



GAP VALIDATION OF ASSOCIATED GAS RECOVERY AND UTILIZATION AT KHAMILAH OIL FIELD AREA AT BLOCK-27 IN WILAYAT LBRI OF THE SULTANATE OF OMAN



Document Prepared by Shenzhen CTI International Certification Co., Ltd

Project Title	Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman
Version	01.1
Report ID	CTI/NB-2022-0120-1

Report Title	Gap validation of Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman
--------------	---

Client	Vitol SA
Date of Issue	18-August-2022
Prepared By	Shenzhen CTI International Certification Co., Ltd
Contact	Address: F8-A CTI Building, No.4 LiuXianSan Road, Xin'an Street, Bao'an District, 518101, Shen Zhen, China Tel: +86 10 65580012 Email: linshunrong@cti-cert.com Website: http://www.cti-cert.org
Approved by	Zhou Lu 
Work carried out by	Team Leader: Lin Shunrong Team member: Tong Dezheng Technical Reviewer: Lin Wu

Summary:

Vitol SA has commissioned Shenzhen CTI International Certification Co., Ltd (hereafter referred to as "CTI") to carry out the gap validation of registered CDM project activity "Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman" (UNFCCC Ref. No. 10584) with regard to the relevant requirements of VCS standard Version 4.3.

The proposed project is a newly built associated gas recovery and processing project located at Khamilah oil field at Block-27, Wilayat Ibri of Al- Dhahirah Governorate, the Sultanate of Oman. The recovered associated gas from Khamilah oil field area at Block-27 is collected and processed at Khamilah station. The purpose of the project activity is to deliver recovered gas to the national gas pipeline to meet energy needs of end-users, as a result to reduce local air pollution due to flaring. The total estimated amount of associated gas to be recovered during crediting period is about 2.20 billion Nm³ while average methane content is estimated at about 78%. The project activity is expected to reduce emissions by approximately 473,826 tCO₂e annually and 4,738,260 tCO₂e in total over the fixed 10-year crediting period 05/01/2020-04/01/2030.

The validation purpose is an independent assessment by a Third Party of a proposed project activity against all defined criteria set for the registration under the VCS. In order to confirm that the project activity, as documented, is sound reasonable and meets the identified criteria. The validation scope involves the assessment of the project's compliance with the VCS Program rules regarding to the gap validation for the projects registered under the CDM, including the eligibility to complete the gap validation and transfer to the VCS program and the cover page and sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.12, 1.13, 1.14, 1.15.1, 1.16, 1.17, 1.18 and 3.6 of the VCS project description (PD). Validation is a requirement and is seen as

necessary to provide assurance to stakeholders of the quality of project and its intended generation of VCUs. Validation is part of the VCS project cycle and will finally result in a conclusion by the executing VVB whether a project activity is valid to be submitted for registration to VCS registry.

Validation is conducted using Shenzhen CTI International Certification Co., Ltd (CTI) procedures in line with the requirements specified in the latest version of the VCS Validation and Verification Manual and applying auditing techniques. The validation team assessed the project activity's compliance against the VCS Standard Version 4.3, the selected CDM methodology and the project description. The project is eligible under Project Scope 10. The validation criteria followed the guidance documents provided by VCS included the following:

- VCS Standard Version 4.3
- VCS Program Guide Version 4.1
- VCS Validation and Verification Manual Version 3.2
- The applied CDM methodology "AM0009 Recovery and utilization of gas from oil fields that would otherwise be flared or vented" (Version 07.0), and relevant UNFCCC requirements

In the course of the validation, 2 Corrective Action Requests (CARs), 4 Clarification Requests (CLs) were raised and successfully closed. The assessment is included in the report.

There are no restrictions of uncertainty for both validation and verification.

The review of the PD and the information made available to the validation team determined the fulfillment of stated criteria. CTI concludes that the project activity "Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman", as described in the PD version 04 dated 18/08/2022 meets all relevant requirements for VCS gap validation and the relevant host country criteria, and qualifies as a VCS project.

CONTENTS

1 INTRODUCTION	5
1.1 Objective	5
1.2 Scope and Criteria	5
1.3 Level of Assurance	5
1.4 Summary Description of the Project	6
2 VALIDATION PROCESS	7
2.1 Method and Criteria	7
2.2 Document Review	8
2.3 Interviews	8
2.4 Site Inspections	9
2.5 Resolution of Findings	9
3 VALIDATION FINDINGS	10
3.1 Project Details	10
3.2 Safeguards	15
3.3 Application of Methodology	16
3.4 Non-Permanence Risk Analysis	17
4 VALIDATION CONCLUSION	18
APPENDIX I: ABBREVIATIONS	19
APPENDIX 2: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS	20
APPENDIX 3: REFERENCE LIST	23
APPENDIX 4: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS, FORWARD ACTION REQUESTS (CAR/CL/FAR)	25

1 INTRODUCTION

1.1 Objective

As commissioned by Vitol SA, Shenzhen CTI International Certification Co., Ltd performed the gap validation of registered CDM project activity “Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman” (UNFCCC Ref. No. 10584)

The objective of validation is an independent assessment by a Third Party of a proposed project activity against all defined criteria set for the gap validation under the VCS program. The validation involves the assessment of the project’s compliance with the VCS Standard Version 4.3 in order to confirm that the project activity, as documented, is sound reasonable and meets the identified criteria. Validation is a requirement and is seen as necessary to provide assurance to stakeholders of the quality of project and its intended generation of VCU. Validation is part of the VCS project cycle and will finally result in a conclusion by the executing VVB whether a project activity is valid to be submitted for registration to VCS registry.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the project description (PD) to validate the project’s compliance with the VCS Program rules regarding to the gap validation for the projects registered under the CDM, including the eligibility to complete the gap validation, and the information accuracy provided in cover page and sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.12, 1.13, 1.14, 1.15.1, 1.16, 1.17, 1.18 and 3.6 of the VCS PD. The PD is reviewed against the criteria stated in VCS standard Version 4.3/27/, the CDM registered PDD/4/, and the applied CDM methodology "AM0009 Recovery and utilization of gas from oil fields that would otherwise be flared or vented" (Version 07.0)/35/. The validation was based on the requirements of VCS Validation and Verification Manual Version 3.2/29/, VCS Program Guide Version 4.1/28/ and VCS Standards Version 4.3/27/ to apply auditing techniques. The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

1.3 Level of Assurance

The project is expected to generated average of 473,826 VCUs per year, and therefore categorized as a large project as per the VCS rules, in regards to its scale, subject to a materiality threshold of 1% with respect to omission or misstatements concerning reported quantities of the project activity.

Due to the COVID-19 pandemic from the beginning of 2020 until now, CTI cannot easily arrange the on-site inspection especially going abroad as the travel restrictions and to ensure site visit to be on scheduled as required by the project proponent. On 15/06/2022 PP received confirmation letter from Verra that the VCS rules do not require site visit for the GAP validation as long as the VVB can ensure a reasonable level of assurance without performing a site visit. Considering CTI has already conducted the on-site visit for CDM validation of the project activity in 2020, and taking the current situation into account, CTI adopted an interview in form of teleconference instead of the on-site inspection.

The quality of teleconference ensures a reasonably good view for the validation team. The document review can be finished in time, and relevant data flows can be accessed remotely. Confidentiality rules was declared to the PP by the validation team, and competence and resources of the validation team ensure the validation to finish the remote inspection. The validation team studied the requirements for GAP validation as per the VCS Standards Version 4.3, and concluded that the GAP validation can be assessed thoroughly through remote inspection. The below alternatives have been conducted by the validation team as remote audit

1. CTI used teleconference conducting the opening meeting.
2. CTI used teleconference interviewed representatives of project owner and staffs, project proponent, consultancy introduced the construction and operation status of the project, SD contributions. etc.
3. CTI discussed the document evidence with project owner based on desk review results.
4. The team discussed findings and conducted close meeting via teleconference with PP.

By the remote inspection, remote interview, and the document review, the validation team confirms the alternative measure used and the information provided by the PP are credible and sufficient for the purpose of validation.

The assessment was conducted to provide a reasonable level of assurance of compliance against the defined audit criteria and materiality threshold within the audit scope. Based on the audit findings, the validation statement reasonably assures that the GHG assertion is materially correct and is a fair representation of the GHG data and information.

1.4 Summary Description of the Project

The purpose of the project activity is to deliver recovered gas to the national gas pipeline to meet energy needs of end-users, and to reduce local air pollution due to flaring. It consists of the recovery and utilization of natural gas found in association with oil at Khamilah oil field at Block-27, Wilayat Ibri of Al- Dhahirah Governorate, the Sultanate of Oman. The recovery process comprises three main stages including the separation stage where gas is separated from oil and water, the compression stage where gas is compressed for transportation to gas plant, and the processing stage where gas is processed to fit with conditions of gas pipeline for further transportation to end-users. Main equipment necessary for the proposed project activity comprises electric motor-driven reciprocating and screw compressors installed on site, and a network of pipelines for gas transportation. Total estimated amount of associated gas to be recovered during crediting period is about 2.20billion Nm³ while average methane content is estimated at about 78%. It has been confirmed by virtual interview and desk review by checking the technical specifications/23/ and the CDM registered PDD/4/.

The project activity generates GHG emission reductions by recovery of associated gas that otherwise would be used for gas-lift process and/or flared at the oil production site to displace the use of other fossil fuel sources at the end-users. Thus, the project generates GHG emission reductions and produces financial, social, and environmental benefits. The project is expected to achieve an annual emission reduction of 473,826 tCO₂e and a total emission reduction of 4,738,260 tCO₂e during the 10 years fixed crediting period 05/01/2020-04/01/2030.

The baseline scenario is the same to the status prior to the implementation of the project, i.e., flaring of associated gas at the oil production site, the operation of the existing oil and gas infrastructure without processing of any recovered associated gas, and the use of gas-lift gas from the same source and quantity as under the project activity in the gas-lift system. Non-associated gas or other fossil sources is combusted to meet energy needs of end users in Oman.

2 VALIDATION PROCESS

2.1 Method and Criteria

A project specific validation plan was developed to guide the validation auditing process to ensure efficiency and effectiveness. According to the ISO14064-3, the criteria are the policy, procedure or requirement used as reference against which evidence is compared. Therefore, validation of the project description was measured for compliance against the following criteria:

- VCS Standard Version 4.3/27/
- VCS Program Guide Version 4.1 /28/
- VCS Validation and Verification Manual Version 3.2/29/
- VCS project description template Version 4.1/30/
- The applied CDM methodology "AM0009 Recovery and utilization of gas from oil fields that would otherwise be flared or vented" (Version 07.0)/35/, and relevant UNFCCC requirements/31/-/33/

The validation process derived from all items in the validation and verification criteria stated above. The validation consisted of the following three phase:

- Document review
- Virtual interview
- The resolution of outstanding issues and the issuance of the final validation report and certification.

Virtual interview and techniques based on the reported information in the project description, scope, and best professional judgement of the validation team in order to meet a reasonable level of assurance. There is no sampling approach utilized by PP and VVB during validation.

2.2 Document Review

Documents review was conducted to ensure consistency with and identify any deviation from VCS program requirements. The public VCS PD Version 02 dated 09/03/2022 and updated VCS PD version 04 dated 18/08/2022/1/ were assessed as part of the validation. In addition, the registered CDM PDD version 03.0 dated 02/08/2020/4/ and the registered CDM validation report version 03 dated 03/08/2020/5/ were reviewed. Furthermore, the validation team used additional documentation by third parties like host party legislation and technical reports referring to the project design details. The references used in the course of this validation are summarized in Appendix 3.

The validation was performed basing on the documents check and virtual interview, refer to the section 3 of this report and corresponding documents review.

2.3 Interviews

The objective of the interview process was to solicit important information from personnel related to project and relevant to the validation process. A virtual interview and information discussions were conducted on 20/06/2022 with project proponent OQ Trading Limited, project owner and the project's VCS account manager of Vitol SA, and the following is a list of the main interviewees and subject.

	Interviewee			Subject	Team member
	Last name	First name	Affiliation		
1	Al Maawali Aylwin	Said Elliot	OQ Trading Limited	- Project design and operation of the project activity; - Project proponent and ownership; - Project start date and crediting period; - Project location; - Baseline Scenario; - Data collection and ER calculation; - Applicable laws, statutes, and other regulatory frameworks;	Lin Shunrong
2	Al Saadi	Zainab	Ministry of Energy and Minerals	- Participation under other GHG programs/emissions trading programs and other binding limits/other forms of environmental credit; - Sustainable development contributions; - Additional information relevant to the project	
3	Ning	Li	Vitol SA	- Preparation of VCS PD; - Project's compliance with the VCS program; - Data and calculation of GHG emission reductions	Lin Shunrong

2.4 Site Inspections

Via the assessment in course of the teleconference on 20/06/2022, CTI has applied standard auditing techniques as specified in Section 1.3 to assess the quality of information provided. The main aspects presented in Section 2.3 above have been verified.

The information presented in the project description were assessed by review of the detailed project documentation, interviewing with personnel from the project proponent OQ Trading Limited, staff of project owner and project's VCS account manager Vitol SA, as well as by checking the on-site videos and photos with regards to the project operation. This has enabled the validation team to assess the accuracy and completeness of reported information, to verify the project's compliance with the requirement of VCS gap validation.

2.5 Resolution of Findings

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

A Corrective Action Request (CAR) is established where:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- The VCS requirements have not been met;
- There is a risk that the emission reductions cannot be monitored or calculated.

A Clarification Request (CL) will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A Forward Action Request (FAR) will be issued when certain issues related to project implementation should be reviewed during the next verification.

A detailed list of the CARs, CLs and FAR raised and discussed in the course of this validation is included in Appendix 4 of this report.

In the course of the validation 2 Corrective Action Requests (CARs), 4 Clarification Requests (CLs) were raised and successfully closed. The assessment is included in the report.

2.5.1 Forward Action Requests

As this is the gap validation for the project, there are no FARs involved in the validation process.

3 VALIDATION FINDINGS

3.1 Project Details

According to the VCS Standard Version 4.3 for projects registered under the CDM, the cover page and sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.12, 1.13, 1.14, 1.15.1, 1.16, 1.17, 1.18 and 3.6 of the VCS Project Description Template shall be completed and a VVB shall undertake a validation of same to provide a gap validation for the project's compliance with the VCS rule.

CTI verified the information reported in the VCS PD/1/ against the registered CDM PDD/4/ and CDM validation report/5/, previous CDM MR and verification reports/6/ and by the virtual interview. The detailed validation process is documented below:

Summary Description of the Project

It is confirmed that the project is a newly-built associated gas recovery and processing project to recovery and utilization of natural gas found in association with oil at Khamilah oil field at Block-27, Wilayat Ibri of Al- Dhahirah Governorate, the Sultanate of Oman by checking the environment permit/11/ and the CDM validation report, and via the interview through the teleconference. It is verified by the interview with the project proponent and the project owner and checking the technical specifications/23/that the recovery process of the project comprises three main stages: the separation stage, the compression stage and the processing stage, and the main project activities include the installation of compressor packages at Khamilah oil field area at Block-27, including compressor, motor, scrubbers, suction and discharge bottles, coolers, as well as installation of pipeline network. Compressors lifetime is 10 years for products properly maintained and used according to instructions/23/.

The project reduces greenhouse gases emissions as utilization of recovered gas displaces the use of non-associated gas or other fossil sources at end-users. The total estimated amount of associated gas to be recovered during crediting period is about 2.20 billion Nm³ while average methane content is estimated at about 78% based on the gas analysis report/24/. The emission reductions are estimated to be average 473,826tCO₂e per year and total 4,738,260tCO₂e over the 10 years fixed crediting period.

Sectoral Scope and Project Type

The project activity is the recovery and utilization of associated gas at Khamilah oil field, thus the falls under Sectoral scope: 10 – Fugitive emissions from fuels (solid, oil and gas) as confirmed as per the UNFCCC Standard “Applicability of sectoral scopes version 01.0”/34/. It was confirmed that the project is not a grouped project.

Project Eligibility

The PP has described and justified how the project is eligible under the scope of the VCS Program in PD as per the section 2.1.1 of VCS Standard Version 4.3 and the eligibility to complete a gap validation specified in page 67 of VCS Standard Version 4.3. The assessment is provided as below:

Eligibility under the scope of the VCS Program

- The project activity generates GHG emission reductions including CO₂ which belongs to the six Kyoto Protocol greenhouse gases attributed to scope 1 of section 2.1.1 of VCS Standard Version 4.3.
- The project activity adopted CDM methodology "AM0009 Recovery and utilization of gas from oil fields that would otherwise be flared or vented" (Version 07.0) which is approved under a VCS approved GHG program, attributed to scope 4 of section 2.1.1 of VCS Standards Version 4.3.
- Via checking the CDM registered PDD and validation report of the project, it is verified that the project is implemented to recovery and utilization of natural gas found in association with oil at oil field, which would be used for the gas-lift process and excess associated gas was flared on-site in absence of the project activity, so that to result in reduced GHG emissions from non-associated gas or other fossil sources combustion by end users, and the additionality is verified as actual, thus there is no assumption of having generated GHG emissions primarily for the purpose of their subsequent reduction, removal or destruction for this project.
- Via checking all the excluded project activities in the table, it is verified that this project type is not excluded by the scope of VCS program.

In conclusion, the project is eligible to the scope of the VCS Program.

Eligibility to complete a gap validation specified in page 67 of VCS Standard Version 4.3

The project activity is eligible to the scope of the VCS Program, and does not include afforestation and/or reforestation activities. Via checking the CDM registration interface of the project/36/ it is confirmed the project was registered as CDM project on 03/08/2020 with the CDM crediting period starting from 03/08/2020 which is after 10/01/2016. The validation team confirms the project is complied with the criteria to complete the gap validation set up in VCS Standard Version 4.3.

Therefore, the project is eligible to complete a gap validation and/or transfer to the VCS Program.

Project Proponent and other entities involved in the project

Through document review by checking the Proponent and ERPA signed between the project owner and Oman Trading International on 20/11/2010/7/, the announcement of legal entity name changed to "OQ Trading Limited" published on 16/04/2020/8/ and the amendment Agreement signed between OQ Trading Limited and the project owner on 10/10/2021/9/, and via the interview, the validation team confirmed the project proponent is OQ Trading Limited as authorized by the project owner the Government of the Sultanate of Oman, represented by the Ministry of Energy and Minerals for the comprehensive implementation and management of the VCS project development. Furthermore, the project proponent OQ Trading Limited and the contact information reported in section 1.5 of the VCS PD have been confirmed to be correct through checking the amendment Agreement /9/and interviewing with the PP representative through the interview.

The other entity involved in the Project Vitol SA is appointed as the project's VCS account manager to handle and manage the registration of the project under VCS, to communicate with Verra and to request for issuance or transfer any VCUs from the project as verified by checking Communications agreement signed between the project proponent and Vitol SA/10/. The contact information reported in section 1.6 of PD has been confirmed to be correct through checking the Communications agreement/10/ and interviewing the representative of this company.

Ownership

By checking the Environmental Permit/11/ issued by local government and CDM LOA from Ministry of Environment and Climate Affairs/12/, and the Royal Decree 96/2020 regarding name amendment/13/, the validation team confirmed that the Government of the Sultanate of Oman, represented by the Ministry of Energy and Minerals is the project owner of the project activity, thus has ownership and the legal right to control and operate the project activity. Furthermore, by checking the ERPA /7/ and the amendment Agreement/9/, it is confirmed the project proponent OQ Trading Limited has the ownership of carbon credits.

Project Start Date

The project start date is 05/01/2020 on which the project starts commissioning. Via checking the CDM registered PDD/4/ and commissioning report/17/, and confirmed during teleconferencing interview, it is verified the start date is correct and in line with the VCS standard Version 4.3.

Project Crediting Period

As the designed lifetime of the main equipment, i.e., project compressor is 10 years as per the manufacturer specifications/23/. Thus, the project activity adopts 10-year fixed crediting period started from 05/01/2020 to 04/01/2030 which is in line with the concept for crediting period in section 3.8.1 and A2.3 in Appendix 2 Eligibility Conditions for Projects and CPAs Seeking VCS Registration of the VCS standard 4.3.

Project Scale and Estimated GHG Emission Reductions or Removals

The average annual GHG emission reductions of the project are 473,826 tCO₂e, which is higher than the threshold of large-projects (300,000 tCO₂e per year). Therefore, the project falls in the category of "Large Project" as per definition in VCS standard. And the estimated total estimated GHG emission reductions during the 10 years fixed of VCS crediting period (05/01/2020-04/01/2030) is 4,738,260 tCO₂e.

Through checking emission reductions calculation spreadsheets/2//3/provided by PP, the validation team was able to confirm that the estimated GHG emission reductions of the project activity are as follows:

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
05/01/2020-31/12/2020	703,773
01/01/2021-31/12/2021	711,550
01/01/2022-31/12/2022	690,203
01/01/2023-31/12/2023	690,203
01/01/2024-31/12/2024	533,662
01/01/2025-31/12/2025	426,930
01/01/2026-31/12/2026	355,775
01/01/2027-31/12/2027	284,620
01/01/2028-31/12/2028	177,887
01/01/2029-31/12/2029	163,656
01/01/2030-04/01/2030*	0
Total estimated ERs	4,738,260
Total number of crediting years	10
Average annual ERs	473,826

*Note: The lifetime of the project design is 10 years as per the manufacturer specifications/23/, and the project put into operation since 05/01/2020. Thus, volume of total recovered gas measured is not claimed for the period 01/01/2030-04/01/2030.

The above estimated emission reduction is confirmed by the validation team via checking the statement gas and gains/18/, emission reduction calculation spreadsheets, the CDM registered PDD and validation report, CTI Validation Team confirmed that the calculation is correct and conservative.

Project location

The project activity is located at Khamilah oil field at Block-27, Wilayat Ibri of Al- Dhahirah Governorate, the Sultanate of Oman. The recovered gas is collected and processed at Khamilah station. The approximate coordinates of Khamilah station are east longitude of 56° 14'38" and north latitude of 22° 43'01". It is confirmed via the virtual interview by showing the on-site GPS photo/25/ and by checking the CDM registered PDD/4/ and validation report/5/, the previous CDM monitoring reports and verification report/6/.

Conditions prior to project initiation

The scenario existing prior to the start of the implementation of the project activity is that associated gas is flared on site, the existing oil and gas infrastructure operates without processing of any recovered

associated gas and gas-lift gas from the same source and quantity as under the project activity is used in the gas-lift system. Non associated gas or other fossil sources is combusted to meet energy needs of end users in Oman. The baseline scenario is the same as the scenario existing prior to the implementation of the project activity, which has been confirmed during the interview and checking CDM registered PDD and validation report.

Therefore, the project is confirmed not to be implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction.

Project compliance with applicable laws, statutes and other regulatory frameworks

The PD has stated that the project is in line with the relevant laws and regulations i.e. Oil and Gas Regulation in Oman/14/, Ministerial Decision 5/86 of May 17 1986/19/, Law on Conservation of Environment and Prevention of Pollution promulgated by Royal Decree No. 114/2001/21/, and Regulations for Air Pollution Control from Stationary Sources/20/.

The validation team confirms that the project has been approved by the government of Sultanate of Oman by checking the Environmental Permit issued by Al Dhahirah Wilayat, Ibri Government on 03/09/2018/11/. Via checking the Inspection and Acceptance Report of the project/16/, it is verified that the construction is in line with the requirement of national laws and regulations. Therefore, the project is in line with the national and local laws and regulations. And as stated in the PD and confirmed by interview, CTI verified that the project will be subject to regular inspection by local government during the implementation period to ensure continuous compliance.

In conclusion, the project complies with all relevant local, regional and national laws, statutes and regulatory frameworks in Oman.

Participation under other GHG programs

The project has been registered as CDM project with UNFCCC Ref. No. 10584. Apart from CDM, the project has neither been registered nor seeking registration under any other GHG programs which has been confirmed via checking the UNFCCC, GS, GCC/37/and other GHG schemes' website. It is verified that the project is seeking registration only in VCS program.

Other forms of credit

- Emissions trading programs and other binding limits

It is confirmed during the interview with the staff from the Ministry of Energy and Minerals, Oman has not launched any mandatory carbon emission trading program, thus the net GHG emission reductions generated from the project will not be used for compliance with emission trading programs or to meet binding limits on GHG emissions.

Furthermore, the validation team confirms by checking the Declaration submitted by the project proponent that the net GHG emission reductions generated by the project will not be used for compliance with an emissions trading program and no double counting claiming of the credits/26/. Thus, it is concluded that the project activity is not involved on other emissions trading programs and other binding limits.

- Other forms of environmental credit sought or received and eligible to be sought or received

Via interview with the project owner and project proponent and based on above assessment, it is confirmed that the project has not created any other form of environmental credit.

Additional information relevant to the project

- Leakage management for AFOLU projects

The project activity is not a AFOLU project, therefore, this section is Not applicable.

- Commercially sensitive information

No commercially sensitive information has been excluded from the public version of the project description. The details are presented transparently to validation team for analysis which lead to positive conclusion for this validation.

- Sustainable development contributions

Via the virtual interview and by checking the evidence provided as below, CTI verified that the project contributes the sustainable development through the following aspects:

- SDG 8 Decent Work and Economic: the project activity will increase employment opportunities for skilled workers and sub-contractors and suppliers for project construction and operation.
- SDG 7 Affordable and Clean Energy: The project reduces the consumption of the fossil fuels from the gas pipeline at the end-users, also contributes to increase Oman's energy security.
- SDG13 Climate Action: The project activity delivers recovered gas to the national gas pipeline to meet energy needs of end-users, as a result to reduce local air pollution due to flaring. The project activity is expected to reduce emissions by approximately 473,826 tCO₂e annually and 4,738,260 tCO₂e in total over the fixed 10-year crediting period 05/01/2020-04/01/2030.

Therefore, the assessment team confirmed that the gap VCS PD is accurate, complete, and provides an understanding of the nature of the project. Based on above assessment and demonstration, it is concluded that the description in the project description is accurate, complete, and the nature of the project is actual and understandable, and it is confirmed that the project has been implemented as described in the project description via the validation.

4 CLs and 2 CARs were raised and successfully closed. Refer to Appendix 4 for detail assessment.

3.2 Safeguards

3.2.1 No Net Harm

NA

3.2.2 Local Stakeholder Consultation

NA

3.2.3 Environmental Impact

NA

3.2.4 Public Comments

The project sought the registration with the VCS Program, according to VCS requirements the Project Description was submitted for public comment period. The project was allocated with VCS ID 2768. The public comment period started on 31/05/2022 and ended on 30/06/2022 (<https://registry.terra.org/app/projectDetail/VCS/2768>).

No comments were received during this period which has been verified by checking the dedicated website as above.

3.2.5 AFOLU-Specific Safeguards

NA

3.3 Application of Methodology

3.3.1 Title and Reference

The approved CDM methodology applied in the project activity is "AM0009 Recovery and utilization of gas from oil fields that would otherwise be flared or vented" (Version 07.0).

Related tools are:

Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation (Version 03.0)

Tool for the demonstration and assessment of additionality (Version 07.0.0)

Combined tool to identify the baseline scenario and demonstrate additionality (Version 7.0)

3.3.2 Applicability

NA

3.3.3 Project Boundary

NA

3.3.4 Baseline Scenario

NA

3.3.5 Additionality

NA

3.3.6 Quantification of GHG Emission Reductions and Removals

NA

3.3.7 Methodology Deviations

There are no any methodology deviations applied to the project.

3.3.8 Monitoring Plan

NA

3.4 Non-Permanence Risk Analysis

NA

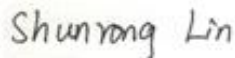
4 VALIDATION CONCLUSION

CTI has performed the gap validation of Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman (VCS Ref. No. 2768) which is a CDM registered project (UNFCCC Ref No. 10584). The baseline and monitoring methodology applied was "AM0009 Recovery and utilization of gas from oil fields that would otherwise be flared or vented" (Version 07.0) which is an approved CDM methodology. The validation was performed based on the requirements set by VCS Standard Version 4.3 for gap validation and relevant guidance under VCS Program.

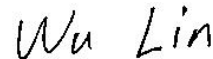
The gap validation consisted of the following three phases:

- i) desk review of the project design;
- ii) interviews with project stakeholders;
- iii) issuance of the final validation report

Vitol SA is responsible for the preparation of the VCS PD on the basis set out in VCS Standard Version 4.3 for gap validation. CTI has verified the VCS PD Version 04 dated 18/08/2022. Analysis as provided by registered CDM PDD and validation report demonstrates that the project activity is not a likely baseline scenario. Estimated emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed as per the requirements of the registered CDM PDD, the project meets the eligibility and scope of VCS Standard Version 4.3, and is likely to achieve the estimated amount of emission reductions and sustainable development contributions as specified within the VCS PD Version 04 dated 18/08/2022 as observed from the gap validation performed as per VCS Standard Version 4.3 requirements stated above. The review of the VCS-PD and the information made available to the validation team determined the fulfillment of stated criteria of gap validation. According to the validation team, the project correctly applies and meets the relevant VCS requirements and the relevant host country criteria and qualifies as a VCS project.



Ms. Lin Shunrong
Technical Leader
18/08/2022



Mr. Lin Wu
Team Reviewer
18/08/2022

APPENDIX I: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry, and Other Land Use
CDM	Clean Development Mechanism
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
ERPA	Emission Reduction Purchase Agreement
GCC	Global Carbon Council
GHG	Greenhouse gas(es)
GS	Gold Standard
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
PD	Project Description
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VVB	Validation/Verification Body

APPENDIX 2: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Ms. Shunrong LIN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 14: Afforestation and reforestation	TA 14.1: Afforestation and reforestation
SS 15: Agriculture	TA 15.1: Agriculture

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu Lin

Wu LIN

Technical Competent Manager

Shenzhen, 01/01/2021

Mr. Dezheng TONG

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	-	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 8: Mining/mineral production	TA 8.1: Mining/mineral production
SS 10: Fugitive emissions from fuels (solid, oil and gas)	TA 10.1: Fugitive emissions from oil and gas

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Wu Lin

Wu LIN

Technical Competent Manager

Shenzhen, 01/07/2022

Mr. Wu LIN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation
	TA 1.2: Energy generation from renewable energy sources
SS 2: Energy distribution	TA 2.1: Electricity distribution
SS 3: Energy demand	TA 3.1: Energy demand
SS 4: Manufacturing industries	TA 4.1: Cement and lime production
SS 5: Chemical industry	TA 5.1: Chemical industry
	TA 5.2: Caprolactam, nitric and adipic acid
SS 10: Fugitive emissions from fuels (solid, oil and gas)	TA 10.1: Fugitive emissions from oil and gas
SS 11: Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	TA 11.1: Emissions of fluorinated gases
	TA 11.2: Refrigerant gas production
SS 12: Solvents use	TA 12.1: Chemical industry
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:



Lu ZHOU

General Manager

Shenzhen, 01/01/2021

APPENDIX 3: REFERENCE LIST

/1/	VCS Project Description, version 02 dated 09/03/2022, version 03 dated 01/07/2022, version 04 dated 18/08/2022
/2/	Estimated ER calculation spreadsheet for VCS Project Description
/3/	Estimated ER calculation spreadsheet for CDM Registered Project Design Document
/4/	CDM Registered Project Design Document, version 03.0, dated 02/08/2020
/5/	CDM Validation Report version 03, dated 03/08/2020
/6/	Previous CDM Monitoring Reports and Verification Report for 1 st -3 rd monitoring periods
/7/	ERPA was signed between the Government of the Sultanate of Oman, represented by the Ministry of Oil & Gas and Oman Trading International, dated 20/11/2010
/8/	Announcement of legal entity name changed from Oman Trading International to "OQ Trading Limited", dated on 16/04/2020
/9/	Amendment agreement signed between OQ Trading Limited and the Government of the Sultanate of Oman, represented by the Ministry of Energy and Minerals, dated 10/10/2021
/10/	Communications agreement signed between OQ Trading Limited and Vitol SA on 24/11/2021
/11/	Environmental Permit of Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman issued by Al Dhahirah Wilayat, Ibri Government, dated 03/09/2018
/12/	Letter of Approval from the Host Country issued by Sultanate of Oman Ministry of Environment and Climate Affairs (the CDM-DNA of the Sultanate of Oman), date 07/06/2020
/13/	Amending the Name of the Ministry of Oil and Gas to the Ministry of Energy and Minerals, Determining Its Competences, and Adopting Its Organisational Structure, Royal Decree 96/2020, dated 18/08/2020
/14/	Oil and Gas Regulation in Oman, Experts on oil and gas regulations, Jun 2018
/15/	Exploration and Production sharing agreement between operator and Oman Government, dated 01/01/2020
/16/	The Inspection and Acceptance Report, dated 06/05/2019
/17/	Commissioning report of the project issued by Occidental of Oman Inc.
/18/	Statement on gas gains issued by Occidental of Oman Inc., dated 05/03/2019

/19/	Ministerial Decision 5/86 of May 17 1986
/20/	Regulations for Air Pollution Control from Stationary Sources issued by Stationary Sources Ministry of Regional Municipalities, Environment and Water Resources http://extwprlegs1.fao.org/docs/pdf/oma097375E.pdf
/21/	Law on Conservation of Environment and Prevention of Pollution promulgated by Royal Decree No. 114/2001 http://www.vertic.org/media/National%20Legislation/Oman/OM_Law_Conservation_Environment_114-2001.pdf
/22/	Memo on Associated Gas Recovery and Utilization at Khamilah oil field area at Block-27 in Wilayat Ibri of the Sultanate of Oman (investment decision)
/23/	Technical specifications from Occidental of Oman, Inc., December, 2019
/24/	Gas analysis report
/25/	On-site videos and photos
/26/	Declaration on not be used for compliance with an emissions trading program and no double counting claiming of the credits by project proponent dated 16/06/2022
/27/	VCS Standard version 4.3, updated on 22/06/2022
/28/	VCS Programme Guide version 4.1, updated on 20/01/2022
/29/	VCS Validation and Verification Manual, version 3.2
/30/	VCS project description template Version 4.1, updated on 20/01/2022
/31/	CDM Validation and Verification Standard for project activities version 03.0
/32/	CDM Project Standard for project activities version 03.0
/33/	CDM project cycle procedure for project activities version 03.0
/34/	Applicability of sectoral scopes version 01.0
/35/	Approved methodology AM0009: Recovery and utilization of gas from oil fields that would otherwise be flared or vented, Version 07.0
/36/	CDM Registration Interface of The Project https://cdm.unfccc.int/Projects/DB/CTI1596441167.27/view
/37/	UNFCCC http://cdm.unfccc.int VCS http://verra.org GS https://www.goldstandard.org/ GCC http://www.globalcarboncouncil.com

APPENDIX 4: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS, FORWARD ACTION REQUESTS (CAR/CL/FAR)

CL ID	01	Section no.	1.1	Date: 20/06/2022
Description of CL				
PP is requested to clarify the following items and supplement the same in Section 1.1. of the VCS PD;				
- The eligibility of the project activity for the gap validation as the VCS Standard Version 4.3 - The scope of the VCS Program as per Section 2.1.1 of VCS Standard Version 4.2				
Project proponent response				Date: 01/07/2022
- The eligibility of the project activity for the gap validation has been included in section 1.3 of the updated PD version 03. - The eligibility of the project scope has been displayed in in section 1.3 of the updated PD version 03.				
Documentation provided by project proponent				
Updated VCS PD version 03				
DOE assessment				Date: 03/07/2022
It is confirmed that the project eligibility has been clarified in the updated PD as per the VCS Standard requirement. The clarifications are found to be correct by checking the CDM PDD and CDM registration interface of the project. Thus, CL 01 is closed.				

CL ID	02	Section no.	1.10	Date: 20/06/2022
Description of CL				
PP is requested to provide the ER spreadsheet for the VCS crediting period and the clarification for 0 emission reduction estimated for the period 01/01/2030-04/01/2030 in Section 1.10.				
Project proponent response				Date: 01/07/2022
The ER spreadsheet has been provided.				
Documentation provided by project proponent				
The ER spreadsheet				

DOE assessment	Date: 03/07/2022
The ER spreadsheet has been checked as correct, as clarified in the updated VCS PD the emission reductions for the last year of the crediting period 01/01/2030-04/01/2030 is not claimed since the project starts operation on 05/01/2020 and lifetime is 10 years. Thus, CL 02 is closed.	

CL ID	03	Section no.	1.14	Date: 03/07/2022
Description of CL				
Specific local/national laws, statutes and regulations are required to be identified and demonstrate compliance of the project activity in Section 1.14 as per the requirement of the PD template.				
Project proponent response				Date: 03/07/2022
The project complies with all relevant laws and regulations by the Sultanate of Oman. Mainly include: 1. Ministerial Decision 5/86 of May 17 1986 2. Law on Conservation of Environment and Prevention of Pollution promulgated by Royal Decree No. 114/2001 3. Regulations for Air Pollution Control from Stationary Sources 4. Oil and Gas Regulation in Oman The project obtained environmental permit and CDM LOA from Ministry of Environment and Climate Affairs, which approvals well demonstrate that government permits the construction of the project. Consequently, the project is compliance with laws, status, and other regulatory frameworks. Section 1.14 of the PD has been updated to include above info.				
Documentation provided by project proponent				
Updated VCS PD version 03				
DOE assessment				Date: 03/07/2022
It is confirmed that the relative laws, statutes, and regulations are identified and compliance of the project have been included in the updated PD. All information provided are verified to be authentic by checking the Environment Permission, Completion acceptance report of the project and the laws and regulations stated in the updated PD. Thus, CL 03 is closed.				

CL ID	04	Section no.	1.16	Date: 20/06/2022
Description of CL				
As per the requirement of VCS PD template, PP is requested to provide clarification in Section 1.16 as following: - Demonstrate if any emission trading program, GHG allowance mechanism in Oman - Demonstrate that GHG emission reductions and removals generated by the project will not be used for compliance under such programs or mechanisms.				
Project proponent response				Date: 01/07/2022
Oman has not launched any mandatory carbon emission scheme, and GHG emission reduction scheme, thus GHG emission reductions and removals generated by the project has no way in legislation				

to be used for compliance in Oman.

The project has not been and will not apply for any other GHG emission reduction scheme, such as GCC, GS, etc., and is not in the project data base of these schemes.

The project proponent has signed declaration on not being used for the compliance and no double counting claiming of the credits. The project is not involved in an emission trading program or any other mechanism that includes GHG allowance trading.

Section 1.16 of the PD has been updated to include above info.

Documentation provided by project proponent

Updated VCS PD version 03

DOE assessment

Date: 03/07/2022

It is confirmed during the interview with the staff from the Ministry of Energy and Minerals, Oman has not launched any mandatory carbon emission trading program, thus the net GHG emission reductions generated from the project will not be used for compliance with emission trading programs or to meet binding limits on GHG emissions. Furthermore, the validation team confirms by checking the Declaration submitted by the project proponent that the net GHG emission reductions generated by the project will not be used for compliance with an emissions trading program and no double counting claiming of the credits. Thus, it is concluded that the project activity is not involved on other emissions trading programs and other binding limits. Thus, CL 04 is closed.

CAR ID	01	Section no.	1.1	Date: 20/06/2022
Description of CAR				
The PD is requested to be updated according the requirement of VCS Standard version 4.2 and the latest VCS PD template version 4.1.				
Project proponent response				Date: 01/07/2022
The PD has been updated according to the latest VCS PD template version 4.1.				
Documentation provided by project proponent				
Updated VCS PD version 03				
DOE assessment				Date: 03/07/2022
It is confirmed by checking the updated PD against the latest PD template v4.1, information presenting the updated VCS PD is verified to be correct and compliance with the requirements of the latest PD template. Thus, CAR 01 is closed.				

CAR ID	02	Section no.	1.17	Date:	20/06/2022
Description of CAR					
- Section 1.17 is not in line with the requirement of the VCS PD template, PP is requested to: - Explain how project activities will result in expected SD contributions					

- Describe how the project contributes to achieving any nationally stated sustainable development priorities, including any provisions for monitoring, and reporting same.	
Project proponent response	Date: 01/07/2022
The project activity will contribute to the sustainable development through the following ways: - Job creation: SDG 8 Decent Work and Economic - Reduction in GHG emissions: SDG 13 Climate Action - Reduction of fossil fuel use: SDG 7 Affordable and Clean Energy. - Relevant description has been displayed in the PD version 03	
Documentation provided by project proponent	
Updated VCS PD version 03	
DOE assessment	Date: 03/07/2022
It is confirmed by checking the updated PD against the UN SDGs, the project contributes sustainable development involving SDGs 7, 8 and 13, the description is verified to be correct and appropriate, thus, CAR 02 is closed.	