discussed and concluded in the verification report through the following approaches:

- Clarification Request (CL): where information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

- Corrective Action Request (CAR): This is issued where:

    - Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;

    - Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;

    - Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;

    - Issues identified in a Forward Action Request (FAR) during validation (or previous verification) to be verified have not been resolved by the project participants.

The verification process may be stopped until this information has been made available to the verifiers' satisfaction. Failure to address a CL may result in a CAR. Information or clarification provided as a result of a CL may also lead to a CAR.

After satisfactory close out of CARs and CLs, the final report presents the verification activities undertaken, the issues raised, and explains how these issues have been closed out to enable the final verification conclusions to be made.

A complete list of FARs, CARs, and CLs are included in Annex B.

2.5.1 Forward Action Requests

Forward Action Requests (FAR) may also be raised for actions if the monitoring and reporting require attention and/or adjustment for the next verification period. These have no impact upon the completion of the current verification activity.

There is no FARs observed during the verification process.

2.6 Eligibility for Validation Activities

ERM CVS has the accreditation for validation/verification body under a VCS-approved GHG program (see http://www.v-c-s.org/verification-validation/find-vvb) and holds the accreditation for the validation or verification for the sectoral scope applicable to the methodology applied to the project (http://www.v-c-s.org/erm-certification-and-verification-services-ltd). Thus ERM CVS meets the requirements by VCS Program Guide.

3 VALIDATION FINDINGS

GAP VALIDATION

Validation Process

The project activity "Nanba Associated Gas Processing Plant and the Auxiliary Engineering" was validated under the CDM criteria by the designated operational entity *Bureau Veritas Certification* on 27 November 2012, as per the validation report published at the UNFCCC website https://cdm.unfccc.int/Projects/DB/BVQI1354796911.2/view. ERM CVS reviewed the CDM validation report and confirmed that it provides details regarding Method and Criteria, Document Review, Interviews, Site Inspections, and Resolution of findings can be found in the validation reported. This project was registered as a CDM project on 07 December 2012, with UNFCCC reference number 8598.

The project proponent (Daqing Oilfield Co., Ltd.) has requested sequential registration of the project on both VCS and CDM. In accordance with the VCS Standard: VCS Version 3, "projects may be registered under both the VCS Program and an approved GHG program". "Project proponents shall not claim credit for the same GHG emission reduction or removal under the VCS Program and another GHG program"

ERM CVS's validation of gaps between CDM and VCS requirements were based on:

- Review of the PDD, CDM validation report, VCS requirements and documents provided by the PP
- Interviews and site inspection (see section 2.3 and 2.4 above)

Where material discrepancies were identified in the validation of gaps, Corrective Action Requests or Clarification Requests were raised during the validation process.

As per the Registration and Issuance Process of VCS Version 3, since the project is claiming GHG credits under both the VCS Program and the CDM, a VCS Project Description with the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 completed was provided to the ERM CVS verification team.

Given that the project is already registered under the CDM, the VCS PD only needs to include the additional information required for VCS registration, plus the original registered PDD. CAR 1 was raised to request the Project proponent to provide separate documentation to present the registered CDM PDD and the new information in the VCS PD which is under validation by ERM CVS.

The VCS PD has been revised. ERM CVS reviewed and confirmed that the revised VCS PD only includes the additional information required for VCS registration. This is in line with the Registration and Issuance Process of VCS Version 3. Therefore CAR 1 is closed.

Cover Page

The cover page of the VCS PD contains all relevant information.

Sectoral Scope and Project Type (Section 1.2 of the VCS PD template)

It was validated during the site visit that the project is applicable for the sectoral scope10: Fugitive emission from fuels (solid, oil, gas)

Project Proponent (Section 1.3 of the VCS PD template)

By the evidence described in the "Right of use" section below, it was validated that the project proponent of the project under VCS is Daqing Oilfield Co., Ltd.. The contact information and roles/responsibilities for the project proponent(s) is listed as below:

Mr. Zhu Lin, Manager within Daqing Oilfield Co., Ltd.

Addr: Longnan Ranghulu District Daqing City, Heilongjiang Province, People Republic of China, 163453

Tel: +86 10-67802748-8008
Fax: +86 10-67802748-8007
E-mail: zhulin_dod@petrochina.com.cn

Project Start Date (Section 1.5 of the VCS PD template)

The approval for the project to start commissioning on 29 May 2012, it was confirmed by checking the Approval of the pilot production/17/ and operation logbook /18/ .

Project Crediting Period (Section 1.6 of the VCS PD template)

The Project crediting period under the VCS program was validated to be from 29 May 2012 to 06 December 2012 (i.e., the last day before the project was registered as a CDM project).

Project Scale and Estimated GHG Emission Reductions or Removals (Section 1.7 of the VCS PD template)

According to the registered PDD, the annual emission reductions of the project are estimated to be 301,731tCO_2e, which is listed as a Large Project in the VCS PD version 01. In accordance with the VCS program definitions, a Large Project is defined as a project that generates 300,000 tonnes CO_2e or more of GHG emissions reductions or removals per year. Thus, it is validated that Nanba Associated Gas Processing Plant and the Auxiliary Engineering as 'Large Project' as per the VCS Version 3 definition. However, the registered PDD and validation report only contain the emission reduction calculations from 01 January 2013 to 31 December 2021. It was not clear the data source for the estimated emission reductions of 459,481 tCO_2e for the year 2012 and the total estimated ERs of 241,039 tCO_2e for the monitoring period. ERM CVS therefore raised CL 1 to seek further clarification on this. The PD has been revised. ERM CVS reviewed the revised PD and verified that the estimation of emission reductions of 459,481tCO_2e for the year 2012 is calculated based on the data derived from the Project FSR /37/, which is prepared by the qualified third party namely Daqing Oilfield Engineering Co., Ltd. and thus is deemed

credible data sources by ERM CVS. The crediting period is from 29 May 2012 to 06 December 2012 (both days included) is totally 192 days. Thus, the corresponding expected emission reduction for the crediting period is: 459,481tCO_2e/366days*192days =241,039tCO_2e. ERM CVS reviewed the calculation process and verified that all assumptions are reasonable and the formulae is the same as the register CDM-PDD. Therefore the CL 1 is closed.

Project Location (Section 1.9 of the VCS PD template)

During the site visit, the project location was confirmed to be Sanan Oilfield in Daqing City, Heilongjiang Province, People's Republic of China. However, it was stated as Latitude +46.5501 and the Longitude +125.0152 in the VCS PD version 01, while as Latitude +125.0152 and the Longitude +46.5501 in the VCS monitoring report for coordinates of associated gas processing plant. CAR 2 was raised.

The VCS PD and monitoring report have been revised. ERM CVS reviewed the revised documentation and confirmed that the project location is correct and the geographical coordinates of the associated gas processing plant have been correctly represented as Latitude +46.5501 and the Longitude +125.0152 in the final documents, which are in line with the Project FSR /37/. Therefore CAR 2 is closed.

Conditions Prior to Project Initiation (Section 1.10 of the VCS PD template)

According to the registered CDM PDD, the project is a newly built associated gas recovery and processing project with a construction period of one year. The starting date of the project activity, defined as per the CDM Glossary of Terms, is 12 April 2011, and the project started construction on 20 May 2011 /4//6/. ERM CVS reviewed the registered PDD and the CDM registration validation report which had been demonstrated with sufficient supporting evidence, and was able to confirm that the project has not been implemented to generate any GHG emissions prior to the project initiation.

Right of Use (Section 1.12.1 of the VCS PD template)

The ownership of the project proponent, Daqing Oilfield Co., Ltd., was verified by the following evidence:

The business license of Daqing Oilfield Co., Ltd. dated 10 September 2009 /9/

The equipment contracts of the Project /10/

The construction contracts of the Project /15//16/

FSR Approval issued by the Daqing City Development and Reform Commission on 12 April 2011/37/;

EIA Approval issued by the Environmental Protection Bureau of Daqing City on 08 December 2010 /38/;

LOA of the project issued by the DNA of China in August 2012 /39/.

All the evidence provided was confirmed and deemed to be in order. ERM CVS can confirm that Daqing Oilfield Co., Ltd. is the owner of the project.

Emissions Trading Programs and Other Binding Limits (Section 1.12.2 of the VCS PD template)

The project was registered as a CDM project on 07 December 2012 and the reference number is 8598, for which a fixed crediting period of 10 years (07 December 2012 to 06 December 2022) will be used under the CDM GHG Program. Therefore, GHG emission reductions generated by the project during the

CDM crediting period will be verified as unique CERs during the CDM crediting period. Only GHG emission reductions achieved from 29 May 2012 to 06 December 2012 is considered as VCUs under the VCS version 3.

Participation under Other GHG Programs (Section 1.12.3 of the VCS PD template)

The project was registered as a CDM project on 07 December 2012 and the reference number is 8598, for which a fixed crediting period of 10 years (07 December 2012 to 06 December 2022) will be used under the CDM GHG Program.

Other Forms of Environmental Credit (Section 1.12.4 of the VCS PD template)

The project is located in China and is developed and operated by Daqing Oilfield Co., Ltd., which is a Chinese Investment Enterprise. By the document review and the investigation on the Carbon credit market web site such as www.V-C-S.org, there is no other forms of environmental credit identified for the project.

Additional Information Relevant to the Project (Section 1.13 of the VCS PD template)

1) Eligibility Criteria

In accordance with the registered CDM-PDD /4/ and CDM validation report /6/ of the project, the project is not a grouped project, thus this item is not applicable to the project.

2) Leakage Management

According to AM0009 Version 06, the main emissions potentially giving rise to leakage are emissions arising due to net increase in electricity consumption.

The electricity meter (M_7) is installed at Substation near gas processing plant to monitor net increase in electricity consumption, which is calibrated by a qualified third party according to the national standard. Data should be measured continuously and recorded monthly.

3) Commercially Sensitive Information

As confirmed from the project owner, all information stated in the VCS monitoring report is public, and no commercially sensitive information has been excluded.

4) Further Information

As reported in the CDM validation report of the project, the CDM validation DOE issued a positive opinion to the project for requesting registration. In addition, the verification team didn't identify any additional information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

Overall Conclusion on the Gap Validation

The project activity "Nanba Associated Gas Processing Plant and the Auxiliary Engineering" was developed as a CDM project, being registered on 07 December 2012, under the UNFCCC reference number 8598.

The project proponent (Daqing Oilfield Co., Ltd.) has requested sequential registration of the project on both VCS and CDM. In accordance with the VCS Standard: VCS Version 3, "projects may be registered under both the VCS Program and an approved GHG program". "Project proponents shall not claim credit for the same GHG emission reduction or removal under the VCS Program and another GHG program".

Per VCS Version 3 requirements, for projects validated under the CDM, the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, and 1.13 of the VCS Project Description Template shall be completed. The VCS Project Description has been provided by the project proponent, containing required sections completed, which was further validated by ERM CVS as discussed above.

In summary, it is ERM CVS' opinion that, based on the validation report for the CDM registration, dated 27 November 2012, and the additional information provided in the VCS Project Description, version 03 dated 14 April 2014, "Nanba Associated Gas Processing Plant and the Auxiliary Engineering" meets all relevant VCS Version 3 requirements.

3.1 Participation under Other GHG Programs

The project activity "Nanba Associated Gas Processing Plant and the Auxiliary Engineering" was registered as a CDM project on 07 December 2012 and the reference number is 8598, for which a fixed crediting period of 10 years (07 December 2012 to 06 December 2022) will be used under the CDM GHG Program. The project proponent (Daqing Oilfield Co., Ltd.) has requested sequential registration of the project on both VCS and CDM. In accordance with the VCS Standard: VCS Version 3, "projects may be registered under both the VCS Program and an approved GHG program". "Project proponents shall not claim credit for the same GHG emission reduction or removal under the VCS Program and another GHG program". Thus, the GHG emission reductions during the reporting period 29 May 2012 -06 December 2012 is eligible to participate under the VCS program.

3.2 Methodology Deviations

Not applicable. There are no deviations identified for the methodology applied to the project.

3.3 Project Description Deviations

There are no deviations identified for the methodology applied to the project.

3.4 Grouped Project

N/A

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

This section includes a discussion of the implementation status of the project activity, including any material discrepancies between the project and the project description. The site visit took place on 05 November and 07 November 2013, including checking the equipment installed at the Project site, reviewing relevant documents for the monitoring period (please refer to A.1 in Annex A for the list of documents), and interviews with the relevant staff responsible for Project operation and monitoring (please refer to A.2 in Annex A for all the interviewees).

Based on the desk review and name plates which were verified during the site visit, ERM CVS confirmed that the main equipment and respective technical parameters of the Project are shown in the table below.

Centrifugal compressor	
Type	MCL526+2BCL458
Molecular weight	20.37
Rated Power	7200 kW
Rated speed	9949 r/min
Technical Life	20 year
Manufacturer	Shenyang Turbo-machinery Co., Ltd.
Regenerable adsorption type of dryer	
Type	HBP-2.2*8.0-4.4/1
Design pressure	4.4MPa
Design temperature	300℃
Period	8 h
Technical Life	20 year
Manufacturer	China Oil HBP Science & Technology Co., Ltd.
Screw refrigeration compressor	
Type	VRS2700
Refrigerant type	Propane
Evaporating temperature	-40℃
Evaporating pressure	0.111MPa
Technical Life	20 year
Manufacturer	Emerson Environment Optimization Technologies (Shanghai) Co., Ltd.
Demethanizer	
Design pressure	2.0MPa
Design temperature	-110℃
Maximum allowable Pressure	1.91MPa
Oil field gas compressor	
Type	JC-2DW-125/0.5-3
Volume flow	125Nm^3/min
Suction pressure	0.02-0.06MPa
Discharge pressure	0.3MPa
Manufacturer	Beijing Jingcheng Environmental Protection Development Co., Ltd

ERM CVS reviewed the Technical protocol of the main equipment /21//22//23//24//25/, checked the equipment nameplates during site inspections and was able to confirm that the daily processing capacity of the processing plant is 90×10^4 Nm^3/d. According to the FSR /37/, the recovered associated gas will vary from year to year based on the crude oil output of the Second Oil Production Plant of Sanan Oilfield. In the 10 years from 2012 to 2021, the Project is designed to process $17{,}344\times10^4Nm^3$ associated gas and produce $13{,}875\times10^4Nm^3$ dry gas and 3.64×10^4t condensate annually on average.

Based on the verification team's observations, interviews with the site personnel during the site inspections, and review of the data collected, ERM CVS has verified that the implementation of the Project is consistent with the registered PDD /4/.

- Compliance of the project implementation with the registered project design document

Compliance question	**Verification activities undertaken**	**Verification findings** (including justification/substantiation of information, data and evidence)	**Conclusion (OK/CAR/CL)**
What is the implementation and operation status of the project? Are all physical features of the project activity in place as per the PDD?	Based on the review of documentation provided, and the site visit, ERM CVS evaluated whether the project has been implemented and equipment installed and operated as described in the PDD /4/. During the ERM CVS site visit, the verification team • Walked through the project site and inspected the project facility and its operations; • Checked the installed equipment, including the monitoring instruments, their name plates, and cross-checked them against the PDD and monitoring plan /4//5/ and the monitoring report /1/. • Interviewed the staff responsible for the monitoring and implementation of the project IV 3-IV 20 Reviewed the relevant	Based on checking the Approval of the pilot production /17/. ERM CVS confirmed that the starting date of the operation was 29 May 2012 which was crosschecked against the operation log of the Project /18/.The project has been implemented and all physical features installed as described in the registered PDD /4/ and monitoring plan /5/. The operation of the project during the monitoring period was confirmed to be in line with the operational assumptions made in the PDD /4/. During this monitoring period, all equipment including the centrifugal compressor, adsorption dryer, screw refrigeration compressor, demethanizer, gas compressor and monitoring equipment operated in normal conditions. There were no special events or situations that may impact the	OK

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and evidence)	Conclusion (OK/CAR/CL)
	training materials and training records.	applicability of the methodology.	
Has there been any variance in the information (data and variables) provided in the monitoring report compared with the PDD and which has caused an increase in emission reductions or likely to increase the estimates in future monitoring periods?	The verification team compared the data and variables set out in the monitoring report with those in the registered PDD. ▪ Where there were any differences, ERM CVS evaluated whether this change has led to either an increase or a decrease in the estimated emission reductions compared with the PDD (taking into account the monitoring period length).	ERM CVS confirms that the information (data and variables) provided in the monitoring report led to a decrease in estimates of the emission reductions in the current monitoring period and is not likely to lead to a decrease the estimates in future monitoring periods.	OK
Does the monitoring report correctly state the implementation and operational status of the project activity?	ERM CVS reviewed the monitoring report to evaluate whether it correctly describes the implementation and operational status of the project activity.	The monitoring report sections 1.1 and 2.1 were found, through document review, to correctly state the implementation and operational status of the project activity.	OK

4.1.1 Compliance of the monitoring plan with the monitoring methodology

ERM CVS evaluated whether the monitoring plan complies with the requirements of the applied methodology.

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and evidence)	Draft OK/ CAR/ CL	Final OK/ Not OK
Is the monitoring plan in compliance with the applied methodology?	The verification team reviewed the monitoring plan /5/ in the PDD and compared it against the requirements of the applied methodology and the tools referred in the methodology.	ERM CVS confirms that the monitoring plan includes appropriate provisions for the organization and management structure, monitoring and reporting procedures, measuring instruments, staff training, QA/QC	OK	OK

		procedures, data management and improvement to comply with the monitoring methodology. ERM CVS confirms that monitoring processes for the data and parameters, which are required to be monitored by the methodology, are included in the monitoring plan. The application of the monitoring methodology was found to be appropriate and ERM CVS confirms that the monitoring plan is consistent with the requirements of Recovery and utilization of gas from oil wells that would otherwise be flared or vented Version 06 /8/.		

4.1.2 Compliance of monitoring with the monitoring plan

ERM CVS evaluated whether the monitoring of emission reductions has been implemented in accordance with the monitoring plan contained in the registered PDD /4/. The verification team evaluated whether the monitoring plan and the applied methodology have been properly implemented and followed by the project proponents, in particular, whether:

- All parameters stated in the monitoring plan, the applied methodology and relevant CDM-EB decisions have been sufficiently monitored and updated as applicable, including:
    - Project, baseline and leakage emission parameters;
    - Management and operational system;
- The accuracy of equipment used for monitoring is in accordance with relevant guidance provided by the CDM EB and is controlled and calibrated in accordance with the monitoring plan /5/ contained in the registered PDD.

4.1.3 Overview of monitoring system

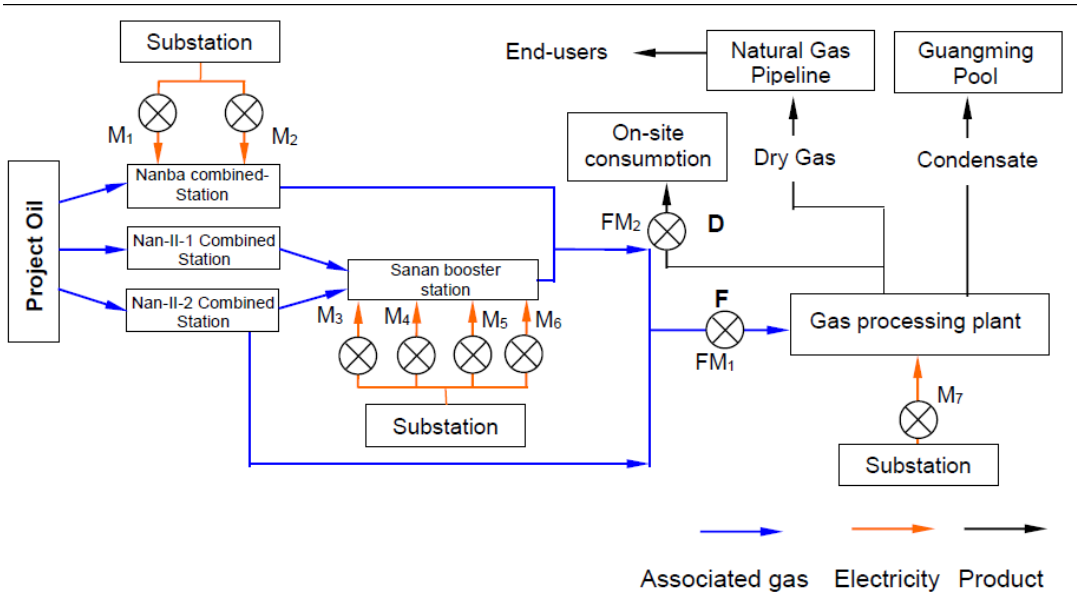
The verification team evaluated whether the monitoring arrangements on site are in compliance with the monitoring plan /5/. It has been verified by on-site inspection that the monitoring system have been installed and operated. The monitoring system was completed installation and started operation before the start date of this monitoring period.

Based on the desk review and site inspections, and the interview with the key staff, ERM CVS confirms that:

- The volume of the total recovered gas is monitored by gas flow meter (FM_1) installed at the inlet of the processing plant, where associated gas sampling point is nearby.

- The quantity of dry gas combusted in processes ($FC_{NG,D,y}$) is monitored by the gas flow meter (FM_2) installed at the main dry gas pipeline, where the dry gas sampling point is nearby.
- Totally six electricity meters (M_1 and M_2 at Nanba combined-station, and M_3, M_4, M_5 and M_6 at Sanan booster station) are installed to monitor the electricity consumed by the project activity ($EC_{PJ,j,y}$).
- The electricity meter (M_7) is installed at the Nanyouqi Substation near gas processing plant to monitor the net increase in electricity consumption ($EC_{LE,l,y}$).

The monitoring points are distributed in the project site as shown in the figure below:



4.1.3.1 Projection and adjustment of project and baseline emissions on the basis of oil production

As per the applied methodology AM0009 version 06, the verifying DOE shall check the production data for oil and associated gas and gas-lift gas and compare them with the initial production target as per the information provided in survey used for defining the terms of the underlying oil production project.

ERM CVS reviewed the Statement on the non-application of gas-lift technology /36/, and did not observe any gas injection infrastructure at the project site during the site inspections. The PPs confirmed during the interview that the gas-list is not applicable to the project activity in the interview during the site inspections. Basing on the desk review and site inspections, ERM CVS was able to confirm that the project did not apply the gas-lift technology.

As per Oilfield development plan of the Sanan Oilfield and oil and associated gas expectation /14/, the production target of Second Oil Production Plant of Sanan Oilfield in year 2012 is shown in the table below

Period	Oil Production (10^4t)	Gas-oil Ratio (m^3/t)	associated gas production (10^8Nm^3)	Total Volume of Recovered Gas (Point F) (10^4Nm^3)
01/01/2012-31/12/2012	403	69	2.78	24,607

ERM CVS reviewed the project FSR /37/ and found to be consistent. However, the PP is not provided the information of oil production and quantity of associated gas of the Second Oil Production Plant of the Sanan Oilfield during this monitoring period. CL 2 was raised.

The MR has been revised, and the Production statistics of Section Oil Production Plant of Sanan Oilfield /67/, Gas-oil ratio calculation spreadsheet for the oil and associated gas production of Section Oil Production Plant of Sanan Oilfield /68/, the explanation on the variations of oil production /69/ and the project FSR /37/ have been provided to the verification team. ERM CVS checked the production data for oil and associated gas and compared them with the initial production target, and was able to confirm that the average Gas-oil Ratio is almost the same as per the information provided in the Oilfield development plan of the Sanan Oilfield and oil and associated gas expectation /14/and project FSR /37/. ERM CVS was able to confirm that the fluctuation of the actual oil production and associated gas during this monitoring period is within the normal range based on its local and sectoral knowledge. Thus, ERM CVS confirmed that the information has been correctly presented in the revised MR. Therefore the CL 2 is closed.

ERM CVS confirms that there are no projection and adjustment of project and baseline emissions during this monitoring period.

4.1.4 Data and parameters monitored

The verification findings for the monitoring of each parameter are set out below

Data / Parameter:	$V_{F,y}$	***Baseline***		
Data unit:	$10^4 Nm^3$			
Description:	Volume of the total recovered gas measured at point F in year *y*			
Measured/calculated/ default	Measured			
Compliance question	**Verification findings** (including verification activities undertaken and justification/substantiation of information, data and evidence)		**Draft OK/ CAR/ CL**	**Final OK/ Not OK**
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. **a) Equipment specification** During the site visit, ERM CVS checked the equipment that had been installed to monitor this parameter. The parameter is monitored by orifice plate flowmeter FM_1 (with combined temperature sensor and pressure sensor as per the manufacture's specifications /29/), serial number 112081, which is located at the front of compressor inlet of the processing plant.		OK	OK

The accuracy class is 1 which in line with monitoring plan. During the monitoring practice, the volume of the total recovered gas is automatically converted to the national standard condition /42/, namely 101.325kpa, 20℃, which is widely used within China.

b) Calibration

The required calibration frequency for this equipment is annually according to the Verification regulation of Differential Pressure Type Flowmeter, JJG 640-94 /45/. ERM CVS confirmed based on review of calibration records /26/ that calibration had been undertaken as shown in the table below, and that the frequency of calibration is annually, which is in compliance with the monitoring plan.

ERM CVS confirmed the independence of the calibration entity by National petroleum and natural gas flow metering station, which is a qualified third party /28/**.**

Calibration status of the instruments:

Ref	Serial number	Accuracy level	Date of calibration	Valid until (date)
FM_1	112081	1	30 December 2011	29 December 2012

ERM CVS confirms that the calibration has been undertaken as required and was valid throughout the monitoring period. The calibration has confirmed that the equipment has performed to the required level of accuracy.

c) Measurement/reading/recording frequency

The monitoring plan /5/ requires this parameter to be continuously measured and recorded monthly. ERM CVS reviewed monthly record on the total recovered gas /52/ and confirmed that the measurements are in line with the monitoring plan.

d) QA/QC procedures applied

ERM CVS reviewed the QA/QC procedures that were applied during the monitoring period:

- CDM Management and Monitoring Manual /19/
- CDM training records personal certificates /20/
- Calibration reports as described above/26/
- Daily record on the total recovered gas /51/
- Monthly sales receipt of the total recovered gas /53/

	The data are 100% transferred electronically and checked by Manager, and stored in a protected data base. Therefore, ERM CVS was able to confirm the following QA/QC procedures had been applied on site: • Flow meter FM_1 was calibrated yearly by the independent third party; • The monitored data were double-checked with other sources and found to be consistent. **e) Cross checks** ERM CVS cross-checked the volume of the total recovered gas with other sources such as daily records /51/, monthly sales receipt /53/ and found to be consistent. **f) Check of information flow** ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. ERM CVS was able to trace the data for this parameter from its measurement source and confirms that it is correctly reported in the monitoring report /1/ and the emissions reduction spreadsheet /2/.		
Does the monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the monitoring report correctly states all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that: • The equipment for monitoring has an appropriate accuracy and has been controlled and operated in accordance with the monitoring plan /5/. • The calibration has been conducted at the frequency as specified by the methodology and the monitoring plan /5/ of the registered PDD • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan /5/. • QA/QC procedures have been applied in accordance with the monitoring		

	plan /5/.

Data / Parameter:	**$NCV_{RG,F,y}$**	**Baseline**		
Data unit:	TJ/Nm^3			
Description:	Average net calorific value of recovered gas at point F in year *y*			
Measured/calculated/ default	Average value calculated			
Compliance question	**Verification findings** (including verification activities undertaken and justification/substantiation of information, data and evidence)		**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. The recovered gas is monthly sampled, and conducted the compositional analysis and calculation of net calorific value monthly, by the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products/33/, which is an third party laboratory. The entity has the qualification certificate on metrological authorized by Certification and Accreditation Administration of the People's Republic of China /35/. The gas sampling is conducted as per the national standard 'Natural gas- Sampling guidelines', GB/T 13609-1999 /47/, the compositional analysis is as per the national standard 'Analysis of natural gas by gas Chromatography' GB/T 13610-2003 /48/, and calculation of net calorific value is as per the national standard 'Natural gas-Calculation of calorific values, density, relative density and Wobbe index from composition' GB/T 11062-1998 /49/. These standards referred to the national standard condition, namely 101.325kpa, 20℃, which is the same as that used for parameter $V_{F,y}$. ERM CVS reviewed the inspection reports/33/, checked the relevant standards /47//48//49/ and the statement /41/ from the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products, and was able to confirm that the recovered gas sampling and NCV analysis is in line with the monitoring plan. The data are 100% transferred electronically and checked by Manager, and		OK	OK

	stored in a protected data base.		
Does the monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	The average NCV is the arithmetic average of NCVs for the samples taken during the period in the monitoring plan in registered PDD, this is in line with the applied methodology AM0009 version 6. However, it is not clear why the PPs applied the weighted average value in the monitoring report version 01. CL 3 was raised. ERM CVS ERM CVS reviewed the revised ER sheet and revised MR, and confirmed that the arithmetic average of NCVs for the samples taken during the period has been applied in the revised MR and revised ER spreadsheet, and this is in line with the monitoring plan in registered PDD and the applied methodology AM0009 version 6.0.0. Therefore the CL 3 is closed. The final monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	~~CL 3~~	OK
Conclusion	ERM CVS confirmed that: • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan /5/. • QA/QC procedures have been applied in accordance with the monitoring plan /5/.		

Data / Parameter:	$FC_{NG,D,y}$	***Project***	
Data unit:	$10^4 Nm^3$		
Description:	The quantity of dry gas combusted in processes before point F during the year *y*		
Measured/calculated/ default	Measured		
Compliance question	**Verification findings** (including verification activities undertaken and justification/substantiation of information, data and evidence)	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. **a) Equipment specification**	OK	OK

appropriately applied?	During the site visit, ERM CVS checked the equipment that had been installed to monitor this parameter. The parameter is monitored by gas flow meter Intelligent Vortex precession flowmeter /30/ FM_2 (with temperature sensor and pressure sensor), serial number 11057139, which is located at dry gas main pipeline. The accuracy class is 1.5 which in line with monitoring plan. During the monitoring practice, the volume of the consumed dry gas is automatically converted to the national standard condition /42/, namely 101.325kpa, 20℃, which is widely used within China. **b) Calibration** The required calibration frequency for this equipment is annually according to the Verification regulation of Velocity Flow meter, JJG 198-94 /46/. ERM CVS confirmed based on review of calibration records /27/ that calibration had been undertaken as shown in the table below, and that the frequency of calibration is annually, which is in compliance with the monitoring plan /5/. ERM CVS confirmed the independence of the calibration entity by National petroleum and natural gas flow metering station, which is a qualified third party /28/**.** Calibration status of the instruments: **Ref** | **Serial number** | **Accuracy level** | **Date of calibration** | **Valid until (date)** FM_2 | 11057139 | 1.5 | 30 December 2011 | 29 December 2012 ERM CVS confirms that the calibration has been undertaken as required and was valid throughout the monitoring period. The calibration has confirmed that the equipment has performed to the required level of accuracy. **c) Measurement/reading/recording frequency** The monitoring plan /5/ requires this parameter to be continuously measured and recorded monthly. ERM CVS reviewed monthly record on the consumed dry gas /55/ and confirmed that the measurements are in line with the monitoring plan. **d) QA/QC procedures applied**		

	ERM CVS reviewed the QA/QC procedures that were applied during the monitoring period: • CDM Management and Monitoring Manual /19/ • CDM training records personal certificates /20/ • Calibration reports as described above /27/ • Daily record on the quantity of combusted dry gas /54/ • Monthly sales receipt of the quantity of combusted dry gas /56/ The data are 100% transferred electronically and checked by Manager, and stored in a protected data base. Therefore, ERM CVS was able to confirm the following QA/QC procedures had been applied on site: • Flow meter FM_2 was calibrated yearly by the independent third party; • The monitored data were double-checked with other sources and found to be consistent. **e) Cross checks** ERM CVS cross-checked the volume of the consumed dry gas with other sources such as daily records /54/, monthly sales receipt /56/ and found to be consistent. **f) Check of information flow** ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. ERM CVS was able to trace the data for this parameter from its measurement source and confirms that it is correctly reported in the monitoring report /1/ and the emissions reduction spreadsheet /2/.		
Does the monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the monitoring report correctly states all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that: • The equipment for monitoring has an appropriate accuracy and has been		

	controlled and operated in accordance with the monitoring plan /5/. • The calibration has been conducted at the frequency as specified by the methodology and the monitoring plan /5/ of the registered PDD /4/ • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan /5/. • QA/QC procedures have been applied in accordance with the monitoring plan /5/.

Data / Parameter:	***$NCV_{NG,y}$***	***Project***	
Data unit:	TJ/m^3		
Description:	Average net calorific value of natural gas combusted in processes before point F during the year *y*		
Measured/calculated/ default	Average value calculated		
Compliance question	**Verification findings** (including verification activities undertaken and justification/substantiation of information, data and evidence)	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. The dry gas is monthly sampled, and conducted the compositional analysis and calculation of net calorific value monthly, by the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products/34/, which is an third party laboratory. The entity has the qualification certificate on metrological authorized by Certification and Accreditation Administration of the People's Republic of China /35/. The dry gas sampling is conducted as per the national standard 'Natural gas- Sampling guidelines', GB/T 13609-1999 /47/, the compositional analysis is as per the national standard 'Analysis of natural gas by gas Chromatography' GB/T 13610-2003 /48/, and calculation of net calorific value is as per the national standard 'Natural gas-Calculation of calorific values, density, relative density and Wobbe index from composition' GB/T 11062-1998 /49/. These standards referred to the national standard condition, namely 101.325kpa, 20℃, which is the same as that used for	OK	OK

	parameter $V_{F,y}$. ERM CVS reviewed the inspection reports /34/, checked the relevant standards /47//48//49/ and the statement /41/ from the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products, and was able to confirm that the consumed dry gas sampling and NCV analysis is in line with the monitoring plan. The data are 100% transferred electronically and checked by Manager, and stored in a protected data base.		
Does the monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	The average NCV is the arithmetic average of NCVs for the samples taken during the period as per the monitoring plan in registered PDD, this is in line with the applied methodology AM0009 version 6. However, it is not clear why the PPs applied the weighted average value in the monitoring report version 01. CL 3 was raised. ERM CVS ERM CVS reviewed the revised ER sheet and revised MR, and confirmed that the arithmetic average of NCVs for the samples taken during the period has been applied in the revised MR and revised ER spreadsheet, and this is in line with the monitoring plan in registered PDD and the applied methodology AM0009 version 6.0.0. Therefore the CL 3 is closed. The final monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period.	~~CL 3~~	OK
Conclusion	ERM CVS confirmed that: • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan /5/. • QA/QC procedures have been applied in accordance with the monitoring plan /5/.		

Data / Parameter:	$EF_{CO2,NG,y}$	***Project emission***
Data unit:	tCO_2/TJ	
Description:	CO_2 emission factor of natural gas before point F in the year *y*	
Measured/calculated/ default	IPCC default	

Compliance question	**Verification findings** (including verification activities undertaken and justification/substantiation of information, data and evidence)	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. ERM CVS confirms that the IPCC default values at the upper limit of the uncertainly at a 95% confidence interval applied as provided in Table1.4 of Chapter I of Volume 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories /49/.	OK	OK
Does the monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the monitoring report correctly states all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that: • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan /5/. • QA/QC procedures have been applied in accordance with the monitoring plan /5/.		

Data / Parameter:	$EC_{PJ,j,y}$	***Project***		
Data unit:	MWh			
Description:	Quantity of electricity consumed by the project activity source j in year y			
Measured/calculated/ default	Measured			
Compliance question	**Verification findings** (including verification activities undertaken and justification/substantiation of information, data and evidence)		**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the monitoring equipment appropriately installed and	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. **a) Equipment specification**		~~CL 4~~	OK

operated and are the QA/QC procedures appropriately applied?	During the site visit, ERM CVS checked the equipment that had been installed to monitor this parameter. ERM CVS confirmed during the site visit, based on equipment name plates that the parameter is monitored by 6 electricity meters, namely two meters (M_1 with serial number 2009-03-10172837 and M_2 with serial number 2009-03-10173331) are located at Nanba combined-station, and four meters (M_3 with serial number D040953120028, M_4 with serial number D40953120010, M_5 with serial number D110953192035 and M_6 with serial number D110953192011) installed at Sanan booster station. The accuracy class of electricity meters M_1 and M_2 is 2, and M_3, M_4, M_5 and M_6 is 0.5S as per the calibration reports /31/, which is in line with Verification Regulation of Electromechanical Meters for Measuring Alternating-current Electrical Energy, JJG 307-2006 /43/ and Verification Regulation of Electrical Energy Meters with Electronics, JJG 596-2012 /44/. All aspects of the installation of the meter and the monitoring procedures were found to be consistent with the monitoring plan /5/. **b) Calibration** The required calibration frequency for this equipment is annually according to the verification regulations /43//44/. ERM CVS confirmed based on review of calibration records/31/ that calibration had been undertaken as shown in the table below, and that the frequency of calibration is annually, which is in compliance with the monitoring plan. ERM CVS reviewed the calibration certificate by China National Accreditation Service for Conformity Assessment /30/, checked the Declarations from the entity which clearly indicated that the 'Daqing Oilfield Institute of Measurement and Verification' is short for 'Oilfield Institute of Measurement and Verification of Technical Supervision Center of Daqing Oil Manager Bureau' /70/ and documentation QingJuJiJianBanFa [2002]1# /71/. Therefore, ERM CVS confirmed the independence of the calibration entity by the calibration certificate /32/ Calibration status of the instruments:		

Ref	Serial Number	Instrument type	Accuracy Class	Calibration date	Validity
M_1	2009-03-10172837	None-bidirectional electricity meter	2	27 May 2012	26 May 2013

M_2	2009-03-10173331	None-bidirectional electricity meter	2	27 May 2012	26 May 2013
M_3	D040953120028	Bidirectional electricity meter	0.5S	05 April 2012	04 April 2013
M_4	D40953120010	Bidirectional electricity meter	0.5S	05 April 2012	04 April 2013
M_5	D110953192035	Bidirectional electricity meter	0.5S	05 April 2012	04 April 2013
M_6	D110953192011	Bidirectional electricity meter	0.5S	05 April 2012	04 April 2013

ERM CVS confirms that the calibration has been undertaken as required and was valid throughout the monitoring period. The calibration has confirmed that the equipment has performed to the required level of accuracy.

c) Measurement/reading/recording frequency

The monitoring plan /5/ requires this parameter to be continuously monitored and recorded monthly. ERM CVS reviewed monthly electricity consumed at Nanba combined station and Sanan booster station /61//64/ and confirmed that the measurements are as required by the monitoring plan.

d) QA/QC procedures applied

ERM CVS reviewed the QA/QC procedures that were applied during the monitoring period.

QA/QC procedures conducted on site was verified via review of following documents:

- CDM Management and Monitoring Manual /19/
- CDM training records personal certificates /20/
- Calibration reports as described above/31/
- Daily record on the electricity consumption /60//63/
- Monthly sales receipt /62//65/

The data are 100% transferred electronically and checked by Manager, and stored in a protected data base.

Therefore, ERM CVS was able to confirm the following QA/QC procedures had been applied on site:

- Electricity meters were calibrated yearly by the independent third party;
- The monitored data were double-checked with other sources and found to be consistent

	e) Cross checks ERM CVS cross-checked the electricity consumed by the project activity with other sources such as daily records /60//63/ and monthly sales receipts /62//65/ and to be consistent. **f) Check of information flow** ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. ERM CVS verified that only the total figure for the parameters $EC_{PJ,j,y}$ is given in the spreadsheet, however, it's observed by the verification team that the parameter is monitored separately at Nanba combine station and Sanan booster station. The emission reduction calculation spreadsheet version 01 didn't present the calculation traceably and transparently.CL 4 was raised. ERM CVS reviewed the revised ER sheet and MR, and confirmed that the parameter $EC_{PJ,j,y}$ is correctly calculated based on the readings of electricity meters installed at Nanba combined station and Sanan booster station, following the correct formulae, and is traceable in the final documents. Therefore the CL 4 is closed. ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. It is verified as stated above that the data is continuously monitored and recorded monthly and checked by the project Manager. The data is also cross-checked with daily records /60//63/ and monthly sales receipt /62//65/ and found to be consistent. ERM CVS was able to trace the data for this parameter from its measurement source and confirms that it is correctly reported in the monitoring report /1/ and the emissions reduction spreadsheet /2/.		
Does the monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review.	OK	OK
Conclusion	ERM CVS confirmed that: • The equipment for monitoring has an appropriate accuracy and has been		

	controlled and operated in accordance with the monitoring plan /5/. • The calibration has been conducted at the frequency as specified by the methodology and the monitoring plan /5/ of the registered PDD /4/ • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan /5/. • QA/QC procedures have been applied in accordance with the monitoring plan /5/.

Data / Parameter:	$EC_{LE,l,y}$	***Leakage***		
Data unit:	MWh			
Description:	Net increase in electricity consumption of source *l* during the year *y*			
Measured/calculated/ default	Measured			
Compliance question	**Verification findings** (including verification activities undertaken and justification/substantiation of information, data and evidence)		**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Is the monitoring equipment appropriately installed and operated and are the QA/QC procedures appropriately applied?	ERM CVS evaluated whether this parameter was monitored as required in the monitoring plan. **a) Equipment specification** During the site visit, ERM CVS checked the equipment that had been installed to monitor this parameter. ERM CVS confirmed during the site visit, based on equipment name plates that the parameter is monitored by electricity meter M_7 with serial number D110653192180, installed at Nanyouqi Substation near gas process plant. The accuracy class of electricity meters M_7 is 0.5S as per the calibration reports /31/, which is in line with Verification Regulation of Electromechanical Meters for Measuring Alternating-current Electrical Energy, JJG 307-2006 /43/ *and* Verification Regulation of Electrical Energy Meters with Electronics, JJG 596-2012 /44/. All aspects of the installation of the meter and the monitoring procedures were found to be consistent with the monitoring plan /5/.		OK	OK

b) Calibration

The required calibration frequency for this equipment is annually according to the verification regulations /43//44/. ERM CVS confirmed based on review of calibration records /31/that calibration had been undertaken as shown in the table below, and that the frequency of calibration is annually, which is in compliance with the monitoring plan.

ERM CVS confirmed the independence of the calibration entity by the calibration certificate /32//70//71/

Calibration status of the instruments:

Ref	Serial Number	Instrument type	Accuracy Class	Calibration date	Validity
M_7	D110653 192180	Bidirectional electricity meter	0.5S	10 May 2012	09 May 2013

ERM CVS confirms that the calibration has been undertaken as required and was valid throughout the monitoring period. The calibration has confirmed that the equipment has performed to the required level of accuracy.

c) Measurement/reading/recording frequency

The monitoring plan /5/ requires this parameter to be continuously monitored and recorded monthly. ERM CVS reviewed monthly electricity consumed at gas processing plant /58/ and confirmed that the measurements are as required by the monitoring plan.

d) QA/QC procedures applied

ERM CVS reviewed the QA/QC procedures that were applied during the monitoring period.

QA/QC procedures conducted on site was verified via review of following documents:

- CDM Management and Monitoring Manual /19/
- CDM training records personal certificates /20/
- Calibration reports as described above /31/
- Daily record on the electricity consumption /57/
- Monthly sales receipt /59/

The data are 100% transferred electronically and checked by

	Manager, and stored in a protected data base. Therefore, ERM CVS was able to confirm the following QA/QC procedures had been applied on site: • Electricity meters were calibrated yearly by the independent third party; • The monitored data were double-checked with other sources and found to be consistent **e) Cross checks** ERM CVS cross-checked the electricity consumed by the project activity with other sources such as daily records /57/ and monthly sales receipts /59/ and found to be consistent. **f) Check of information flow** ERM CVS checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. ERM CVS was able to trace the data for this parameter from its measurement source and confirms that it is correctly reported in the monitoring report /1/ and the emissions reduction spreadsheet /2/.		
Does the monitoring report correctly state all relevant information and data relating to the monitoring of this parameter during the monitoring period?	ERM CVS reviewed the content of the monitoring report and evaluated its alignment with the requirements of the monitoring plan and the actual monitoring observed during the site visit and document review. ERM CVS confirms that the monitoring report correctly states all relevant information and data relating to the monitoring of this parameter during the monitoring period.	OK	OK
Conclusion	ERM CVS confirmed that: The equipment for monitoring has an appropriate accuracy and has been controlled and operated in accordance with the monitoring plan /5/. • The calibration has been conducted at the frequency as specified by the methodology and the monitoring plan /5/ of the registered PDD /4/ • The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan /5/. • QA/QC procedures have been applied in accordance with the monitoring plan /5/.		

Conclusion

ERM CVS confirmed that the monitoring of all relevant parameters has been carried out in accordance with the monitoring plan. The data acquisition process, data transferring process, archiving process and reporting process suffered a deviation from the monitoring plan, which should not have negative consequences in the conservativeness of the quantification of GHG emissions reductions. The final monitoring report provides an accurate description of the monitoring for all parameters throughout the monitoring period.

4.1.5 Data and parameters determined at registration and not monitored

The verification team evaluated the status of data and parameters that were determined at registration and not monitored during the monitoring period, including default values and factors, and confirmed whether they were correctly presented in section 3.1 of the monitoring report and applied correctly in the emission reduction calculations.

Data and parameters that were determined at registration and not monitored during the monitoring period				
Parameter	**Description**	**Presented correctly in 3.1 of the Monitoring Report and applied correctly in the emission reduction calculations?**	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
$EF_{CO2,Methane}$	CO_2 emission factor for methane	ERM CVS confirms that this parameter was correctly derived from the applied methodology AM0009 version 06 /8/ and is accurately presented in section 3.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK
$EF_{grid,CM,y}$	Combined margin emission factor of the NEPG during the period *y*	ERM CVS confirms that this parameter was correctly derived from 2011 Baseline Emission Factors for Regional Power Grids in China /66/ and is accurately presented in section 3.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK
$TDL_{j,y}$ and $TDL_{l,y}$	Average technical transmission and distribution losses for providing electricity to the project from the grid NEPG (source *j* or *l*) in year y.	ERM CVS confirms that this parameter was correctly derived from Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion, version 02 /8/and is accurately presented in section 3.1 of the monitoring report and applied appropriately in the emission reduction calculations.	OK	OK

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

ERM CVS evaluated the calculations applied to determine the emission reductions during the monitoring period resulting from implementation of the project activity. In conducting this evaluation, the verification team evaluated whether:

- A complete set of data for the monitoring period was available, and whether the most conservative assumption has been applied in any case where only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the monitoring plan unless a deviation has been approved;
- Information provided in the monitoring report has been cross checked with other sources such as log books, sales receipts;
- Calculations of baseline, project and leakage emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology;
- Any assumptions used in the emission calculations have been justified;
- Appropriate emission factors, IPCC default factors and other reference values have been correctly applied.

ERM CVS reviewed the emission reduction calculations in section 4 of the monitoring report.

In accordance with the methodology applied in this project Recovery and utilization of gas from oil wells that would otherwise be flared or ventedVersion 06, the GHG emission reductions achieved by the project activity are calculated using the following equation:

$$ER_y = BE_y - PE_y - LE_y$$

Baseline emissions are calculated as follows:

$$BE_y = V_{F,y} \cdot NCV_{RG,F,y} \cdot EF_{CO2,Methane}$$

BE_y	=	Baseline emissions in year y, (tCO_2e)
$V_{F,y}$	=	Volume of total recovered gas measured at point F in Figure 2 in year y (Nm^3)
$NCV_{RG,F,y}$	=	Average net calorific value of recovered gas at point F in Figure 2 in year y (TJ/Nm^3)
$EF_{CO2,Methane}$	=	CO_2 emission factor for methane (tCO_2/TJ)

During this monitoring period, the $V_{F,y}$ is $13,289.6902\times10^4 Nm^3$, the $NCV_{RG,F,y}$ is $0.00003763 TJ/Nm^3$, the $EF_{CO2,Methane}$ is ex-ante determined in the registered CDM-PDD which is 54.834 tCO_2/TJ. Thus, BE_y is calculated as:

$BE_y = V_{F,y} \times NCV_{RG,F,y} \times EF_{CO2,Methane} = 13,289.6902\times10^4 Nm^3 \times 0.00003763\ TJ/Nm^3 \times 54.834\ tCO_2/TJ$
$= 274,193 tCO_2e$

Project emissions are calculated as follows:

$$PE_y = PE_{CO2,\,fossilfuels,y} + PE_{CO2,elec,y}$$

PE_y	=	Project emissions in year y, (tCO_2e)
$PE_{CO2,\,fossilfuels,y}$	=	CO_2 emissions due to consumption of fossil fuels for the recovery, pre-treatment, transportation, and, if applicable, compression of the recovered gas up to the point F in Figure 2 in year y (tCO_2e)
$PE_{CO2,elec,y}$	=	CO_2 emissions due to the use of electricity for recovery, pre-treatment, transportation and, if applicable, compression of the recovered gas up to the point F in Figure 2 in year y, (tCO_2e)

Project emissions from the consumption of fossil fuels

$$PE_{CO2,\,fossilfuels,y} = \sum_j PF_{FC,j,y} = \sum_j \sum_i FCi,j,y \times COEF_{i,y}$$

$PE_{FC,i,y}$	=	CO_2 emissions of fossil fuels consumption in process j in year y, (tCO_2)
$FC_{i,j,y}$	=	The quantity of fuel type i combusted in process j during the year y (mass or volume unit)
$COEF_{i,y}$	=	The CO_2 emissions coefficient of fuel type i in year y (tCO_2/mass or volume unit)
i	=	The fuel types combusted in process j during the year y

where

$COEF_{i,y} = NCV_{NG,y} \times EF_{CO2,NG,y}$

Thus, $PE_{CO2,\,fossilfuels,y} = FC_{NG,D,y} \times NCV_{NG,y} \times EF_{CO2,NG,y}$

During this monitoring period, the $FC_{NG,D,y}$ is $488.9388\times10^4 Nm^3$, the $NCV_{NG,y}$ is 0.00003206 TJ/$Nm^3$the $EF_{CO2,NG,y}$ is ex-ante determined in the registered CDM-PDD which is 58.3 tCO_2/TJ.

Thus, $PE_{CO2,fossilfuels,y}$ is calculated as:

$PE_{CO2,fossilfuels,y}$= =$488.9388 \times10^4 Nm^3 \times 0.00003206$ TJ/$m^3 \times 58.3 tCO_2$/TJ=9,138 (tCO_2e)

Project emissions from consumption of electricity

$$PE_{CO2,elec,y} = \sum_j EC_{PJ,j,y} \times EF_{grid,CM,y} \times (1+TDL_{j,y})$$

$PE_{CO2,elec,y}$	=	CO_2 emissions due to the use of electricity for pre-treatment, transportation and if applicable, compression of the recovered gas before point F in Figure C1-2 in year y (tCO_2e)
$EC_{PJ,i,y}$	=	The quantity of electricity consumed by the project activity source j in year y (MWh/y);
$EF_{grid,CM,y}$	=	The emission factor for electricity generation for source j in year y (tCO_2/MWh).
$TDL_{j,y}$	=	Average technical transmission and distribution losses for providing electricity to source j in year y;
j	=	Sources of electricity consumption in the project.

The $EC_{PJ,j,y}$ is 10,059.84MWh, $EF_{grid,CM,y}$ is ex-ante determined in the registered CDM-PDD which is 0.84195 tCO_2/MWh and the $TDL_{j,y}$ is ex-ante determined in the registered CDM-PDD which is 20%. Thus, $PE_{CO2,elec,y}$ is calculated as:

$PE_{CO2,elec,y}$ = 10,059.84 MWh × 0.84195tCO_2/MWh × (1+20%) = 10,164 tCO_2e

Therefore, project emissions during this monitoring period is:

$PE_y = PE_{CO2,fossilfuels,y} + PE_{CO2,elec,y}$ = 9,138tCO_2e+ 10,164tCO_2e=19,302 tCO_2e

Leakage

$$LE_y = LE_{FC,y} + LE_{EC,y}$$

Where:

LE_y	=	Leakage emissions in year y (tCO_2e)
$LE_{FC,y}$	=	Leakage emissions due to fossil fuel consumption after point F in Figure 2 in year y (tCO_2e)
$LE_{EC,y}$	=	Leakage emissions due to electricity consumption after point F in Figure 2 in year y (tCO_2e)

During this monitoring period, the $EC_{LE,l,y}$ is 30,027.24 MWh, the $EF_{grid,CM,y}$ is ex-ante determined in the registered CDM-PDD which is 0.84195 tCO_2/MWh, and the $TDL_{l,y}$ is ex-ante determined in the registered CDM-PDD which is 20%. Thus, $LE_{EC,y}$ is calculated as:

$LE_{EC,y}= \sum_j EC_{LE,l,y} \times EF_{EL,l,y} \times (1+ TDL_{l,y}) = \sum_j EC_{LE,l,y} \times EF_{grid,CM,y} \times (1+ TDL_{l,y})$= 30,027.24 MWh ×0.84195 tCO_2/MWh × (1+20%)=30,338 tCO_2e

Leakage emissions due to the consumption of fossil fuels

The project does not consume fossil fuel. Therefore, no Leakage emission from the consumption of fossil fuel is considered.

$LE_{CO2,fossilfuel,y} = LE_{FC,y}$ =0

Based on the calculation above, Leakage emissions during this monitoring period are summarized below:

$LE_y = LE_{FC,y} + LE_{EC,y}$= 0 tCO_2e + 30,338 tCO_2e =30,338 tCO_2e

Therefore, the emission reductions are calculated as:

$$ER_y = (GEN_y * CEF_{ELEC} + GWP_{CH4} * MM_{ELEC}) – (CONS_{ELEC,\ PJ} * CEF_{ELEC} + MD_{ELEC} * CEF_{CH4} + GWP_{CH4} * MM_{ELEC} * (1-Eff_{ELEC}))= 224{,}553\ tCO_2e$$

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and	Draft OK/ CAR/ CL	Final OK/ Not OK

		evidence)		
Were data available throughout the monitoring period in accordance with the monitoring plan and methodology?	In order to verify whether data was available throughout the entire monitoring period in accordance with the monitoring plan and methodology, the verification team: • Reviewed data presented in the emissions reduction calculation spreadsheet /2/ • Checked the NCV monthly Inspection reports of the sampled gas (associated gas /33/and dry gas /34/) and compositional analysis • Reviewed the daily records from 01 December 2012 to 31 December 2012 /51//54//57//60//63/ and the electricity monthly reports /52//55//58//61//64/ • Cross checked the data with monthly sales receipts/53//56//59//62//65/	As shown in the emission reduction calculation spreadsheet /2/ and confirmed by ERM CVS during the site visit, data were available throughout the monitoring period in accordance with the monitoring plan and methodology.	OK	OK
Has the project participant used appropriate methods and formulae for calculating baseline, project and leakage emissions?	In order to verify whether the project participant used appropriate methods and formulae to calculate the baseline project and leakage emissions in line with the monitoring plan and methodology, the verification team: Reviewed the formulae used in the emissions reduction calculation spreadsheet /2/ against the PDD /4/ and the methodology /8/	CL 3 CL 4 were raised. The CL 3 and CL 4 have been successfully addressed and resolved by the PPs. For details, please refer to Annex B of this report. ERM CVS confirmed that the calculation of baseline, project and leakage emissions as set out in the revised emission reduction calculation spreadsheets /2/ has been based on appropriate methods and formulae and that the calculation of emission reductions during the monitoring period is accurate and in line with the monitoring plan and methodology.	~~CL 3~~ ~~CL 4~~	OK
Has the project participant justified all	ERM CVS evaluated the emission reduction calculation spreadsheet /2/ and reviewed all assumptions, emission factors and default factors	Please see CL 3. The CL 3 has been successfully addressed and	~~CL 3~~	OK

assumptions, emission factors and default values that have been applied?	that have been applied against the registered PDD /4/ and the methodology /8/	resolved by the PPs. For details, please refer to Annex B of this report. ERM CVS has confirmed that the revised emission reduction calculation spreadsheet /2/ and all assumptions, emission factors and default factors that have been applied have been appropriately justified and applied.		

The emission reductions for this monitoring period have been compared with the estimated emission reductions of 241,039tCO_2e for the monitoring period as set out in the VCS PD version 03 dated 14 April 2014 /3/. As explained in previous sections, it is noted that the emission reductions for this monitoring period are lower than the VCS PD estimates and no further explanation is necessary.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

ERM CVS reviewed data presented in the emissions reduction calculation spreadsheet /2/, checked the NCV monthly Inspection reports of the sampled gas and compositional analysis (associated gas /33/ and dry gas /34/), reviewed the daily records from 01 December 2012 to 31 December 2012 /51//54//57//60/ /63/ and the electricity monthly reports /52//55//58//61//64/, and cross checked the data with monthly sales receipts/53//56//59//62//65/.

The verification team could confirm that the monitored data have been available during the whole monitoring period, as defined in the Monitoring Plan.

4.3.1 Management and Operational System

ERM CVS evaluated the management systems in place to implement the monitoring of the project activity. This included the organisational structure, roles and responsibilities, data collection, transfer and aggregation procedures, training of personnel, data storage and archiving and emergency procedures for the monitoring system.

The monitoring plan has established procedures for the management and operational system of monitoring, as summarised below:

Compliance question	**Verification activities undertaken**	**Verification findings (including justification/substantiation of information, data and evidence)**	**Draft OK/ CAR/CL**	**Final OK/ Not OK**
Has an appropriate management and	ERM CVS carried out the following	Based on document review and interviews undertaken during the site visit, ERM CVS	OK	OK

Compliance question	Verification activities undertaken	Verification findings (including justification/substantiation of information, data and evidence)	Draft OK/ CAR/CL	Final OK/ Not OK
operational system for monitoring and reporting, including responsibilities and authorities, been established in accordance with the monitoring plan?	activities: • Reviewed the CDM Management and Monitoring Manual /19/ • Reviewed training records and personnel certificates /20/ • Interviews during the site visit with key personnel IV 1-IV 21 • Cross checked information with section B.7.3 of the monitoring plan	confirmed that: The CDM Management and Monitoring Manual /19/ has been developed and implemented that appropriately controls all aspects of CDM monitoring, including organisation and responsibilities, equipment maintenance and calibration, data collection, recording and reporting, data archiving and transfer, treatment of equipment failure; quality control; training and emergency response. The documents for this monitoring period were found to be complete. Management and operational systems are in place. The members of the team received appropriate training.		

Conclusion

ERM CVS confirmed that the monitoring of all relevant parameters has been carried out in accordance with the monitoring plan /5/ and relevant EB requirements. It is confirmed that data acquisition process, data transferring process, archiving process and reporting process occur as required by the monitoring plan. The final monitoring report provides an accurate description of the monitoring for all parameters throughout the monitoring period.

4.4 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

ERM Certification and Verification Services (ERM CVS) was commissioned by Daqing Oilfield Co., Ltd. to validate the VCS PD and to verify the emission reductions reported for the period from 29 May 2012 -06 December 2012, under the Verified Carbon Standard (VCS) Version 3.4, as set out in the monitoring report of the VCS project activity "Nanba Associated Gas Processing Plant and the Auxiliary Engineering", registered as a CDM project under the UNFCCC reference number 8598.

Basis of Verification / Assessment Criteria	ERM CVS based its verification work on: • Verified Carbon Standard (VCS) version 3 • Recovery and utilization of gas from oil wells that would otherwise be flared or vented, version 06 • The registered PDD and monitoring plan • The VCS PD version 03 dated 14 April 2014 • Relevant VCS updates and policy decisions
Scope	• The physical infrastructure, facilities, and activities within the assertion ▪ Oil reservoir and oil wells where the associated gas is collected ▪ The site where the associated gas was vented in the absence of the project activity; ▪ The gas recovery, pre-treatment, transportation infrastructure, including compressors; • Leakage: Net increase in energy consumption in the recovered gas transportation to a processing plant where it is; • GHG sources, sinks, and reservoirs included within the assertion: ▪ Baseline emissions: CO_2 emissions from combustion of fossil fuels at end-users that are produced from non-associated gas or other fossil sources; ▪ Project emissions: Energy use for the recovery, pre-treatment, transportation and compression of the recovered gas; ▪ Leakage: Net increase in energy consumption in the recovered gas transportation to a processing plant where it is processed into hydrocarbon products (e.g. dry gas and condensate) • The time period for the assertion: 29 May 2012 -06 December 2012.
Objectives	To assure project conformance with the VCS version 3 and Recovery and utilization of gas from oil wells that would otherwise be flared or vented, version 06
Level of Assurance	Reasonable Assurance

ERM CVS Conclusion

Based on the assessments performed and the historical evidence collected, ERM CVS concludes:

- the project is conformance with the Verified Carbon Standard (VCS) Version 3 and the CDM methodology Recovery and utilization of gas from oil wells that would otherwise be flared or vented;
- the project implementation is in line with the registered CDM-PDD and project monitoring plan contained in the registered PDD (version 02.2, 19 October 2012);
- the verification period of 29 May 2012 -06 December 2012
- Verified GHG emission reductions and removals in the above verification period:
-

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2012	274,193	19,302	30,338	224,553
Total	274,193	19,302	30,338	224,553

- without qualification or limitation, that the project complies with the verification criteria for projects and their GHG emission reductions or removals set out in VCS Version 3
- The VCS PD version 03 dated 14 April 2014 complies with criteria for projects set out in VCS Version 3.

Report approved by

Name:
Melanie Eddis

29 April 2014

Signature

ANNEX A: REFERENCE DOCUMENTS AND INTERVIEWS

A.1: Documents

Reference	Title and version	Date
/1/	**VCS Monitoring Report** for 'Nanba Associated Gas Processing Plant and the Auxiliary Engineering', Version 01 Version 02 Version 03 (final)	 22 October 2013 14 February 2014 14 April 2014
/2/	**VER calculation spreadsheet**(s) for 'Nanba Associated Gas Processing Plant and the Auxiliary Engineering', Version 01 Version 02 Version 03 (final)	 17 September 2013 14 February 2014 14 April 2014
/3/	**VCS Project Design** for 'Nanba Associated Gas Processing Plant and the Auxiliary Engineering', Version 01 Version 02 Version 03 (final)	 22 October 2013 14 February 2014 14 April 2014
/4/	**Project Design Document** CDM Registered PDD for Nanba Associated Gas Processing Plant and the Auxiliary Engineering, version 02.2	 19 October 2012
/5/	**Monitoring Plan** Monitoring Plan included in the registered CDM PDD	 19 October 2012
/6/	CDM Validation Report CDM Validation report prepared by Bureau Veritas Certification for Nanba Associated Gas Processing Plant and the Auxiliary Engineering. version 01	 27 November 2012
/7/	**CDM Project view page on the UNFCCC website** http://cdm.unfccc.int/Projects/DB/BVQI1354796911.2/view	-
/8/	**Approved Methodology and methodological tools applied for the project** Recovery and utilization of gas from oil wells that would otherwise be flared or vented, Version 06, EB 68 Annex 7 Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion, version 02 Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01	 20 July 2012 02 August 2008 16 May 2008
/9/	Business license of Daqing Oilfield Co., Ltd.	10 September 2009
/10/	Equipment contracts of the Project **-** Regenerable adsorption type of dryer	12 April 2011
/11/	Registration and Issuance Process, version 3.5	8 October 2013

<table>
<tr><th>Reference</th><th>Title and version</th><th>Date</th></tr>
<tr><td>/12/</td><td>VCS Validation Verification Manual, version 3.1</td><td>8 October 2013</td></tr>
<tr><td>/13/</td><td>VCS Standard, version 3.4</td><td>8 October 2013</td></tr>
<tr><td>/14/</td><td>Oilfield development plan of the Sanan Oilfield and oil and associated gas expectation</td><td>23 January 2010</td></tr>
<tr><td>/15/</td><td>Construction Contract (Part 1) between Daqing Oilfield Construction Group and the project developer.</td><td>12 May 2011</td></tr>
<tr><td>/16/</td><td>Construction Contract (Part 2) between Daqing Oilfield Construction Group and the project developer.</td><td>12 May 2011</td></tr>
<tr><td>/17/</td><td>Approval of the pilot production of the Nanba Associated Gas Processing Plant and the Auxiliary Engineering, Daqing Environmental Protection Bureau</td><td>29 May 2012</td></tr>
<tr><td>/18/</td><td>Operation log of the Project</td><td>May 2012</td></tr>
<tr><td>/19/</td><td>CDM Management and Monitoring Manual</td><td>June 2012</td></tr>
<tr><td>/20/</td><td>CDM training records personal certificates</td><td>20 June 2012</td></tr>
<tr><td>/21/</td><td>Technical protocol of 90×10^4 Nm^3/d oilfield gas processing plant auxiliary engineering - Centrifugal compressor</td><td>-</td></tr>
<tr><td>/22/</td><td>Technical protocol of 90×10^4 Nm^3/d oilfield gas processing plant auxiliary engineering - Regenerable adsorption type of dryer</td><td>-</td></tr>
<tr><td>/23/</td><td>Technical protocol of 90×10^4 Nm^3/d oilfield gas processing plant auxiliary engineering - Screw refrigeration compressor</td><td>-</td></tr>
<tr><td>/24/</td><td>Technical protocol of 90×10^4 Nm^3/d oilfield gas processing plant auxiliary engineering - Demethanizer</td><td>-</td></tr>
<tr><td>/25/</td><td>Technical protocol of 90×10^4 Nm^3/d oilfield gas processing plant auxiliary engineering - Oil field gas compressor</td><td>-</td></tr>
<tr><td>/26/</td><td>Calibration reports of orifice plate flowmeter, by National petroleum and natural gas flow metering station
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<tr><th>Ref</th><th>Serial number</th><th>Accuracy level</th><th>Date of calibration</th><th>Valid until</th></tr>
<tr><td>FM_1</td><td>112081</td><td>1</td><td>30 December 2011</td><td>29 December 2012</td></tr>
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<tr><td>/27/</td><td>Calibration reports of Intelligent Vortex precession flowmeter, by National petroleum and natural gas flow metering station
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<tr><th>Ref</th><th>Serial number</th><th>Accuracy level</th><th>Date of calibration</th><th>Valid until</th></tr>
<tr><td>FM_2</td><td>11057139</td><td>1.5</td><td>30 December 2011</td><td>29 December 2012</td></tr>
</table></td><td>-</td></tr>
<tr><td>/28/</td><td>Calibration certificate to National petroleum and natural gas flow metering station, by State Administration of Quality Supervision, Inspection and Quarantine</td><td>Issued on 27 June 2011, valid since 26 June 2016</td></tr>
<tr><td>/29/</td><td>Specifications of orifice plate flowmeter, Chengdu Hangli Valve Equipment Co., Ltd.</td><td>-</td></tr>
</table>

<table>
<tr><th>Reference</th><th>Title and version</th><th>Date</th></tr>
<tr><td>/30/</td><td>Specifications of the Intelligent Vortex precession flowmeter, Tancy Instrument Group Co., Ltd.</td><td>-</td></tr>
<tr><td>/31/</td><td>Calibration reports of electricity meters, by Oilfield Institute of Measurement and Verification of Technical Supervision Center of Daqing Oil Manager Bureau
<table>
<tr><th>Ref</th><th>Meter Serial Number</th><th>Accuracy Class</th><th>Calibration date</th><th>Validity</th></tr>
<tr><td>M_1</td><td>2009-03-10172837</td><td>2</td><td>27 May 2012</td><td>26 May 2013</td></tr>
<tr><td>M_2</td><td>2009-03-10173331</td><td>2</td><td>27 May 2012</td><td>26 May 2013</td></tr>
<tr><td>M_3</td><td>D040953120028</td><td>0.5S</td><td>05 April 2012</td><td>04 April 2013</td></tr>
<tr><td>M_4</td><td>D40953120010</td><td>0.5S</td><td>05 April 2012</td><td>04 April 2013</td></tr>
<tr><td>M_5</td><td>D110953192035</td><td>0.5S</td><td>05 April 2012</td><td>04 April 2013</td></tr>
<tr><td>M_6</td><td>D110953192011</td><td>0.5S</td><td>05 April 2012</td><td>04 April 2013</td></tr>
<tr><td>M_7</td><td>D110653192180</td><td>0.5S</td><td>10 May 2012</td><td>09 May 2013</td></tr>
</table></td><td>-</td></tr>
<tr><td>/32/</td><td>Calibration certificate to Oilfield Institute of Measurement and Verification of Technical Supervision Center of Daqing Oil Manager Bureau, by China National Accreditation Service for Conformity Assessment</td><td>Issued on 27 March 2012, valid since 26 March 2015</td></tr>
<tr><td>/33/</td><td>Inspection report of the sampled associated gas and compositional analysis, by the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products which is a qualified third party laboratory.
<table>
<tr><th>Sample point</th><th>Sample number</th><th>Sampling date</th><th>Inspecting date</th><th>Reporting date</th><th>NCV, MJ/m^3</th></tr>
<tr><td rowspan="8">Inlet of the gas processing plant</td><td>TQ-2012151</td><td>30 May 2012</td><td>30 May 2012</td><td>04 June 2012</td><td>39.14</td></tr>
<tr><td>CT-2012001</td><td>20 June 2012</td><td>20 June 2012</td><td>21 June 2012</td><td>37.56</td></tr>
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<tr><td>CT-2012011</td><td>20 Nov 2012</td><td>20 Nov 2012</td><td>21 Nov 2012</td><td>36.96</td></tr>
<tr><td>CT-2012013</td><td>05 Dec 2012</td><td>05 Dec 2012</td><td>07 Dec 2012</td><td>37.67</td></tr>
</table></td><td>-</td></tr>
<tr><td>/34/</td><td>Inspection report of the sampled dry gas and compositional analysis, by the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products which is a qualified third party laboratory.
<table>
<tr><th>Sample point</th><th>Sample number</th><th>Sampling date</th><th>Inspecting date</th><th>Reporting date</th><th>NCV, MJ/m^3</th></tr>
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<tr><td>CT-2012014</td><td>05 Dec 2012</td><td>05 Dec 2012</td><td>07 Dec 2012</td><td>31.97</td></tr>
</table></td><td>-</td></tr>
<tr><td>/35/</td><td>Qualification certificate on metrological authorization to the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products, by Certification and Accreditation Administration of the People's Republic of China.</td><td>Issued on 29 October 2012, valid until 28 October</td></tr>
</table>

Reference	Title and version	Date
		2015
/36/	Statement on the non-application of gas-lift technology, oilfield development department of Daqing Oilfield Co., Ltd.	12 September 2012
/37/	Feasibility Study Report (FSR) of Nanba Associated Gas Processing Plant and the Auxiliary Engineering, completed by Daqing Oilfield Engineering Co., Ltd. FSR approval by Development and Reform Commission Daqing City, QingFaGaiBeiAn[2011]No.2	August 2010 12 April 2011
/38/	EIA Approval issued by the Environmental Protection Bureau of Daqing City	08 December 2010.
/39/	LOA of the project issued by the DNA of China	August 2012
/40/	Historical oil production and quantity of associated gas of the Second Oil Production Plant of the Sanan Oilfield	January 2012 to December 2012
/41/	Statement on the associated gas and the dry gas's sampling process and compositional analysis practice, and relevant industry standards, by the Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products.	08 November 2013
/42/	Statement on the standard conditions for the gas flow metering, namely for both flow of associated gas and dry gas are converted to the standard status (101.325kpa, 20℃)	08 November 2013
/43/	Verification Regulation of Electromechanical Meters for Measuring Alternating-current Electrical Energy, JJG 307-2006, by State Administration of Quality Supervision, Inspection and Quarantine	Issued on 08 March 2006, valid since 08 September 2006
/44/	Verification Regulation of Electrical Energy Meters with Electronics, JJG 596-1999 (replaced by JJG 596-2012), by State Administration of Quality Supervision, Inspection and Quarantine Verification Regulation of Electrical Energy Meters with Electronics, JJG 596-2012, by State Administration of Quality Supervision, Inspection and Quarantine	Issued on 21 October 1999, valid since 15 March 2000 Issued on 08 October 2012, valid since 08 April 2013
/45/	Verification regulation of Differential Pressure Type Flowmeter, JJG 640-94, by State Bureau of Technology Supervision	Issued on 12 July 1994, valid since 01 December 1994
/46/	Verification regulation of Velocity Flow meter, JJG 198-94, by State Bureau of Technology Supervision	Issued on 09 May 1994, valid since 01 December 1994
/47/	Natural gas- Sampling guidelines, GB/T 13609-1999, by State Quality Technical Supervising Bureau	Issued on 17 May 1999, valid since 01 December 1999
/48/	Analysis of natural gas by gas Chromatography, GB/T 13610-2003	-
/49/	Natural gas-Calculation of calorific values, density, relative density and Wobbe index from composition, GB/T 11062-1998, by State Quality Technical Supervising Bureau	Issued on 17 June 1998, valid since 01 December 1998
/50/	Volume 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories	-
/51/	Daily record on the total recovered gas	01 December 2012 to 31 December 2012
/52/	Monthly record on the total recovered gas	May 2012 to December 2012
/53/	Monthly sales receipt of the total recovered gas	May 2012 to December 2012
/54/	Daily record on the quantity of combusted dry gas	01 December 2012

Reference	Title and version	Date
		to 31 December 2012
/55/	Monthly record on the quantity of combusted dry gas	May 2012 to December 2012
/56/	Monthly sales receipt of the quantity of combusted dry gas	May 2012 to December 2012
/57/	Daily record on the electricity consumed by gas processing plant	01 December 2012 to 31 December 2012
/58/	Monthly record on the electricity consumed by gas processing plant	May 2012 to December 2012
/59/	Monthly sales receipt of the electricity consumed by gas processing plant	May 2012 to December 2012
/60/	Daily record on the electricity consumed at Nanba combined station	01 December 2012 to 31 December 2012
/61/	Monthly record on the electricity consumed at Nanba combined station	May 2012 to December 2012
/62/	Monthly sales receipt of the electricity consumed at Nanba combined station	May 2012 to December 2012
/63/	Daily record on the electricity consumed at Sanan booster station	01 December 2012 to 31 December 2012
/64/	Monthly record on the electricity consumed at Sanan booster station	May 2012 to December 2012
/65/	Monthly sales receipt of the electricity consumed at Sanan booster station	May 2012 to December 2012
/66/	2011 Baseline Emission Factors for Regional Power Grids in China http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2720.pdf	20 October 2011
/67/	Production statistics of Section Oil Production Plant of Sanan Oilfield during year 2012	18 January 2013
/68/	Gas-oil ratio calculation spreadsheet for the oil and associated gas production of Section Oil Production Plant of Sanan Oilfield	-
/69/	Explanation on the variations of historical oil production	28 November 2013
/70/	Declarations on the institute name of the calibration entity for electricity meters, which indicates that the Daqing Oilfield Institute of Measurement and Verification is short for Oilfield Institute of Measurement and Verification of Technical Supervision Center of Daqing Oil Manager Bureau	-
/71/	Documentation on the relationship between the Oilfield Institute of Measurement and Verification of Technical Supervision Center of Daqing Oil Manager Bureau (calibration entity for electricity meters) and the Technical Supervision Center of Daqing Oil Manager Bureau, QingJuJiJianBanFa[2002]1#	24 April 2002

A.2: Persons interviewed

Reference	Name	Title & Organisation	Main topics discussed
IV 1	Zhao Ruihong	General Manager, Beijing MD Energy Technology Co., Ltd.	• Project operation and management • CDM Monitoring Manual and
IV 2	Lai Xiaochao	Project Manager, Beijing MD Energy	

		Technology Co., Ltd.	organization ● Meters calibration and certificate ● CDM training and records ● Data monitoring, data recording and reporting ● QA/QC procedures ● Emission reductions calculation
IV 3	Mao Guocheng	Director, Daqing Oilfield Co., Ltd.	
IV 4	Gong Songke	Deputy Director, Daqing Oilfield Co., Ltd.	
IV 5	Zhang Changxing	Deputy General Manager, Daqing Oilfield Engineering Co., Ltd.	
IV 6	Ding Jiancheng	Chief Engineer, Gas Company of Daqing Oilfield Co., Ltd.	
IV 7	Liu Wei Dong	Director, the Second Oil Production Plant of Sanan Oilfield of Daqing Oilfield Co., Ltd.	
IV 8	Li Hongyu	Deputy Director, Daqing Oilfield Engineering Co., Ltd.	
IV 9	Liang Shengxin	Head of the 7th Battalion of Natural Gas Company of Daqing Oilfield Co., Ltd.	
IV 10	Gao Fei	Director of the 7th Battalion of Natural Gas Company of Daqing Oilfield Co., Ltd.	
IV 11	Zhu Lin	General Manager, CDM Department of Daqing Oilfield Co., Ltd.	
IV 12	Xiong Liangfu	Director, CDM Department of Daqing Oilfield Co., Ltd.	
IV 13	Li Xuchun	Project Manager, CDM Department of Daqing Oilfield Co., Ltd.	
IV 14	Song Guofen	Project Manager, CDM Department of Daqing Oilfield Co., Ltd.	
IV 15	Guo Mingxuan	Engineer, Deep cooling treatment plant of Daqing Oilfield Co., Ltd.	● Data monitoring, data recording and reporting ● CDM training and records ● QA/QC procedures ● Project operation and management
IV 16	Sun Shengyong	Manager, Deep cooling treatment plant of Daqing Oilfield Co., Ltd.	
IV 17	Yu Haixin	Engineer, Nanba Power Substation	
IV 18	Zhou Hui	Monitor on duty, Nanba Combined Station of Daqing Oilfield Co., Ltd.	
IV 19	Fan Li	Engineer, Nanba Combined Station of Daqing Oilfield Co., Ltd.	
IV 20	Hou Guanglian	Head of the Sanan booster station	
IV 21	Yang Xuejun	Deputy Director, Petroleum Industry Center for Quality Supervision and Inspection of Crude Oil and Petroleum Products	Gas sampling, compositional analysis process, NCV inspection and the relevant industry standards

ANNEX B: REMEDIATION FORM

1. Clarification Requests (CLs)

Clarification Request	Summary of Participant Response	Verification Conclusion
CL 1 ERM CVS reviewed the CDM registered PDD and validation report and found that it only covers the emission reduction calculations from 01 January 2013 to 31 December 2021. It is not clear the data source for the estimated emission reductions of 459,481tCO_2e for the year 2012 and the total estimated ERs of 241,039tCO_2e for the monitoring period. Please clarify.	The data for calculation the expected annual emission reductions of year 2012 come from the FSR. The expected emission reduction calculation spreadsheet has been provided to VVB for verification. The crediting period is from 29 May 2012 to 06 December 2012 (both days included) is totalling 192 days. The expected emission reduction for the crediting period was calculated as: 459,481tCO_2e/366days*192days =241,039tCO_2e	ERM CVS reviewed the revised PD and verified that the estimation of emission reductions of 459,481tCO_2e for the year 2012 is calculated based on the data derived from the Project FSR /37/, which is prepared by the qualified third party namely Daqing Oilfield Engineering Co., Ltd. and thus deemed credible data sources by ERM CVS. The crediting period is from 29 May 2012 to 06 December 2012 (both days included) is totally 192 days. Thus, the corresponding expected emission reduction for the crediting period is: 459,481tCO_2e/366days*192days =241,039tCO_2e. ERM CVS reviewed the calculation process and verified that all assumptions are reasonable and the formulae is the same as the register CDM-PDD. Therefore the CL 1 is closed.
CL 2 As per the applied methodology AM0009 version 06, during verifications the production data for oil and associated gas shall be checked and compare them with the initial production target as per the information provided in survey used for defining the terms of the underlying oil production project. However, the monitoring report version 01 is not provided the	The production data for oil and associated gas and the comparison with the initial production target have been added in the updated monitoring report. Moreover, the relevant documents have been provided to VVB for verification.	ERM CVS checked the production data for oil and associated gas /67/ and compared them with the initial production target, and was able to confirm that the average Gas-oil Ratio is almost the same as per the information provided in the Oilfield development plan of the Sanan Oilfield and oil and associated gas expectation /14/ and project FSR /37/, the fluctuation of the actual oil production is within the normal range by its local and sectoral knowledge.

information of the production data for oil, and the comparison with the initial production target. Please provide the information of the production data for oil, and the comparison with the initial production target.		Thus, ERM CVS confirmed that the information has been correctly presented in the revised MR. Therefore the CL 2 is closed.
CL 3 For the applied values of the parameter $NCV_{RG,F,y}$ and $NCV_{NG,y}$: The average NCV is the arithmetic average of NCVs for the samples taken during the period in the monitoring plan in registered PDD, this is in line with the applied methodology AM0009 version 6. However, it is not clear why the PPs applied the weighted average value in the monitoring report version 01. Please clarify	This is an error. According to the methodology AM0009 version 6.0.0, the arithmetic average of NCVs should be used. The parameter $NCV_{RG,F,y}$ has been revised as arithmetic average for calculation the baseline emissions of the project, and the parameter $NCV_{NG,y}$ has been revised as arithmetic average for calculation the project emissions of the project. As a result, the emission reductions in the crediting period are changed from 222,671tCO_2e reported in monitoring report version 01 to 224,553tCO_2e reported in the updated monitoring report.	ERM CVS reviewed the revised ER sheet and revised MR, and confirmed that the arithmetic average of NCVs for the samples taken during the period has been applied in the revised MR and revised ER spreadsheet, and this is in line with the monitoring plan in registered PDD and the applied methodology AM0009 version 6.0.0. Therefore the CL 3 is closed.
CL 4 The emission reduction calculation spreadsheet version 01 didn't present the calculation traceably and transparently, only the total figure for the parameter $EC_{PJ,j,y}$ is given in the spreadsheet, however, it's observed by the verification team that the parameter is monitored separately at Nanba combine station and Sanan booster station. Please include all necessary formulae in the ER calculation spreadsheet, and to be traceable and transparent.	The emission reduction calculation spreadsheet has been revised which includes the electricity consumption monitored at Nanba combine station and Sanan booster station and also includes the calculation formulae. Then the total electricity consumption ($EC_{PJ,j,y}$) can be traced.	ERM CVS reviewed the revised ER sheet and MR, and confirmed that the parameter $EC_{PJ,j,y}$ is correctly calculated based on the readings of electricity meters installed at Nanba combined station and Sanan booster station, following the correct formulae, and is traceable in the final documents. Therefore the CL 4 is closed.

2. Corrective Action Requests (CARs)

Corrective Action Request	Summary of Participant Response	Verification Conclusion
CAR 1 Given that the project is already registered under the CDM, the VCS PD only needs to include the additional information required for VCS registration, plus the original registered PDD. However, the information in the registered CDM PDD has been transferred to the VCS PD template, and is therefore not covered by the original CDM validation opinion. Please provide separate documentation to present the registered CDM PDD and the new information in the VCS PD which is under validation by ERM CVS	The VCS PD has been revised which only includes the additional information required for VCS registration.	ERM CVS reviewed the revised VCS PD and confirmed that the revised VCS PD only includes the additional information required for VCS registration. This is in line with the Registration and Issuance Process of VCS Version 3. Therefore CAR 1 is closed.
CAR 2 Based on the desk review and site visit, the project location was confirmed to be Sanan Oilfield in Daqing City, Heilongjiang Province, People's Republic of China. However, the geographical coordinates of the associated gas processing plant is stated as Latitude +46.5501 and the Longitude +125.0152 in the VCS PD, while as Latitude +125.0152 and the Longitude +46.5501 in the VCS monitoring report version 01 for the coordinates of associated gas processing plant Please correct.	The coordinates of associated gas processing plant has been revised in the updated VCS project design and the monitoring report. The associated gas processing plant has a geographical coordinates of the Latitude +46.5501 and the Longitude +125.0152.	ERM CVS reviewed the revised documentation and confirmed that the project location is correct and the geographical coordinates of the associated gas processing plant have been correctly represented as Latitude +46.5501 and the Longitude +125.0152 in the final documents, which are in line with the Project FSR /37/. Therefore CAR 2 is closed.