REDUCING GAS LEAKAGES WITHIN THE HUDUDGAZ GAS DISTRIBUTION NETWORKS ACROSS UZBEKISTAN

Document Prepared By

Carbon Check (India) Private Ltd.

Report ID	CCIPL2447/VCS/VER/RGLHDU/20240826
Project title	Reducing Gas Leakages within the Hududgaz Gas Distribution Networks across Uzbekistan
Project ID	4531
Verification period	22-August-2023 to 15-September-2024
Original date of issue	24-October-2024
Most recent date of issue	24-February-2025
Version	04

VCS Standard Version	4.5
Client	GasGreen Asia LLC
Prepared by	Carbon Check (India) Private Ltd.
Approved by	Amit Anand, CEO
Work carried out by	Manas Halder - Team Leader Sanjay Kumar Agarwalla - Technical Expert Tarpan Ghosh - Trainee Assessor[1] Sarvar Gulyamov - Local Expert Indumathi C - Technical Reviewer R V Nesari - Technical expert to TR

[1] Worked until 16-December-2024

Summary:

- **A description of the verification of the project**

  Verification: Carbon Check (India) Private Ltd. (CCIPL) has been contracted by GasGreen Asia LLC, the project proponent, on 28/08/2024 to carry out the verification of voluntary greenhouse gas emission reductions generated by the Project, "Reducing Gas Leakages within the Hududgaz Gas Distribution Networks across Uzbekistan". The verification is based on the desk review of the Monitoring report /01/, VCS PD /B03/, supporting emission reduction calculation spread sheets /02/ and other relevant supporting documents made available to the verification team by the project proponent accompanied by on-site interviews. This verification involves the period of 22/08/2023 to 15/09/2024 (including both days).

  Project: The project is hosted by Hududgaz Gas Transmission and Distribution Company Limited (HGTDCL). The company's headquarters are based in Tashkent, Uzbekistan with the coordinates of 41.2861429ºN, 69.2332984ºE. The project leads to reductions in methane, a potent greenhouse gas (GHG). The project reduces gas leakages from components in the natural gas transmission and distribution system operated by Hududgaz Gas Transmission and Distribution Company Limited (HGTDCL) in Uzbekistan. During the present monitoring period, the project has reported a total of 55,295 leaks within the project boundary. The present monitoring period is the first monitoring period with the duration from 22-August-2023 to 15-September-2024. During the first monitoring period, the project has achieved 3,849,288 tCO_2e GHG emission reduction.

- **The purpose and scope of verification**

  Purpose: The purpose of the verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive, and presented in a concise and transparent manner. In particular, the monitoring plan, monitoring report, and the project's compliance with relevant VCS, UNFCCC, and host party criteria are verified to confirm that the project has been implemented in accordance with the previously registered design and conservative assumptions, as documented.

  Scope: The scope of the verification is:

  - To verify the project implementation and operation with respect to the registered VCS PD /B03/.
  - To verify the implemented monitoring plan with the registered VCS PD and applied baseline and monitoring methodology.
  - To verify that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan.
  - To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
  - To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate to be certified.

- **The monitoring period**

  This is the 1st monitoring period from 22-August-2023 to 15-September-2024 (including both days).

- **The method and criteria used for verification**

  (a) Desk review, involving:

  (i) Review of the data and information presented to verify their completeness.

  (ii) Review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.

  (iii) Evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

  (b) On-site assessment involving:

  (i) Assessment of the implementation and operation of the proposed VCS project activity as per the registered VCS PD

  (ii) Review of information flows for generating, aggregating, and reporting the monitoring parameters

  (iii) Interview with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan in the registered VCS PD

  (iv) A cross-check between information provided in the monitoring report and data from other sources such as inventories, purchase records, or similar data sources

  (v) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS PD/03/ and the selected methodology

  (vi) Review of calculations and assumptions made in determining the GHG data and emission reductions

  (vii) Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

- **The number of findings raised during verification**

  A risk-based approach has been followed to perform this verification. During the course of verification, a total of 14 findings were raised, which include:

  07 Corrective Action Requests (CARs);

  07 Clarification Requests (CLs);

00 Forward Action requests (FARs) was raised during validation.

All the raised findings are resolved by the PP.

- **Any uncertainties associated with the verification**

  The MR /01/, emissions reduction calculations sheet/02/ along with the supporting documents provided are considered to be in line with the VCS requirements /B01/. The verification team has detected no further uncertainties or quality restriction.

- **Summary of the verification conclusion**

  In CCIPL's opinion, the emission reductions reported for the "Reducing Gas Leakages within the Hududgaz Gas Distribution Networks across Uzbekistan" in the monitoring report (version 4, dated 12-February-2025) are fairly and correctly stated. CCIPL is therefore able to certify that the emission reductions from the project during the period 22/08/2023 to 15/09/2024 (including both days) are, 3,849,288 tCO_2e.

CONTENTS

1 INTRODUCTION 8
1.1 Objective 8
1.2 Scope and Criteria 8
1.3 Level of Assurance 9
1.4 Summary Description of the Project 10
2 VERIFICATION PROCESS 10
2.1 Method and Criteria 10
2.2 Document Review 11
2.3 Interviews 12
2.4 Site Visits 14
2.5 Resolution of Findings 16
2.6 Eligibility for Validation Activities 16
3 VALIDATION FINDINGS 16
3.1 Methodology Deviations 16
3.2 Project Description Deviations 17
3.3 New Project Activity Instances in Grouped Projects 17
3.4 Baseline Reassessment 17
4 VERIFICATION FINDINGS 17
4.1 Project Details 17
4.2 Safeguards and Stakeholder Engagement 19
4.3 Accuracy of Reduction and Removal Calculations 26
4.4 Quality of Evidence to Determine Reductions and Removals 39
4.5 Non-Permanence Risk Analysis 40
5 VERIFICATION OPINION 40
5.1 Verification Summary 40
5.2 Verification Conclusion 41
5.3 Ex-ante vs Ex-post ERR Comparison 42
APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION 44
APPENDIX 2.1: REFERENCE DOCUMENTS 44

APPENDIX 2.2: BACKGROUND REFERENCE DOCUMENTS 46

APPENDIX 3: ABBREVIATION.....47

APPENDIX 4: CERTIFICATES OF COMPETENCE 48

APPENDIX 5: CERTIFICATES OF COMPETENCE 53

1 INTRODUCTION

1.1 Objective

Carbon Check (India) Private Ltd. (CCIPL) has been contracted by GasGreen Asia LLC, the Project Proponent (PP), on 28/08/2024 to undertake the verification of the project titled "Reducing Gas Leakages within the Hududgaz Gas Distribution Networks across Uzbekistan" for the monitoring period 22/08/2023 to 15/09/2024 (including both days). Through the verification activities, it is to be confirmed that:

- The project is implemented as described in the VCS Project Description document /B03/,
- The monitoring system is implemented and fully functional to generate emission reductions without any double counting, and
- The data reported are accurate, complete, consistent, transparent, and free of material error or omission by checking the monitoring records and the emissions reductions calculation.

The verification followed the requirements of the current version of the VCS Standard Version 4.5 /B01/ and VCS Program Guide version 4.4 /B01/ to ensure the quality and consistency of the verification work and the report.

1.2 Scope and Criteria

The verification of this project is based on the monitoring report of this monitoring period /01/, registered VCS PD /B03/, ex-post emission reduction calculation spreadsheet /02/, supporting documents made available to the verifier /03/-/26/ and information collected through performing on-site interviews. Furthermore, publicly available information was considered as far as available and required.

CCIPL has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The verification is carried out on basis of the following requirements, applicable for this project activity:

- VCS Program Guide (v4.4) /B01/
- VCS Standard (v4.5) /B01/
- VCS Program Definitions (v4.4) /B01/
- Registration & Issuance Process (v4.4) /B01/
- VCS Validation and Verification Manual (v3.2) /B01/
- CDM Methodology: AM0023, Version 04 /B02/
- Other relevant rules, including the host country legislation

The scope of this verification, by independent checking of objective evidence, is as follows:

- To verify that the project is implemented as described in the registered the VCS PD.
- To assess the project's compliance with other relevant rules including the host country legislation.
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions without any double counting.
- To establish that the data reported are accurate, complete, consistent, transparent, and free of material error or omission by checking the monitoring records and the emissions reduction calculation.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- The verification shall ensure that the reported emission reductions are complete and accurate to be certified.

The method and criteria used for verification consisted of the following phases:

1. Completeness check and desk review;
2. On-site visit interviews with stakeholders;
3. Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and Verification Deeds of Representation.

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

1.3 Level of Assurance

The verification report is based on the Monitoring report /01/, registered VCS PD /B03/, supporting documents /03/-/26/ made available to the verifier, and information collected through performing interviews.

The verification has been planned and organized to achieve a:

☒ Reasonable level of assurance as per VCS Standard (v4.5)

☐ Limited level of assurance

1.4 Summary Description of the Project

This is the first monitoring report under VCS for the project which employs the CDM methodology; AM0023, Version 04 /B02/. The project aims to reduce gas leakages from components found across the entire above ground gas distribution system found in the service and franchise areas operated by Hududgaz gas distribution networks across Uzbekistan. The project reduces the leaks in the distribution system caused by normal component wear, thermal and vibrational stresses, and seasonal expansion/contraction cycling from ambient air temperature changes. The project implements advanced leak detection and repair (LDAR) procedures to identify and implement various interventions to arrest leakage and thus reduce methane emissions through various sources including, thread connections of gas pipes, broken gaskets and other broken parts of ball/plug valves, broken membranes of pressure regulators and connectors, The project proponent for the project activity is GasGreen Asia LLC, which owns the rights to VCUs /04/.

The total GHG emission reductions achieved from Project activity are 3,849,288 tCO_2e for this monitoring period 22-August-2023 to 15-September-2024 (including both days).

The project activity has been implemented as described in the VCS PD and the emission reductions are calculated conservatively as per the applied methodologies /B02/.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Key Milestones	Date
Kick off Meeting	28- August-2024
Desk Review	10-September-2024 to 24-September-2024
Onsite Visit	25-September-2024 to 27-September-2024
Opening Meeting	25-September-2024
Closing Meeting	27-September-2024
DVR Issuance	05-October-2024
Technical Review	29-October-2024 to 28-November-2024

Final Submission	03-December-2024

The verification consists of the following three phases:

1. Completeness check and desk review of the registered VCS PD, validation report, monitoring plan, monitoring report /01/, monitoring methodology, applicable tools in particular attention to the frequency of measurements, quality of metering equipment including calibration requirements, QA/QC procedures and other relevant documents.

2. On-site interviews (including follow-up interviews with project stakeholders, when deemed necessary). The on-site interviews include the following:

   - An assignment of implementation and operation of project activity with respect to validated VCS PD.

   - Review of information flows for generating, aggregating, and reporting the monitoring parameters.

   - Interview with relevant personnel to determine whether the operational and data collection procedures are implemented and in accordance with the monitoring plan of the validated VCS PD,

   - Cross check of information and data provided in the monitoring report with purchase records or similar data sources.

   - Review of assumptions made in calculating the emission reductions (if any).

   - Implementation of QA/QC procedure in-line with the registered VCS PD and methodology requirements.

3. Resolution of outstanding issues and the issuance of the final verification report along with the VCS Verification Deed of Representation.

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

- A review of the data and information presented to verify completeness and consistency in accordance with VCS standard version 4.5 requirements.

- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, quality of metering equipment including calibration requirements and QA/QC procedures.
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report (version 1, dated 09-Sepemtenber-2024) /01-a/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents /03/-/26/. The documents were reviewed by CCIPL. Through the process of the verification, the revised monitoring report (version 4, dated 12-February-2025) /01-d/ and the supporting documents were evaluated to confirm the actions taken by the PP to resolve the CARs and CLs issued by the verification team.

The list of documents referred during this verification has been provided in Appendix – 2.1.

2.3 Interviews

An on-site visit to the project activity was undertaken from 25-September-2024 to 27-September-2024 to confirm the information as outlined in the table below and to resolve issues identified in the document review. The on-site visit was conducted to assess the implementation and operation of the project activity and to review evidence, and interview key personnel to confirm evidence associated with the project design, implementation, plant operations, environmental impacts, stakeholders etc.

The key personnel interviewed, and the main topics of the interviews are summarized in the table below:

	Date	Name	Organisation	Topic	Interviewed by
/01/	25-September-2024 to 27-September-2024 -	Kevin James	GasGreen Asia LLC	• Project Design • Roles and responsibility • Project Implementation • Project start date and Project Location • Methodology applicability • Baseline Scenario • Additionality • Qualification and Training • Monitoring and reporting documentation	Manas Halder (Team Leader) Sanjay Kumar Agarwalla (Technical Expert) Sarvar Gulyamov (Local Expert)
/02/	25-September-2024 to 27-September-2024	Ruslan Badikshanov	Climate Compass LLC		
/03/	25-September-2024 to 27-	Volodymyr Potapenko	MBS Ltd		

	September-2024			• Quality Assurance – Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Compliance with relevant laws	
/04/	25-September-2024	Sangsun Ha	Ecoeye Co., Ltd	Project implementation and operation	
/05/	25-September-2024	Ha-Yeong Lee	Ecoeye Co., Ltd	Project implementation and operation	
/06/	25-September-2024	Yong Ah Lee	Ecoeye Co., Ltd	Project implementation and operation	
/07/	25-September-2024	Khadjaeva Sevara Khan	HGTDCL	Pre project / baseline scenario, Additionality, Leak maintenance under safety and emergency situations	
/08/	26-September-2024	Ismatullaev Damir	HGTDCL	Pre project / baseline scenario, Additionality, Leak maintenance under safety and emergency situations	
/09/	26-September-2024	Azimjon Karimov	HGTDCL	Work safety and security (Chief specialist)	
/10/	25-September-2024	Aziz Abdujabbarov	EcoCarbon Services	Project implementation and operation	
/11/	25-September-2024	Tatyana Primkulova	EcoCarbon Services	Project implementation and operation (Database manager)	
/12/	25-September-2024 to 26-September-2024	Islam Mamalov	EcoCarbon Services	Project implementation and operation	

/13/	25-September-2024	Yunusov Musidin	EcoCarbon Services	Project implementation and operation (Repairman)	
/14/	25-September-2024	Alibek Anorbaev	EcoCarbon Services	Project implementation and operation (Operator)	
/15/	26-September-2024	Sahobjon Tontamishev	EcoCarbon Services	Project implementation and operation (Admin worker)	
/16/	26-September-2024	Shirinov Mirkomil	EcoCarbon Services	Project implementation and operation (Operator)	

The verification team has carried out on-site interviews to assess the information included in the monitoring report and monitoring measurement procedures adopted during the monitoring period. During the desk review, the relevant monitoring records were checked.

Through the review of validation reports, comparing the relevant evidence, and interviewing with the PP's representatives through on-site visit interviews, CCIPL has confirmed that the project is implemented in line with the registered VCS PD /B03/ during the monitoring period. There is no change in the project design, operation and monitoring plan.

2.4 Site Visits

CCIPL has conducted an on-site inspection (from 25-September-2024 to 27-September-2024) to confirm all physical features of the project activity proposed in the registered PD/B03/ are in place and that the project proponent has operated and correctly monitored all parameters of the project activity as per the registered VCS PD during this monitoring period. A reasonable level of assurance has been maintained for verification as follows:

1) An assessment of the implementation and operation of the project activity as per the registered VCS PD

2) A review of information aggregating and reporting of the monitoring parameters

3) Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the MP.

4) A cross-check between product sales information provided in the MR and data from other sources.

5) A check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the registered PD /B03/ and the applied monitoring methodologies

6) A review of calculations and assumptions made in determining the GHG data and ERs, and

7) An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.

The total number of leaks identified, repaired, and then re-surveyed within the monitoring period was cross-checked by the verification team with the ER calculation spreadsheets /02/ and can be confirmed to be correct.

The verification team took note of paragraphs 26 and 27 of the CDM Sampling Standard, version 09 which states the following:

Paragraph 26: The DOE may apply a sampling approach for on-site visits and/or remote surveys as part of validation/verification, applying the "Guideline: Sampling and surveys for CDM project activities and programme of activities", irrespective of whether the above-mentioned sampling plan exists or the project participants or the coordinating/managing entity have undertaken sampling surveys.

Paragraph 27: When the project participants or the coordinating/managing entity have not applied a sampling approach, the DOE may apply a sampling approach, choosing a different confidence/precision than the ones indicated in paragraph 11 above, provided that samples are randomly selected and are representative of the population.

As it is not possible to individually verify all the reported leaks, the verification team applied a sampling approach for the on-site assessment/inspection. The verification team then randomly selected 30 sample points (samples size calculated is 25) for the on-site inspection. The detailed method/steps applied to randomly select the sample points out of the total leaks are provided below:

The verification team used an online Raosoft calculator to derive an appropriate initial number of samples for an on-site visit. The verification team has applied a 90/10 confidence/precision (assuming response distribution as 90%) and the sample size calculated is 25 and the same is conveyed to the PP in the verification audit plan. The verification team had also indicated in the verification audit plan, that during the on-site inspection if a discrepancy is identified in the selected samples, the verification team shall increase its sample size (applying the materiality concept in line with CDM VVS for project activities, version 03.0).

During the assessment of sample points, as applicable, the verification team has conducted an on-site inspection and also a plausibility check of information provided in:

(i) Hard copy protocols
(ii) Data tags fixed on-site at every surveyed leak,
(iii) Leak report files,
(iv) ER calculation spreadsheets and HFS Data Log Files.

All information of the selected sample points verified was consistent and plausible and thus no further samples were conducted by the verification team and the records of all the repaired leaks were acceptable to the verification team. The verification team carried out on-site interviews with representatives of PP to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable to the VCS.

2.5 Resolution of Findings

CCIPL, during this verification, identified issues related to the monitoring, implementation, or operation of the VCS project that could impair the capacity of the proposed VCS project to achieve project emission reductions or influence the reporting of emission reductions. CCIPL has identified and discussed these issues within the Verification report in Appendix 4.

- Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.
- Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

The verification team identified 07 CARs and 07 CLs. All CARs and CLs raised by CCIPL during this verification have been resolved by the PP.

2.5.1 Forward Action Requests

Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and/or adjustment for the next verification period. FARs do not relate to VCS requirements for issuance of ERs achieved during subject monitoring.

No FAR was raised either during CDM validation or previous verifications. CCIPL has not raised any FAR during this verification.

2.6 Eligibility for Validation Activities

The project activity falls under sectoral scope 10: Fugitive emissions from fuels (solid, oil and gas). CCIPL is accredited for validation /verification of project activities under this scope.

3 VALIDATION FINDINGS

3.1 Methodology Deviations

There is *no methodology* deviation identified during the current monitoring period.

3.2 Project Description Deviations

There is no project description deviation identified during the current monitoring period.

3.3 New Project Activity Instances in Grouped Projects

This is not a group project; hence this section is not applicable.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

4 VERIFICATION FINDINGS

4.1 Project Details

Item	Evidence gathering activities, evidence checked, and assessment conclusion:				
Audit history	**Audit Type**	**Period**	**Program**	**VVB Name**	**Number of Years**
	Validation	19-July-2024 (date of Registration)	VCS	CCIPL	10 years
	Verification	22-August-2023 – 15-September-2024 (Including both days)		CCIPL	391/365 year

Double counting and participation under other GHG programs	• The monitoring system is implemented and fully functional to generate emission reductions without any double counting. A project is not receiving or seeking credit for reductions and removals from a project activity under another GHG program. The verification team by means of document review and onsite visit interviews confirms that GHG emission reduction or removals are not in a supply chain as the producer or retailer of the impacted goods or services are not involved in the project in conformance with §3.23 of VCS Standard version 4.5 /B01/. • The project is not registered or seeking registration under any other GHG programs. • The project has not been rejected by another GHG program • It should be noted that there are some CDM projects sharing some general subareas of the Hududgaz service area using AM0023 (i.e., project 3339, 3910, 4085, 4883, 5176, and 5166). The repairs of leaky components implemented through this project that form the project boundary are demonstrably unique in their location through GPS coordinates, street address, visual markings, engineering schematics, component type, etc. and not included in any of the above-mentioned projects. The PP has kept a full set of data maintained in the database that shows all the relevant information for each of the leaks including the exact location of the leak by photo and engineering schematic, types and quantity of repair materials used, and the person responsible for the repair, etc. The VVB has visited in the field during verification some gas pressure regulation equipment included in the project boundary and confirms that they are spatially distinct in their location to be uniquely identified through address and GPS. The verification team verified the project boundary, implementation status and all relevant information on the repair of the detected physical leak via physical inspection of 30 randomly selected sample leaks and full database check of 70 randomly selected leaks during on-site visit /26/.

No double claiming with emissions trading programs or binding emission limits	• The project emission reductions and removals are not included in any emissions trading program or binding emission limit. The verification team by means of document review and onsite visit interviews confirms the same in conformance with §3.24.3 of VCS Standard version 4.5 /B01/.
No double claiming with other forms of environmental credit	• The project activity has not sought, received, or is not planning to receive credit from another GHG-related environmental credit system. The verification team by means of document review and onsite visit interviews confirms the same in conformance with §3.24.1 of VCS Standard version 4.5 /B01/.
Supply chain (scope 3) emissions double claiming	• The GHG emission reduction or removals are not in a supply chain as the producer or retailer of the impacted goods or services are not involved in the project. Therefore, the verification team by means of document review and onsite visit interviews confirms there will be no scope 3 emission double claiming for this project activity in conformance with §3.24.7 of VCS Standard version 4.5 /B01/.
Sustainable development contributions	• The project has implemented the activities that result in the SD contributions described in section 1.12 of the monitoring report.
Additional information relevant to the project	• No commercially sensitive information that has been excluded from the public versions of project documents conforms with the VCS Program.

4.2 Safeguards and Stakeholder Engagement

4.2.1 Stakeholder Identification

Stakeholder Identification	Not Applicable as the stakeholders have not changed since validation.
Legal or customary tenure/access rights	The gas equipment is wholly owned by the gas company. It is deemed acceptable to VVB by means of desk review and interview during on-site visit.

Stakeholder diversity and changes over time	A large portion of the population is connected to the gas grid involving customers of all social, economic and cultural groups. It is deemed acceptable to VVB by means of desk review interview during on-site visit.
Expected changes in well-being	The stakeholder characteristics were not expected to change in the baseline case.
Location of stakeholders	The location of stakeholders has not changed as gas system is static in relation to the customer base and no new sections of pipeline will be included in the project.
Location of resources	The gas equipment is wholly owned by the gas company and access to the system has not changed.

4.2.2 Stakeholder Consultation and Ongoing Communication

No stakeholder consultation was carried out during this monitoring period. However, section 2.2 of the registered PD /B03/ and section 3.2.2 of corresponding validation report contains local stakeholder consultation performed and its endorsement during baseline surveys.

Ongoing consultation	To undertake the baseline and monitoring activity, the teams attempt to visit every piece of above ground gas equipment included in the database return at least one time in each monitoring period. In the process of conducting the monitoring, they regularly meet the customers and neighbours near the gas equipment and explain that they are repairing and maintaining leaks. The local customers are the people most directly impacted by the work and also benefit directly from the improved service and eliminated odor and local air pollution elimination. The teams receive regular feedback from customers. In addition, the gas company maintains a customer service line and any issues that arise would be passed to the teams as needed. The PP also holds regular consultations with the gas distribution company management and key government officials. The feedback from all these sources can be summed up as “please find and repair more leaks and faster”.

Date(s) of stakeholder consultation	2-December-2022: Stakeholder consultation meeting 22-August-2023 to 15-September-2024: Ongoing communication with customers in person and ongoing reporting of results to the Uzbek Government through Hududgaz.
Communication of monitored results	No comment has been received during this monitoring period. Hududgaz gets real time updates of activities and transmits the results through regular reporting to the Uzbek Cabinet of Ministers. Customers who are present during the monitoring are notified in real-time of the results and any questions are answered by the teams at the time.
Consultation records	The formal reports from Hududgaz relayed to the government.
Stakeholder input	The input we have received from all the stakeholder is that the gas leak reductions are welcome.

4.2.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Consent	Not Applicable- The gas equipment is wholly owned by the gas company. Fixing leaks in no way disrupts IP, LCs, and customary rights holders as the system already exists and repairs are made only to the existing system
Outcome of FPIC discussion	Not Applicable- The Gas Distribution Company owns the gas distribution system. There is general agreement that repairing leaks is beneficial to the local population.

4.2.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Grievance received and steps taken to resolve the grievance including the outcomes of the resolution	No grievance registered by any stakeholders during the current monitoring period. The same is verified by verification team through the letter provided by the gas company confirming that no leaks scheduled for replacement or emergency repair were included in the emission reduction calculation spreadsheet and emergency logbook /16/.
Grievance redress procedure	If any issue raised, the customer could ask the workers in the field directly for clarification. If the response they received was not satisfactory, they could communicate any issues with the local gas company directly or to government officials. At the stakeholders meeting, the attendees were provided with direct contact information of the project managers and invited to communicate any issues at any time. Same has been checked during onsite visit by the verification team. This procedure is deemed sufficient and acceptable to the VVB.

4.2.5 Public Comments

No comments concerning this project were received so far through the project's page on the Verra Registry as part of the stakeholder consultation or outside of the public comment period. This has been confirmed from the project's page on the Verra Registry, where no comments have been uploaded in the "Other Documents" section. Also, neither the PP, nor the VVB has been notified by Verra of any comments received outside of the 30-day public comment period in accordance with para 7.3.2 of VCS Registration and Issuance Process, v4.5.

4.2.6 Risks to Local Stakeholders and the Environment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Risks to stakeholder participation	No risks identified in the project related to stakeholder participation. There were no risks to stakeholders encouraging our teams to find and fix leaks.
Working conditions	Working with natural gas and natural gas systems has risks if workers are not properly trained and equipped with needed safety gear.

	Only staff deemed qualified as confirmed by Hududgaz were invited to apply for a position in the project. Those workers chosen were given appropriate safety gear and training.
Safety of women and girls	No risks identified in the project related to safety of women and girls. No unique dangers were posed to woman and girls from fixing leaks
Safety of minority and marginalized groups, including children	No risks identified in the project related to safety of minority and marginalized groups, including children. No unique dangers were posed to woman and girls from fixing leaks
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	No risks identified in the project related to pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials) generated due to operation of project. Fixing leaks does not lead to any pollutants and instead eliminates the emission of natural gas.

4.2.7 Respect for Human Rights and Equity

4.2.7.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination and sexual harassment	VVB confirmed there is no discrimination or sexual harassment were received during the monitoring period in project location by means of onsite inspection interview .
Management experience	The lead project implementor has nearly 20 years of experience implementing similar projects.
Gender equity in labor and work	Key senior managers in the project are women including the project manager. The pay scale is based on position and years of experience and has no relation to gender. VVB confirms the same by means of onsite inspection interview.
Human trafficking,	Each worker is a certified and trained expert in gas systems that sought out the employment opportunity and can leave the project at any time. No

forced labor, and child labor	children are employed in the project. VVB confirms by means of onsite inspection interview.

4.2.7.2 Human Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Human rights	The project which finds and repairs leaks in an existing gas distribution system no direct impact on rights of IPs, LCs, or customary rights holders. The project has tried to fix leak in all areas of the country to everyone's benefit. VVB confirms the same by means of onsite inspection interview.

4.2.7.3 Indigenous Peoples and Cultural Heritage

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Preservation and protection of cultural heritage	The project continues to preserve and protect cultural heritage as part of project activities. The project is designed to ensure all workers are able to celebrate critical cultural and religious events in order to help maintain and preserve their connection to their cultural heritage. VVB confirms that the cultural heritage has been preserved and protected in the project boundary by means of onsite inspection interview.

4.2.7.4 Property Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Disputes over rights to territories and resources	N/A

Respect for property rights	N/A The project repairs leaks in equipment wholly owned by the gas distribution company.

4.2.7.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Summary of the benefit sharing plan	There is no impact on property rights from this project.
Benefit sharing during the monitoring period	There are no adversely affected local stakeholders. Everyone benefits from reduced gas leaks. VVB has confirmed during the onsite visit inspection and deemed acceptable.

4.2.8 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	Reducing gas leaks on an existing gas distribution system has only a beneficial impact on ecosystems. Therefore, VVB confirms that there is no impact on biodiversity and ecosystems by the project activity by means of onsite inspection and interview.
Soil degradation and soil erosion	Reducing gas leaks on an existing gas distribution system has only a beneficial impact on ecosystems. Therefore, VVB confirms that the project activity does not cause soil degradation or soil erosion by means of onsite inspection and interview.
Water consumption and stress	Reducing gas leaks on an existing gas distribution system has only a beneficial impact on ecosystems. Therefore, VVB confirms that there is no impact on water consumption and stress by the project activity by means of onsite inspection and interview.

Usage of fertilizers	Reducing gas leaks on an existing gas distribution system has only a beneficial impact on ecosystems. Therefore, VVB confirms that the project activity does not involve usage of fertilizers by means of onsite inspection and interview.

4.2.8.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species or habitat	The project does not intrude on the habitat of species. VVB confirms the same by means of onsite inspection and interview.

4.2.8.2 Introduction of Species

Not Applicable as this is a project with no planting or species introduction

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
N/A	N/A

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
N/A	N/A

4.2.8.3 Ecosystem conversion

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	Not applicable as the project does not affect existing ecosystems.

4.3 Accuracy of Reduction and Removal Calculations

The equations and choices provided in the methodology and all other methodological tools are correctly quoted in the MR /01/. The verification team checked the Emission Reduction calculation sheet /02/ and confirms that the equations used have been correctly applied and as per the selected methodology AM0023, version 04, "Leak detection and repair in gas production, processing, transmission, storage and distribution systems and in refinery facilities"/B02/. The verification team has reviewed the emission reduction spreadsheets (ER sheets) and checked all the formulae and found they are correct and are in accordance with the monitoring plan of the registered PD and the applied monitoring methodology.

Baseline emissions:

The baseline leak flow rate (FCH_4) is measured using a HiFlow Sampler or Leak Measurement Device (LMD) and converted from litres of CH_4 / minute to m^3 CH_4 / h (ConvFactor) for each leak included in the baseline (j). Any reappeared leakage found during the subsequent monitoring is measured using the HiFlow Sampler or LMD in the same way and subtracted from the initial measurement. The calculated uncertainty (UR) of the measurement using the guidelines in the methodology is deducted from this leak rate to ensure a conservative result. This conservative leak rate value for each leak during the monitoring period is then multiplied by the hours of operation (t) of the same leak between the baseline measurement and the monitoring measurement taking into account any temporary shutoffs of the equipment. Finally, the number of tonnes of CO_2e emission reductions generated in the monitoring period by each leak is calculated using the GWP of methane. The values for all the leaks monitored are then added together to get the ER amount. The calculations are found in more detail in the ER calculation spreadsheet provided.

The baseline emissions are calculated as follows:

$$BE_y = \min\left\{ BE_1, ConvFactor \times \sum_j \left[F_{CH4,j} \times T_{j,y} \times \left(1 - UR_j\right)\right] \times GWP_{CH4} \right\}$$

With,

$$BE_1 = ConvFactor \times \sum_j \left[F_{CH4,j} \times T_{j,y=1} \times \left(1 - UR_j\right)\right] \times GWP_{CH4}$$

Where:

BE_1	=	Baseline emissions for the first crediting year of the crediting period (tCO_2e).
BE_y	=	Baseline emissions for crediting year *y* (tCO_2e)

ConvFactor	=	Conversion factor to convert Nm^3 CH_4 into tCH_4. The Hi-Flow sampler automatically accounts for standard temperature and pressure in data readings; as such this factor amounts to 0.0007168tCH_4/Nm^3 CH_4 (i.e., 0 degree Celsius and 101.3 kPa).
j	=	All physical leaks that are included in the project activity for which physical leaks were detected and repaired and which would leak in the baseline scenario during the crediting year *y*.
$F_{CH4,j}$	=	Measured flow rate of methane for the physical leak *j* from the leaking component (Nm^3 CH_4/h)
UR_j	=	Uncertainty range for the flow rate measurement method applied to physical leak *j*. The uncertainty of the measurement is taken into account by using the flow rate at the lower end of the uncertainty range for the measurement at a 95% confidence interval for baseline emissions from leaks
$T_{j,y}$	=	The time the relevant component, in which physical leak *j* occurred, would leak in the baseline scenario and would be eligible for crediting during the crediting year *y* (hours)
GWP_{CH4}	=	The global warming potential for methane valid for the commitment period (tCO_2e/tCH_4). After the commitment period, this value may be revised based on any decision by the CMP.

Uncertainty is calculated using the following formula:

$$UR_j = \frac{\sqrt{(UR_1 * x_1)^2 + (UR_2 * x_2)^2 + \ldots + (UR_n * x_n)^2}}{x_1 + x_2 + \ldots + x_n}$$

Where:

UR_j = the percentage uncertainty in the sum of the quantities (half the 95% confidence interval divided by the total (i.e. mean) and expressed as a percentage);

x_n and UR_n = the uncertain quantities and the percentage uncertainties associated with them, respectively.

(Note: “n” in this case refers to each recorded leak rate of each component surveyed)

Project emissions:

It is assumed that the leak resumed on the day when the leak was last checked and confirmed not to leak and that it continued to leak for the entire time since that date. Any new leaks or leaks that reappear are immediately repaired. For this reason and the fact that finding and repairing gas leaks does not create emissions, PP assumed that there are no project emissions and has not calculated it.

Leakage emissions:

As per the applied methodology AM0023, version 04 /B02/ no leakage effects are accounted for. Thus, there will be no leakage emissions from the project activity.

According to the applied methodology, the emission reductions are calculated as:

ER_y = 3,849,288 tCO_2e

The verification team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence, and calculations are done in accordance with the pre-defined formulae from registered PD /B03/. As the measuring instruments directly read out the amount of methane leakage rate per unit time, the "sample gas methane concentration" and "ambient air methane concentration" parameters are rendered redundant in the calculation of ER. The total number of emission reductions achieved during the monitoring period is 3,849,288 tCO_2e.

Emission reductions have been calculated in accordance with the applied methodology AM0023, version 04 /B02/, registered VCS PD /B03/. The PP has used monitored data and ex-ante fixed data including default values as mandated/permitted by the applied methodology. The values used for the calculation of GHG emission reductions have been thoroughly checked by the verification team and were found appropriate and correct.

<u>Parameters determined ex-ante:</u>

Parameter	Unit	Value	Assessment
GWP_{CH4}	tCO_2e/ t_{CH4}	28	Fixed ex-ante in the PDD from the 5th Assessment Report of the IPCC.
ConvFactor	tCH_4/ Nm3 CH_4	0.0007168	The value of the parameter is fixed ex-ante in the PDD. As per the methodology, the leak flow rate (FCH_4,j) and

			conversion factor (ConvFactor) should be reduced to the same reference conditions. The verification team has checked that the Hi-Flow Samplers automatically account for standard temperature and pressure (i.e., 0 degree Celsius and 101.3 kPa) in its leak flow rate measurements.

The spreadsheet submitted by the PP clearly and transparently mentions values of the data parameters used for calculation of emission reductions. The input values have been verified from reliable and authentic sources including monitoring records, Monitoring Report /01/, and applied methodology /B02/. The emission reductions calculated were compared with the emission reduction spread sheet /02/ and found to be correct.

The details of monitoring parameters used for calculation of emission reductions are provided below:

<u>Parameters monitored ex-post:</u>

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (As in monitoring plan of VCS PD):	The time the relevant component, in which physical leak j, occurred, would leak in the baseline scenario and would be eligible for crediting during the crediting year y (hours) (Tj,y)
Measuring frequency/Time Interval:	The measuring is ongoing throughout the monitoring period and the final value calculated at the end of the monitoring period.
Reporting frequency:	
Reported value:	Multiple Values for each leak 'j' (Please refer to the ER Calculation spread sheets for each leak including shut offs where applicable) /02/
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	This is a calculated parameter. Not applicable
Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD does not	NA

specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA.
Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross- checked with other available data?	The reported data on the hours of operation, during which each leak is venting gas was verified by examination of the formula for the calculation of hours between each corresponding date of leak flow measurement in ER calculation spreadsheet /02/. It can be confirmed that the final calculation of hours of operation, during which each leak is venting gas was done in the correct manner in line with procedures defined in PD, and the hours of shut offs where the leaks ceased to operate were appropriately subtracted from the total amount of hours of operation. During the desk review of the leak reports and on-site surveys for the sampled leaks, the verification team has come to the conclusion that all the leak repairs were made with advanced repair material, as specified in PD. It can be confirmed that there have been no hours of operation calculated for the equipment replaced for a non-leak related reason (i.e., when it breaks down), or when replacement of the equipment is made.
How were the values in the monitoring report verified?	The values were verified with the ER spreadsheets. The recording of hours has been verified from the complete data for each leak j, in the baseline scenario and also from the shutdown records.
Does the data management (from data generation to emission reduction calculation)	Yes, the data management ensures the correct transfer of data and reporting of emission reductions, and all necessary QA/QC processes are in place.

ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB	
Data / Parameter: (as in monitoring plan of VCS PD):	Temperature and pressure of natural gas (°C and bar)	
Measuring frequency/Time Interval:	As and when a leak is measured using HFS	
Reporting frequency:		
Reported value:	The Hi-Flow™ Sampler automatically adjusts readings to standard temperature and pressure (0°C and 101.3 kPa) and is integrated into the results from the Hi-Flow sampler device /19/. The verification team confirms that the values are automatically corrected in accordance with the HFS manual. This is in line with the monitoring plan in PD /B03/ and monitoring methodology /B02/.	
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes	
Details of monitoring equipment:	**Instrument Name**	Hi-Flow Sampler
	Manufacturer	Heath Consultants
	Serial Numbers	PV1006, PV1008, PW1002, PW1003, PW1004, PW1005,

		PW1006, PW1007, QR1003, QR1004, QR1006, QR1007, QR1008, QR1011, QR1012, QR1012, QR1014, QR1015, QR1016, QR1017, QR1018, QR1019, QR1021, QR1022, QR1023, QR1025, QR1026, QR1029, RR1006, RR1007, RR1009, RR1016, RR1017, RR1026, RR1031, RR1032, RR1033,QR1020, RR1010, RR1030, RR1000,RR1000
	Accuracy Class	+/-10%
Is the accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes	
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	Every 30 days while in use	
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes	
Company performing the calibration(internal or external calibration):	Calibration of the HFS was done internally by the trained personnel by MBS /18/ /23/. The competence of the calibrating persons could be confirmed during the on-site interviews by the verification team including a live demonstration of the same.	
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes	
Is (are) calibration(s) valid for the whole reporting period?	Yes	
If applicable, has the reported data been cross- checked with other available data?	-	
How were the values in the monitoring report	-	

verified?	
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	-
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter:(as in monitoring plan of VCS PD):	The uncertainty range for the measurement method applied to leak j (UR_j)
Measuring frequency/Time Interval:	As and when a leak is measured using HFS
Reporting frequency:	Weekly, accumulated to monthly records
Reported value:	Multiple Values for each leak "j" (Pl refer to the ER spread sheet for each leak)
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	The Urj is calculated using leakage flow rates and the respective UR of the Hi-Flow sampler used for the leak. Leaks are measured using the Hi-Flow samplers. The readings as per the operator's manual are ±10% accurate /17/. Having applied uncertainty values of 10% for each individual HFC measurement undertaken (as given as "accuracy of calculated leak rate" in the HFS manual /17/), a total uncertainty of 0.00098671 had been calculated correctly by the PP based on 2000 IPCC Good Practice Guidance. The calculation procedure is given as separate sheets attached to the VCU calculation spreadsheets /02/ which have been checked and found to be correct by the verification team.
Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD does not	Yes

specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	Every 30 days while in use
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes
Company performing the calibration(internal or external calibration):	Calibration of the HFS was done internally by the trained personnel of PSL by MBS /18/ /23/. The competence of the calibrating persons could be confirmed during the on-site interviews by the verification team including a live demonstration of the same.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is (are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross- checked with other available data?	The reported data was verified by examination of the formula for the calculation in ER calculation spreadsheet /02/.
How were the values in the monitoring report verified?	The uncertainty data is calculated using leakage flow rates and the respective UR of the Hi-Flow sampler used for the leak. The uncertainty calculations are included in the VCU calculations spreadsheet and the same has been checked by the audit team for all the leaks.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC processes are in place.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in	NA

accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VCS PD):	The leak flow rate of methane for leak (j, z) from the leaking component $F_{CH4,j}$ / $F_{CH4,z}$
Measuring frequency/Time Interval:	As per the applied methodology and the registered PD, it is to be monitored annually. This monitoring period is of one year, and this parameter has been measured once during the monitoring period
Reporting frequency:	
Reported value:	Multiple Values for each leak 'j' and 'z' (Please refer to the ER spread sheet for each leak /02/)
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	

Instrument Name	Hi-Flow Sampler
Manufacturer	Heath Consultants
Serial Numbers	PV1006, PV1008, PW1002, PW1003, PW1004, PW1005, PW1006, PW1007, QR1003, QR1004, QR1006, QR1007, QR1008, QR1011, QR1012, QR1012, QR1014, QR1015, QR1016, QR1017, QR1018, QR1019, QR1021, QR1022, QR1023, QR1025, QR1026, QR1029, RR1006, RR1007, RR1009, RR1016, RR1017, RR1026, RR1031, RR1032, RR1033,QR1020, RR1010, RR1030, RR1000,RR1000
Accuracy Class	+/-10%

Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	Every 30 days while in use
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes
Company performing the calibration(internal or external calibration):	Calibration of the HFS was done internally by the trained personnel by MBS. The competence of the calibrating persons could be confirmed during the on-site interviews by the verification team including a live demonstration of the same.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is (are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross- checked with other available data?	Yes, the value of the parameter has been cross-checked with the Hi-Flow sampler readings records for the baseline study period and also during the monitoring
How were the values in the monitoring report verified?	The values were verified with the raw data sheet and calculations in the ER spreadsheets. Measurements with Hi-Flow™ Sampler are automatically adjusted to the methane content, temperature, and pressure and, thus, will directly yield methane leak flow rates. The audit team has verified the leak flow rate of methane for leaks j and z from the complete data for the leaks.
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures the correct transfer of data and reporting of emission reductions, and all necessary QA/QC processes are in place.
In case only partial data are available	NA

because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of VCS PD):	Capped quantity of the baseline emissions, defined as the expected baseline emissions for the first full year of the crediting period (BE_{CAP})
Measuring frequency/Time Interval:	Monitored baseline emissions during the first year of the first crediting period
Reporting frequency:	Once during baseline and calculated. Calculated after the baseline leak detection and repair period is completed
Reported value:	7,957,326 per year (8,026,221 for 391 days)
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Details of monitoring equipment:	NA
Is accuracy of the monitoring equipment as stated in the VCS PD? If the VCS PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the VCS PD? If the VCS PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA

Company performing the calibration(internal or external calibration):	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
If applicable, has the reported data been cross- checked with other available data?	NA
How were the values in the monitoring report verified?	The values were verified in the ER spreadsheets /02/

The verification team has checked and confirmed the calculations in the spreadsheet and found them to be accurate. The monitoring report is supported by the emission reduction spreadsheet. The consistency and formula were verified and found to be accurate.

Also, it is noted that any new leaks or leaks that reappear are immediately repaired. For this reason and the fact that finding and repairing gas leaks does not create emissions, PP assumed that there are no project emissions and has not calculated it, which is deemed reasonable and acceptable, since a search of all the reappeared leaks in the database shows that leak repairs were done immediately to all reappeared leaks in the database, and all additional leaks found on the same component after the completion of the baseline period are also repaired on the same day they were identified.

4.4 Quality of Evidence to Determine Reductions and Removals

When verifying the report emission reduction, CCIPL ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown above.

When assessing the audit trails, CCIPL also examined:

1. Whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. The source and nature of the evidence
3. If comparable information was available from sources other than that used in the monitoring report, CCIPL cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix 2 below.

The verification team confirms that all the monitoring equipment has been provided to adhere to the monitoring requirement as specified in the project activity as per the registered monitoring plan.

All Hi-Flow Samplers and Gasurveyors are calibrated to ensure accuracy in their measurements. The calibration is done as per the PD at a 30-day and one-year frequency for HFS and GS respectively by certified and trained staff on the calibration procedure /18/ /23/. The verification team confirms that HFS and GS used for monitoring leaks were duly calibrated at the time of their usage for the current monitoring period. The Verification team checked the calibration records and the same was found to be satisfactory /20/.

CCIPL also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology.

Proper data management inclusive of data acquisition and aggregation, data management system is being followed for the project activity.

The monitoring personnel at site are well trained and follow reproducible routines. Thus, they are competent to carry out the relevant tasks with sufficient accuracy.

4.5 Non-Permanence Risk Analysis

The project activity was operational throughout the monitoring period. Hence there is no further requirement for the non-performance analysis rating during the monitoring period of the project activity.

5 VERIFICATION OPINION

5.1 Verification Summary

The Project Proponent, GasGreen Asia LLC has commissioned the VVB, Carbon Check (India) Private Ltd. to perform a verification of the VCS Project Activity “Reducing Gas Leakages within the Hududgaz Gas Distribution Networks across Uzbekistan”. This report summarises the findings of the verification of the project, performed based on VCS criteria, as well as criteria given to provide for consistent project operations, monitoring, and reporting.

The verification process was performed on the basis of all guidance and criteria as provided in VCS Standard version 4.5 /B01-a/, VCS Program Guide version 4.4 /B01-b/, VCS Validation and Verification Manual version 3.2 /B01-c/ and Registration & Issuance Process version 4.4 /B01-d/.

The selected baseline and monitoring methodology AM0023, Version 04 /B02/ is applicable to the project and correctly applied.

The verification team confirm that the project has been implemented in accordance with the project description.

Verification period: From 22-August-2023 to 15-September-2024 (including both days)

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year:

Vintage period	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage emissions (tCO_2e)	Reduction VCUs (tCO_2e)	Removal VCUs (tCO_2e)	Total VCUs (tCO_2e)
22-Aug-2023 to 31-Dec-2023	275,254	0	0	275,254	-	275,254
01-Jan-2024 to 15-Sep-2024	3,574,034	0	0	3,574,034	-	3,574,034
Total	**3,849,288**	**0**	**0**	**3,849,288**	**-**	**3,849,288**

The verification team is of the opinion that the project has been implemented in accordance with the registered project description, the monitoring plan complies with the approved monitoring methodology. Monitoring was carried out in accordance with the monitoring plan, and that the monitored data and ER calculations were assessed and confirmed to be correct.

5.2 Verification Conclusion

Carbon Check (India) Private Ltd concludes the verification with a positive opinion that the VCS Project Activity “Reducing Gas Leakages within the Hududgaz Gas Distribution Networks across Uzbekistan” as described in the VCS MR, meets all the applicable VCS requirements, including those specified in the Project Standard, relevant methodology, tools and guidelines.

The selected baseline and monitoring methodology (AM0023, version 04: "Leak detection and repair in gas production, processing, transmission, storage and distribution systems and in refinery facilities") is applicable to the project and correctly applied. VVB confirms that the project has been implemented in accordance with the Monitoring report.

Verification period: From 22-August-2023 to 15-September-2024 (including both days)

Verified GHG emission reductions and carbon dioxide removals in the above verification period:

For projects that are not required to assess permanence risk, use the following table:

Vintage period	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage emissions (tCO_2e)	Reduction VCUs (tCO_2e)	Removal VCUs (tCO_2e)	Total VCUs (tCO_2e)
22-Aug-2023 to 31-Dec-2023	275,254	0	0	275,254	-	275,254
01-Jan-2024 to 15-Sep-2024	3,574,034	0	0	3,574,034	-	3,574,034
Total	**3,849,288**	**0**	**0**	**3,849,288**	**-**	**3,849,288**

5.3 Ex-ante vs Ex-post ERR Comparison

Vintage period	*Ex-ante estimated reductions/ removals*	*Achieved reductions/ removals*	*Percent difference*	*Explanation for the difference*
22-Aug-2023 to 31-Dec-2023	1,399,842	275,254	80%	The project baseline study and the teams took longer than expected to ramp up to working at the expected rates. As the teams gained experience, they eventually exceeded the expected leak reduction through repairs.

01-Jan-2024 to 15-Sep-2024	*(259/366 *5,270,617=)* 3,729,754	3,574,034	4%	The project baseline study and the teams took longer than expected to ramp up to working at the expected rates. As the teams gained experience, they eventually met and even exceeded the expected leak reduction through repairs.
Total	5,129,596	3,849,288	25%	The project baseline study and the teams took longer than expected to ramp up to working at the expected rates. As the teams gained experience, they eventually met and then exceeded the expected leak reduction through repairs.

The verification team is of the opinion that the project has been implemented in accordance with the registered project description, the monitoring plan complies with the approved monitoring methodology, the monitoring complies with the monitoring plan, and the monitored data and calculation of ERs are assessed and confirmed as correct.

Therefore, CCIPL hereby certifies and requests the issuance of, the reported ERs during the monitoring period of 22/08/2023 to 15/09/2024 amounting to 3,849,288 tCO_2e to the VCS registry.

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

No commercially sensitive information is identified.

APPENDIX 2.1: REFERENCE DOCUMENTS

Sr.no	Document
/01/	a. Monitoring Report version 1 dated 09-September-2024.
	b. Monitoring Report version 2 dated 05-October-2024.
	c. Monitoring Report version 3 dated 18-November-2024.
	d. Monitoring Report version 4 dated 12-February-2025.
/02/	Ex-post emission reduction calculation spreadsheet corresponding to /01-a/
	Ex-post emission reduction calculation spreadsheet corresponding to /01-b/
	Ex-post emission reduction calculation spreadsheet corresponding to /01-c/
/03/	Evidence for project start date (22/08/2023) - start date of baseline study
/04/	Proof of project ownership complying with section 3.7.1 of VCS Standard version 4.5 (agreement between GasGreen Asia LLC, Hududgaz Gas Transmission & Distribution Co. Ltd, EcoCarbon Service, Climate Compass, MBS, Ecoeye)
/05/	Evidence for legal status of the project proponent, GasGreen Asia LLC dated 07/03/2023
/06/	Declaration regarding operational rights for MBS dated 17/09/2024
/07/	Map – Transmission and distribution pipeline of HGTDCL
/08/	Gas leak project agreement between HGTDCL and GasGreen Asia LLC dated 07/03/2023
/09/	Organization structure for the project activity
/10/	The feasibility study report of the project dated 23/06/2023
/11/	Declaration from HGTDCL for the applicability conditions of the methodology AM0023, version 04 - During the last three years prior to the implementation of the project activity, no advanced LDAR program was in place to address physical leakage from components that are included in the project boundary. - New physical leaks that are detected at components during the crediting period (e.g., not at the time the project starts) are accountable only if the components were included in the project boundary at the validation of the project activity. - Physical leaks that are detected and repaired under a conventional LDAR program are not covered in the project activity. - Physical leaks that can be repaired by tightening/re-greasing or by similar measures are not covered in the project activity.

	Physical leaks that are identified on components where the latest scheduled maintenance or replacement was not done before the starting date of project activity as documented through maintenance logs, maintenance schedules, maintenance guidelines, worker logbooks, or other similar sources.
/12/	Summary report from MBS for the project monitoring including inspection visits and baseline study database and monitoring database dated 17/09/2024
/13/	Letter regarding the lifetime of the repair materials used in the leak repairs dated 17/09/2024
/14/	Log of the materials used for leakage repairing using advanced LDAR
/15/	Detailed log sheets of all leaks with leak code, photographs, and GPS coordinates the leaks detected, measurements were done following with repairs carried out (along with all relevant details as stated under bullet points 1 to 11 under step 2 in section B.6.1 of the PDD: like along with the records of the downloaded data taken from the memory of HFS photographs, tags, handwritten records with raw data, etc.)
/16/	- Letter provided by the gas company confirming that no leaks scheduled for replacement or emergency repair were included in the emission reduction calculation spreadsheet - Emergency logbook.
/17/	Technical specifications and manuals for the Hi-Flow Samplers and GMI Gas surveyor (500 Series) and Photographs of the HFS and GS used during the monitoring period
/18/	Letter for confirming skills to perform the calibration of HFS and GS
/19/	Evidence to confirm the Hi-Flow Sampler automatically accounts for standard temperature and pressure (i.e., 0 degrees Celsius and 101.3 kPa) in its leak flow rate (FCH_4,j) measurements dated 24/05/2023
/20/	Calibration records for all the Hi-Flow Sampler and GS used during the monitoring period
/21/	Statutory Documents: - Natural Gas Safety and Security Law - -Uzbekistan Gas Safety Rules
/22/	Letter from HGTDCL confirming no system outages in gas supply during the monitoring period
/23/	Training-related letters and certificates for competence of the personnel involved in the monitoring
/24/	Letter for demonstrating number of employments generated by the project
/25/	Declaration from GasGreen Asia LLC dated 23/10/2024 stating: - This project is not claiming carbon credits under any other programme. - This Project is not covered under any other trading programs or binding limits and does not receive any other forms of environmental credits.
/26/	Leak details (baseline and monitoring database) of 30 randomly selected leaks for physical inspection and 70 randomly selected leaks for database check.

APPENDIX 2.2: BACKGROUND REFERENCE DOCUMENTS

	Document
/B01/	VCS Requirements: a. VCS Standard (v4.5) b. VCS Program Guide (v4.4) c. VCS Validation and Verification Manual (v3.2) d. Registration and Issuance Process (v4.4) e. VCS Program Definitions (v4.5) f. VCS Monitoring Report Template (v4.3) g. VCS Verification Report Template (v4.3)
/B02/	Applied baseline and monitoring methodology. AM0023, version 04, "Leak detection and repair in gas production, processing, transmission, storage and distribution systems and in refinery facilities"
/B03/	Registered PD for VCS project "Reducing Gas Leakages within the Hududgaz Gas Distribution Networks across Uzbekistan" v4.0, dated 11-July-2024 and the corresponding Validation Report v5, dated 16-July-2024.
/B04/	"Standard for sampling and surveys for CDM project activities and programme of activities" (version 09.0) Guidelines for sampling and surveys for CDM project activities and Programme of Activities (version 04)
/B05/	Website and links: http://cdm.unfccc.int http://www.verra.org

APPENDIX 3: ABBREVIATION

BE	Baseline Emission
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DVR	Draft Verification Report
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FVR	Final verification Report
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
NA	Not Applicable
OSV	On Site Visit
PA	Project Activity
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
VVB	Validation/Verification Body
VVS	Validation and Verification Standard

APPENDIX 4: CERTIFICATES OF COMPETENCE

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Manas Halder

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), A 6.4 AS (V1.0) ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ Validator	☒ Verifier	☒ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Validator/Verifier (Trainee)	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☐ SDG Expert	☐ Expert Social aspect	☐ Expert Environment aspect	☐ Health Expert
☒ Regional Expert for India and Bangladesh			

in the following Technical Areas:

☐ TA 1.1	☒ TA 1.2	☐ TA 2.1	☒ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☒ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

20th January 2025

Expiry Date

19th January 2026

Mr. Vikash Kumar Singh
Director-Compliance

Revision History of the document:

Revision date	Summary of changes
Dec 2023[1]	Change in the template due to revision in TA and function
April 2024	Revision due to A6.4 implementation
Jan 2025	Revised as per the latest organogram

CCIPL_FM 7.9 Certificate of Competency_V7.0_17012025

[1] Please refer to previous version of FM 7.9 for the revision history

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Sanjay Kumar Agarwalla

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), A 6.4 AS (V1.0) ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ **Validator**	☒ **Verifier**	☒ **Team Leader**	☒ **Technical Expert**
☒ **Technical Reviewer**	☐ **Validator/Verifier (Trainee)**	☐ **Gender Expert**	☐ **Plastic Waste Expert**
☐ **CCB Expert**	☐ **Legal Expert**	☒ **Financial Expert**	☐ **Environmental, Health and Safety financial matters**
☒ **SDG Expert**	☒ **Expert Social aspect**	☒ **Expert Environment aspect**	☐ **Health Expert**
☒ **Regional Expert for India and Bangladesh**			

in the following Technical Areas:

☒ **TA 1.1**	☒ **TA 1.2**	☒ **TA 2.1**	☒ **TA 3.1**	☒ **TA 4.1**
☐ **TA 4. n**	☒ **TA 5.1**	☒ **TA 5.2**	☒ **TA 7.1**	☐ **TA 8.1**
☒ **TA 9.1**	☒ **TA 9.2**	☒ **TA 10.1**	☒ **TA 13.1**	☒ **TA 13.2**
☐ **TA 14.1**	☐ **TA 15.1**	☒ **TA 16.1**		

Issue Date

20th January 2025

Expiry Date

19th January 2026

Mr. Vikash Kumar Singh
Director - Compliance

Revision History of the document:

Revision	Summary of changes
Dec 2023[1]	Change in template due to revision in TA and function
April 2024	Revision due to A6.4 implementation
Jan 2025	Revision due to update in the organization structure and annual revision

CCIPL_FM 7.9 Certificate of Competency_V7.0_17012025

[1] Please refer to previous version of FM 7.9 for the revision history

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Sarvar Gulyamov

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), A 6.4 AS (V1.0) ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☐ Validator	☐ Verifier	☐ Team Leader	☐ Technical Expert
☐ Technical Reviewer	☐ Validator/Verifier (Trainee)	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☐ SDG Expert	☐ Social no-harm(S+)	☐ Expert Environment aspect	☐ Health Expert
☒ Regional Expert for Uzbekistan			

in the following Technical Areas:

☐ TA 1.1	☐ TA 1.2	☐ TA 2.1	☐ TA 3.1	☐ TA 4.1
☐ TA 4. n	☐ TA 5.1	☐ TA 5.2	☐ TA 7.1	☐ TA 8.1
☐ TA 9.1	☐ TA 9.2	☐ TA 10.1	☐ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

20th January 2025

Expiry Date

19th January 2026

Vikash K. Singh

Mr. Vikash Kumar Singh
Director - Compliance

Revision History of the document:

Revision date	Summary of changes
July 2023[1]	Initial Adoption
April 2024	Revision due to A6.4 Implementation
Jan 2025	Revised as per the latest organogram.

CCIPL_FM 7.9 Certificate of Competency_ V7.0_17012025

[1] Please refer to previous version of FM 7.9 for the revision history

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Ms. Indumathi C

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS, A 6.4 AS/ ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☒ **Validator**	☒ **Verifier**	☒ **Team Leader**	☒ **Technical Expert**
☒ **Technical Reviewer**	☐ **Validator/Verifier (Trainee)**	☐ **Gender Expert**	☒ **Plastic Waste Expert**
☐ **CCB Expert**	☐ **Legal Expert**	☒ **Financial Expert**	☐ **Environmental, Health and Safety financial matters**
☒ **SDG Expert**	☒ **Expert Social aspect**	☒ **Expert Environment aspect**	☐ **Health Expert**
☒ **Regional Expert for India and Sri Lanka**			

in the following Technical Areas:

☒ **TA 1.1**	☒ **TA 1.2**	☐ **TA 2.1**	☒ **TA 3.1**	☐ **TA 4.1**
☐ **TA 4. n**	☐ **TA 5.1**	☐ **TA 5.2**	☐ **TA 7.1**	☐ **TA 8.1**
☐ **TA 9.1**	☐ **TA 9.2**	☐ **TA 10.1**	☒ **TA 13.1**	☒ **TA 13.2**
☐ **TA 14.1**	☐ **TA 15.1**	☐ **TA 16.1**		

Issue Date
20th January 2025

Expiry Date
19th January 2026

Mr. Vikash Kumar Singh
Director - Compliance

Revision History of the document:

Revision date	Summary of changes
Dec 2023[1]	Change in the template due to revision in TA and function
April 2024	Revision due to A6.4 Implementation
Jan 2025	Revised as per the latest organogram.

CCIPL_FM 7.9 Certificate of Competency_V7.0_17012025

[1] Please refer to previous version of FM 7.9 for the revision history

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. R V Nesari

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), A 6.4 AS (V1.0) ISO/IEC14065:2020, ISO/IEC 17029:2019 and other applicable GHG programs:

for the following functions and requirements:

☐ Validator	☐ Verifier	☐ Team Leader	☒ Technical Expert
☐ Technical Reviewer	☐ Validator/Verifier (Trainee)	☐ Gender Expert	☐ Plastic Waste Expert
☐ CCB Expert	☐ Legal Expert	☐ Financial Expert	☐ Environmental, Health and Safety financial matters
☐ SDG Expert	☐ Expert Social aspect	☐ Expert Environment aspect	☐ Health Expert
☐ Local Expert for XXXX			

in the following Technical Areas:

☒ TA 1.1	☒ TA 1.2	☒ TA 2.1	☒ TA 3.1	☒ TA 4.1
☒ TA 4. n	☒ TA 5.1	☒ TA 5.2	☐ TA 7.1	☐ TA 8.1
☒ TA 9.1	☒ TA 9.2	☒ TA 10.1	☒ TA 13.1	☐ TA 13.2
☐ TA 14.1	☐ TA 15.1	☐ TA 16.1		

Issue Date

20th January 2025

Expiry Date

19th January 2026

Mr. Vikash Kumar Singh
Director - Compliance

Revision History of the document:

Revision date	Summary of changes
Dec 2023[1]	Change in the template due to revision in TA and function
April 2024	Revision due to A6.4 implementation
Jan 2025	Revised as per the latest organogram

CCIPL_FM 7.9 Certificate of Competency_ V7.0_17012025

[1] Please refer to previous version of FM 7.9 for the revision history

APPENDIX 5: FINDINGS LOG

Table 1. CLs from this verification

Finding	CL 01		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *(VVB)*	In section 1.2 of the MR, the validation period is mentioned as *"26-October-2024 (date of Registration)"*, whereas, in Verra registry the Project Registration date is mentioned as 19-July-2024. PP is to clarify this discrepancy.		
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*The date has been corrected*		
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	PP has corrected the date of Registration as 19-July-2024 in section 1.2 of the revised MR and the date is now consistent with Verra registry. Hence CL 01 is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CL 02		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *(VVB)*	In section 1.7 of the MR, the project crediting period is indicated as 'Ten years, fixed' but the start and end dates mentioned do not correspond to this. PP is requested to clarify this.		
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*The date has been corrected.*		

Finding	CL 02
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	PP has corrected the end date of crediting period as 21-August-2033 in section 1.7 of the revised MR which is corresponding to this project and consistent with all project documents as well as Verra registry. Hence, CL 02 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 03		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *(VVB)*	In section 4.2 of the MR, the value for the parameter BE_{CAP} is inconsistent with ER sheet. PP is requested to clarify and rectify as required.		
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*The parameter BE_{CAP} has been updated.*		
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	PP has updated the value for the parameter BE_{CAP} to 7,956,965 in section 4.2 of the revised MR which is now consistent with revised ER sheet. Hence, CL 03 is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CL 04		
Classification	☐ CAR	☒ CL	☐ FAR

Finding	CL 04
Description of finding *(VVB)*	It has been observed that only second measurements from the monitoring data have been taken into consideration for ER calculation. PP needs to justify this different approach taken than determining baseline leakage where minimum of the two measurements were taken into consideration. Moreover, for some of the leaks monitored which also include 19 non-zero leaks, only second measurement values have been entered. PP needs to confirm whether only one measurement were taken for those leaks.
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	1. *The formulas have been updated to use the higher of the two measurement which is more conservative.* 2. *At the beginning of monitoring, a few operators accidently only took one measurement. This mistake was corrected immediately for further measurements. The reappeared leaks were very small and this issue will not materially affect the results. In a few cases the second reading was zero and again by mistake, the zero reading was not saved. The operators have been instructed to correct this error. Two measurements are not technically required by the methodology, but we take two to increase integrity of results.*
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	1. PP has changed the approach to consider higher value of the two measurements taken at the time of monitoring and updated the formulae in the revised ER calculation sheet accordingly. 2. PP has explained that they took only one reading in error in some cases at the beginning. However, since the reappeared leaks found were of very small amounts, it would not materially affect the result. Moreover, although it is not required by the methodology to take two monitoring measurements, PP has taken this approach to achieve increased level of accuracy. The above explanations are deemed reasonable and acceptable to VVB. Hence, CL 04 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 05		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *(TR)*	In section 1.8 of the MR, it is not clear whether a database of all components within the project boundary has been established to include the following: 1. *"Data to clearly identify the component: ID number, type of component, size of component, service, process unit or area, location of the component, type of the facility, digital photo number, etc."* as per 'Step 2 (1)' of the 'Baseline emissions' section of AM0023 version 4. 2. *"Relevant information on the detection of the physical leak: date of detection, detection method applied, who detected the leak, detection reading if applicable e.g. screening value or leak image, etc."* as per 'Step 2 (2)' of the 'Baseline emissions' section of AM0023 version 4. 3. *"Hours during which the component is in pressurized natural gas or refinery gas service since the last leak survey or facility turnaround"* as per 'Step 2 (4)' of the 'Baseline emissions' section of AM0023 version 4. PP is requested clarify.		
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*1. It is made clear in the monitoring plan section 5.3 of the PD all the data collected in accordance with the methodology. We have also shared copies of the full set of data we maintain in the database that shows all of these pieces of data for each of the leaks for more than 100 leaks. The Verifier have full access to these records and can review them as needed to confirm this.* *2. See response to #1.* *3. We have provided a letter from the gas company confirming that the system was fully pressurized during the monitoring period and also listing the individual leaks affected by any shut-offs for maintenance or non-payment or any cut-offs. The calculation of hours is straight forward in that the total hours that the system was pressurized is the total hours of the monitoring period and any leak specific shut-downs are subtracted from the hours. This can clearly be seen in the total calculation.*		

Finding	CL 05
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	1. In sections 4.1 (Baseline Emissions) and 5.3 (Monitoring Plan) of the PD, PP has clearly mentioned the captured data during baseline study and monitoring in accordance with the methodology. A detailed description of this is already there in section 4.3 (Monitoring Plan) of the MR. PP has also updated section 1.8 and 3.1 of the MR to provide reference of relevant sections of the PD for more clarity. The details of the leaks (baseline and monitoring database) were verified via physical inspection of 30 randomly selected sample leaks and full database check of 70 randomly selected leaks during on-site visit /26/. 2. Same as above. 3. The total hours that the system was pressurized is the total hours of the monitoring period and any leak-specific shut-downs/outages are subtracted from the hours. This is shown on the 'Total' and 'Outage' tabs of ER calculation spreadsheet and has been verified from the letter provided by the gas company confirming that the system was fully pressurized during the monitoring period with a list of individual leaks affected by any shutoffs for maintenance or non-payment or any cut-offs /22/. Hence, CL 05 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 06		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *(TR)*	In section 3.1 of the MR, 1. The relevant information on the repair of the physical leaks detected are not sufficiently provided. 2. The frequency of regular surveys following the initial survey is not specified. PP is requested to clarify.		

Finding	CL 06
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*1. We have shared copies of the full set of data we maintain in the database that shows all of these pieces of data for each of the leaks for more than 100 leaks including the exact location of the leak by photo and engineering schematic, types and quantity of repair materials used, and the person responsible for the repair. the person resp. The Verifier has full access to these records and can review them as needed to confirm this.* *2. The methodology specifies that the leaks will be visited at least once per year period and we will follow the methodology. Future monitoring reports will detail the frequency of the visits during those periods and is not relevant to this period.*
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	1. PP has kept a full set of data maintained in the database that shows all the relevant information for each of the leaks including the exact location of the leak by photo and engineering schematic, types and quantity of repair materials used, and the person responsible for the repair, etc. The details of the leaks (baseline and monitoring database) were verified via physical inspection of 30 randomly selected sample leaks and full database check of 70 randomly selected leaks during on-site visit /26/. 2. As per the methodology, the leaks need be visited at least once per year. This is the first monitoring period, hence not relevant to this period. Future monitoring reports will demonstrate that the requirement of one-year monitoring frequency is met during those periods. Hence CL 06 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 07		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *(TR)*	With respect to the ER calculation spreadsheet, 1. As per the 'Total' worksheet, out of 434 reappeared leakages (refer to column 'S') observed during this monitoring period, the measurement details after repair (refer to columns 'U' through 'X') are not provided for 45 leaks. PP is requested to clarify on this and confirm whether these leaks were repaired or not during the monitoring.		

Finding	CL 07
	2. As per the 'Total' worksheet, for a few reappeared leaks, the leak rates measured during monitoring is more than that during baseline survey. For instance, leak 8.11.Г.168ю.1 (refer to cell 'A46741') was measured to be 79.9 lpm, while the baseline leakage was 11.7 lpm. For such leaks the leak rate difference between baseline and monitoring are assumed to be zero (refer to column 'Y' and 'Z'). PP is requested to justify this approach. 3. The total of number of hours counted between the start of monitoring period up to the monitoring date as per the 'Outage' worksheet comes to 254,727 hours (refer to column 'Z') whereas as per the 'Total' worksheet, it comes to 253,845 hours (refer to column 'AM'). PP is requested clarify on this discrepancy.
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*1. Data for monitoring for these 45 leaks were incorrectly added to the total and have been removed.* *2. Removing the 45 leaks, also partially eliminated this problem. It should be noted that in some very few cases something that would be considered part of the baseline case like a car hitting a GRP has occurred to cause a leak to reappear that is larger than the original leak. As these events would have happened in the baseline case as well, the project only deducts the amount of the original leak repair until the leak is repaired again.* *3. There were some leaks mistakenly in the outage file that have been removed. The numbers now match up.*
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	1. The PP has confirmed that data for monitoring for these 45 leaks were previously incorrectly added to the total and have now been removed. 2. In those very few rare events that would be considered part of the baseline case, like a car hitting a GRP, the leaks may be larger than the original leaks. These events would have happened in the baseline case as well. Hence, considering the difference between baseline and monitoring as zero is deemed appropriate and conservative. 3. The PP has removed the leaks from the Outage file that mistakenly remained previously. The total number of hours counted between the start of monitoring period up to the monitoring date are consistent between 'Outage' and 'Total' sheet. The verification team has cross-checked this from the letter from the gas company /22/. Hence CL 07 is closed.

Finding	CL 07
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Table 2: CARs from this verification

Finding	CAR 01		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *(VVB)*	As per the instructions for completing the monitoring report template: 1. The file name for the MR needs to be in the following format: *VCS MR Project ID DDMMMYYYY-DDMMMYYYY* where *'DDMMMYYYY-DDMMMYYYY'* should be the start and end dates of the monitoring period. 2. The font type, size and color prescribed in monitoring report template shout be retained and a consistent formatting throughout the monitoring report should be maintained. PP is requested to comply with the above.		
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*1. The file name has been updated to the correct format.* *2. The font type has been changed to be consistent with the report template.*		
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	1. PP has updated file name for the MR as per the instructions for completing the monitoring report template. 2. PP has revised the MR, and the font type, size and colour throughout the report are now in line with the monitoring report template guideline. Hence, CAR 01 is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 02		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *(VVB)*	In section 1.9: Title and Reference of Methodology of MR, PP needs to mention *"Tool 02"* in the column 'Reference ID, if applicable' against tool.		

Finding	CAR 02
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*The reference ID has been added.*
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	PP has correctly mentioned *"Tool 02"* in the column 'Reference ID, if applicable' against tool under section 1.9: Title and Reference of Methodology of the revised MR. Hence, CAR 02 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 03		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *(VVB)*	in section 2.1.5 of MR, as per MR template guideline, "*Use the table below to provide a summary of all comments received as part of stakeholder consultation and any comments received outside of the public comment period. Include details on when the comments were received, and any updates to the project design or demonstrate insignificance or irrelevance of comments below*", PP needs to include details of public comments.		
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*The table has been updated to comply more clearly with the template guidance.*		
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	PP has updated section 2.1.5 of the revised MR in line with the monitoring report template guideline. Hence, CAR 03 is closed.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 04		
Classification	☒ CAR	☐ CL	☐ FAR

Finding	CAR 04
Description of finding *(VVB)*	The version and date of the ER sheet are not consistent with MR on the 'Title page' of Emission Reduction sheet. PP is requested to clarify and rectify as required.
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*The version and date have been updated on the title page to make them consistent.*
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	PP has updated the version and date on the 'Title page' tab of the revised emission reduction calculation sheet and now it is consistent with the revised MR. Hence, CAR 04 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 05		
Classification	☒ CAR	☐ CL	☐ FAR

Finding	CAR 05
Description of finding *(VVB)*	On the 'Total' worksheet of the ER spreadsheet: 1. PP is requested to clarify on the values of for cells AR1 & AS1 2. The formula for the hours in 2024 in the AX column is not correct. 3. In cell J19405, the calculation for 'min of M1 and M2' against leak code 14.9.Γ.48.3 is missing. 4. For leak 2.16.P.2.1, the measurement details after repair during baseline are missing, while the date of measurement is mentioned. 5. In cell H19633, instead of leak rate 2nd measurement value, one leak code (11.12.Γ.1131.1) has been entered. 6. In column F, a few leak rate measurement values have been represented in wrong format (a comma has been used in place of a decimal point). 7. Under baseline data, no measurement details after repair have been provided for the following leaks: 2.16.P.2.1, 12.4.Γ.143.4, 12.4.Γ.2000.3 and 12.4.Γ.2085.3. 8. Within the monitoring data for leaks 9.6.Γ.236.1 and 9.6.Γ.236.2, HSF memory numbers in column T are missing. PP is requested to clarify on the above.
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	1. *These are not part of the calculation and have been deleted.* 2. *The formula has been corrected.* 3. *This cell has been fixed.* 4. *The information for this leak has been corrected.* 5. *This has been corrected.* 6. *The incorrect format has been corrected.* 7. *2.16.P.2.1 has been corrected. The other three leaks should not have been included in this MR and have been removed.* 8. *The HFS memory numbers have been added.*

Finding	CAR 05
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	On the 'Total' worksheet of the ER spreadsheet: 1. PP has removed the values in cells AR1 & AS1 which were not part of the calculation. 2. PP has corrected the formula for the hours in 2024 in the AX column. 3. PP has corrected the formula in cell J19405 to calculate 'min of M1 and M2' against leak code 14.9.Г.48.3. 4. The measurement details after repair during baseline for leak 2.16.P.2.1 has been provided. 5. PP has updated leak rate 2nd measurement value in cell H19633. 6. PP has updated representation of the leak rate measurement values with correct format in column F. 7. PP has provided the measurement details after repair under baseline data, for the 2.16.P.2.1. The other three leaks have been removed as these are not included in this monitoring period. 8. PP has updated HSF memory numbers in column T for the monitoring data for leaks 9.6.Г.236.1 and 9.6.Г.236.2. Hence, CAR 05 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 06		
Classification	☒ CAR	☐ CL	☐ FAR

Finding	CAR 06
Description of finding *(VVB)*	With respect to outages and cut-offs, the following have been observed: 1. For leak code 8.1.Γ.37-7.1, the cut-off date on the 'Total' worksheet is missing. 2. The total number of leaks coded with black background color on the 'Total' worksheet does not match with that on the 'Outage' worksheet. Here, it should be noted that 484 leaks on the 'Total' sheet are filled with no background color and the leak codes are not visible either but has a cut-off date mentioned in column 'AL'. 3. While the header of column AG on 'Outage' Tab of ER sheet is blank, the purpose of the calculation to derive the values under this column is unclear. 4. The significance of the calculated value in cell AG9954 is not clear. PP is requested clarify on the above and rectify as required.
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*1. The formula has been fixed to include this leak cut-off.* *2. The black background has been removed.* *3. This column AG was only used as a check and has been deleted.* *4. As number 3 above, AG9954 has been deleted.*
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	1. PP has updated cut-off date on the 'Total' worksheet for leak code 8.1.Γ.37-7.1. 2. The total number of leaks on the 'Total' worksheet and on the 'Outage' worksheet is consistent now. PP also removed the black background colour on the 'Total' worksheet. 3. Column AG was not part of the ER calculation and removed. 4. The formula/value in cell AG9954 is not part of the ER calculation and removed. Hence, CAR 06 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 07		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *(TR)*	In 'Total' worksheet of the ER calculation spreadsheet the following are noted: 1. During baseline survey, after repair, leaks were not stopped completely in 713 leaks amounting to 117.8 lpm (refer to column 'M'). 2. During monitoring, 434 leaks were found to be reappearing amounting to 1165.6 lpm (refer to column 'S') As mentioned in section 1.2 of the monitoring report, the aim of SDGs 7, 9 and 11 is to reduce the volume of leakages through ALDR techniques. However, in 'SDG' worksheet of the ER calculation spreadsheet, the *"New leakage found this monitoring period"* is reported and calculated as total volume rate (lpm) of all identified leaks during baseline, but the above are not accounted and the rates of leakages repaired and leaks finally arrested for the monitoring period is not considered. In this context, it is also to be noted that among the 55,290 leaks (identified during baseline survey), 23,398 leaks were not monitored during this monitoring period PP is requested to justify this.		
Corrective Action or clarification #1 *(PP shall write a detailed and clear corrective action or further information for clarification as per finding)*	*1. We have removed the 117.8 lpm from the SDG goals calculation.* *2. The sustainability goal is achieved by identifying and repairing leakages through ALDR techniques that are expected to decrease natural gas losses from distribution pipeline over a long period. The quantification here is based on the leak rate measured at the time of initial leak detection. There may be some reappeared leaks found during the monitoring of each leak which will be repaired again throughout the crediting period. Hence, the reappearance of any leak has no impact on the SDG contribution achieved during this period.*		
VVB Assessment #1 *The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.*	The PP has explained that the sustainability goals for SDGs 7, 9 and 11, are to be achieved by identifying and repairing leakages through ALDR techniques that are expected to reduce natural gas losses from distribution pipeline over the crediting period. The quantification is based on the leak rate measured at the time of initial leak detection, and there may be some reappeared leaks found during the monitoring of each leak which will again be repaired. However, to be on the conservative side, the PP has now discounted the total amount of leaks per minute		

Finding	CAR 07
	(in this case 117.8 lpm) for those leaks not completely stopped during baseline study from the SDG contributions achieved which is deemed reasonable and acceptable. Hence, CAR 01 is closed.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Table 3. FARs from project validation

Nil.