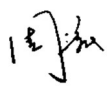
Verification and certification report form for CDM project activities

(Version 03.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	Associated Gas Recovery and Utilization at Block 9 UNFCCC reference number: 6817
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the verification and certification report	02
Completion date of the verification and certification report	14/08/2020
Monitoring period number and duration of this monitoring period	6th monitoring period 01/06/2020-30/06/2020
Version number of the monitoring report to which this report applies	02
Crediting period of the project activity corresponding to this monitoring period	31/12/2013 - 30/12/2020 (Fixed)
Project participants	The Government of the Sultanate of Oman, represented by the Ministry of Oil & Gas Oman Trading International Carbon Rooster Advisory Services B.V.
Host Party	Oman
Applied methodologies and standardized baselines	AM0009 "Recovery and utilization of gas from oil wells that would otherwise be flared or vented" (Version 06.0.0)
Mandatory sectoral scopes	Sectoral scope 10: Fugitive emission from fuels (solid, oil, gas).
Conditional sectoral scopes, if applicable	N/A
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	33,626 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	29,387 tCO_2e
Name and UNFCCC reference number of the DOE	China Certification Center, Inc. (CCCI) E-0067
Name, position and signature of the approver of the verification and certification report	Mr. Zhou Hong, Director of GHG Department 

SECTION A. Executive summary

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Oman Trading International has commissioned China Certification Center, Inc. (CCCI) to perform the second verification of Associated Gas Recovery and Utilization at Block 9 (hereafter referred to as the Project), CDM Registration Reference Number 6817, covering the monitoring period 01/06/2020-30/06/2020. The project is located at Block 9, Safah oil field, A'Dhahirah Region, the Sultanate of Oman. The project is operated by Occidental of Oman Inc. under a development and production sharing agreement with the Ministry of Oil and Gas. The coordinates of Safah gas processing plant are east longitude of 55°27'40" and north latitude of 23°11'20". The project includes four other locations: Far West (23°09'11"N, 55°27'03"E), Satellite (23°10'39"N, 55°29'52"E), Jalal (22°55'50"N, 55°48'16"E), and Wadi Latham (22°52'50"N, 55°48'16"E).

The purpose of the project activity is to deliver recovered gas to the national gas pipeline to meet energy needs of end-users, and also to reduce local air pollution due to flaring. 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 at several locations on site, and a network of pipelines for gas transportation.

The scenario existing prior to the start of the implementation of the proposed project activity is 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. The baseline scenario is the same as the scenario existing prior to the start of implementation of the proposed project activity. The project reduces greenhouse gases emissions as the 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 2.1 billion m^3 while average methane content is estimated at about 70%. The project activity is expected to reduce emissions by approximately 775,250 tonnes of CO_2 equivalent annually over the crediting period.

The verification was performed on the basis of UNFCCC criteria for the CDM, and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The date of the project construction started on 14/05/2009 and put into operation on 08/12/2009, and the project was fully commissioned on 29/10/2010.

The verification consisted of the following three phases: i) desk review of the project design, monitoring report and additional background documents; ii) on-site inspection and follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

CCCI has verified the project Monitoring Report version 02 dated 06/08/2020 for the reporting period as indicated below. CCCI confirms that the Project is implemented as described in validated and registered project design documents. Installed equipment being essential for generating emission reductions run reliably and are calibrated appropriately. The monitoring system is in place and the Project is generating GHG emission reductions as a CDM project.

CCCI can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the Projects' GHG emissions and resulting GHG emission reductions reported and related to the validated and registered project baseline, monitoring plan and its

associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CCCI confirms the following statement:

Reporting period:	01/06/2020-30/06/2020
Baseline emissions:	30,652 tCO_2e
Project emissions:	1,265 tCO_2e
Leakage emissions:	0 tCO_2e
Emission Reductions:	29,387 tCO_2e

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader	IR	Zhou	Jianrong	Central office of CCCI	Yes	Yes[1]	Yes	Yes

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Huang	Peng	Central office of CCCI
2.	Approver	IR	Zhou	Hong	Central office of CCCI

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions (which may be more likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording)	Low	By reviewing the registered PDD/1/ and the validation report issued by Bureau Veritas Certification /6/, it is noted that a CDM monitoring team and a monitoring plan was established for monitoring, data collection and quantification of emission reductions. The verification team preliminarily concluded that the project has established a well-organized monitoring team, monitoring plan, including data collection procedures. Hence, the risk level is low.	During the site visit, the verification team will review the relevant training materials and training records. The verification team will interview the staffs of the CDM monitoring team and check the daily monitoring practice to confirm whether the monitoring plan has been well implemented. The verification team will check the monitoring data to verify whether a complete set of data for the specified monitoring period is available.
2.	Undue reliance on a poorly designed information system, which may have few effective quality controls	Low	By reviewing the registered PDD/1/ and the validation report issued by Bureau Veritas Certification /6/, it is noted that a CDM monitoring team and a monitoring plan was established for monitoring, data collection procedure, QA/QC procedure and	During the site visit, the verification team will interview the staffs of the CDM monitoring team and check the monitoring records to confirm whether the monitoring plan has been well implemented. The major parameters used for determining the project's baseline

[1] CCCI verification team performed the remote inspection as per sections 7.1.3 and 9.1.3 of the VVS-PA, via BlueJeans which is a teleconferencing software.

			quantification of emission reduction. The verification team preliminarily concluded that the project has established a well-organized CDM monitoring team, monitoring plan, including data collection procedure and QA/QC procedure. Hence, the risk level is low.	emissions are the measurement of the volume of total recovered gas at point F($V_{F,y}$) and the average NCV of recovered gas ($NCV_{RG,F,y}$), which are recorded monthly according to the monitoring plan. The team will review the whole data set of the monthly record, and cross-check against relevant monthly sales receipt of the total recovered gas, covering the monitoring period 01/06/2020-30/06/2020. The parameters used for determining the project emissions is the quantity of the electricity consumed by the project activity ($EC_{PJ,,j,y}$), which according to the monitoring plan are recorded monthly. The team will review the whole data set of the monthly record, and cross-check against relevant monthly confirmation of the electricity consumption at CPF and WL locations, covering the monitoring period 01/06/2020-30/06/2020. No leakage needs to be considered as per the applied methodology AM0009 version 06.0.0 and the monitoring plan in the registered PDD version 06 dated 30/12/2012.
3.	Manual adjustment of otherwise automatically recorded activity levels	Low	By reviewing the monitoring plan in the registered PDD/1/ and the validation report issued by Bureau Veritas Certification /6/, it is noted that 1) the major parameters (total recovered gas, electricity consumed by the project activity) are continuously measured by the recovered gas flow meters and the electricity meters installed at each location, and recorded monthly; 2) The calibration of the recovered gas flow meter, and the electricity meters shall be conducted periodically as required by the monitoring plan. Based on the sectoral experiences of the team, the manual adjustment may happen when the recovered gas flow meters, and/or the electricity meters are malfunction, which is rare. Hence, the risk level is low.	1. During the site inspections, the verification team will interview the staff responsible for the monitoring and implementation of the project, check the operation log to confirm whether there was malfunction of the recovered gas flow meters, and/or the electricity meters installed at each location during the monitoring period. 2. If there was malfunction of the recovered gas flow meter, and/or the electricity meters during the verification team shall check the whole data sets with manual adjustment during the malfunction period.

C.2. Consideration of materiality in conducting the verification

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The project is a large-scale CDM project activity achieving total emission reductions of >300,000 tCO_2e per year; as such, a 1 per cent materiality thresholds is applied.

One of the parameters used for determining the baseline emissions is the volume of the total recovered gas measured at point F in methodology Figure 2 in year y ($V_{F,y}$), which is continuously

monitored by the gas flow meters (FM_{CPF}, $FM_{FW,}$ $FM_{WL,}$ $FM_{JAL,}$ FM_{SAT}) installed at point F of each location, and record monthly.

The monitoring period is 01/06/2020-30/06/2020. The values are presented for verification in the emission reduction calculation spreadsheet, and are available for all months carried out during the monitoring period. The volume of the total recovered gas measured at point F of each location are manually transferred to the emission reduction calculation spreadsheet.

By checking the monthly record of recovered gas at CPF location and WL location, and cross-checking against the Monthly sales receipt of the total recovered gas covering the monitoring period 01/06/2020-30/06/2020, the verification team confirmed that the volume of the total recovered gas measured at point F has been correctly presented in the MR and the emissions reduction calculation spreadsheet.

One of the parameters used for determining the project emissions is the quantity of the electricity consumed by the project activity ($EC_{PJ,j,y}$). By checking the monthly record of the electricity consumption at CPF location and WL location, and cross-checking against the confirmation of monthly on-site consumed electricity covering the monitoring period 01/06/2020-30/06/2020, the verification team confirmed that the electricity consumed by the project activity has been correctly presented in the MR and the emissions reduction calculation spreadsheet.

The verification team performed the verification as defined in its verification plan. No errors are identified during course of the verification, and hence not material. The GHG emission reductions are correctly calculated without material misstatements.

SECTION D. Means of verification

D.1. Desk/document review

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CCCI made the MR (Version 01, dated 01/07/2020) /2/ publicly available on the UNFCCC website on 08/07/2020.

The verification team conducted a desk review of the MR (Version 01)/2/ and supporting documents, to verify the completeness of the data and the information presented, to carry out the compliance check of the MR with respect to the monitoring plan and the applied methodology, i.e. AM0009 Version 06.0.0. Particular attention was given to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the QA/QC procedures. The evaluation of data management and the quality assurance and quality control and reporting of emission reductions was also conducted.

In addition to the monitoring documentation provided by the project participants, the verification reviews:

- ✓ The registered PDD /1/;
- ✓ The validation report /6/;
- ✓ The 2nd, 3rd and 5th verification report /7/;
- ✓ The applied monitoring methodology /8/;
- ✓ Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- ✓ Other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, laboratory analysis or national regulations).

Appendix 3 of this report contains a complete list of all documents and proofs reviewed by the verification team.

D.2. On-site inspection

Subject to the terms in verification contracts between CCCI and the PP, the on-site visit should be carried out within 3-month after MR publication in UNFCCC website, and the project owner is under pressure to deliver CER to the buyer. Thus, the site visit is not able to be postponed. However, the site visit cannot be conducted due to COVID-19 pandemic.

As per the interim measure for relaxing mandatory site visits by DOEs due to COVID-19 pandemic, CCCI verification team performed the remote inspection as per sections 7.1.3 and 9.1.3 of the VVS-PA, via BlueJeans which is a teleconferencing software. The project owner provided the pictures of facilities and the monitoring equipment etc, and the project owner also provided the statement to declare authenticity of all the documents/videos/photos /41/.

Duration of remote inspection: 03/08/2020				
No.	**Activity performed remote inspection**	**Site location**	**Date**	**Team member**
1.	Opening meeting by CCCI	Meeting Room	03/08/2020	Zhou Jianrong
2.	Document Review: Project implementation CDM monitoring manual Training records etc. Operation log book Total gas recovered by the Project Sales receipts Electricity consumption by the Project Calibration records for measuring and testing equipment and certificates Monitoring system QA/QC procedure	Meeting Room	03/08/2020	Zhou Jianrong
3.	Photos for meters, nameplates of equipments, etc.	Meeting Room	03/08/2020	Zhou Jianrong
4.	Close meeting by CCCI	Meeting Room	03/08/2020	Zhou Jianrong

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Li	Ning	Carbon Resource Management S.A.	03/08/2020	● data monitoring, data recording and reporting ● calibration ● emission reductions calculation	Zhou Jianrong
2.	Al Maawali	Said	Oman Trading International	03/08/2020	● Project implementation ● Project operation and management	Zhou Jianrong
3.	Al Ghassani	Ghassan	Occidental of Oman Inc.	03/08/2020	● CDM training ● CDM Monitoring ● calibration ● monitoring practice ● QA/QC procedures ● Gas sampling and compositional analysis	

D.4. Sampling approach

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N/A

D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	0	0	0
Compliance of the project implementation and operation with the registered PDD	0	0	0
Post-registration changes	0	0	0
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	0	0	0
Compliance of monitoring activities with the registered monitoring plan	0	0	0
Compliance with the calibration frequency requirements for measuring instruments	1	0	0
Assessment of data and calculation of emission reductions or net removals	0	1	0
Assessment of reported sustainable development co-benefits	0	0	0
Global stakeholder consultation	0	0	0
Others (please specify)	0	0	0
Total	1	1	0

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Comparing the monitoring report /2/ with the monitoring report form provided by CDM EB listed in UNFCCC website.
Findings	No findings raised in this section.
Conclusion	The verification team confirms that the monitoring report used by the PP is compliance with the latest MR form available at UNFCCC website.

E.2. Remaining forward action requests from validation and/or previous verifications

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This is the 6th verification, and no remaining FARs from validation and/or previous verifications.

E.3. Compliance of the project implementation and operation with the registered project design document

The 'Associated Gas Recovery and Utilization at Block 9' is operated by Occidental of Oman Inc. under a development and production sharing agreement with the Ministry of Oil and Gas. The project activity is to deliver recovered gas to the national gas pipeline to meet energy needs of end-users, and also to reduce local air pollution due to flaring.

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 at several locations on site, and a network of pipelines for gas transportation.

The scenario existing prior to the start of the implementation of the proposed project activity is 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. The baseline scenario is the same as the scenario existing prior to the start of implementation of the proposed project activity. The project reduces greenhouse gases emissions as the 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 2.1 billion m^3 while average methane content is estimated at about 70%. The project activity is expected to reduce emissions by approximately 775,250 tonnes of CO_2 equivalent annually over the crediting period.

The date of the project construction started is 14/05/2009 and the project start operation on 08 /12/2009, the project was fully commissioned on 29 Oct 2010, which is verified by checking the commissioning reports/29/ and also confirmed during teleconferencing interviews.

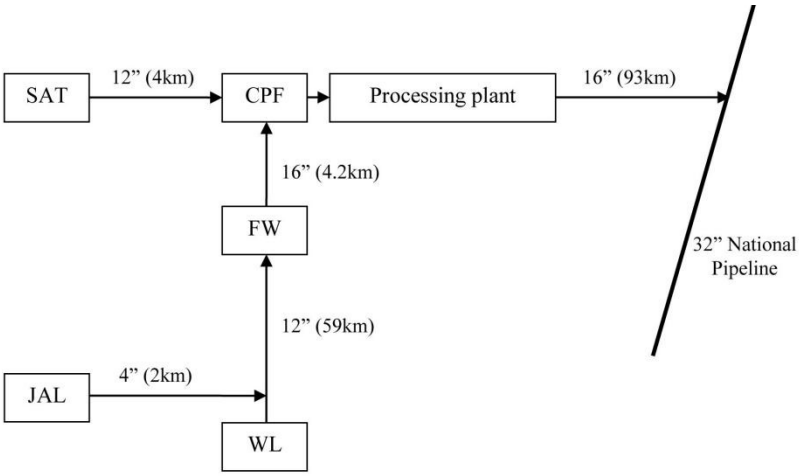
The Project processes 9,656,989.214 Nm^3 associated gas and the total emission reduction is 29,387 tCO_2e in the monitoring period (01/06/2020-30/06/2020).

The project activity mainly comprises the installation of compressor packages at five different locations, including compressor, motor, scrubbers, suction and discharge bottles, coolers, as well as installation of a pipeline network.

Main equipment and technical parameters in the project

Location	Parameter	Value
CPF	Capacity (MMSCFD)	4 * 5.399
	Manufacturer	Vilter
	Type	VSG-2101
	Rated Power (BHP)	541
FW	Capacity (MMSCFD)	2 * 12.5
	Manufacturer	Ariel Corporation
	Type	JGK/4
	Rated Power (BHP)	2540
SAT	Capacity (MMSCFD)	1 * 30
	Manufacturer	Ariel Corporation
	Type	JGD/4
	Rated Power (BHP)	4140
JAL	Capacity (MMSCFD)	1 * 12.5
	Manufacturer	Ariel Corporation
	Type	JGC/4
	Rated Power (BHP)	4140
WL	Capacity (MMSCFD)	3 * 12.5
	Manufacturer	Ariel Corporation
	Type	JGC/4
	Rated Power (BHP)	4140

The pipeline system mainly consists of a 16” 93.8km line from Safah to National pipeline and a 12” 58.2km line from Wadi Latham to Far West; 12” 4km line from Satellite to Central Production Flare; 16” 4.2km line from Far West to Central Production Flare; and 4” 2km line from Jalal connected to Wadi Latham-Far West line.



Pipeline network of the project

It is confirmed based on the registered PDD/1/ and validation report/6/ that the expected operational lifetime of the project activity is 10 years, the project activity was fully commissioned since 29/10/2010, and the compressors lifetime is 15 years. Therefore, the project is expected to be operated till 28/10/2020. The verification team checked the equipment nameplates during teleconferencing interview, reviewed the commissioning reports /29/, interviewed the key staff responsible for the implementation and project operation and management, and was able to confirm that all physical features of the project as described in the PDD are in place and that the project is implemented as per the registered PDD.

Means of verification	The verification team has performed a teleconferencing interview to verify if: a) All physical features (technology, project equipment, and monitoring and metering equipment) of the registered CDM project activity are in place. b) The PP has operated the project as per the registered PDD. c) Information (data and variables) provided in the monitoring report that is different from that stated in the registered PDD, and has caused an increase in estimates of the emission reductions in the current monitoring period or is highly likely to increase the estimates of emission reductions in the future monitoring periods. During the on-site inspection, the verification team: • Check the photos and videos for 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 registered PDD and the monitoring report. • Interviewed the staff responsible for the monitoring and implementation of the project • Reviewed the relevant training materials and training records.
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ all physical features of the project activity have been fully implemented in accordance with the registered PDD /1/ and the monitoring equipment was installed as described in the Monitoring Plan of the registered PDD /1/; ✓ The actual operation of the CDM project activity is as per the registered PDD /1/ by the PP; ✓ Information (data and variables) provided in the monitoring report is in accordance with that stated in the registered PDD /1/.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[2]

>>
No temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline were identified during the verification.

E.4.2. Corrections

>>
No corrections to project information or parameters fixed at validation, as described in the registered PDD have been made.

E.4.3. Changes to the start date of the crediting period

>>
The crediting period was changed from 1/1/2013 – 31/12/2019 to 31/12/2013 – 30/12/2020 (Fixed). By reviewing the revised MR version 02 dated 06/08/2020, and checking the information on the Project page on UNFCCC website(https://cdm.unfccc.int/Projects/DB/BVQI1343120764.64/view), the verification team confirmed that the changes to the start date of the crediting period has been correctly presented in the MR.

E.4.4. Inclusion of a monitoring plan

>>
Not Applicable.
The registered PDD contains a monitoring plan.

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

>>
No permanent changes have been made from the registered monitoring plan, monitoring methodology or standardized baseline.

E.4.6. Changes to the project design

>>
There are no proposed or actual changes to the project design of a registered CDM project activity.

E.4.7. Changes specific to afforestation and reforestation project activities

>>
Not Applicable.

E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

Means of verification	The verification team has checked the monitoring plan in the registered PDD /1/ against the monitoring methodology AM0009 Version 06.0.0 and applicable tools.
Findings	By reviewing the registered PDD, revised MR version 02 dated 06/08/2020, and checking the Project view page on the UNFCCC website (https://cdm.unfccc.int/Projects/DB/BVQI1343120764.64/view), the verification team confirmed that the methodology has been correctly presented in the MR.
Conclusion	The verification team confirms that the monitoring plan in the registered PDD /1/, including data and parameters which are required to be monitored, monitoring and reporting procedures, measuring instruments, QA/QC procedures, complies

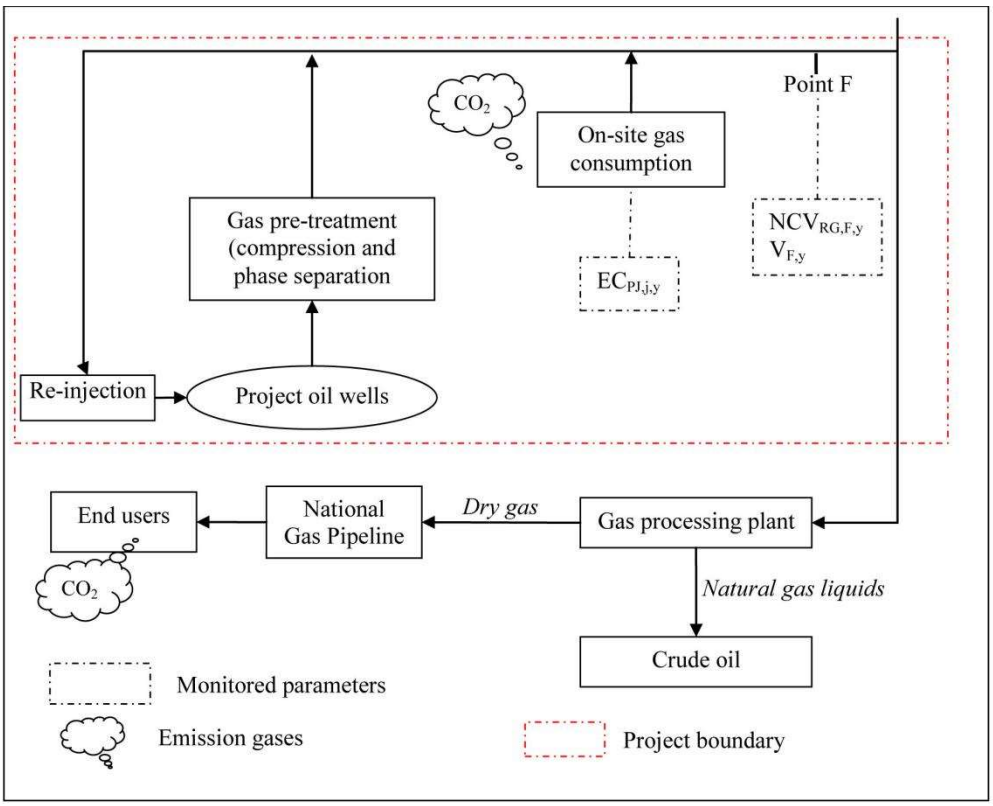
[2] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

	with the applied monitoring methodology.

E.6. Compliance of monitoring activities with the registered monitoring plan

Overview of monitoring system

The verification team evaluated whether the monitoring arrangements on site are in compliance with the monitoring plan in the registered PDD /1/. It has been verified by teleconferencing interview 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.
The monitoring points are distributed in the project site as shown in the figure below:



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

- The volume of the total recovered gas ($V_{F,y}$) is continuously monitored by gas flow meter (FM_{CPF}, $FM_{FW,}$ $FM_{WL,}$ $FM_{JAL,}$ FM_{SAT}) installed at point F of each location, where associated gas sampling point is nearby.
- The quantity of the electricity consumed by the project activity ($EC_{PJ,,j,y}$) is continuously monitored by electricity meters (FM_{CPF}, $FM_{FW,}$ $FM_{WL,}$ $FM_{JAL,}$ FM_{SAT}) installed at each location.

By reviewing the on-site equipment and monthly records/15//19//20//21//22//23//24/, CCCI confirm during this monitoring period 01/06/2020-30/06/2020, only CPF and WL recovered associated gas and has on-site electricity consumption among the total 5 locations, which is consistent with the yearly estimation gas gains in page 51 (Table 4) and the estimated consumed electricity in page 54 (Table 8) of the registered PDD/1/. Therefore, only for CPF and WL location the parameters of $V_{F,y}$, $NCV_{RG,F,y}$, $EC_{PJ,j,y}$, were monitored and calculated during this monitoring period.

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

As per the requirements by the applied methodology AM0009 version 06.0.0, the production data for oil and associated gas and gas-lift gas should be checked at verification, 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.

As per the statement from Occidental dated 23/12/2012, which was provided to DOE during the validation /38/, the projected gross gas gains (MMSCFD) for the proposed CDM project at FW, WL, JL and SAT locations were calculated through multiplying the expected oil production (BOPD) by the Gas/Oil Ratio (GOR) of 0.002495 for Block 9, and the 2008 expected oil production volumes at each location/38//39/ are summarized in the table below.

2008 Oil production forecast (in BOPD)

	FW	WL	JL	SAT
31-Dec-10	5052.57	11641.48	4633.77	9040.57
31-Dec-11	4642.27	12082.40	4144.06	8079.26
31-Dec-12	4588.05	12565.73	4807.50	6971.74
31-Dec-13	3959.62	11531.98	4877.03	5972.19
31-Dec-14	3307.87	9510.67	4014.31	5456.38
31-Dec-15	2549.34	7478.94	3198.29	4780.87
31-Dec-16	2180.20	6535.17	2443.38	4334.93
31-Dec-17	1435.43	4760.69	1891.01	3988.42
31-Dec-18	877.94	3451.66	1552.32	3772.82
31-Dec-19	795.77	2569.98	1317.78	3528.49
31-Dec-20	706.37	1686.55	1082.21	3252.54

The oil and gas production statement/36/, overall statement/37/ both dated 01/07/2020 have been provided to the verification team. CCCI checked the production data for oil and associated gas and compared them with the oil production forecast and Gas/Oil Ratio as estimated during validation in table above, and was able to confirm that the Gas-oil Ratio within this monitoring period is almost the same as per the information provided during the validation/6//38/. By checking oil and gas production statement/36/, overall statement/37/, the registered PDD/1/, the CDM validation report (page 24) /6/, CCCI was able to confirm that the technology and processing adopted by the project remain the same since the project was registered on 23/12/2012, and 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.

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

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	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.		
	Parameter	**Description**	**Presented correctly in section D.1 of the Monitoring Report?**
	$EF_{CO2,Methane}$	CO_2 emission factor for methane	CCCI confirms that this parameter was correctly derived from the applied methodology AM0009 version 06.0.0 and is accurately presented in section D.1 of the monitoring report, and applied appropriately in the emission reduction calculations.
	$EF_{EL,j,y}$	Emission factor for electricity generation for source j in year y	CCCI confirms that this parameter was correctly derived from the conservative default value for Scenario B “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” version 01, and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.
	$TDL_{j,y}$	Average technical	CCCI confirms that this parameter was

		transmission and distribution losses for providing electricity to source *j* in year y	correctly derived from the Scenario B "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" version 01, and is accurately presented in section D.1 of the monitoring report and applied appropriately in the emission reduction calculations.
Findings	No findings raised in this section.		
Conclusion	The verification team confirms that the data and parameters fixed ex ante have been sufficiently monitored and correctly listed.		

E.6.2. Data and parameters monitored

Data/parameter	Volume of the total recovered gas measured at point F in year *y* ($V_{F,y}$)
Means of verification	CCCI evaluated whether this parameter was monitored as required in the monitoring plan. **a) Equipment specification** During the teleconferencing interview, the verification team checked pictures of the equipment that had been installed to monitor this parameter. The parameter is monitored by gas flow meters (FM_{CPF}, $FM_{FW,}$ $FM_{WL,}$ $FM_{JAL,}$ FM_{SAT}) installed at point F of each location. The accuracy class is 0.04%/25/, which meets the requirements by the monitoring plan in the registered PDD. During the monitoring practice, the recorded recovered gas is automatically converted to the national standard condition, namely 101.325kpa, 25°C/30/, which follows ISO 6976, and is widely applied within Oman. **b) Measurement/reading/recording frequency** The monitoring plan requires this parameter to be continuously measured and recorded monthly. The verification team reviewed monthly records on the total recovered gas and confirmed that the measurements are in line with the monitoring plan. **c) QA/QC procedures applied** The verification team reviewed the QA/QC procedures that were applied during the monitoring period: • CDM Management and Monitoring Manual /16/; • CDM training records /17/; • Monthly record of the total recovered gas at CPF location and WL location, covering the monitoring period 01/06/2020-30/06/2020 /19//20/; • Monthly sales receipt of the total recovered gas, covering the monitoring period 01/06/2020-30/06/2020 /21/ The data are 100% transferred electronically and checked by lead operators at each location, and stored in a protected data base. Therefore, the verification team was able to confirm the following QA/QC procedures had been applied on site: • Flow meters (FM_{CPF}, $FM_{FW,}$ $FM_{WL,}$ $FM_{JAL,}$ FM_{SAT}) were correctly installed and with an appropriate accuracy; • The monitored data were double-checked with other sources and found to be consistent. **d) Cross checks** The verification team cross-checked the volume of the total recovered gas with other sources such as the monthly sales receipts during this monitoring period, and found the data to be consistent. **e) Check of information flow** The verification team checked and verified the flow of information from data generation, aggregation, to recording, calculation and reporting. The verification team was able to trace the data for this parameter from its measurement source and confirms that it is correctly reported in the monitoring report and the emissions reduction spreadsheet.
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ The monitoring has been carried out in accordance with the monitoring plan

	contained in the registered PDD. ✓ The parameter required by the monitoring plan in the registered PDD have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified by checking the whole information flow. ✓ QA/QC procedures have been applied in accordance with the monitoring plan.

Data/parameter	Average net calorific value of recovered gas at point F in year *y* ($NCV_{RG,F,y}$)
Means of verification	CCCI evaluated whether this parameter was monitored as required in the monitoring plan. The recovered gas at each location is monthly sampled, and the compositional analysis and calculation of net calorific value is conducted monthly by the on-site lab located at Safah gas plant /27/. The gas sampling is conducted as per ISO 10715:1997 Natural gas - Sampling guidelines/31/; Compositional analysis is in accordance with ISO 6974: 2012 Natural gas -- Determination of composition and associated uncertainty by gas chromatography/32/; Routine maintenance and calibration in accordance with ISO/IEC TS 17023:2013 [IAF] Conformity assessment -- Guidelines for determining the duration of management system certification audits/33/; The composition analysis instrument was calibrated appropriate as per ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories, and validity covers the monitoring period/28//35/ and ISO 6141:2015 Gas analysis — Contents of certificates for calibration gas mixtures. The verification team reviewed the monthly composition analysis reports /27/, checked the relevant standards /31//32//33/34//35/ and the calibration records /28/, 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 lead operators, and stored in a protected data base. Monthly NCV is calculated as the sum of molar fraction of each individual component in the natural gas sample multiplied by net calorific value of each individual component in the natural gas sample as referenced in ISO/DP 6976:1995 standard for a combustion reference temperature of 25°C, which is the same as that applied for parameter $V_{F,y}$. According to the monitoring plan in the registered PDD, the average NCV is calculated as the arithmetic average of NCVs for the samples taken during the monitoring period /27/. This is in line with the applied methodology AM0009 version 6.0.0. By reviewing the ER calculation sheet, and the monthly compositional analysis report of the sampled associated gas/27/, the verification team confirmed that the average NCV calculations in the spreadsheet are correct and traceable, and correctly presented in the monitoring report.
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ The monitoring results have been recorded consistently as per the approved frequency in the monitoring plan. ✓ QA/QC procedures have been applied in accordance with the monitoring plan.

Data/parameter	Quantity of electricity consumed by the project activity source j in year y ($EC_{PJ,j,y}$)
Means of verification	The verification team evaluated whether this parameter was monitored as required in the monitoring plan. **a) Equipment specification** During the teleconferencing interview, the verification team checked the equipment

	that had been installed to monitor this parameter. The verification team confirmed during the site inspections that the parameter is monitored by electricity meters (M_{CPF}, M_{FW}, M_{WL}, M_{JAL}, M_{SAT}) installed at each location. The accuracy class of electricity meters is 0.5s, which is in line with the requirements by the monitoring plan. All aspects of the installation of the meters and the monitoring procedures were found to be consistent with the monitoring plan. **b) Measurement/reading/recording frequency** The monitoring plan requires this parameter to be continuously monitored and recorded monthly. The verification team reviewed monthly electricity consumed at CPF location/22/ and WL location/23/ and confirmed that the measurements are as required by the monitoring plan. **c) QA/QC procedures applied** The verification team reviewed the QA/QC procedures that were applied during the monitoring period. QA/QC procedures conducted on site were verified via review of the following documents: • CDM Management and Monitoring Manual /16/ • CDM training records/17/ • Monthly record of the electricity consumption at CPF location and WL location, covering the monitoring period 01/06/2020-30/06/2020/22//23/ • Confirmation of monthly on-site consumed electricity covering the monitoring period 01/06/2020-30/06/2020/24/ The data are recorded monthly and checked by lead operators at each location, and stored in a protected data base. Therefore, the verification team was able to confirm the following QA/QC procedures had been applied on site: Therefore, the verification team was able to confirm the following QA/QC procedures had been applied on site: • Electricity meters were correctly installed and with an appropriate accuracy; • The monitored data were double-checked with other sources and found to be consistent **e) Cross checks** The verification team cross-checked the electricity consumed by the project activity with other sources such as Confirmation of monthly on-site consumed electricity covering the monitoring period 01/06/2020-30/06/2020/24/, and found to be consistent. **f) Check of information flow** The verification team 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. The data is also cross-checked with the Confirmation of monthly on-site consumed electricity covering the monitoring period 01/06/2020-30/06/2020 /24/ and found to be consistent. The verification team was able to trace the data for this parameter from its measurement source and confirms that it is correctly reported in the monitoring report and the emissions reduction spreadsheet.
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

	✓ The parameter required by the monitoring plan in the registered PDD have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified by checking the whole information flow.

E.6.3. Implementation of sampling plan

Means of verification	No sampling plan has been applied in the project.
Findings	N/A
Conclusion	N/A

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification

Measuring instruments

As per registered PDD/1/ and monitoring report/3/, the parameter $V_{F,y}$ is monitored by gas flow meters at each location (FM_{CPF}, FM_{FW}, FM_{WL}, FM_{JAL}, FM_{SAT}), $EC_{PJ,,j,y}$ is monitored by electricity meters at each location (M_{CPF}, M_{FW}, M_{WL}, M_{JAL}, M_{SAT}).
By site inspection, the information of the meters is summarised below:

Ref	Type	Serial number	Location	Accuracy Class
FM_{CPF}	gas flow meter	8944587	Central Production Flare	0.04%
FM_{FW}		10080142	Far West	0.04%
FM_{WL}		8635299	Wadi Latham	0.04%
FM_{JAL}		10031201	Jalal	0.04%
FM_{SAT}		8791784	Satellite	0.04%
M_{CPF}	electricity meter	P13C3830	Central Production Flare	0.5s
M_{FW}		P13C3894	Far West	0.5s
M_{WL}		P13C1273	Wadi Latham	0.5s
M_{JAL}		P13C3859	Jalal	0.5s
M_{SAT}		P13C3857	Satellite	0.5s

The verification team confirmed the accuracy class of the gas flow meters and electricity meters above is in line with the monitoring plan. All aspects of the installation of the meters and the monitoring procedures were found to be consistent with the monitoring plan in the registered PDD /1/.

Calibration

By reviewing the calibration records/25//26/, the verification team confirmed that the gas flow meters and electricity meters are calibrated as per the monitoring plan in registered PDD /1/ and the applicable standards ISO 17025 /31//32//33//34//35/. Detailed information as below:

Ref	Serial number	Accuracy Class	Date of calibration	Valid until (date)
FM_{CPF}	8944587	0.04%	10/10/2019	09/10/2020
FM_{FW}	10080142	0.04%	n/a	n/a
FM_{WL}	8635299	0.04%	10/10/2019	09/10/2020
FM_{JAL}	10031201	0.04%	n/a	n/a
FM_{SAT}	8791784	0.04%	n/a	n/a
M_{CPF}	P13C3830	0.5s	29/11/2019	28/11/2020
M_{FW}	P13C3894	0.5s	n/a	n/a
M_{WL}	P13C1273	0.5s	29/11/2019	28/11/2020
M_{JAL}	P13C3859	0.5s	n/a	n/a
M_{SAT}	P13C3857	0.5s	n/a	n/a

The calibration frequency of the chromatography gas analyser is every 6 month. During this monitoring period, the chromatography gas analyzer was calibrated on 24/10/2019 and 24/04/2020 as per ISO 17025 /28//35/.

The verification team confirms that the calibration has been undertaken at the frequency as required by the monitoring plan of the registered PDD /1/ and the applicable standards and valid throughout the monitoring period. The calibration

	has confirmed that the equipment has performed to the required level of accuracy /31//32//33//34//35/.
Findings	CL 01: The calibration information for the gas flow meters, electricity meters and chromatography gas analyzer were not provided in the MR version 01. The MR was updated to include the serial numbers, accuracy class and calibration dates for gas flow meters, electricity meters and chromatography gas analyzer. Verification team checked the calibration records to confirm the consistency. CL 01 was closed.
Conclusion	The verification team confirms that: ✓ The equipment for monitoring has an appropriate accuracy and has been controlled and operated in accordance with the monitoring plan in the registered PDD /1/. ✓ The calibration has been conducted at the frequency as specified by the methodology and the monitoring plan of the registered PDD /1/.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	As per the applied methodology AM0009 version 06.0.0, the baseline emissions are calculated as follows: $BE_y = V_{F,y} \cdot NCV_{RG,F,y} \cdot EF_{CO2,Methane}$ $V_{F,y}$ = Volume of total recovered gas measured at point F in MR in year y (Nm^3) $NCV_{RG,F,y}$ = Average net calorific value of recovered gas at point F in MR in year y (TJ/Nm^3) $EF_{CO2,Methane}$ = CO_2 emission factor for methane (tCO_2/TJ) The verification team has verified the baseline emissions by: (a) Teleconferencing interview inspection and documents review on monthly record of the total recovered gas at CPF location and WL location, covering the monitoring period 01/06/2020-30/06/2020 /19//20/, monthly compositional analysis report of the sampled associated gas at each location/27/, to verify that a complete set of data for the specified monitoring period is available. (b) Information provided in the monitoring report has been cross-checked with other sources such as the sales receipt of the total recovered gas, covering the monitoring period 01/06/2020-30/06/2020 /21/; (c) Review the calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan in the registered PDD /1/ and the methodology AM0009 Version 06.0.0 /8/; (d) Review CO_2 emission factor for methane ($EF_{CO2,Methane}$), IPCC default values, and other reference values as per the registered PDD /1/; Data for $V_{F,y}$ and $NCV_{RG,F,y}$ for the period from 01/06/2020-30/06/2020 has been verified by the verification team to confirm that the values in the spreadsheet for emission reduction calculation are consistent with those in the monthly record of the total recovered as at CPF location and WL location/22//23/, and the monthly compositional analysis report/27/, covering the monitoring period 01/06/2020-30/06/2020. Moreover, the monitored values for $V_{F,y}$ have been cross checked by the monthly sales receipt of the total recovered gas, covering the monitoring period 01/06/2020-30/06/2020 /21/, and found to be consistent. It is verified that during the monitoring period 01/06/2020-30/06/2020, the $V_{F,y}$ for CPF location is 7,423,446.327 Nm^3, and $V_{F,y}$ for WL location is 2,233,542.887 Nm^3; the $NCV_{RG,F,y}$ for CPF location is 0.00006290 TJ/Nm^3, the $NCV_{RG,F,y}$ for WL location is 0.00004122 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=(7,423,446.327 Nm^3 ×0.00006290 TJ/Nm^3+ 2,233,542.887 Nm^3 × 0.00004122 TJ/Nm^3)× 54.834 tCO_2/TJ =30,652 tCO_2e
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ A complete set of data for the monitoring period is available; ✓ Information on the baseline GHG emission calculation provided in the monitoring report has been cross-checked with other sources; ✓ Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document; ✓ Appropriate emission factor, IPCC default values and other reference values have been correctly applied.

E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	As per the applied methodology AM0009 version 06.0.0, the project emissions are calculated as follows: $PE_y = PE_{CO2,fossilfuels,y} + PE_{CO2,elec,y}$ $PE_{CO2,fossilfuels,y}$ = 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 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 year y, (tCO_2e) According to the registered PDD section B.6.1, there is no direct consumption of fossil fuels as part of the Project activity therefore: $PEy = PE_{CO2,y} = PE_{EC,y} = \Sigma_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1+TDL_{j,y})$ $EC_{PJ,j,y}$ = The quantity of electricity consumed by the project activity source j in year y (MWh/y); $EF_{EL,j,y}$ = 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 verification team has verified the baseline emissions by: (a) Teleconferencing interview inspection and documents review on monthly record of the electricity consumed at CPF location/22/ and WL location/23/, to verify that a complete set of data for the specified monitoring period is available. (b) Information provided in the monitoring report has been cross-checked with other sources such as Confirmation of monthly on-site consumed electricity covering the monitoring period 01/06/2020-30/06/2020 /24/; (c) Review the calculations of project GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan in the registered PDD/1/ and the methodology AM0009 Version 06.0.0 /8/; (d) Review the emission factor for electricity generation for source j in year y, which is derived from the Scenario B “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” version 01/13/, and other reference values as per the registered PDD/1/;

	Data for $EC_{PJ,j,y}$ for the period from 01/06/2020-30/06/2020 has been verified by the verification team to confirm that the values in the spreadsheet for emission reduction calculation/5/ are consistent with those in the monthly electricity consumption record at CPF location and WL location, the quantity of electricity consumed have been cross checked by Confirmation of monthly on-site consumed electricity covering the monitoring period 01/06/2020-30/06/2020, and found to be consistent. It is verified that during this monitoring period, the $EC_{PJ,j,y}$ is 972.8 MWh, the $EF_{EL,J,y}$ is ex-ante determined in the registered CDM-PDD, which is 1.3 tCO_2/MWh as a conservative default value for Scenario B, and the $TDL_{j,y}$ is therefore 0% as the project consumes electricity from an off-grid captive power plant. Thus, $PE_{EC,y}$ is calculated as: $PE_{EC,y}$ = 972.8 MWh × 1.3tCO_2/MWh × (1+0%) = 1,265 tCO_2 Therefore, project emissions during this monitoring period is 1,265 tCO_2
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ A complete set of data for the monitoring period is available; ✓ Information on the project GHG emission calculation provided in the monitoring report has been cross-checked with other sources; ✓ Calculations of project emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document; ✓ Appropriate emission factor, IPCC default values, GWPs and other reference values have been correctly applied.

E.8.3. Calculation of leakage GHG emissions

Means of verification	As per the applied methodology AM0009 version 06.0.0, the leakage emissions are calculated as follows: $LE_y = LE_{FC,y} + LE_{EC,y}$ $LE_{FC,y}$ = Leakage emissions due to fossil fuel consumption after point F in Figure C1-2 in MR in year y (tCO_2e) $LE_{EC,y}$ = Leakage emissions due to electricity consumption after point F in Figure C1-2 in MR in year y (tCO_2e) Due to the fact that the project does not consume fossil fuel after point F, thus $LE_{FC,y}$ =0, $LE_y=LE_{EC,y}= \sum_j EC_{LE,l,y} \times EF_{EL,l,y} \times (1+TDL_{l,y}) = \sum_j EC_{LE,l,y} \times EF_{grid,CM,y} \times (1+TDL_{l,y})$ AS per the registered PDD and applied methodology AM0009 version 06.0.0, there is no leakage emission considered, thus LE_y = 0.
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ A complete set of data for the monitoring period is available; ✓ Information on the leakage emissions calculation provided in the monitoring report has been cross-checked with other sources; ✓ Calculations of leakage emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document; ✓ Appropriate emission factor, IPCC default values and other reference values have been correctly applied.

E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The verification team has reviewed the calculation of GHG emission reductions in the MR version 02 /3/ and ER Calculation Sheet /5/ as per the registered PDD and the applied methodology. The emission reductions during the monitoring period from 01/06/2020-30/06/2020 are calculated as: $ER_y = BE_y-PE_y-LE_y$= 30,652 tCO_2e - 1,265 tCO_2e - 0 tCO_2e = 29,387 tCO_2e
Findings	No findings raised in this section.
Conclusion	The verification team confirms that: ✓ A complete set of data for the monitoring period is available; ✓ Information on the baseline GHG emission calculation provided in the monitoring report has been cross-checked with other sources; ✓ Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document; ✓ There are no assumptions in emission calculations; ✓ Appropriate emission factor, IPCC default values, GWPs and other reference values have been correctly applied.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The crediting period was changed from 01/01/2013 - 31/12/2019 to 31/12/2013 - 30/12/2020 after the project was registered. Thus, the registered PDD didn't include the information for the estimated ex ante emission reductions for year 2020. CCCI has checked VVS version 02.0/9/, PS version 02.0/10/, PCP, version 02.0/43/, and didn't find any procedures for such situation. As EB has approved the request for changing of crediting period from 01/01/2013 - 31/12/2019 to 31/12/2013 - 30/12/2020, and such change don't require to request approval by the Board as per para 129 of PCP version 02.0 /43/, the following approaches were adopted to verify the appropriateness of the ex ante emission reductions for year 2020 at the investment decision, i.e. indexing the data and reference that were available at the time of investment decision and PDD preparing, and following the same approach as per registered PDD/1/ ER sheet /42/and applied methodology AM0009 version 06.0.0 and the tools/8/ to estimate and calculate the emission reduction for year 2020. It is confirmed based on the registered PDD/1/ and validation report/6/ that the expected operational lifetime of the project activity is 10 years, the project activity was fully commissioned since 29/10/2010, and the compressors lifetime is 15 years. Therefore, the project is expected to be operated till 28/10/2020, and the project is implemented and operated normally, all physical features including technology, project equipment, and monitoring and metering equipment are in place as per the registered PDD for this monitoring period. By reviewing the registered PDD/1/ and validation report/6/, the document of statement gas and gains dated 23/12/2012/38/, 2008 expected oil production statemen/39/, verification team confirms that 2008 expected oil production (at the time of invest decision) for year 2020 is 1686.55 BOPD in WL location, and confirm it is reasonable to calculate the 2008 "ex ante" gross gas gains for year 2020 by multiplying the expected oil production with Gas/Oil Ratio (GOR) of 0.002495 as below: Gross gas gains for WL (mmscfd) = 1686.55* 0.002495=4.2079 (mmscfd) By reviewing the article of "Oxy Projects At Least 5% Annual Production Growth Through 2014"/40/, which is referred at the time of investment decision, PDD and the validation report /6/, the verification team confirms that it is appropriate to

	estimate the gross gas gains as 10.00mmscfd for year 2020 for CPF location. By reviewing revised MR version 02 and revised ER spreadsheet version 02 dated 06/08/2020, the verification team could confirm the calculation of estimation of the emission reductions for year 2020 as per 2008 expected oil production and associated gas volume is correct in sheet "2008 Estimated ER for 2020" of ER spreadsheet version 02, and have followed the same approach as per registered PDD/1/ ER sheet /42/and applied methodology AM0009 version 06.0.0 and the tools/8/. CCCI could confirm the revised MR version 02 and revised ER spreadsheet version 02 have correctly estimated the ex ante emission reductions for year 2020 to be 410,242 tCO_2e for the time of investment decision in 2008, therefore, it is reasonable to use 410,242 tCO_2e as the emission reductions for the ex ante estimation of the PDD for year 2020. The expected annual emission of year 2020 is 410,242 tCO_2e, this monitoring period is 01/06/2020-30/06/2020, totally 30 days. The corresponding estimated emission reductions during the monitoring period are 33,626tCO_2e (33,626tCO_2e = 410,242tCO_2e/366days*30days). The actual emission reductions are 29,387 tCO_2e, which is less than the estimated value in the monitoring period.
Findings	CAR 01: The comparison of actual GHG emission reductions with estimates in registered PDD was not included in the MR version 01. The crediting period was changed from 01/01/2013 - 31/12/2019 to 31/12/2013 - 30/12/2020 after the project was registered. Thus, the registered PDD didn't include the information for the estimated ex ante emission reductions for year 2020. That is the reason why the comparison of actual GHG emission reductions with estimates in registered PDD was not included in the MR version 01. By reviewing the registered PDD and validation report, revised MR version 02 and revised ER spreadsheet version 02 dated 06/08/2020, the document of statement gas and gains dated 23/12/2012/38/, 2008 expected oil production statemen/39/, the article of "Oxy Projects At Least 5% Annual Production Growth Through 2014"/40/, the verification team confirms that the emission reductions estimation for the year of 2020, the comparison of actual GHG emission reductions with estimates of the monitoring period have been correctly presented in the revised MR and ER spreadsheet. Therefore, the CAR 01 is closed.
Conclusion	The actual emission reductions are less than the estimated value in the monitoring period.

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The verified emission reductions are less than the estimated value in the monitoring period.
Findings	No findings raised in this section.
Conclusion	The verified emission reductions are less than the estimated value in the monitoring period. Thus, no remarks need to be provided in the MR.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The current monitoring period starts after 1/1/2013, no GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012.
Findings	N/A
Conclusion	N/A

E.9. Assessment of reported sustainable development co-benefits

Means of verification	Not applicable. No sustainable development co-benefits of the registered CDM project activity monitored.
Findings	N/A
Conclusion	N/A

E.10. Global stakeholder consultation

Means of verification	This is the second monitoring period, and no stakeholder consultation needed to be assessed as per the verification requirements in the VVS.
Findings	N/A
Conclusion	N/A

SECTION F. Internal quality control

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The verification report underwent an Internal Technical Review (ITR) before requesting issuance of CERs for the project activity.

The ITR is an independent process performed to examine thoroughly that the process of verification has been carried out in conformance with the requirements of the verification scheme as well as internal CCCI procedures.

The Team Leader provides a copy of the verification report to the reviewer, including any necessary verification documentation. The reviewer reviews the submitted documentation for conformance with the verification scheme. This will be a comprehensive review of all documentation generated during the verification process.

When performing an Internal Technical Review, the reviewer ensures that:

- The verification activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project which includes project implementation, monitoring report and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, closure of CARs and CLs during the verification exercise, review of sample documents.

The reviewer may raise Clarification Requests to the verification team and will discuss these matters with the Team Leader.

After the agreement of the responses to the Clarification Requests from the verification team as well as the PP(s), the finalized verification report is accepted for further processing.

SECTION G. Verification opinion

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The verification team assigned by the CCCI concludes that the CDM Project “Associated Gas Recovery and Utilization at Block 9” which is located at Block 9, Safah oil field, A’Dhahirah Region, the Sultanate of Oman. The project is operated by Occidental of Oman Inc. under a development and production sharing agreement with the Ministry of Oil and Gas. The coordinates of Safah gas processing plant are east longitude of 55°27'40" and north latitude of 23°11'20". The project includes four other locations: Far West (23°09'11"N, 55°27'03"E), Satellite (23°10'39"N, 55°29'52"E), Jalal (22°55'50"N, 55°48'16"E), and Wadi Latham (22°52'50"N, 55°48'16"E). As described in the monitoring plan contained in the registered PDD and Monitoring Report version 02, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification is conducted in line with the VVS requirements.

The Project is implemented according to selected monitoring methodology and the monitoring plan contained in the registered PDD. The monitoring equipment was installed, calibrated and maintained in a proper manner. The monitoring system is in place and the Project is generating GHG emission reductions as a CDM project.

Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CCCI confirms the following statement:

Reporting period: 01/06/2020-30/06/2020

Baseline emissions: 30,652 tCO_2e

Project emissions: 1,265 tCO_2e

Leakage emissions: 0 tCO_2e

Emission Reductions: 29,387 tCO_2e

CCCI therefore issues the positive verification opinion expressed in the Certification statement below.

SECTION H. Certification statement

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CCCI has performed the second verification of Associated Gas Recovery and Utilization at Block 9, CDM Registration Reference Number 6817, which is located at Block 9, Safah oil field, A'Dhahirah Region, the Sultanate of Oman. The project is operated by Occidental of Oman Inc. under a development and production sharing agreement with the Ministry of Oil and Gas. The coordinates of Safah gas processing plant are east longitude of 55°27'40" and north latitude of 23°11'20". The project includes four other locations: Far West (23°09'11"N, 55°27'03"E), Satellite (23°10'39"N, 55°29'52"E), Jalal (22°55'50"N, 55°48'16"E), and Wadi Latham (22°52'50"N, 55°48'16"E). The project applying methodology AM0009, "Recovery and utilization of gas from oil wells that would otherwise be flared or vented" (Version 06.0.0). The verification was performed on the basis of UNFCCC criteria for the CDM, and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification consisted of the following three phases: i) desk review of the project design, monitoring report and additional background documents; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

CCCI has verified the project Monitoring Report version 02 dated 06/08/2020 for the reporting period as indicated below. CCCI confirms that the Project is implemented as described in validated and registered project design documents. Installed equipments being essential for generating emission reductions run reliably and are calibrated appropriately. The monitoring system is in place and the Project is generating GHG emission reductions as a CDM project.

CCCI can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the Projects' GHG emissions and resulting GHG emission reductions reported and related to the validated and registered project baseline, monitoring plan and its associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CCCI confirms the following statement:

Reporting period:	01/06/2020-30/06/2020
Baseline emissions:	30,652 tCO_2e
Project emissions:	1,265 tCO_2e
Leakage emissions:	0 tCO_2e
Emission Reductions:	29,387 tCO_2e

Mr. Huang Peng
Internal Technical Reviewer
12/08/2020

Mr. Zhou Jianrong
Team Leader
12/08/2020

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
NCV	Net Calorific Value
PCP	Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention for Climate Change
VVS	CDM Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Zhou Jianrong	Team Leader	Zhou Jianrong is a GHG Auditor 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, with responsibility for mining and excavation engineering quality management, production planning and coordinating with mining and excavation engineering teams in different districts. He had gained the knowledge and experience with regards to the laws and regulations governing safety in production, rules and regulations related the coal industry & coal mining enterprises and Safety Regulations in Coal Mine. He is knowledgeable in coal production system operating processes.

Huang Peng	Technical Reviewer	Huang Peng 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. Huang Peng is able to understand the relevant tool and requirements for financial validation and verification in CDM projects.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Christophe Assico, Yin Li, Deng Ping	Registered Project Design Document version 6.0, dated 30/12/2012	https://cdm.unfccc.int/Projects/DB/BVQI1343120764.64/view	Others
2	Ms. Li Ning	Published Monitoring Report version 01, dated 01/07/2020	https://cdm.unfccc.int/Projects/DB/BVQI1343120764.64/view	Others
3	Ms. Li Ning	Revised Monitoring Report version 02, dated 06/08/2020	-	Others
4	Ms. Li Ning	Emission reduction calculation sheet with the published MR	-	Others
5	Ms. Li Ning	Revised emission reduction calculation sheet	-	Others
6	Bureau Veritas Certification	Validation Report version 03, dated 31/12/2012	https://cdm.unfccc.int/Projects/DB/BVQI1343120764.64/view	Others
7	CCCI	Verification report of 2nd monitoring period, version 02, dated 06/09/2019; 3rd monitoring period, version 02, dated 19/01/2020, 5th monitoring period, version 02, dated 05/08/2020	https://cdm.unfccc.int/Projects/DB/BVQI1343120764.64/iProcess/CCCI_DOE1562323657.45/view	Others
8	CDM EB	AM0009, "Recovery and utilization of gas from oil wells that would otherwise be flared or vented" (Version 06.0.0)	https://cdm.unfccc.int/filestorage/_/u/MXEUS2WIK1NQ36DFLBZC9G70YJRAPT.pdf/EB%2068_repan07_AM0009_ver06.0.0.pdf?t=Nnh8cHdzOWpsfDD9A8Edgsbn7_m3FGoQ6Qm0	Others
9	CDM EB	CDM validation and verification standard for project activities (VVS), version 02.0	https://cdm.unfccc.int/Reference/Standards/index.html	Others
10	CDM EB	CDM project standard for project activities (PS), version 02.0	https://cdm.unfccc.int/Reference/Standards/index.html	Others
11	CDM EB	Guideline on the application of materiality in verifications, version 02.0	https://cdm.unfccc.int/Reference/Guidclarif/index.html	Others
12	IPCC	Volume 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories	-	Others
13	CDM EB	Tool to calculate baseline, project and/or leakage emissions from electricity consumption (Version 01)	https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v1.pdf	Others
14	The government of the Sultanate of Oman Ministry of Oil & Gas and Occidental of Oman Inc.	Gas Sales and Purchase Agreement	--	Project participants
15	Occidental of Oman Inc.	Operation log of the Project	--	Others
16	Occidental of	CDM Management and Monitoring	--	Others

	Oman Inc.	Manual		
17	Occidental of Oman Inc.	CDM training records	--	Others
18	Occidental of Oman Inc.	Nameplate of the compressors	--	Others
19	Occidental of Oman Inc.	Monthly record of recovered gas at CPF location, covering the monitoring period 01/06/2020-30/06/2020	--	Others
20	Occidental of Oman Inc.	Monthly record of recovered gas at WL location, covering the monitoring period 01/06/2020-30/06/2020	--	Others
21	The government of the Sultanate of Oman	Monthly sales receipt of the total recovered gas, covering the monitoring period 01/06/2020-30/06/2020	--	Project participants
22	Occidental of Oman Inc.	Monthly record of the electricity consumed at CPF location, covering the monitoring period 01/06/2020-30/06/2020	--	Others
23	Occidental of Oman Inc.	Monthly record of the electricity consumed at WL location, covering the monitoring period 01/06/2020-30/06/2020	--	Others
24	The government of the Sultanate of Oman	Confirmation of monthly on-site consumed electricity covering the monitoring period 01/06/2020-30/06/2020	--	Project participants
25	The government of the Sultanate of Oman	Calibration records of gas meters on 10/10/2019, with validity till 09/10/2020	--	Project participants
26	The government of the Sultanate of Oman	Calibration records of electricity meters on 29/11/2019, with validity till 28/11/2020	--	Project participants
27	Occidental of Oman Inc.	Monthly composition analysis report of the sampled associated gas at each location, covering the monitoring period 01/06/2020-30/06/2020	--	Others
28	Occidental of Oman Inc.	Calibration reports for the composition analysis instrument (Clarus GC)	--	Others
29	Occidental of Oman Inc.	Commissioning report of each location	--	Others
30	Honeywell	Run meter gas status verification report	--	Others
31	International Organization for Standardization	ISO 10715:1997 Natural gas - Sampling guidelines	https://www.iso.org/standard/18803.html	Others
32	International Organization for Standardization	ISO 6974: 2012 Natural gas -- Determination of composition and associated uncertainty by gas chromatography	https://www.iso.org/standard/55839.html	Others
33	International Organization for Standardization	ISO/IEC TS 17023:2013 [IAF] Conformity assessment -- Guidelines for determining the duration of management system certification audits	https://www.iso.org/obp/ui/#iso:std:iso:10723:ed-2:v1:en	Others
34	International Organization for Standardization	ISO 6141:2015 Gas analysis — Contents of certificates for calibration gas mixtures	https://www.iso.org/obp/ui/#iso:std:iso:6141:ed-4:v1:en	Others
35	International Organization for Standardization	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories	https://www.iso.org/standard/66912.html	Others
36	Occidental of Oman Inc.	Oil and gas production statement dated 01/07/2020	--	Project participants
37	Occidental of	Overall statement dated 01/07/2020	--	Project

	Oman Inc.			participants
38	Occidental of Oman Inc.	Statement gas and gains dated 23/12/2012	--	Project participants
39	Occidental of Oman Inc.	2008 expected oil production statement dated July 2020	--	Project participants
40	Occidental Petroleum Corp.	Article of “Oxy Projects At Least 5% Annual Production Growth Through 2014”	http://www.rigzone.com/news/article.asp?a_id=93540&rss=true	others
41	Occidental of Oman Inc.	Statement to declare authenticity of all the documents/videos/photos	--	Project participants
42	Christophe Assico, Yin Li, Deng Ping	Registered ER sheet	https://cdm.unfccc.int/Projects/DB/BVQI1343120764.64/view	Others
43	CDM EB	CDM project cycle procedure for project Activities (PCP), version 02.0	https://cdm.unfccc.int/filestorage/e/x/t/extfile-20181221092024741-PC_proc03v02.pdf/PC_proc03v02.pdf?t=am18cWVqODYxfDDckCBWTBe56IFpBYGW2V15	Others

Appendix 4. Clarification requests, corrective action requests and forward action requests

This is the 6th monitoring period. No remaining FAR from validation and/or previous verification.

Table 1. CL from this verification

CL ID	CL 01	**Section no.**	E.7	**Date:** 04/08/2020
Description of CL				
The calibration information for the gas flow meters, electricity meters and chromatography gas analyzer were not provided in the MR version 01.				
Project participant response				**Date:** 06/08/2020
The updated MR version 2.0 has been revised to include the information of the serial numbers, accuracy class and calibration dates for gas flow meters, electricity meters and chromatography gas analyzer.				
Documentation provided by project participant				
MR version 2.0				
DOE assessment				**Date:** 14/08/2020
The MR was updated to include the serial numbers, accuracy class and calibration dates for gas flow meters, electricity meters and chromatography gas analyzer. Verification team checked the calibration records to confirm the consistency. CL 01 was closed.				

Table 2. CAR from this verification

CAR ID	CAR 01	**Section no.**	E.8.5	**Date:** 04/08/2020
Description of CAR				
The comparison of actual GHG emission reductions with estimates in registered PDD was not included in the MR version 01.				
Project participant response				**Date:** 06/08/2020
Since the crediting period was changed from 01/01/2013 - 31/12/2019 to 31/12/2013 - 30/12/2020, the registered PDD didn't include the information for the estimated ex ante emission reductions for year 2020. According to the registered PDD, the expected operational lifetime of the project activity is 10 years, the project activity was fully commissioned since 29/10/2020, and the compressors lifetime is 15 years. Therefore, the project is expected to be operated till 28/10/2020. The project runs smoothly following the designing of the registered PDD for this monitoring period. According to the registered PDD and validation report, the projected gross gas gains (mmscfd) for the proposed CDM project at FW, WL, JL and SAT locations were calculated through multiplying the expected oil production (BOPD) by the Gas/Oil Ratio (GOR) of 0.002495 for Block 9, as confirmed in a statement from Occidental to DOE dated 23/12/2012. As per the 2008 expected oil production statement provided by Occidental of Oman provided, which included 2008 expected oil production for year 2020, the 2008 expected oil production for WL location is 1686.55 BOPD. Therefore, the gross gas gains expected at the investment decision in 2008 is calculated as: Gross gas gains (mmscfd) 1686.55* 0.002495=4.2079; As per the registered PDD and validation report, expected gross gains at CPF were estimated based on actual gas volumes flared prior to implementation of the proposed project and the maximum gas recovery capacity installed as part of the CDM project. It was expected at validation that overall oil production at CPF is expected to continue to increase during the lifetime of the proposed CDM project rather than decline. The information of "Oxy's expected gross production in Oman from existing projects is expected to grow to between 220,000 and 240,000 BOEPD by 2014 with additional potential from existing exploration projects."[3]				

[3] http://www.rigzone.com/news/article.asp?a_id=93540&rss=true

referred at validation. Therefore, 10.00mmscfd of gross gas gain was estimated for year 2010-2019. Accordingly, 10.00mmscfd was estimated for year 2020 for CPF.

As per calculation of the ER spreadsheet following the same approach and input parameters in the PDD, ER spreadsheet for registration, and AM0009 and the applicable tools, the estimated emission reduction for year 2020 at the investment decision is 410,242 tons.

The monitoring period (01/06/2020-30/06/2020) is 30 days. Therefore, the amount estimated ex ante for this monitoring period is calculated as: 410,242*30/366=33,626 tons, which is higher than the emission reductions of 29,387 tCO_2e for this monitoring period.

Documentation provided by project participant	
The MR Version 2.0 and ER spreadsheet version 2.0.	
DOE assessment	**Date:** 14/08/2020

By reviewing the registered PDD and validation report, revised MR version 02 and revised ER spreadsheet version 02 dated 06/08/2020, the document of statement gas and gains dated 23/12/2012, 2008 expected oil production statemen, the article of “Oxy Projects At Least 5% Annual Production Growth Through 2014”, the verification team confirms that the emission reductions estimation for the year of 2020, the comparison of actual GHG emission reductions with estimates of the monitoring period have been correctly presented in the revised MR and ER spreadsheet. Therefore, the CAR 01 is closed.

Therefore, the CAR 01 is closed.

No FAR raised during this verification.

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Document information

Version	*Date*	*Description*
03.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM validation and verification standard for project activities" (CDM-EB93-A05-STAN); • Make structural and editorial improvements.
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the "CDM validation and verification standard for project activities" (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Issuance
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