UK COWCREDIT PROJECT:

A UK DAIRY INITIATIVE TO REDUCE METHANE FROM ENTERIC FERMENTATION AND SUPPORT FARMERS VERIFICATION REPORT

Document Prepared by Carbon Check (India) Private Ltd.

Project Title	UK Cowcredit Project: A UK Dairy Initiative to Reduce Methane from Enteric Fermentation and Support Farmers
Version	6.0
Report ID	CCIPL1367/VCS/VER/UKCCP/20220523

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Client	Mootral SA

Pages	55
Date of Issue	22nd June 2023
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Summary:

Description of the verification and project

Mootral SA has appointed Carbon appointed Carbon Check (India) Private Ltd., to carry out the verification of the project "UK Cowcredit Project: A UK Dairy Initiative to Reduce Methane from Enteric Fermentation and Support Farmers", with regards to the relevant requirements of VCS Standard Version 4.3/B01/.

The project titled "UK Cowcredit Project: A UK Dairy Initiative to Reduce Methane from Enteric Fermentation and Support Farmers" is a methane recovery project through enteric fermentation by direct inhibition of methanogens in the rumen that takes place on the dairy farms located in the United Kingdom.

Purpose and scope of verification

The purpose of the verification is the independent evaluation of the projects in compliance with the VCS Standard v4.3/B01/, in particular, VCS Project's implementation and baseline scenario, application of methodology/B02/ and tools/B03/, time period covered/duration of monitoring period, achieved GHG removals adherence to the VCS PD/01/ and VCS MR/02/ these are verified in order to confirm that the project has been implemented in compliance with the monitoring plan stated in the VCS PD/01/. Carbon Check's objective is to perform a thorough, independent assessment of the verification of the project activity.

Verification scope is defined as an independent and objective review of the VCS Project Description (PD)/01/ as well as Monitoring Report (MR)/02/ against the relevant criteria and guidance documents provided by VCS including the following:

- VCS Program Guide (v4.2, dated 22/06/2022)
- VCS Standard (v4.3, dated 22/06/2022)
- Program Definitions (v4.2, dated 22/06/2022)
- Registration & Issuance Process (v4.2, dated 22/06/2022)
- AFOLU Non-Permanence Risk Tool (v4.0, dated 19/09/2019)
- VCS Validation and Verification Manual (v3.2, dated 19/10/2016)

Based on the requirements above, the VVB has assessed if the project meets the applicability criteria of the selected baseline and monitoring methodology "VM0041 Methodology for the Reduction of Enteric Methane Emission from Ruminants through the Use of 100% Natural Feed Supplement", V1.0./B02/ VVB has also assessed the claims and assumptions made in the VCS PD/01/ and further achieved in the VCS MR/02/ in accordance with the monitoring plan provided in the VCS PD/01/.

Monitoring Period

As per the VCS PD/01/ and MR/02/, the CCIPL team has conducted the verification of project.

Table 1: Dates & Timelines of VCS project

Start date	7th May 2019
Crediting period (1st)	7th May 2019 till 6th May 2029
First monitoring period	7th May 2019 till 29th February 2020
Second monitoring period	1st March 2020 till 30th September 2022

Method and criteria used for verification

To conduct the verification audit, Carbon Check (India) Private Limited (CCIPL) conducted an assessment including a desk review of the Project Document (PD)/01/, Monitoring Report (MR)/02/ and supporting documents in compliance with the requirements stated in the VCS Validation and Verification Manual v3.2/B01/. Thereafter, verified the details and information from VCS PD/01/ and MR/02/ by conducting an on-site inspection from 11th Novemebr 2022 to 13th November 2022.

Number of findings raised during verification APPENDIX 3: FINDINGS LOG

Two (02) CLs and Three (03) CARs have been raised during the verification, all of which have been successfully closed

Uncertainties associated with the verification

No uncertainty associated with the project implementation and calculations of GHG removals has been observed by the VV team.

Summary of the verification conclusion

Based on the on-site inspection and the review of the VCS PD/01/, MR/02/ and supporting documents, the CCIPL team confirms that the project implementation and the calculation carbon captured by the project are in accordance with:

- ✓ Monitoring plan and other assumptions stated in the VCS PD/01/
- ✓ Applied VCS methodology VM0041 v1.0/B02/
- ✓ Host country regulations

Contents

1. INTRODUCTION

1.1 Objective

Mootral SA has appointed the VVB, Carbon Check (India) Private Ltd. to perform a verification of the VCS Project "UK Cowcredit Project: A UK dairy initiative to reduce methane from enteric fermentation and support farmers". This report summarizes the findings of verification of the project, performed on the basis of the VCS Program Guide (v4.2, dated 22/06/2022 VCS Standard (v4.3, dated 22/06/2022), Program Definitions (v4.2, dated 22/06/2022), Registration & Issuance Process (v4.2, dated 22/06/2022), VCS Validation and Verification Manual (v 3.2, dated 19/10/2016) and AFOLU Non-Permanence Risk Tool (v4.0, dated 19/09/2019)/B01/. Verification is required for assessment of project compliance with the applied methodologies and relevant rules including host country legislation.

As per the VCS PD/01/ and VCS MR/02/, VVB has ascertained the following on the VCS project:

Applied methodology	VM0041: Methodology for the Reduction of Enteric Methane Emission from Ruminants through the Use of 100% Natural Feed Supplement, version 1.0/B02/
Sectoral scope	15: Livestock and Manure Management

1.2 Scope and Criteria

Scope of Verification: The scope of the verification includes:

- ✓ VCS project's implementation and baseline scenarios.
- ✓ Application of methodology/B02/ and tools/B03/
- ✓ Time period covered/ duration of monitoring period
- ✓ Achieved GHG removals and long-term average calculation/03/
- ✓ Adherence to the VCS PD/01/ and VCS MR/02/.

The verification criteria follow the guidance documents provided by VCS including the following/B01/: VCS Program Guide (v4.2, dated 22/06/2022 VCS Standard (v4.3, dated 22/06/2022), Program Definitions (v4.2, dated 22/06/2022), Registration & Issuance Process (v4.2, dated 22/06/2022), VCS Validation and Verification Manual (v 3.2, dated 19/10/2016) and AFOLU Non-Permanence Risk Tool (v4.0, dated 19/09/2019) along with the VCS methodology VM0041: Methodology for the Reduction of Enteric Methane Emission from Ruminants through the Use of 100% Natural Feed Supplement, version 1.0/B02/.

1.3 Level of Assurance

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

1.4 Summary Description of the Project

The VCS project titled "UK Cowcredit project: A UK Dairy initiative to reduce methane from enteric fermentation and support farmers" aims at reducing methane enteric fermentation by direct inhibition of methanogens in the rumen that takes place on the dairy farms located in the United Kingdom. The project has demonstrated compliance with the approved VCS methodology VM0041 v1.0/B02/. Initial project instance includes dairy farms with around 400 cows. The dairy farms within the project are all located in the United Kingdom/09/.

There are total 12 PAIs/19/ are included within the project up to the end of the monitoring period. During the on-site inspection, the average number of heads were reviewed for each PAI and cross checked against MR/02/, Farm's livestock inventory records/12/, feed records/20/, and from the document "2072 – UK project – Data monitoring March 2020 – Sept 2022-Revised as per CAR"/23/. VVB, based on the review and cross-checking during the on-site inspection, confirms the following:

- Project instance 1 (part of the project since 2019) has average number of cow heads as 399.39
- New Project instances (added in 2022) have total average number of heads as 3842.76 with a break up as below:

	Average cow head
PAI 2	292.17
PAI 3	280.33
PAI 4	334.65
PAI 5	140.42
PAI 6	296.45
PAI 7	96.95
PAI 8	430.18
PAI 9	201.23
PAI 10	260.07
PAI 11	482.30
PAI 12	1028.01

- And total (based on average number of cows in each PAI) in all PAIs are 4242.15

The current report monitors emission reductions that have occurred during the second monitoring period from 1st March 2020 to 30th September 2022. The total GHG emission

reductions due to the project activity generated under the mentioned second monitoring period amounts to 2,994 t CO_2e[/03/].

2. VERIFICATION PROCESS

2.1 Method and Criteria

The verification of the project includes the following assessment activities:

- ✓ Contract review & signing
- ✓ Appointment of team members based on competencies
- ✓ Assessment Planning & risk analysis including preparation of verification plan
- ✓ Desk review of VCS MR[/02/], carbon calculations (ex- post)[/03/] and other documents
- ✓ Interviews with the stakeholders and local stakeholder meeting(s) during the on-site inspection[2.3]
- ✓ Reporting and recording of assessment
- ✓ Findings and their closure[APPENDIX 3: FINDINGS LOG]
- ✓ Additional verification activities
- ✓ Submission of final report

A project specific verification plan was developed to guide the auditing process to ensure efficiency and effectiveness. The purpose of the verification plan is to present a risk assessment for determining the nature and extent of verification procedures necessary, thus reducing the risk to a reasonable level.

The verification of the MR[/02/] is conducted in compliance against the required documents as stated in APPENDIX 1: List of Documents.

VCS Verification Time Frame:

A time frame envisaged for this assignment is as follows:

Milestone description	Time
Date of contract signing with the VVB	10th June 2022
On-site inspection	11th November 2022 to 13th November 2022

Sampling plan

NA

Verification Team

S. No.	Role	Type of Resource	Last Name	First Name	Affiliation (e.g., name of central or other office of VCS Verifier or Outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader /Technical Expert	IR	Singh	Vikash Kumar	CCIPL	×	×	×	×
2.	Assessor/Team Member	IR	Kapoor	Isha	CCIPL	×	×	×	×
3.	Observer	IR	Anand	Amit	CCIPL	×	×	×	×

Technical reviewer and approver of the Verification report

S.No.	Role	Type of Resource	Last Name	First Name	Affiliation (e.g., name of central or other office of VCS Verifier or Outsourced entity)
1.	Technical Reviewer	IR	C	Indumathi.	CCIPL

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The verification is performed primarily based on the review of the VCS PD/01/ & MR/02/ and the supporting documentation.

For verification, this process includes:

- A review of data and information presented by the PP to verify their completeness.
- A review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the competency of personnel performing the monitoring, and the QA/QC procedures, and
- An evaluation of data management and the QA/QC system in the context of their influence

on the generation and reporting of GHG removals by sink.

Through the assessment process, VCS PD/01/ & MR/02/ and the supporting documents were evaluated, and CARs and CLs were raised by the assessment team to confirm the actions taken by the PP.

APPENDIX 1: List of Documents outlining the documentation reviewed during the verification process.

2.3 Interviews

The table below describes the on-site inspection interview process and further identifies personnel, including their roles, who were interviewed and/or provided information additional to that provided in the VCS PD/01/, VCS MR/02/ and any supporting documents. The opening meeting has been conducted on 11th November 2022 .

Table 2: Project representatives and stakeholders interviewed:

SR. No.	Date	Name	Organisation	Topic
/i-01/	11th November 2022 to 13th November 2022	Christelle Girad, Director-Carbon & operations	Mootral SA	• Project Design • Project Implementation status • Project start date and Project Location • Baseline Scenario • Baseline Identification and Additionality • Qualification and Training • Monitoring and reporting documentation • Quality Assurance –Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Compliance with relevant laws • Roles and responsibility SDG Impacts
/i-02/	11th November 2022	Ruchita Khurana,	Mootral SA	Eligibility check of the new instances,

		Scientific Manager-Animal Health		training of farmers for the feeding
/i-03/	11th November 2022	Matt Sims,Quality Manager	Mootral SA	Production process of Mootral food supplement including the QA/QC process.
/i-04/	12th November 2022	John Tower, Owner	Brades Farm and	Overall site inspection of the farm
/i-05/	12th November 2022	Will Telley,	Nutrilionalist for Brades Farm and T N Beeston & Son	Monitoring of cow-heads and other feeding parameters at the farm
/i-06/	12th November 2022	James Ailsby, Production Manager	T N Beeston & Son	Monitoring of cow-heads and other feeding parameters at the farm

2.4 Site Inspections

The verification on-site inspection has been conducted on 11th November 2022 to 13th November 2022.

Sampling/Verification Plan

In order to ensure a complete, transparent and timely execution of the verification task, the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion. Various tools had been established in order to ensure an effective assessment planning. VVB has visited 2 farms (Farm n°1 and n°12). The rationale behind the selection of these two farms are as below:

- ✓ Together these two constitute around 66 % of the total emission reduction.
- ✓ These are new project instances and thus VVB had the opportunity to check both the data related to project instance eligibility and verification during the on-site inspection.

Step 1- Identification of Materiality threshold

As per section 4.1.8. of VCS Standard (version 4.3),

"*The threshold for materiality with respect to the aggregate of errors, omissions and misrepresentations relative to the total reported GHG emission reductions and/or removals shall be five percent for projects and one percent for large projects*".

Applicable threshold level	Threshold	Category
☐	**1 %**	Large projects: Emission reductions or removals for registered large scale project activities achieving a total removal more than 300,000 tonnes of CO2e per year

☒	**5 %**	Projects: Emission reductions or removals for registered small-scale project activities achieving total removal of less than or equal to 300,000 tonnes of CO2e per year.

As per the review of VCS MR/02/, the actual GHG reduction from the project have been estimated as 2,994 tCO_2e[/02/03/]. Hence, the applied materiality threshold would be 5% (150 tco2e).

Step 2- Identification of risks, their level and assessment

On the basis of the risk analysis the verification has been planned in accordance with the latest applicable version of Guideline: "Application of materiality in verifications". The risk assessment has been used in developing the verification and evidence-gathering plans. Any input into the risk assessment shall be recorded.

The risk assessment output may address how the verification is planned with respect to the following:

- GHG emissions SSRs.
- boundaries.
- data management details.
- management controls.

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the potential risk		Assessment of the records/information/interview with personnel to check controls/ mitigation measures
		Risk level	Justification	
1.	**Raw data generation**: Raw data generation, Implementation of monitoring procedures, Dysfunction of installed equipment, mal operation by operational personnel,	High	*Inadequate implementation of monitoring procedures, errors in counting of livestock, feedstock data, change of personnel, Undetected measurement errors, inappropriateness of Management system procedures w.r.t. monitoring plan requirements of offset project plan, Non-application of management system procedures, Insufficient accuracy of monitoring equipment, Inappropriate QA/QC measures*	Raw data sheet including quantity of livestock feed[/12/], data from feed manufacturer[/21/], lab analysis data[/18/], transportation data[/13/17/]

	Change of monitoring procedures, Insufficient accuracy, Change of technology, Accuracy of values supplied by Third Parties		*of Third Parties etc.*	
2.	Data collection, Transposition and aggregation/ Data and Information Flow: Wrong data transfer from raw data aggregated reporting forms in both logbooks and electronic formats, lab analysis data, IT Systems, Spread sheet programming, Manual data transmission, Data protection Responsibilities, Data transfer to the	High	*Unintended usage of old/obsolete data, Incomplete documentation, Ex-post corrections of records, Ambiguous sources of information, non-application of management procedures, mistakes during manual data transfer, Unintended change of spread sheet programming or data base entries, Problems caused by updating/upgrading or change of applied software*	Cross check between raw data sheet/12/ and ER sheet/03/ Monitoring report/02/ for the following: QA/QC procedures

	author of the monitoring report, Data transfer to the monitoring report, Unintended use of outdated versions of monitoring report as per the template prescribed by VCS.			
3.	Default calculation parameters	Low	*Unintended or intended Modification of calculation parameters, Wrong application of values, Misinterpretations of the applied programme specific protocols/methodology and/ or the offset project plan, Missing applicable framework values) update of regulatory (e.g., IPCC)*	Default value sources for each of the parameter/B04/.
4.	Calculation Methods: Applied formulae	Medium	*Risk due to miscalculation of applied formulas.*	Registered VCS PD/01/, applied methodologies/B02/ / tools/B03/, monitoring report/02/ and ER spreadsheet/03/.
5.	Project Implementation & Operation including eligibility check of all new project instances	Medium	*Deviation from the project design and plan as mentioned in registered VCS PD*	On-site inspection to check manufacturer specifications for the feed, including other equipment at site. Raw data sheet/12/ including data records of

				livestock operations purchasing feed supplement[21]

2.5 Resolution of Findings

The objective of the verification is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which have to be clarified/corrected prior to final VVB's conclusions on the project's baseline, monitoring plan from the VCS PD[01] and subsequently the project implementation, monitoring practices and achieved GHG removals from the MR[02]. Material discrepancies identified during the validation and verification are addressed either as CARs, CLs or FARs. Appendix 3: Findings log

Corrective Action Requests (CAR) are issued, where:

- ✓ Mistakes have been made with a direct influence on project results requiring adjustments of the VERs in monitoring report.
- ✓ Applicable methodological specific requirements have not been met.

A Clarification Request (CL) are used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

A Forward Action Request (FAR) has been issued, where:

- ✓ the actual project monitoring and reporting practices requires attention and /or adjustment for the consecutive verification period, or
- ✓ an adjustment of the MP is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high-quality GHG removals in the future, i.e., by deviations from standard procedures as defined by the MP. Therefore, such aspects should receive a special focus during the consecutive verification. A FAR may originate from lack of data sustaining claimed GHG removals.

The VVB on every issue raised during the validation process has used the table format given below:

CAR/CL/FAR ID		**Section no.**		**Date:** DD/MM/YYYY
Description of FAR				
Project participant response				**Date:** DD/MM/YYYY
Documentation provided by project participant				
VVB assessment				**Date:** DD/MM/YYYY

A total of three (03) CARs, and two (02) CLs have been raised and successfully closed. Please refer to APPENDIX 3: FINDINGS LOG for the details of the CARs/CL.

2.5.1 Forward Action Requests

No FAR has been raised. Refer to APPENDIX 3: FINDINGS LOG

2.6 Eligibility for Validation Activities

NA.

3. VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

As per the VCS PD/01/ and VCS MR/02/ the project has not been registered under any other GHG programs and is not seeking registration under any other GHG programs. This was further confirmed by the VVB checking on other registries (CDM/GS/GCC/Plan Vivo)/B04/.

3.2 Methodology Deviations

As per the VCS MR/02/ there are no methodology deviations for this project. Verification team after on-site visit/2.3/ and desk review/01//02/ confirms that there are no methodology deviations.

3.3 Project Description Deviations

As per the VCS MR/02/ there are no project description deviations that have occurred. Verification team after on-site visit/2.3/ and desk review/01//02/ confirms that there are no project descriptions.

3.4 Grouped Project

As per the VCS MR/02/, the eligibility criteria for the inclusion of new project activity instances are:

1) All project activity instances meet the applicability conditions set out in the methodology VM0041 applied to the project.

2) All project activity instances introduced and applied Mootral® natural feed supplement into dairy cows' diet as specified in the project description.

3) All project activity instances are dairy farms located within the United Kingdom.

4) All project activity instances are subject to the baseline scenario determined in the section 3.4 of the project design document. All farms used conventional feeding regime and management strategies that represent average UK dairy and farming operations without using any other feed supplement or additive to reduce enteric methane emissions before joining the project.

5) All project activity instances have characteristics with respect to additionality consistent with the initial instances and as described in section 3.5 of the project design document. For the second monitoring period, the number of animals fed with Mootral supplement is about 5000 heads while the project is capped to 350,000 animals and additionality was demonstrated in the project design documentation. No other equivalent project is currently taking place in the UK; therefore, this project represents the level of penetration of this type of technology in UK. This level of penetration of this type of technology versus its maximal adoption potential remains far below the threshold where additionality ceases

During the on-site inspection2.3, VVB has interviewed /i-01/,/i-02/ the representative of the project proponent to confirm their process of checking eligibility of any new instances. The verified details of this eligibility check by the PP are as below:

- ✓ Project Proponent on their website publishes the eligibility for the new instances/06/ to join the program. These eligibility among others are the geographic location of the farm/09/, use of any feed supplement at present, confirmation on non-organic farm (as the Mootral supplement is not organic)/18/, confirmation on the monitoring aspects, confirmation on the baseline scenario/01/, use of feed supplement only for the lactating cows/20/ etc.

- ✓ Any new instances which approach PP has to provide the data as per the requisite format.

- ✓ The representatives of PP upon receipt of such information from the potential instances, make a visit to the farm and check the eligibility.

As per section 3.6.9 of the VCS Standard v4.4,

"*Where a capacity limit applies to a project activity included in the project, no project activity instance shall exceed such limit. Further, no single cluster of project activity instances shall exceed the capacity limit, determined as follows:*

1. Each project activity instance that exceeds one percent of the capacity limit shall be identified.
2. Such instances shall be divided into clusters, whereby each cluster is comprised any system of such instances such that each instance is within one kilometer of at least one other instance in the cluster. Instances that are not within one kilometer of any other instance shall not be assigned to clusters.
3. None of the clusters shall exceed the capacity limit and no further project activity instances shall be added to the project that would cause any of the clusters to exceed the capacity limit."

Based on review of registered VCS PD and the applied methodology i.e. VM0041, version 01, VVB has ascertained that the project has specified a capacity limit, which is capped to 350,000 cows (the maximum adoption of this grouped project activity) for the first crediting period. VVB confirms that each PAI is lesser than the specified capacity limit.

1. The grouped project is capped at 350,000 cows for the first crediting period. 1% represents 3,500 cows and none of the PAIs has a number of cows greater to this limit as shown in the table 3 in section 5 of the monitoring report; checked and verified by the VVB during the course of verification.
2. VVB has reviewed the geodetic coordinates shown on Appendix A of the monitoring report and the .kml files as provided by the PP and confirms that none of the PAIs is within a radius of 1km from another PAIs. Therefore no cluster is constituted from aggregated PAIs.
3. Based on assessment (in bullet 1 and 2 above), it is confirmed thatno cluster is above the capacity limit.

Based on assessment above, VVB thus confirms compliance of section 3.6.9 of the VCS Standard v4.4.

Upon confirmation of all eligibility checked, the PP approve the new instance for inclusion and complete the on-boarding formalities. These on-boarding formalities including signing of contract with PP/07/ as well training and capacity building on the feeding method and quantity of the Mootral supplement. This capacity building program also involves monitoring of the parameters required for the verification.

As per the VCS MR/01/, VVB based on assessment above, review of documents of all new instances /06/,/07/,/08/,/09/,/10/,/11/ and sample visit of the two new farms confirms the inclusion of new 11 instances to the initial instance. The new instances meet out the requirements set out in the registered VCS PD/01/. VVB assess the documents and confirms the criteria of new instances included in the initial instance are valid and in accordance with the registered VCS PD/01/.

4. VERIFICATION FINDINGS

4.1 Project Implementation Status

The VCS project involves activity of introduction of Mootral® natural feed supplement into dairy cattle diet aiming to reduce methane (CH_4) emissions from enteric fermentation by direct inhibition of methanogens in the rumen. The project is focused on reducing GHG emissions from the livestock sector. The project has demonstrated compliance with the approved VCS methodology VM0041 (Version 1.0)/B02/. As confirmed during the on-site inspection interviews/i-01/i-06/ that the project involves methane reducing activities implemented by the project proponent i.e., Mootral SA.

As per the VCS MR/02/, only lactating cows are considered in the project. VVB based on site inspection interviews/i-01/i-06/ confirms that each cow has a lactating cycle with roughly 10 months in lactation and 2 months without (the dry period which correspond to the calving time). Dry cows are excluded from the programme and re-integrated when their lactating cycle starts again.

During the on-site inspection, it was confirmed that each cow requires adaptation time for the product to reduce methane emissions. The accounting for GHG reduction started on day 15 days after the start of the feeding, considering that 14 days is the time required for diet adaptation. Furthermore, PAI 1 is part of the program since 2019, therefore the cows do not need an adaptation time at the beginning of the monitoring period, because they are already fed with the product for a long time. Based on this reason, the emission reduction for the PAI 1 was from the day 1 (i.e., 1st of March 2020) and the same is deemed appropriate to the VVB and thus acceptable.

For the current monitoring period the project activity consists of 12 PAIs all located within the geographical boundary of United Kingdom of Great Britain and Northern Ireland/09/. The details of the PAIs/09/ are as:

Farm #	Geographical Coordinates	Average no. of cattle heads	Cattle Group[1]	Feeding Date	Start date of MP[2]	Average DMI
1	54.09821707071506, -2.654489087752983	247.43	Group 1	01-Jan-2022	01-Mar-2020	21.91
		151.96	Group 2			14.93
2	54.80959503421248, -3.2877022198815262	292.17	Group 1	15-Apr-2022	29-Apr-2022	23.24
3	54.070793, -1.524726	280.33	Group 1	1-May-2022	15-May-2022	22.01
4	54.810956098552644, -3.2852366147938517	334.65	Group 1	19-May-2022	13-Jun-2022	23.36
5	51.65655516981721, -1.7257440087323686	140.42	Group 1	3-Apr-2022	17-Apr-2022	25.36
6	50.9334740162931, -2.8814463898944145	296.45	Group 1	1-Apr-2022	15-Apr-2022	24.33
7	50.96464948558571, -2.3409511269289687	96.95	Group 1	19-Dec-2021	22-Jun-2022	24.18
8	54.22012754889688, -0.5116522641290551	430.18	Group 1	10-Apr-2022	25-Apr-2022	22.62

[1] Cattles are divided in groups based on their productivity. Group 1 cattle refer to highly productive cattle which produce more than 8000 liters of milk per year. Group 2 cattle refer to low productive cattle which produce less than 8000 liters of milk per year.

[2] The start date of MP is 14 days after the feeding start date. This is based on the assumption that the cattle requires at least 14 days to adapt to the change is dietary regime i.e., period for acclimatization of rumen of the cattle.

9	51.01382, -2.56078	201.23	Group 2	22-Feb-2022	8-Mar-2022	22.44
10	54.88137091134044, -3.1055493523657587	260.07	Group 1	23-Mar-2022	6-Apr-2022	24.66
11	51.15984434694024, -2.6060496789800944	482.30	Group 1	19-May-2022	2-Jun-2022	25.21
12	52.90925817997503, -2.5484445365318944	1028.01	Group 1	2-Mar-2022	16-Mar-2022	26.60

The project activity has introduced Mootral natural feed supplement into dairy cattle diet, which has resulted in reduction of methane (CH_4) emissions from enteric fermentation by directly inhibiting the methanogens in the rumen. The feed supplement is based on a proprietary combination of active compounds from garlic and flavonoids derived from citrus. This composition of feed ingredients acts upon the rumen, which result in direct inhibition to the activity of archaea (microbe within the digestive tract of ruminants responsible for enteric fermentation). This leads to nearly complete inhibition to activity of archaea, consequently the reduction of emitted methane.

Based on site inspection[2.3] and through review of documentary evidence and interview[/i-01/i-06/] with farm owners/managers, the VVB has checked and confirm the following:

1. Livestock producers feed their animals MOOTRAL, which is a natural feed supplement which reduces enteric CH_4 emissions by direct inhibition of methanogens in the rumen. The feed supplement (MOOTRAL) is based on a proprietary combination of active compounds from garlic and flavonoids derived from citrus. This composition of feed ingredients acts upon the rumen, which result in direct inhibition to the activity of archaea (microbe within the digestive tract of ruminants responsible for enteric fermentation). This leads to nearly complete inhibition to activity of archaea, consequently the reduction of emitted methane.
2. Only ruminant animals have been included in all the PAIs[/12/].
3. The active ingredients of feed supplements are combination of active compounds from garlic and flavonoids derived from citrus and are 100% natural plant-based extracts. The feed supplement doesn't contain any GMO and that was verified through review of lab certificate[/18/] which has checked every ingredient of the feed for any GMO components.

4. The feed supplement complies with all feed and food regulations of United Kingdom of Great Britain and Northern Ireland/04/.
5. Through interview/i-01/i-06/ with farm owners and managers it was confirmed that the feed supplement doesn't cause any negative impacts on health or performance of the animal/05/ to which it is fed.
6. Through the review of the data sheet/12/ and the farm's Software Management System and interview/i-01/i-06/ with farm owners and managers it was confirmed that the feed supplement is being fed to the cattle as per the feeding instruction of the manufacturer (1gm of MOOTRAL/day/kg of the DMI). Furthermore, through interviews/i-01/i-02/ with the representative of PP and the farm owners and managers it was confirmed that they have been sensitized and made aware about the critical defining conditions (way to prepare the feed, stage at which the feed supplement must be added, moisture content of the feed, retention time etc.,) to secure the default level of reduction of the enteric methane emissions.

During the on-site inspection2.3, the VVB through interviewing the quality manager/i-03/ of the feed production facility (MOOTRAL Ltd.,) and through virtual tour of the manufacturing facility confirms that QA/QC measures are in place to ensure standardization of quality of different batches of the feed produces and shipped to different farms. VVB confirms that the production facility and methods are standardised, and the QA/QC measures put in place are adequate to ensure quality of feed.

VVB based on site inspection interviews/i-01/i-06/ confirms that there were no changes to the project proponents or other entities during this monitoring period. During the second monitoring period, the project involves GHG reduction of 2,994 tCO_2e/02/03/.

VVB after reviewing the updated monitoring report/02/ provided by PP justifies the project implementation status as valid and applicable.

The implementation status of the monitoring plan and the completeness of monitoring:

VVB during the course of verification has focused on the following aspects:

✓ Suitability of the implemented monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters)

VVB based on review of the VCS PD/01/ and MR/02/, on site visit interviews/i-01/i-06/, review of competency records (of those involved in MRV process) and by reviewing the QA/QC process of the monitoring process (data recording and subsequent data/information flow), confirms

- ✓ The monitoring system including the sampling plan as suitable and appropriate for the project type and in line with the requirements of methodological/associated methodological tools/B03/.

The existence of any material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology. VVB based on review of regsitered VCS PD/01/ confirms that the project has not been participated or been rejected under any other GHG programs since validation or previous verification. This has been further cross-checked by an independent web-research by the VVB/B04/.

VVB based on review of regsitered VCS PD/01/ confirms project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification and the GHG emission reductions or removals generated by the project have become included in an emissions trading program or any other mechanism that includes GHG allowance trading.VVB based on on site visits2.3 justifies that the project has implemented the activities and aims at the completeness of SDGs mentioned in the VCS MR/02/, however a finding has been raised in this regard and successfully closed.

VVB further confirms that the implementation of the project leads to the intended GHG benefit that commenced prior to the monitoring period.There are no methodology deviations reported during the validation as mentioned in the section 3.2.

Based on assessment above VVB confirms that the project has been implemented as described in the project description.

4.2 Safeguards

4.2.1 No Net Harm

As per the registered VCS PD/01/ and MR/02/, there are no net harms identified for the project. Based on site inspection /2.3/ and review of documents/01//02/, verification team confirms that project has no relevant negative environmental and socio-economic impacts.

4.2.2 Local Stakeholder Consultation

As per the VCS MR/02/, the PAIs are independent farmers who joined the project on a voluntarily basis. They have been recruited through a recruitment campaign promoted through Mootral website and some advertisements into specialised professional reviews and magazines. The recruitment took place during 3 months at the end of 2021.

They had received extensive information about the project through:

- Dedicated web site page

- Ad-hoc documentation: the Blue Book given to each candidate before any commitment
- Introduction call with a Mootral science team member, specialised in animal science

The various steps of the project, their rights and obligations are documented in a contract[/07/] they signed with the project proponent and supplier of the feed supplement. They have provisions to opt-out from the programme if they wish to do so without penalties.

A hotline is available for the farmers to report any concern or to seek advice on any aspects of the project. This hotline is permanently available during the life of the project during business hours and gives access to trained project proponent staff. It collects and answers any grievance or questions that may arise. Content of the discussion are logged into a CRM "Streak" available internally to all Mootral staff involved in the project. No particular grievance was reported during the monitoring period.

Between 3 to 6 months after they joined, the project proponent organised a gathering event on-line where all participants could exchange about their experience in the project. (Recording of the event is available). The event took place on the 11th of August. During this event they were informed about the yet-to-come steps for the verification process.

From the 29th August to the 2nd of September 2022, the project proponent visited again 9 farms out of 12 to support the on-going verification process and support the farmers in the preparation of the VVB visits if any. An additional round of visits for the 2 remaining farms was done on the 12th of October. PAI's visit reports are available in records. As per the VCS MR[/02/] the stakeholders matrix list which is focused on the new entities joining the project during the second monitoring period which is as mentioned below:

Farm number	People working at the farm	Nutritionist	Feedmill Involved	Milk distributor	UK authorities
1	LSC on-going during all the crediting period as per above description	Involved with farm 1 and 12	None	None : farmer distributes his production	Done at validation
2		Involved with farm 2 and 4	None	Through the farmer	Done at validation
3		None	None	Through the farmer	Done at validation
4		Involved with farm 2 and 4	None	Through the farmer	Done at validation

5		None	None	Through the farmer	Done at validation
6		None	None	Through the farmer	Done at validation
7		None	None	None : farmer distributes his production	Done at validation
8		None	None	Through the farmer	Done at validation
9		None	None	Through the farmer	Done at validation
10		Involved with farm 10	None	Through the farmer	Done at validation
11		None	None	Through the farmer	Done at validation
12		Involved with farm 1 and 12	None	Through the farmer	Done at validation

VVB confirms the local stakeholder consultation as valid and in accordance with the VCS requirements. VVB also confirms, as per the on-site inspection, that no grievances have been recorded during the monitoring period and appropriate grievance mechanism has been adopted by PP in compliance with the requirements of the VCS standard v4.3.

4.3 AFOLU-Specific Safeguards

This is not applicable to the project activity as the Project is not an AFOLU (Agriculture, Forestry and Other Land Use) project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Table 3: Assessment of Data/Parameters monitored (As per VCS MR[/02/])

Data/Parameter monitored	Source of data/ calculation method	VVB Assessment

N_{ij} (Average number of head in each animal grouping *j* in the farm *i* consuming a supplement during the monitoring period)	Data records of livestock operations using the feed supplement. Livestock inventory records	During the on-site inspection, the average number of heads were observed and cross checked against MR/02/, Farm's livestock inventory records/12/, feed records/20/, and from the document "2072 – UK project – Data monitoring March 2020 – Sept 2022-Revised as per CAR". VVB, based on the review and cross-checking of internal data on cattle numbers and reports from the external body, confirms that the values incorporated in the ER spreadsheet are accurate and valid.
Days (Number of days project activity implemented in the specific animal grouping.)	Data records of livestock operations using project feed supplement	During the on-site inspection, VVB has cross-checked the Farm's livestock inventory records/12/, feed records/20/, against the MR/02/ and ER/03/ spread sheet and confirms that the values applied are accurate and in line with the raw data.
J (Animals at each farm *I* should be grouped based on a homogenous ruminant population characterization)	Data records of livestock operations using project feed supplement.	During the on-site inspection, VVB cross checked the animals at farm against the MR/02/, Farm's livestock inventory records/12/, feed records/20/, and from the document "2072 - UK project - Data monitoring

		March 2020 - Sept 2022- Revised as per CAR"/23/. And confirms that the applied are accurate and consistent with the raw data.
FM (Amount of feed supplement purchased by the farm *i* during the monitoring period)	Data records of livestock operations purchasing project feed supplement	During the on-site inspection, VVB cross checked the animals at farm against the MR/02/, Farm's livestock inventory records/12/, feed records/20/, and from the document "2072 - UK project - Data monitoring March 2020 - Sept 2022- Revised as per CAR"/23/. And confirms that the applied are accurate and consistent with the raw data.
EF_P (Emission factor for production of feed supplement. GHG emitted per kg of feed. All activities involved at the manufacturer's production facility of the feed supplement)	Records and documentation provided by the feed manufacturer.	During the on-site inspection VVB cross checked the value of emission factor for production of feed supplement used in the MR/02/, ER spreadsheet/03/ and confirms that the value used for emission factor is valid and consistent with the source provided "Emission factor for Production"/14/.
EF T_l (Emission factor for transportation of feed supplement to the farm *l* during the monitoring period. GHG emitted per kg of feed.)	Records and documentation provided by the feed manufacturer.	During the on-site inspection VVB cross checked the value of Emission factor for transportation of feed supplement used in the

		MR[/02/], ER spreadsheet[/03/] and confirms that the value used for emission factor is valid and consistent with the source provided "Emission factor for transportation"[/15/].
EF_{elec} (Emission factor for electricity)	UK Government Conversion Factors for greenhouse gas (GHG) reporting	During the on-site inspection VVB cross checked the value of Emission factor for electricity used in the MR[/02/], ER spreadsheet[/03/] and confirms that the value used for emission factor is valid and consistent with the source provided "conversion-factors-2021-condensed-set-most-users"[/16/].
EFT (Emission factor values for each mode of transport m)	UK Government Conversion Factors for greenhouse gas (GHG) reporting	During the on-site inspection VVB cross checked the values of Emission factor for each mode of transport used in the MR[/02/], ER spreadsheet[/03/] and confirms that the value used for emission factor is valid and consistent with the source provided "Sheet SECR KWH Pass Vehicle delivery cell G113 & conversion-factors-2021-condensed-set-most-users"[/17/].

D*i* (Total distance travelled by the product from the production site to the farm)	Data provided by the project proponent or manufacturer	During the on-site inspection, VVB has cross-checked the Farm's livestock inventory records[/12/], feed records[/20/], against the MR[/02/] and ER[/03/] spread sheet and confirms that the values provided by the feed manufacturer are accurate and consistent with the raw data.

After reviewing VCS PD[/01/], MR[/02/] and supporting spreadsheets, VVB has ascertained that all calculations of carbon sequestration are in compliance with the requirements stated in VCS Standard v4.3 and methodology applied VM0041 version 1.0[/B02/].

Table 4: Assessment of Data and parameters available at validation

Data/Parameter	Value applied	VVB Assessment
GE_j (Average monthly gross energy intake for a specific animal group)	Average monthly values applied	VVB during the on-site inspection, reviewedthe records and data from livestock operators and nutritionists from March 2020 for the 1st instance and from the date of on-boarding for the new instances until the continuation of the project activity, and confirms the usage of value as valid and appropriate.
DMI_j (Average dry mass of feed consumed by an animal in a given day)	Records and data from livestock operator	VVB during the on-site inspection, reviewed the historical data covering 3 years before the start of the project as provided by each instance and confirms the usage of

		values as valid and appropriate.
Ym_j (Percentage of feed energy converted to methane for each animal group)	6.5%	VVB during the on-site inspection, reviewed the value from UK NIR 2017 (Issue 2), Table A3.3.4 "Dairy Cows Tier 2 Methane Emission Factors" and confirms that the value applied is valid.
NDF_j	30% (average)	VVB during the on-site inspection, reviewed the records and data from livestock operator and nutritionist from Jan 2017 until the continuation of the project activity and its 1st instance and confirms that the use of value is appropriate.
ED (Energy content of dry matter)	19.10 for 1st instance of project activity as the diet includes edible oils with fat contents below 4% (Average 3.7%)	PP has used farm specific values which were reviewed during the on-site inspection by VVB. VVB confirms the use of default values are valid and appropriate.
EC (Energy content of methane)	55.65	PP has used the default value taken from IPCC 2006 guidance (Section 10.3.2). VVB after reviewing the source value confirms the value used is valid.

$EF_{Enterici,j}$	For 1st instance of project activity: Total per group HF per year: 46,035 Total per group Jersey per year: 17,241 Total per year: 63,276	VVB during the on-site inspection, reviewed the calculation by PP using results from 5.1 Baseline Emissions and confirms the usage of values as valid.
GWP of CH_4	28	PP has used the IPCC default values which deems to be suitable by VVB after cross checking it.
$ERF_{Enteric\ j}$	20.7% and 38.3% factors applied for the 1st Instance of the project activity	PP has used the value provided by the feed manufacturer for each animal group or calculated using equation 7 of the applied methodology. Data records and study report of farm operations. Study: Vrancken, H. *et.al.,*(2019) Reduction of Enteric Methane Emission in a Commercial Dairy Farm by a Novel Feed Supplement. Open Journal of Animal Sciences, 9, 286-296. VVB after reviewing the data and the literature mentioned confirms the use of value as valid.

Baseline emissions

The baseline emissions are calculated in accordance with the methodology VM0041[/B02/]. The baseline emissions are calculated using equation 3 in the methodology. Equation 3 becomes:

$$EFEnteric_{i,j} = \left[GE_j \bullet Y_{m,j} \bullet N_{i,j} \bullet Days_{i,j}\right] \bullet EC^{-1}$$

Where:

EFEnteric$_{i,j}$= Enteric CH4 emissions factor for each animal group j during the monitoring period (kg CH4 group^{-1})

GE $_j$= Average gross energy intake per animal group 1 and 2 in the farm *i* (MJ head^{-1} day^{-1})

Ym $_j$= Defined by the monthly average of NDF % in the feed

Days= Numbers of days each animal group in the farm is fed with the feed supplement minus the days of acclimation and the correction for leaving the group and coming back once a year

N$_{i,j}$= Average number of head in each animal grouping *j* in the farm *i* in the monitoring period (dimensionless)

EC= Energy content of methane (=55.65 MJ kg^{-1} of CH_4)

I= Identification of livestock farm (1)

j= Animal grouping (1,2)

Gross energy intake GE is calculated by multiplying dry matter intake by the energy density of the feedstuff:

$$GE_j = \left[DMI_j \bullet ED\right]$$

Where

DMI $_j$= Average dry mass of feed consumed by animal group 1 and 2 in a given day (Kg head-^{1} day-^{1})

ED= Energy Density. Average energy content of dry matter =19.10 MJ kg^{-1}

Project emissions

Project emissions are calculated according to Equation 6, as follows:

$$PEEnteric_i = \sum_{j=1}^{N} [EFEnteric_{ij}] \bullet [1 - ERFEnteric_j] \bullet \frac{GWP}{1000} + EFME_i$$

Where:

1) $\sum_{j=1}^{N} [EFEnteric_{ij}] \bullet [1 - ERFEnteric_j] \bullet \frac{GWP}{1000}$

2) $\mathrm{EFME_i} = \frac{\mathrm{FM_i} \bullet \mathrm{EFP}}{1000} + \mathrm{EFT_i}$

Where:

EFME**i** =Total emissions associated with manufacturing and transport of the feed supplement in the farm i during the monitoring period (tCO_2e)

FMi= Amount of feed supplement purchased by the farm i during the monitoring period (kg)

EFP= Emission factor for production of feed supplement (kg CO2e kg-1)

EFT= Emissions for transport of feed supplement consumed during monitoring period to the farm i (tCO_2e)

a) Manufacturing facility power consumption

The feed supplement is produced in Mootral's manufacturing facilities in Abertillery (Wales UK).

The power consumption is the sum of power needed to operate the various equipment used during the production of 180kg batches. Power of each device (in kWh) is the one declared by the equipment manufacturer. The total power used is calculate according to the duration of use of each equipment to produce one batch of 180kg

Batch size per campaign run= 180 kg

Total kWh per batch = 25.375 kWh

UK factor: 1kwh= 0.21233 kg CO2e

Energy used per kg of feed supplement production EFP = 0.0299 kg CO2e

b) Emissions from the transport of Mootral feed supplement from the production facility to the farms

The feed supplement is shipped by trucks from the manufacturing facility to the farm. The distance between the manufacturing facility and each project instance is calculated by using Google map and considering the fastest way by road.

The emissions are calculated based on trucks weighing more than 17 tonnes and fully loaded.

EFT = 0.1019 kg per km per kg of feed (kgCO2 $kg^{-1}km^{-1}$)

According to the VCS methodology/B02/ PP need to calculate the following:

$$EFME_i = \frac{FM_i \bullet EFP}{1000} + EFT_i$$

Where:

$EFME_i$ =Total emissions associated with manufacturing and transport of the feed supplement in the farm i during the monitoring period (tCO_2e)

FM_i= Amount of feed supplement purchased by the farm i during the monitoring period (kg)

EFP= Emission factor for production of feed supplement (kg CO_2e kg^{-1})

EFT= Emissions for transport of feed supplement consumed during monitoring period to the farm i (tCO_2e)

As per VCS MR/02/, the instances of the project activity has achieved a net reduction of 2994 tCO_2e. The significance of GHG emissions from feed production = 1.448 tCO_2e / 2,994 tCO_2e = 0.048% of total emissions.

Leakage:

As per the VCS MR/02/, in the context of the methodology applied for this project activity, leakage could potentially consist of a change in the number of animals in the livestock operation due to livestock performance impacts of introducing the supplement, thereby necessitating changes in livestock populations in non-project operations to fulfill market demand. During the monitoring period, no significant change has been observed at the project activity instances regarding the number of animals in the operation. Therefore, leakage is considered to be zero. VVB during the on-site inspection confirms that the leakage can be considered zero as there has been no significant change in number of animals observed.

VVB confirms the accuracy of GHG removals, including accuracy of spreadsheet formulae, conversions and aggregations, and consistent use of the data and parameters. The data and information flow including any manual transposition were checked and found to be consistent. VVB found a clear audit trail of all the data/information used for the GHG removal calculation. VVB further confirms that all parameters have been 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 formulae laid out in the applied methodologies and requirements of the monitoring plan.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

VVB during the course of verification has checked the information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report. This assessment reveals that there are various raw data sources (both external and internal) for the preparation of monitoring report, namely default values from methodology, tools used, data from field, Livestocks inventory, etc. This raw data is then recorded and transferred in the carbon calculation spread sheet and then finally to the monitoring report. The quality of supporting documents that are provided by the PP as evidence is adequate The detailed assessment of the documents used during the assessment process has been provided below:

Table 5 : Evidence and their pertinence with respect to the VCS project

S.No.	Documents	Pertinence
i.	Carbon calculation spreadsheet/03/	To demonstrate the carbon reduction calculation as per VCS Standard v4.3/B01/.
ii.	Monitoring report/02/	To demonstrate the execution of monitoring plan according to the VCS PD/01/
iii.	Eligibility Matrix for all instances/06/	To demonstrate eligibility of new instances in the existing project activity
iv.	Project ownership-Agreements with farms/07/	To demonstrate project ownership of project proponent
v.	Readyness notice/08/	To demonstrate project start date in every instance
vi.	KML file for all locations/09/	To demonstrate exact location of each instance
vii.	Introduction of Mootral in diet-readiness notice/10/	To demonstrate the inclusion of supplement feed in diet of ruminants

viii.	Feeding start date-readyness notice/11/	To demonstrate start date of feeding of supplement in each instance
ix.	Raw data from each farm/12/	To demonstrate raw data used for calculations
x.	Amount of feed delivered to each instance/13/	To demonstrate amount of feed delivered to each instance
xi.	Emission factor for production/14/	To demonstrate emission factor values used for calculation
xii.	Emission factor for transportation/15/	To demonstrate emission factor values used for calculation
xiii.	Emission factor for electricity/16/	To demonstrate emission factor values used for calculation
xiv.	Emission factor for mode of transport/17/	To demonstrate emission factor values used for calculation
xv.	Non-GMO certificate for the feed supplement/18/	To demonstrate that the feed supplement is free of Genetically Modified Organisms (GMO)
xvi.	No increase in manure emission/19/	To demonstrate that there is no increase in manure emissions due to inclusion of new project instances
xvii.	Feeding records/20/	To demonstrate feeding records data for each instance
xviii.	Feeding instructions/20/	To demonstrate feeding instructions for the supplement
xix.	Proof of purchase and delivery/21/	To demonstrate the purchase and delivery of supplement in each instance
xx.	Regulatory framework/04/	To demonstrate the project eligibility in host country according to its laws and regulations

Competent employees are recruited for the management and operation of the project. The quality of supporting evidence submitted to VVB for verification is adequate and found to be verifiable.

Based on the above, VVB confirms the sufficiency and appropriateness of the quality of evidence provided by the PP to determine the GHG removals and further deems them to be acceptable.

4.6 Non-Permanence Risk Analysis

This is not applicable to the project activity as the Project is not an AFOLU (Agriculture, Forestry and Other Land Use) project.

5. VERIFICATION CONCLUSION

CCIPL has performed the verification of the registered project activity "UK Cowcredit project: A UK Dairy initiative to reduce methane from enteric fermentation and support farmers" commissioned by the project proponent Mootral SA.

The verification process was performed on the basis of all guidance and criteria as provided in VCS Standard version 4.3, VCS Program Guide version 4.2, VCS Validation and Verification Manual version 3.2 and Registration & Issuance Process version 4.0/B01/.

The project activity provides the information in PD/01/ as required by the VCS Standard/B01/ and Validation and Verification Manual/B01/ and in Carbon Check's opinion meets the requirements of the applied baseline and monitoring methodologies and is likely to achieve the estimated emission reductions. The verification has been performed using a risk- based approach, as described above. The total GHG emission reductions over the monitoring period are 2,994t CO_2e/year/02/03/.

The selected baseline and monitoring methodologies is applicable to the project and correctly applied.

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01 March 2020- 31 December 2020	1,362	1,009	0	353
01 January 2021- 31 December 2021	1,624	1,204	0	420
01 January 2022- 30 September 2022	9,968	7,747	0	2,221
Total	**12,954**	**9,960**	**0**	**2,994**

APPENDIX 1: LIST OF DOCUMENTS

S.No.	Documents	Reference
/01/	VCS PD	Version 2, 2nd April 2020
/02/	a) VCS MR b) VCS MR c) VCS MR d) VCS MR	a) Version 2, 30th October 2022 b) Version 3, 18th November 2022 c) Version 4, 15th December 2022 d) Version 5, 28th December 2022 e) Version 6, 16th May 2023 f) Version 7, 21st June 2023
/03/	Carbon calculation sheet ✓ 2072 – UK project – Data monitoring until 30.09.2022 ✓ 2072 – UK project – Data monitoring March 2020 – Sept 2022 – Revised as per CAR ✓ 2072 – UK project – Data monitoring March 2020 – Sept 2022 – Revised as per CAR V2 15.12.2022 ✓ 2072 - UK project - Data monitoring March 2020 - Sept 2022 - Revised as per Verra findings 3 V4 21.06.2023	-
/04/	Regulatory framework ✓ 2019 10 MOOTRAL_regulatory_EU	October 2019
/05/	No Negative impact on animal health ✓ Vrancken, H.,Suenkel, M.,Hargreaves, P.R.,Chew, L.and Towers,E.(2019) Reduction of Enteric Methane Emission in a Commercial Dairy Farm by a Novel Feed Supplement. Open Journal of Animal Sciences, 9, 286-296.	21st June 2019
/06/	Eligibility criteria check for new instances ✓ Eligibility Matrix for all new instances	-
/07/	Project ownership-agreement with farms ✓ Copy of 2022 04 01 Enrolment Agreement Farm n°3 ✓ Copy of 20211029 Enrolment Agreement Farm n°7	29th October 2021(Farm n°7) March-April 2022

	✓ Copy of 20220124 Enrolment Agreement Farm n°9 ✓ Copy of 20220204 Enrolment Agreement Farm n°12 ✓ Copy of 20220221 Enrolment Agreement_ Farm n°8 ✓ Copy of 20220302 Enrolment Agreement Farm n°6 ✓ Copy of 20220304 Enrolment Agreement Farm n°10 ✓ Copy of 20220317 Enrolment Agreement Farm n°2 ✓ Copy of 20220317 Enrolment Agreement Farm n°5 ✓ Copy of 20220329 Enrolment Agreement_ Farm n°11 ✓ Copy of 20220421 Enrolment Agreement Farm n°4 ✓ Copy of Mootral_MoOvement_UK_Blue_Book	
/08/	Project start date- Readyness notice ✓ Farm n°2 Readiness declaration ✓ Farm n°3 Readiness declaration ✓ Farm n°4 Readiness Declaration ✓ Farm n°5 Readiness declaration ✓ Farm n°6 Readiness declaration ✓ Farm n°7 declaration of readiness-signed ✓ Farm n°8 Readiness declaration ✓ Farm n°9 Declaration of Readiness-Annex 3 ✓ Farm n°10 Readiiness declaration ✓ Farm n°11 Readiness declaration ✓ Farm n°12 Declaration of Readiness-signed	17th December 2021(Farm n°7) February – May 2022
/09/	KML file all locations ✓ Farms 40ocalization on UK map ✓ UK – Cow Credit Project by Mootral	-
/10/	Introduction of Mootral in diet-readyness notice ✓ Farm n°2 Readiness declaration ✓ Farm n°3 Readiness declaration ✓ Farm n°4 Readiness Declaration ✓ Farm n°5 Readiness declaration ✓ Farm n°6 Readiness declaration ✓ Farm n°7 declaration of readiness-signed ✓ Farm n°8 Readiness declaration ✓ Farm n°9 Declaration of Readiness-Annex 3 ✓ Farm n°10 Readiiness declaration ✓ Farm n°11 Readiness declaration ✓ Farm n°12 Declaration of Readiness-signed	17th December 2021(Farm n°7) February – May 2022
/11/	Feeding start date-readyness notice ✓ Farm n°2 Readiness declaration ✓ Farm n°3 Readiness declaration ✓ Farm n°4 Readiness Declaration ✓ Farm n°5 Mallet Readiness declaration ✓ Farm n°6 Readiness declaration ✓ Farm n°7 declaration of readiness-signed	17th December 2021(Farm n°7) February – May 2022

	✓ Farm n°8 Readiness declaration ✓ Farm n°9 Declaration of Readiness-Annex 3 ✓ Farm n°10 Readiiness declaration ✓ Farm n°11 Readiness declaration ✓ Farm n°12 Declaration of Readiness-signed	
/12/	Raw data from each farm ✓ Copy of Moovement_UK_Instructions to fill Google sheet template ✓ Moovement project – Farm n°1 ✓ Moovement project – Farm n°2 ✓ Moovement project – Farm n°3 ✓ Moovement project – Farm n°4 ✓ Moovement project – Farm n°5 ✓ Moovement project – Farm n°6 ✓ Moovement project – Farm n°7 ✓ Moovement project – Farm n°8 ✓ Moovement project – Farm n°9 ✓ Moovement project – Farm n°10 ✓ Moovement project – Farm n°11 ✓ Moovement project – Farm n°12	-
/13/	Amount of feed delivered to each instance ✓ Mootral Purchase and Deliveries UK project	-
/14/	Emission factor for production ✓ Emission factor for production ✓ Manufacturing batch card_Mootral 80P_NB7121 ✓ Equipment wattage	17th May 2022-19th May 2022
/15/	Emission factor for transportation ✓ Emission factor for transportation	-
/16/	Emission factor for electricity ✓ conversion-factors-2021-condensed-set-most-users ✓ Please refer to sheet “UK electricity”, cell F24	-
/17/	Emission factor for mode of transport ✓ conversion-factors-2021-condensed-set-most-users ✓ Sheet SECR KWH Pass Vehic delivery cell G113	-
/18/	Non-GMO certificate for the feed supplement ✓ GMO free Statement Wilfarin ✓ GMO Statement Mootral Ruminant Pellet 80P_plus rationale	July 2022 October 2022
/19/	No increase in manure emission First instance ✓ Analysis Results (SLURRY) ✓ Farm n°1_Manure_Explanation ✓ Slurry _literature 2 ✓ Slurry_ literature New instances by sampling ✓ Managing manure on organic farms-DEFRA ✓ Farm n°11_Manure_Explanation-with test results	2nd August 2019 27th May 2022

/20/	Evidence of feeding Feeding records ✓ 2072 – UK project – Data monitoring March 2020 – Sept 2022 Feeding instructions ✓ Mootral_Explanation_Video	-
/21/	Proof of purchase and delivery ✓ Farm n°1 ✓ Farm n°2 ✓ Farm n°3 ✓ Farm n°4 ✓ Farm n°5 ✓ Farm n°6 ✓ Farm n°7 ✓ Farm n°8 ✓ Farm n°9 ✓ Farm n°10 ✓ Farm n°11 ✓ Farm n°12 ✓ Mootral Purchase and Deliveries UK project	2021-2022
/22/	Joint Validation & Verification Report (previous)	Version 2, 21st May 2020
/23/	2072 - UK project - Data monitoring March 2020 - Sept 2022- Revised as per CAR	
/B01/	**a)** VCS Program Guide (v4.2, dated 22/06/2022) **b)** VCS Standard (v4.3, dated 22/06/2022) **c)** Program Definitions (v4.2, dated 22/06/2022) **d)** Registration & Issuance Process (v4.2, dated 22/06/2022) **e)** AFOLU Non-Permanence Risk Tool (v4.0, dated 19/09/2019) **f)** VCS Validation and Verification Manual (v3.2, dated 19/10/2016)	Others
/B02/	VM0041: Methodology for the Reduction of Enteric Methane Emission from Ruminants through the Use of 100% Natural Feed Supplement". V1.0	Others
/B03/	CDM tool "Tool to calculate the emission factor for an electricity system"	Others

/B04/	**(a) Other GHG programs:** **CDM:** https://cdm.unfccc.int/Projects/index.html **VCS:** https://registry.verra.org/app/search/VCS/All%20Projects **GSF:** https://registry.goldstandard.org/projects?q=&page=1 **Plan Vivo:** https://www.planvivo.org/pages/category/projects?Take=28 **(b) VCS project page:** https://registry.verra.org/app/projectDetail/VCS/2552 **(c)** Time required for adaptation of behavior, feed intake, and dietary digestibility in cattle. Richard J. Grant*, Heather M. Dann, and Melissa E. Woolpert, William H. Miner Agricultural Research Institute, Chazy, NY **(d)** UK Government Conversion Factors for greenhouse gas (GHG) reporting, https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021 **(e)** UNFCCC. Available online: https://unfccc.int/sites/default/files/english_paris_agreement.pdf (accessed on November 2019) **(f)** UK NIR 2019 (Issue 2) **(g)** Garlic dried – 4.5.1 : www.feedmaterialsregister.eu/ **(h)** https://ec.europa.eu/food/safety/animal-feed/feed-additives/eu-register_en **(i)** http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009R0767 **(j)** Vrancken, H.,Suenkel, M.,Hargreaves, P.R.,Chew, L.and Towers,E.(2019) Reduction of Enteric Methane Emission in a Commercial Dairy Farm by a Novel Feed Supplement. Open Journal of Animal Sciences, 9, 286-296	Others

	(k) https://unfccc.int/process-and meetings/transparency-and-reporting/reporting-and-review-under-theconvention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2019 **(l)** https://cdm.unfccc.int/Reference/new_reg.html	

APPENDIX 2: ABBREVIATIONS

BE	Baseline Emission
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
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
MW	Mega Watt
PAI	Project Activity Instance
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
TR	Technical Review
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VVM	Validation and Verification Manual
VVS	Validation and Verification Standard

APPENDIX 3: FINDINGS LOG

Table 1: Clarification Requests (CL) raised during this verification

CL	01	**Section no.**	ER spreadsheet	**Date:** 13/11/2022
Description of CL				
Project proponent has provided the data of purchase and deliveries for each of the project instances of the grouped project. While reviewing the spread sheet “Mootral Purchase and Deliveries UK project”, VVB has noted that the quantities delivered to Farm n°4 is less than the quantity required. PP is requested to clarify this situation while doing so please justify the conservativeness of emission reduction calculation.				
Project proponent response				**Date:** 18/11/2022
The PP acknowledges that a shortage of about 90kgs in the deliveries of Mootral at Farm n°4. According to the standard rate of usage of Mootral in this farm, this corresponds to a difference of 10%. Even if studies demonstrate that Mootral remains active several weeks after the interruption of the feeding (up to 4 weeks), the crediting period is conservatively reduced by 10% from 120 days to 108 days. The number of credits is therefore reduced from 111 to 100 tons For Farm n°4, the feeding days were reduced to 123 days and the ER- Mootral Consumption- updated accordingly. The feedings days corresponds to the effective numbers of days, the animals get Mootral. It is different from the number of days in the crediting period because the animals need an adaptation period of 2 weeks before reaching the full potential of reduction. Conservatively, these 2 weeks are removed from the number of days considered to calculate the credits generation. However, we took into account the effective number of days they are fed to calculate the Mootral consumption vs the deliveries of product at the farms.				
Documentation provided by project participant				
ER updated version It was revised to show 108 days of feeding in the crediting period instead of 120				
VVB assessment				**Date:** 16/12/2022
Based on review of revised ER spread sheet and response above, VVB confirms that project proponent has justified the findings raised as well as considered a conservative approach. This is deemed appropriate and thus acceptable to the VVB. **CL is closed.**				

CL	02	**Section no.**	ER spreadsheet	**Date:** 13/11/2022

Description of CL	
VVB during the on site inspection interviews and based on review of ER spread sheet noted that for the Farm n°7, the start date of the feeding is 19-Dec-2021, however, the start date of emission reduction claim is from 22-Jun-2022. Although, the approach is conservative, however the situation needs to be clarified for better transparency to the readers. While doing so, PP is requested to provide detailed history of the site and the root cause of this situation.	
Project proponent response	**Date:** 18/11/2022
During the regular monitoring of the farm n°7, it appears that data reported to Mootral were not consistent and showed frequent and large variations in term of number of animals fed with Mootral. Because of the summer drought and the lack of grass in that part of England, Farm n°7 was very frequently changing its farming practices from full pasture, to partial pasture (with feeding complement and Mootral) and back again to pasture for their herd. They tried to keep lactating cows at pasture the more they could and would not feed Mootral to outside animals. Eventually, in June they took the decision that only dry cows may stay outside while every cow re-integrating the lactating herd would be kept inside and fed with Mootral. Therefore, the project proponent decided to consider as the start of the crediting period only the moment when the farming practices were stabilised and consistently feeding the lactating cows with Mootral	
Documentation provided by project participant	
Call log with Farm n° 7 showing their explanation for the variation of the number of animals. Raw data sheet from farm n°7 showing stabilization of number of cows fed with Mootral as from June and increasing regularly when more and more cows re-integrated the lactating group.	
VVB assessment	**Date:** 30/11/2022
PP has provided with the requested clarification along with the supporting evidence documents which deems to be appropriate and valid by VVB. Hence, VVB justifies the response as valid. **CL has been closed**	

Table 1: Corrective Action Requests (CAR) raised during this verification

CAR	01	Section no.	1.11, VCS MR	Date: 13/11/2022
Description of CAR				

During the on site inspection, VVB has interviewed the PP's personnels including interviews with the production staff. This interview confirms the relevance of claim of SDG 9 (and indicator 9.2). VVB has also noted employment generation in different departments of the Mootral. However, the appropriateness of the SDG (and indicator chosen) for this is not appropriate. Project proponent is requested to revisit the section of SDGs and its demonstration.

Project proponent response	**Date:** 18/11/2022

the PP demonstrates a contribution to SDG through the development of a new production facilities in Wales together with new jobs created.

The PP revised the Monitoring Report to claim this contribution under SDG 8.5 instead of 9.2

"8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value"

Documentation provided by project participant

Revised Monitoring Report (V3) with updated section 1.11 and Table 1

VVB assessment	**Date:** 30/11/2022

PP has provided with the requested corrective actions in their updated MR. VVB after reviewing the revised MR and the table 1, justifies the response of PP as valid and appropriate.

CAR has been closed

CAR	02	**Section no.**	2.2, VCS PD	**Date:** 13/11/2022

Description of CAR

The description of local stakeholders consultation in section 2.2 of the VCS PD must provide information of each project instances and as per the VCSA requirements for this section.

Project proponent response	**Date:** 18/11/2022

During the validation of the project and the first verification, the project proponent has performed a large consultation of the local stakeholders to explain the concept of the reduction of enteric fermentation and how Mootral feed supplement is able to bring to farmers a way to fight climate changes by adopting a new sustainable farming practice.

For the second monitoring period, the LSC was focused on the stakeholders engaged with the new instances. A new table / matrix in the monitoring report shows which stakeholders were consulted for each instance. The description of the consultation was also amended to describe how the farm's staff and the nutritionists were consulted

Documentation provided by project participant

Revised Monitoring report (V3) Section 2.2 with a stakeholders matrix

VVB assessment	**Date:** 30/11/2022

PP has provided with the requested corrections. PP has updated the section 2.2 of the MR as per the VCS requirements. VVB after reviewing the revised MR in accordance with the VCS requirements justifies the response as valid and appropriate.

CAR has been closed

CAR	03	**Section no.**	4.1, VCS MR	**Date:** 13/11/2022

Description of CAR

Project proponent is requested to provide ER calculation spread sheet of 1st Monitoring period. This is to check the consistency of approach as compare to the previous monitoring period.

Furthermore, the monitoring frequency of the parameter "DMI" needs to be clarified further. VVB (during the on site inspection) has checked the two project instances and found that this parameter is monitored monthly at the project site. And the results of monitoring have been used for the ER calculation. However, the monitoring methodology and the registered PD, define this parameter as "fixed at the time of validation" and should be taken into account the average three year actual historical data or regional/national statistics as per the methodology.

Project proponent response **Date:** 18/11/2022

The PP has now considered the average DMI from 3 years of historical data collected for each farm and fixed this parameter for the crediting period.

Farm n°	Group	DMI (kg/head/day)
Farm 1	Group 1	21.91
Farm 1	Group 2	14.93
Farm 2	Group 1	23.24
Farm 3	Group 1	22.01
Farm 4	Group 1	23.36
Farm 5	Group 1	25.36
Farm 6	Group 1	24.33
Farm 7	Group 1	24.18
Farm 8	Group 1	22.62
Farm 9	Group 2	22.44
Farm 10	Group 1	24.66
Farm 11	Group 1	25.21
Farm 12	Group 1	26.60

All results were recalculated accordingly and Monitoring Report revised

As per the methodology, the average DMI used to calculate the number of carbon credits is the one from the historical data. The data and the calculation are shown in the tab "Baseline Data for DMI". These DMIs are consistent with the table shown above and the DMI used in the final calculation in the ER.

The DMI data from the tab “New instance farm data” are kept for reference only and these average DMI are not used. For the good order, the column showing the DMI is now hidden in the new ER sheet provided to the VVB
Documentation provided by project participant
ER from the 1st validation is provided ER revised with the fixed DMI Calculation of fixed DMI based on historical data Raw historical data for each farm Revised Monitoring Report (V3)

VVB assessment	**Date:** 16/12/2022
PP has provided with the requested ER calculation spread sheet of 1st Monitoring period. PP has provided with the requested corrections and has considered the three year of historical data as per the methodology requirements which deems to be suitable and appropriate by VVB. **CAR is closed.**	

APPENDIX 4: CERTIFICATE OF COMPETENCY

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Vikash Kumar Singh

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), 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	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	
☒ Local Expert for India, South Africa, and Spanish speaking countries			

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			

Issue Date
1st December 2022

Expiry Date
30th November 2023

Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.0_112022

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Ms. Isha Kapoor

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), 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	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☐ SDG+	☐ Social no-harm(S+)	☐ Environment no-harm(E+)	
☒ Local Expert for India			

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			

Issue Date
8th December 2022

Expiry Date
7th December 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.0_112022

Carbon CHECK

Carbon Check (India) Private Limited

Certificate of Competency

Mr. Amit Anand

has been qualified as per CCIPL's internal qualification procedures in accordance with the requirements of CDM AS (V7.0), 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	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	
☒ Local Expert for India and South Africa			

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			

Issue Date	Expiry Date
1st December 2022	30th November 2023

Mr. Vikash Kumar Singh
Compliance Officer

CCIPL_FM 7.9 Certificate of Competency_V2.0_112022

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 (V7.0), 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	☐ Health Expert	☐ Gender Expert	☐ Plastic Waste Expert
☒ SDG+	☒ Social no-harm(S+)	☒ Environment no-harm(E+)	
☒ Local 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			

Issue Date
1st December 2022

Expiry Date
30th November 2023

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

CCIPL_FM 7.9 Certificate of Competency_V2.0_112022