METHODOLOGY FOR IMPROVED AGRICULTURAL LAND MANAGEMENT ASSESSMENT REPORT

Document Prepared by:

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Summary

Aster Global Environmental Solutions, Inc., (Aster Global) was commissioned by Indigo Ag Inc., to perform the first assessment of the Methodology for Improved Agricultural Land Management (v1.0, 21 August 2020) in accordance with the VCS Methodology Approval Process, the VCS Program Guide v4, and the VCS Standard v4.

The Methodology "provides procedures to estimate the greenhouse gas (GHG) emissions reductions and removals resulting from the adoption of regenerative agriculture management practices focused on increasing soil organic carbon (SOC) storage. The methodology quantifies net emissions of CO2, CH_4, and N_2O from grower operations."

The purpose and scope of the new methodology element assessment was to evaluate whether the methodology document was prepared in line with the VCS program requirements. Aster Global's assessment included a detailed review of adherence to the VCS Methodology Approval Process, the VCS Program Guide, and the VCS Standard, with regard to applicability conditions, project boundary, baseline approach, additionality, emissions/removals, leakage, monitoring, data and parameters, and adherence to the principles of the VCS rules and requirements (relevance, completeness, consistency, accuracy, transparency and conservativeness). Aster Global's assessment also included a detailed analysis of the methodology, literature reviews, technical reviews and responses to all non-conformity reports (NCRs), clarifications (CLs), and opportunities for improvement (OFIs) based on the VCS rules and requirements.

The assessment team identified 161 findings (NCRs, CLs and OFIs). All were addressed satisfactorily in line with the VCS program requirements. These NCRs, CLs, and OFIs provided necessary clarity to ensure the methodology was in compliance with the VCS rules and requirements. All findings were appropriately addressed and are depicted in Appendix A.

Aster Global confirms all methodology assessment activities, including objectives, scope and criteria, level of assurance and the methodology's adherence to the VCS Program and VCS Standard, as documented in this report, are complete. Aster Global concludes without any qualifications or limiting conditions that the Methodology for Improved Agricultural Land Management (v1.0, 21 August 2020)

meets the requirements of VCS Rules and Requirements. Aster Global recommends that Verra approve the methodology.

CONTENTS

1 INTRODUCTION 5

1.1 Objective 5

1.2 *Section 3 below provides the assessment methods and criteria.* Summary Description of the Methodology 5

2 ASSESSMENT APPROACH 6

2.1 Method and Criteria 6

2.2 Document Review 6

2.3 Interviews 6

2.4 Assessment Team 7

2.5 Resolution of Findings 8

3 ASSESSMENT FINDINGS 10

3.1 Relationship to Approved or Pending Methodologies 11

3.2 Stakeholder Comments 13

3.3 Structure and Clarity of Methodology 13

3.4 Definitions 14

3.5 Applicability Conditions 14

3.6 Project Boundary 17

3.7 Baseline Scenario 25

3.8 Additionality 26

3.9 Quantification of GHG Emission Reductions and Removals 26

3.10 Monitoring 29

4 ASSESSMENT CONCLUSION 42

5 EVIDENCE OF FULFILMENT OF VVB ELIGIBILITY REQUIREMENTS 42

6 SIGNATURE 43

APPENDIX A 44

APPENDIX B 147

APPENDIX C 149

1 INTRODUCTION

1.1 Objective

This methodology assessment was performed to evaluate the likelihood that implementation of the methodology would result in accurate calculations and appropriate eligibility criteria for GHG emission reductions/removals (ISO 14064-3:2006). This report summarizes the findings of the first methodology assessment of the Verified Carbon Standard (VCS) methodology approval process framework. Indigo Ag Inc., referred to as the "Methodology Developer", commissioned Aster Global Environmental Solutions, Inc. (Aster Global), referred to as the "Assessment Team", to perform an assessment of the Methodology.

This report presents the findings of a qualified assessment team of auditors and experts in methodologies for GHG emissions who have assessed the methodology for compliance with the applicable rules of VCS. Section 2.5 presents summary findings of the methodology assessment, and Appendix A provides details of individual findings.

1.2 *Section 3 below provides the assessment methods and criteria.* Summary Description of the Methodology

This proposed methodology falls under Sectoral Scope 14 – Agriculture, Forestry, and Other Land Use (AFOLU); Agricultural Land Management (ALM); Improved Cropland Management (ICM) plus Improved Grazing Management (IGM) categories. The Methodology "provides procedures to estimate the greenhouse gas (GHG) emissions reductions and removals resulting from the adoption of regenerative agriculture management practices focused on increasing soil organic carbon (SOC) storage. The methodology quantifies net emissions/reductions of CO2, CH4, and N_2O from grower operations."[1]

The baseline scenario consists of agricultural management activities that existed before the project, except where an applicable performance benchmark has been approved and made available by Verra. In that case, the baseline scenario would equal that benchmark. Additionality will be demonstrated by adopting change(s) in pre-project agricultural management practices.

The Methodology is meant to provide flexibility in a project's approach to quantifying emission reductions and removals resulting from project activities by providing three options for the quantification approach: 1) Measure and Model; 2) Measure and Re-measure; and

[1] Ibid

3) Default Based on 2019 Refinement of the IPCC Guidelines for National Greenhouse Gas Inventories.

2 ASSESSMENT APPROACH

2.1 Method and Criteria

This assessment is based upon standard auditing techniques in line with VCS Requirements to assess the correctness of the information provided. In accordance with the VCS rules, a methodology assessment encompasses applicability conditions, project boundary, procedure for demonstrating additionality, procedure for determining baseline scenario, baseline emissions, leakage, quantification of net GHG emission reduction and/or removals, monitoring, data and parameters, and relationships to approved or pending methodologies.

The VCS documents used to assess the methodology revision were :

- Program Guide (v4.0, 19 September 2019
- Standard (v4.0, 19 September 2019)
- Program Definitions (v4.0, 19 September 2019)
- Validation and Verification Manual (v3.2, 19 October 2016)
- AFOLU Non-Permanence Risk Tool (v4.0, 19 September 2019)
- Methodology Approval Process (v4.0, 19 September 2019)
- Guidance for Standardized Methods (v3.3, 8 October 2013)

2.2 Document Review

All documents reviewed in the methodological assessment are in Appendix B.

2.3 Interviews

Interviews included an in-person meeting in Boston on 02-06 March 2020 with the entire methodology development team. The following attendees included:

David Shoch and Erin Swails of TerraCarbon, LLC

Ken Newcomb of C Quest Capital

Guy Pinjuv, Ed Smith, Dan Harburg, Max DuBuisson, Nell Campbell, Melissa Motew, and Charlie Brummitt of Indigo Ag.

Shawn McMahon, Matthew Perkowski, and Richard Scharf of Aster Global Environmental Solutions, Inc.

Andrew Beauchamp of Verra.

In addition, the Assessment Team conducted additional interviews via typical assessment channels, including the opening meeting, methodology walkthrough, meetings to discuss findings, email exchanges, phone calls, and the closing meeting. During these exchanges, the methodology development team interviewed; David Shoch and Erin Swails (TerraCarbon, LLC) and Guy Pinjuv, Max DuBuisson, Nell Campbell, and Melissa Motew of Indigo Ag.

2.4 Assessment Team

The names, roles, and summary of qualifications/expertise/experience relevant to the methodology of the assessment team follows:

Shawn McMahon – Lead Assessor and Verra-approved IFM Expert (Aster Global, smcmahon@asterglobal.com): Vice-President, Lead Assessor, VCS WRC Non-Peatlands Expert. Approved to conduct third-party carbon sequestration validations and verifications under VCS (WRC, REDD, IFM and ARR expert). Specializes in third-party carbon offset validations and verifications, carbon sequestration project development, development and implementation of management plans for enhancement of carbon stocks, development of carbon and environmental asset tracking programs, and team management.

Richard Scharf – Assessment Team Member (Aster Global, rscharf@asterglobal.com): Senior Soil Scientist, NCLSS, SC Soil Classifier. Over twenty-two years of experience in a variety of soils-related projects. Duties include managing and conducting soils work for wastewater projects, stormwater projects and wetland delineation. Provides expertise and experience on carbon offset projects/methodologies associated with agricultural land management and/or soil carbon pools.

Matthew Perkowski – Assessment Team Member (Aster Global, mperkowski@asterglobal.com): Project Forester and Forest Biometrician. Responsibilities include meeting the internal and external client objectives in the fields of forest inventory and sampling, growth and yield modeling, and directly in support of offset validation/verification projects. In addition, he is focusing on streamlining and developing quantitative tools for the GHG group to increase product service value for clients.

Eric Jaeschke – Assessment Team Member (Aster Global, ejaeschke@asterglobal.com): Project Forester and Remote Sensing Specialist. Duties include technical GIS and remote sensing support for carbon offsetting projects through validations/ verifications under various rule sets, data analysis and field validations.

Barbara Toole O'Neil - VCS-Standardized Methods Expert/Assessment Team Member (Aster Global, btooleoneil@asterglobal.com): Since 2010 she has completed assessments of 14 new methodologies. Her work responsibilities have addressed a wide range of environmental issues from preparing inventories or offset project documents to assessing methodologies submitted to the Verified Carbon Standard (VCS) (forestry to energy

efficiency); , validating/ verifying inventories and carbon offset projects, corporate social responsibility auditing, developing governance for sustainability non-profits, to writing a social standard to assess the impact of environmental projects (carbon, water, forestry, agriculture) on the quality of life for women in emerging third world countries.

Taek Joo Kim – Assessment Team Member (Aster Global, tkim@asterglobal.com): Senior Forester and Forest Biometrician. Mr. Kim received a Ph.D. in Forest Biometrics from North Carolina State University with a Ph.D. Minor in Statistics & a Graduate Certificate for Geographic Information Systems (GIS) in 2015. He was previously a postdoctoral research fellow at the U.S. Forest Service Southern Research Station until 2016. Mr. Kim has been in forestry sector for a long time and has gained an extensive knowledge and multiple research experiences in a variety of areas in forestry, which includes ecology, physiology, silviculture, management, policy, economics, and modeling. In particular, as a broadly trained forest biometrician, he has expertise in forest modeling more specifically in spatial modeling and analysis.

Caitlin Sellers – Assessment Team Member (Aster Global, csellers@asterglobal.com): Senior Forester. Ms. Sellers has been involved in environmental, forest, wetland and wildlife projects for over 13 years and has specialized in forest carbon project auditing for 8 years. She is directly involved in validation and verification of forest carbon offsets and methodologies.

Mansfield Fisher – Assessment Team Member (Aster Global, mfisher@asterglobal.com): Project Forester. Mr. Fisher received his in MS in Forestry and MS in Economics from North Carolina State University in 2020. Previously, Mr. Fisher worked for The Nature Conservancy working on restoration of the longleaf pine habitats in coastal North Carolina. Mr. Fisher has extensive knowledge in econometric modeling related to land use conversion.

Janice McMahon – QA/QC (Aster Global, jmcmahon@asterglobal.com). President. Specializes in natural resource management projects including carbon sequestration feasibility assessments, development and implementation of management plans for enhancement of ecosystem services, assessment of GHG emissions and reductions, development of environmental asset tracking programs, GHG validations and verifications, endangered/ threatened species assessments, habitat management plans, and integrated ecosystem services plans. Responsible for leading the Forestry, Carbon, and GHG Services Division, which includes client and team coordination, proposal preparation and review, marketing presentations, maintenance of Aster Global's ANSI accreditation and management System, and quality assurance and quality control for projects in the United States as well as the international market.

2.5 Resolution of Findings

The process of methodology assessment involved 5 formal rounds of evaluation by the assessment team and resulted in a Methodology version in conformance to VCS rules. Findings related to corrective action, clarification requests or other findings were resolved during communication between the assessment team and the methodology developer. More specifically, where noted by the assessment team, the methodology developer implemented corrective actions by amending methodology text and requirements and providing written clarification responses. Types of findings were characterized in the following manner:

Non-Conformance Reports (NCRs) were issued as a response to material discrepancies in a part of the methodology and generally fell into one of the following categories:

- Non-conformance to a VCS guiding document listed in Section 2.1
- Internal consistency among modules was lacking
- Mathematical formulae in modules were incorrect
- Additional information was required by the assessment team in order to confirm *reasonable* assurance for compliance

Clarifications (CL) were issued when language within a module needed extra clarification to avoid ambiguity.

Opportunities for Improvement (OFI) were issued to the methodology developer when an opportunity for improvement was identified.

During the course of the methodology assessment, 161 findings (NCRs, CLs, and OFIs) were identified. Of those, Aster Global ensured reasonable assurance was provided to close 141 findings. Verra provided reasonable assurance to close 21 findings. Details on how each finding was closed can be found in Appendix A. Throughout the assessment all NCRs/CLs were eventually satisfactorily addressed to the standards and requirements of Aster Global and/or VCS. The NCRs/CLs provided necessary clarity to ensure the methodology complied with the requirements of VCS. Detailed summaries of each finding, including the issue raised, responses and final conclusions are provided in Appendix A. The findings listed include methodology requirements, eligibility/applicability, leakage, measurement/monitoring, and quantification:

1. Finding 3: Clarification on the methodology requirement that new agricultural practices are considered in baseline scenario analysis
   Resolution: The methodology developer believed new practices should not be applicable and sought guidance from Verra. Verra approved the non-applicability of 2.1.4 of the Methodology Requirements for new practices, resolving the finding.

2. Finding 13: Clarification on eligible activities and practices required in the methodology template that were not included in the applicability conditions or were unclear
   Resolution: New text and clarification was added in the methodology to ensure all applicability conditions were in conformance to methodology requirements
3. Finding 36: Clarification requested on how the methodology addresses leakage.
   Resolution: The methodology developer asserted that crop production leakage is zero, according to 3.7.12 because the project area remains in commercial crop cultivation. The project developer then noted that if overall livestock populations decrease, and the emissions impact is not de minimis, the reduced emissions must be accounted for as leakage. Aster further questioned the approach and the methodology developer sought guidance from Verra. Verra agreed that leakage was not a concern, and this finding was closed by Verra.
4. Finding 59.8: Soil sampling requirements were contained in large (1,358 pages), older (76 years) documents and were not clearly summarized.
   Resolution: Additional soil sampling prescriptive requirements were added to the monitoring section. The methodology developer clarified they did not want to narrowly restrict sampling methodologies, as the Methodology covers a broad geographic scope. The additional text they added in response to this clarification request was sufficient to satisfy Aster Global.
5. Various Findings noted issues with equations (Findings 59.2 and 59.3, for example) and general document formatting (Finding 59.1, for example).
   Resolution: The methodology was revised to correct parameters in equations and general spelling/formatting issues, which resulted in a more readable version of the final methodology in accordance with methodology template requirements.

3 ASSESSMENT FINDINGS

The proposed Methodology (v1.0, 21 August 2020) was found to be incompliance with the principles set out in the VCS Standard and other Verra rules and requirements. The new Methodology provides flexibility for project quantification methodologies, while adhering to the principles of VCS (relevance, completeness, consistency, accuracy, transparency, and conservativeness).

Applicable VCS-approved tools are appropriately cited for determining project significance, baseline, additionality and risk. The assessment addressed specific issues that arose in the methodology, which are pertinent to the above-mentioned principles set forth by the VCS Standard.

3.1 Relationship to Approved or Pending Methodologies

The following existing methodologies were considered similar by the developer and were reviewed to determine whether they could be reasonably revised to meet the objective of the subject Methodology.

Table 1: Similar Methodologies

Methodology	Title	GHG Program	Developer Comments[2]	Assessor Comments
VM0017	Adoption of Sustainable Agricultural Land Management, v1.0	VCS	This methodology applies a simplified baseline, requiring that the area of land under cultivation in the region is constant or increasing in the absence of the project. Revision of the methodology would require rewriting baseline procedures for estimation of soil organic carbon stocks.	VM0017's baseline analysis requires land under cultivation to be constant or increasing, and land must be degraded or continuously degrading. It requires ag use to be steady or increasing and only allows use of the Roth-C model for quantification. Thus, the assessment team agrees with the developer that a substantial portion of the VM0017 would need to be re-written to achieve the goals of the current methodology.
VM0021	Soil Carbon Quantification Methodology, v1.0	VCS	This methodology requires direct measurements to quantify changes in SOC stocks. It does not allow modeling of changes in SOC stocks. Revision of the methodology would require rewriting baseline and with project procedures to accommodate modeling.	VM0021 does not include a combination of ICM and IGM activities. It requires direct measurements, instead of the more flexible 3 options in the current Methodology. Thus, the assessment team agrees with the developer that a substantial portion of the VM0021 would need to be re-written to achieve the goals of the current methodology.
VM0022	Quantifying N_2O Emissions Reductions in Agricultural Crops through	VCS	This methodology covers N_2O emission reductions resulting from reduction in nitrogen fertilizer	VM0022 is specific to N_2O emissions on ICM projects. It does not include CO_2 and CH_4 emissions, nor IGM

[2] Ibid

	Nitrogen Fertilizer Rate Reduction, v1.0		application rate in the United States only. Revision of the methodology would require rewriting baseline procedures to allow for application of a project method and expand applicability to include areas outside of the United States.	projects. It is restricted to US projects, and thus would need to be widely expanded to meet the objectives of the current Methodology.
VM0026	Methodology for Sustainable Grassland Management, v1.0	VCS	This methodology is limited to IGM activities. It cannot be revised to apply to crop production.	VM0026 does not include a combination of ICM and IGM activities, and the Assessment Team confirms it cannot reasonably be revised to include ICM activities.
VM0032	Methodology for the Adoption of Sustainable Grasslands through Adjustment of Fire and Grazing, v1.0	VCS	This methodology is limited to IGM activities. It cannot be revised to apply to crop production.	VM0032 does not include a combination of ICM and IGM activities, and the Assessment Team confirms it cannot reasonably be revised to include ICM activities.
AR-ACM0003	Afforestation and reforestation of lands except wetlands v2.0	CDM	This methodology applies to afforestation and reforestation activities. Activities covered by the methodology may impact carbon storage in woody vegetation where the activity does not qualify as afforestation/ reforestation. The methodology cannot be revised to apply to activities covered by the new methodology.	AR-ACM0003 is specific to afforestation and reforestation of lands. The current Methodology is for ICM/IGM projects and includes sustainable agricultural practices (not AR activities). The Assessment Team confirms AR-ACM0003 cannot be reasonably revised to include ICM/IGM activities.
N/A	Rice Cultivation Project Protocol v1.1	CAR	This methodology is only applicable to the California Sacramento Valley rice growing region. This methodology is only applicable to rice production. It cannot be revised to apply to crops other than rice or livestock production.	The existing Climate Action Reserve Rice Cultivation Protocol is very specific to rice production and/or livestock production. It is also only applicable to California projects and does not align with VCS criteria. The Assessment Team

				confirms it cannot be reasonably revised to achieve the objectives of the current Methodology.
N/A	Nitrogen Management Project Protocol v2.0	CAR	This methodology is only applicable in the United States. Revision of the methodology would require rewriting additionality procedures to allow for application of the methodology in areas outside of the United States.	The existing Climate Action Reserve Nitrogen Management Protocol is also only applicable to US projects and does not align with VCS criteria. The Assessment Team confirms it cannot be reasonably revised to achieve the objectives of the current Methodology.

During assessment, it was determined the Methodology provides a complete list of all similar methodologies, including CDM, Climate Action Reserve, and VCS ALM methodologies. The Assessment Team does not believe any existing methodology could have been reasonably revised to meet the objective of the current Methodology, and thus, the current Methodology is justified.

3.2 Stakeholder Comments

Public comments were submitted under the public stakeholder consultation from 05 June – 05 July 2020. Due to total number of comments, a separate appendix has been prepared (Appendix C). The Assessment Team and Verra both reviewed the public comments and the methodology development teams responses. The assessment team confirmed closure of all public comments with the exception of 10 which were closed by Verra. All comments, the developer's response to each comment, any resultant changes to the Methodology, and an explanation of appropriateness are included in the Appendix C. This review ensured that the developer has adequately addressed all stakeholder comments.

3.3 Structure and Clarity of Methodology

Through the Methodology assessment process, the Assessment Team ensured the Methodology is written in a clear, logical, concise and precise manner in accordance with the Methodology Approval Process (v4.0, 19 September 2019).

- The developer has followed the instructions in the methodology template and ensured that the methodology's various criteria and procedures are documented in the appropriate sections of the template. This was confirmed through a detailed

review of the template requirements within the Assessment Team's Findings process. Several Findings were issued related to the Methodology's consistency with the template, and all Findings were resolved to ensure VCS requirements were achieved.

- The terminology used in the Methodology is consistent with that used in the VCS Program, and GHG accounting generally. The Assessment Team issued Findings related to VCS definitions, and all Findings were resolved to ensure terminology was consistent.
- The key words must, should and may have been used appropriately and consistently to denote firm requirements, (non-mandatory) recommendations and permissible or allowable options, respectively. This was confirmed through the Assessments Team's overall read, interpretation, and review process.
- The criteria and procedures are written in a manner that can be understood and applied readily and consistently by project proponents. Applicable Findings were resolved to ensure this was achieved.
- The criteria and procedures are written in a manner that allows projects to be unambiguously audited. Several Findings were issued to ensure the Methodology can be consistently and robustly applied to a broad spectrum of project types. The Findings were resolved sufficiently.

Overall, it is the Assessment Team's opinion that the structure of the Methodology document meets the methodological requirements of the VCS Program.

3.4 Definitions

The key terms defined in the Methodology are presented clearly and appropriately in the Definitions Section 3 at the beginning of the document by the methodology developers for ease of use. The assessment process ensured definitions of key terms are presented concisely and can assist the reader in comprehension, for effective implementation of the methodology.

3.5 Applicability Conditions

During the methodology assessment process, the assessment team ensured the applicability conditions were appropriate for the activities targeted by the methodology. Quantification procedures required by the methodology adequately target the relevant applicability conditions. The applicability conditions appropriately specify relevant requirements to individual projects. The assessment determined the applicability conditions contained within the methodology are appropriate, adequate and in compliance with the VCS standards and rules.

Further, the assessment team determined the applicability conditions provide sufficient clarity to projects determining if their activities are or are not eligible under the methodology. The applicability conditions address environmental integrity and practical considerations, where relevant.

The following summarizes applicability conditions as written, changes made during the revision of the methodology, and the final evaluation of those changes during the assessment:

1. "Projects must introduce or implement one or more new changes to pre-existing agricultural management practices which:
   - Reduce fertilizer (organic or inorganic) application;
   - Improve water management/irrigation;
   - Reduce tillage/improve residue management;
   - Improve crop planting and harvesting (e.g. improved agroforestry, crop rotations, cover crops); and/or,
   - Improve grazing practices."

   Assessment: This condition was added to ensure prescriptive agricultural management practices per Section 3.2.1 of the Methodology Requirements. The applicability condition is written in a clear and concise manner, ensuring a project activity adheres to the condition and that conformance can be demonstrated at the time of project validation.

2. "Project activities must be implemented on land that is either cropland or grassland at the project start date and remains cropland or grassland throughout the project crediting period (i.e., land use change is not eligible, including conversion from cropland to grassland and grassland to cropland)."

   Assessment: The methodology is meant to apply to agricultural management activities only, and thus this applicability condition ensures cropland and grassland agriculture occurs before the project and during the crediting period. The applicability condition is written in a clear and concise manner, ensuring a project activity conforms to the condition, and that conformance can be demonstrated at the time of project validation.

3. "The project area shall not have been cleared of native ecosystems within the 10-year period prior to the project start date."

   Assessment: This applicability condition is written in a clear and concise manner to ensure the project area will not have been cleared of native ecosystems within 10 years prior to the start date, addressing environmental integrity and ensuring additionality.

4. "The project activity is not expected to result in a sustained reduction of greater than 5% in productivity, as demonstrated by peer-reviewed and/or published studies on the activity in the region or a comparable region."

Assessment: This applicability condition is written in a clear and concise manner to ensure that project activities do not result in sustained reductions of 5% in productivity in the project area. This ensures environmental integrity and will result in real carbon emission reductions and/or removal enhancements.

5. "If the project activity involves the application of biochar, it must be produced using feedstock that would otherwise have been left to decay in aerobic or anaerobic conditions or been burned in an uncontrolled manner. Eligible feedstocks include one or more of the following categories of biomass:

   - Crop residues
   - Material from pruning or thinning of woody vegetation (not including merchantable timber) in agricultural systems such as shade trees, orchards, windbreaks, stream buffers, silvopasture, or invasive removal on rangeland
   - Off-cuts, sawdust, and other material produced as a by-product of forest management or harvesting operations
   - Diseased trees or deadwood felled during plantation or woodland management
   - Residential, commercial, or industrial organic food or yard waste.

   There may not be any other carbon incentive awarded for the production of biochar applied on the project area."

   Assessment: As per Section 3.14.5 of the VCS Standard, this applicability condition is written in a clear and concise manner to ensure that project activities minimize the incentives of an additional carbon stream of biochar. This condition adequately minimizes the potential for leakage to occur, as confirmed by Verra.

The Methodology is not applicable under the following exclusion:

6. "The project activity cannot occur on a wetland. Note that this condition does not exclude crops subject to artificial flooding where it can be demonstrated that crop cultivation does not impact the hydrology of any nearby wetlands."

   Assessment: This applicability condition is written in a clear and concise manner to ensure that the project activities will be developed with environmental integrity.

Additional condition where models are applied:

7. "The methodology does not mandate the use of any specific model. Rather, this methodology is applicable where empirical or process-based models used to estimate stock change/emissions meet specific conditions. Models must be:
   a) Publicly-available;

b) Shown in peer-reviewed scientific studies to successfully simulate changes in soil organic carbon and trace gas emissions resulting from changes in agricultural management included in the project description;
c) Able to support repetition of the project model simulations. This includes clear versioning of the model use in the project, stable software support of that version, as well as fully reported sources and values for all parameters used with the project version of the model. Where multiple sets of parameter values are used in the project, full reporting includes clearly identifying the sources of varying parameter sets as well as how they were applied to estimate stock change/emissions in the project. Acceptable sources include peer-reviewed literature and statements from appropriate expert groups that can demonstrate evidence of expertise with the model via authorship on peer-reviewed model publications or authorship of reports for entities supporting climate smart agriculture, such as FAO or a comparable organization, and must describe the data sets and statistical processes used to set parameter values (i.e. the parameterization or calibration procedure);
d) Validated per datasets and procedures detailed in "Model Calibration and Validation Guidance for the Methodology for Improved Agricultural Land Management", with model prediction error calculated using datasets as detailed in the same module, using the same parameters or sets of parameters applied to estimate stock change/emissions in the project.

The same model version and parameters/parameter sets must be used in both the project and baseline scenarios. Model input data must be derived following guidance in Table 8.2 (Section 8.2) and Table 8.3 (Section 8.3). Model uncertainty must be quantified following guidance in Section 8.5. Models may be recalibrated or revised based on new data, or a new model may be applied, provided the above requirements are met."[3]

Assessment:
This applicability condition is written to ensure that appropriate model selection and model calibration are followed when a modelling quantification approach is taken.

3.6 Project Boundary

The VCS Standard requires the methodology establish criteria and procedures for describing the project boundary and identifying and selecting optional carbon pools, e.g., sources, sinks, and reservoirs relevant to the baseline and project scenarios. Procedures to quantify emissions are appropriately included in all required carbon pools.

[3] Ibid

The methodology provides a clear diagram (Table 5.1) of baseline and with-project carbon pools. The assessment team's comments are included below :

Source	Included?	Justification/ Explanation	Assessment Team's Comments
Aboveground woody biomass	Yes/Optional	Aboveground woody biomass must be included where project activities may significantly reduce the pool compared to the baseline. In all other cases aboveground woody biomass is an optional pool. Where included it is calculated using the CDM A/R Tools *Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities* and *Simplified baseline and monitoring methodology for small scale CDM afforestation and reforestation project activities implemented on lands other than wetlands.*	The source is appropriately included to ensure an accurate quantification in the project scenario when aboveground woody biomass is present prior to project activities, or it is appropriately optional when this scenario is not identified. The tool for estimation is appropriate for projects to identify this source. The specification of this source is clear and appropriate to the project activities covered by the methodology.

Source	Included?	Justification/ Explanation	Assessment Team's Comments
Aboveground non-woody biomass	No	Carbon pool does not have to be included, because it is not subject to significant changes, or potential changes are transient in nature, per the VCS rules.	This source is appropriately excluded, as aboveground non-woody biomass would generally not change from baseline to project scenarios. VCS rules deem this appropriate, and the source's specification in the methodology is clear.
Belowground woody biomass	Optional	"This is an optional pool. Where included it is calculated using the CDM A/R Tools *Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities* and *Simplified baseline and monitoring methodology for small scale CDM afforestation and reforestation project activities implemented on lands other than wetlands.*	This source is appropriately optional, as belowground woody biomass should be considered and identified using the approved estimation tool. The tool is appropriate, and the specification of this source is clear and appropriate to the project activities covered by the methodology.

Source	Included?	Justification/ Explanation	Assessment Team's Comments
Belowground non-woody biomass	No	Carbon pool does not have to be included because it is not subject to significant changes, or potential changes are transient in nature, per the VCS rules.	This source is appropriately excluded, as belowground non-woody biomass would generally not change from baseline to project scenarios. VCS rules deem this appropriate, and the source's specification in the methodology is clear.
Dead wood	No	Carbon pool is not included because it is not subject to significant changes or potential changes are transient in nature, per the VCS rules.	This source is appropriately excluded, as deadwood would generally not change from baseline to project scenarios. VCS rules deem this appropriate, and the source's specification in the methodology is clear.
Litter	No	Carbon pool does not have to be included, because it is not subject to significant changes or potential changes are transient in nature, per the VCS rules.	This source is appropriately excluded, as litter would generally not change from baseline to project scenarios. VCS rules deem this appropriate, and the source's specification in the methodology is clear.

Source	Included?	Justification/ Explanation	Assessment Team's Comments
Soil organic carbon	Yes	Major carbon pool affected by project activity that is expected to increase in the project scenario.	The is the major source of carbon for projects to calculate and is appropriately included to ensure an accurate quantification in the baseline and project scenarios. The tools for estimation are detailed in Section 3.9 below and are appropriate for projects to identify this source. The specification of this source is clear and appropriate to the project activities covered by the methodology.
Wood products	No	Carbon pool is optional for ALM project methodologies and may be excluded from the project boundary per the VCS rules."[4]	This source is appropriately excluded, as wood products are allowed to be optional via VCS rules. The source's specification in the methodology is clear.

Additionally, the methodology provides a clear diagram (Table 5.2) of baseline and with-project carbon *sources*. The assessment team's comments are included below :

Source	Gas	Included?	Justification/ Explanation	Assessment Team's Comments
Soil organic carbon	CO_2	Yes	Quantified as stock change in the pool, rather than an emissions source (see Table 5.1).	This is the major source of carbon for projects to quantify. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.

[4] Ibid

Source	Gas	Included?	Justification/ Explanation	Assessment Team's Comments
Fossil fuel	CO_2	S*	The sources of fossil fuel emissions are vehicles (mobile sources, such as trucks, tractors, etc.) and mechanical equipment required by the ALM activity.	This source of carbon for projects to quantify is required when it may increase in the project scenario but is appropriately/ conservatively optional if it increases in the baseline scenario. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.
Soil methanogenesis	CH_4	S*		Similar to above, this source of methane for projects to quantify is required when it may increase in the project scenario but is appropriately/ conservatively optional if it increases in the baseline scenario. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.
Enteric fermentation	CH_4	Yes	If livestock are present in the project or baseline scenario, CH_4 emissions from enteric fermentation must	This source of methane for projects to quantify is required if livestock are present in the baseline or project scenarios. The specification of this source in the methodology diagram is

Source	Gas	Included?	Justification/ Explanation	Assessment Team's Comments
			be included in the project boundary.	clear and appropriate to the project activities covered by the methodology.
Manure deposition	CH_4	Yes	If livestock are present in the project or baseline scenario, CH_4 and N_2O emissions from deposition must be included in the project boundary.	Similar to above, if livestock are present in the baseline or project scenarios, this source of methane and nitrogen is required to be quantified. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.
	N_2O	Yes		
Use of nitrogen fertilizers	N_2O	Yes	If in the baseline scenario the project area would have been subject to nitrogen fertilization, or If nitrogen fertilization is greater in the with project scenario relative to the baseline scenario, N_2O emissions from nitrogen fertilizers must be included in the project boundary.	This source of nitrogen is required if fertilizers will be used in the baseline or project scenarios. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.
Use of nitrogen fixing species	N_2O	Yes	If nitrogen fixing species are planted	This source of nitrogen is required if nitrogen

Source	Gas	Included?	Justification/ Explanation	Assessment Team's Comments
			in the project, N_2O emissions from nitrogen fixing species must be included in the project boundary.	fixing species will be planted in the project scenario. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.
Biomass burning	CO_2	Excluded	However, carbon stock decreases due to burning are accounted as a carbon stock change.	This source of carbon is typically excluded but would be accounted for as a carbon stock change, if stock decreases occur due to burning. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.
	CH_4	S*		This source of methane and nitrogen for projects to quantify is required when it may increase in the project scenario but is appropriately/ conservatively optional if it increases in the baseline scenario. The specification of this source in the methodology diagram is clear and appropriate to the project activities
	N_2O	S*		

Source	Gas	Included?	Justification/ Explanation	Assessment Team's Comments
				covered by the methodology.
Woody biomass	CO_2	S*	Quantified as stock change in the pool, rather than an emissions source (see Table 5.1).	This source of carbon is included where aboveground or belowground woody biomass is included. The specification of this source in the methodology diagram is clear and appropriate to the project activities covered by the methodology.

S* Must be included where the project activity may significantly increase emissions compared to the baseline scenario and may be included where the project activity may reduce emissions compared to the baseline scenario."

The methodology allows for flexibility in selecting carbon pools depending on project category and associated scenario or otherwise demonstrable conservative exclusion. The assessment team evaluated the appropriateness of mandatory or optional carbon pools and sources of GHG for project scenarios under the methodology and determined the project developers' choices were justified. The assessment team concludes that procedures outlined in the methodology for selection of pools, sources, sinks, and reservoirs are clearly specified and suitable for the project activities covered by the methodology.

3.7 Baseline Scenario

The baseline scenario is assumed to be the pre-project land management practice A historic look-back period is used to determine the previous land use schedule of practices.

No comparative assessment of barriers and benefits of competing scenarios is included in the methodology., Per applicability conditions, the land must have been in agricultural production for at least 10 years prior to the project start date. The land is expected to remain in agricultural production during the project period, with no land use conversion occurring. Continued agricultural production is essentially certain.

Past practices are taken from a look back period of at least three years and must include a full rotation of all crops.

In communications with the Assessment Team, Verra stated, "Where a methodology developer can demonstrate that there is a single most plausible baseline scenario, that scenario can be written into the methodology, the requirements of Section 3.4.1 of the VCS Methodology Requirements can be ignored."

Therefore, the Assessment Team agrees that in the case of these applicability conditions, a continuation of agricultural practices of the very recent past is the most likely baseline scenario.

3.8 Additionality

The Methodology uses a project method for additionality demonstration. The Methodology requires the project to demonstrate additionality via regulatory surplus in accordance with the VCS Methodology Requirements. Additionally, projects must:

"1. Identify barriers that would prevent the implementation of a change in pre-existing agricultural practices; and,

2. Demonstrate that the adoption of the suite of proposed project activities is not common practice."[5]

The Methodology then details additional steps to identify barriers and demonstrate the project activities are not common practice.

The Assessment Team reviewed the procedure for proving additionality and issued Findings, as necessary. The final Methodology document contained an additionality procedure appropriate for the ALM project activities, and the Assessment Team concludes the criteria for determining additionality is complete and in line with VCS requirements.

3.9 Quantification of GHG Emission Reductions and Removals

3.9.1 Baseline Emissions

The Methodology identifies the continuation of pre-project agricultural practices as the most plausible baseline scenario. To quantify the baseline, three quantification approaches are allowed in the methodology: a measure and model approach, a measure and remeasure approach, and a calculated approach using the 2019 Refinements to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories[6]. It should be noted that the methodology allows for different sources to be applied under different quantification approaches and all three methods appropriately accommodate this.

[5] Ibid

[6] IPCC, *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*

For the measure and model approach the baseline of the project is modelled using a peer-reviewed model applying the same calibrated parameters as those used in the with-project scenario. The use of the peer-reviewed model also requires the application of the calibration module that specifies how model parameters are calibrated and validated for use in baseline determination. The assessment team confirmed that procedures are provided for calculating baseline emissions and removals for all applicable pools when applied. The assessment team thoroughly reviewed all equations, formula and related parameters and determined them to be free from error, noting that several items in the calibration module were reviewed and confirmed for reasonable assurance by Verra. The parameters outlined for use in the computation of this quantification method include sufficient detail to determine parameters or apply default factors based on a tiered system of available data.

The second approach, a measure and model approach, requires the revision of the methodology to include a performance benchmark. The approach defined and outlined for this quantification approach was reviewed and confirmed for reasonable assurance by Verra.

For the IPCC default approach, all computational methods and equations were derived based on the 2019 Refinements to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. This is in alignment with the approach defined by Verra in the Methodology Approval Process document. The assessment team confirmed that procedures are provided for calculating baseline emissions and removals for all applicable pools when applied. The assessment team thoroughly reviewed all equations, formula and related parameters and determined them to be free from error. The parameters outlined for use in the computation of this quantification method include sufficient detail to determine parameters or apply default factors based on a tiered system of available data.

3.9.2 Project Emissions

Two quantification approaches are currently available in the methodology: a measure and model approach and a calculated approach using 2019 refinements to the 2006 IPCC guidelines for National Greenhouse Gas Inventories. A third approach, requiring a performance benchmark that does not yet exist, is also mentioned as an approach expected to be available in a future version of the methodology. It should be noted that the methodology allows for different sources to be applied under different quantification approaches and all three methods appropriately accommodate this.

For the measure and model approach the with-project scenario is modelled using a peer-reviewed model with the same calibrations as the model applied in the baseline. The use of the peer-reviewed model also requires the application of the calibration module that specifies how model parameters are calibrated and validated for use in baseline determination. The assessment team confirmed that procedures are provided for calculating project emissions and removals for all applicable pools when applied. The assessment team thoroughly reviewed all equations, formula and related parameters and determined them to be free from

error, noting that several items in the calibration module were reviewed and confirmed for reasonable assurance by Verra. The parameters outlined for use in the computation of this quantification method include sufficient detail to determine parameters or apply default factors based on a tiered system of available data.

The second approach, a measure and model approach, requires the revision of the methodology to include a performance benchmark. The approach defined and outlined for this quantification approach was reviewed and confirmed for reasonable assurance by Verra.

For the IPCC default approach, all computational methods and equations were derived based on 2019 Refinements to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. This is in alignment with the approach defined by Verra in the Methodology Approval Process document. The assessment team confirmed that procedures are provided for calculating project emissions and removals for all applicable pools when applied. The assessment team thoroughly reviewed all equations, formula and related parameters and determined them to be free from error. The parameters outlined for use in the computation of this quantification method include sufficient detail to determine parameters or apply default factors based on a tiered system of available data.

3.9.3 Leakage

Verra reviewed the leakage assessment in the methodology and provided reasonable assurance.

3.9.4 Net GHG Emission Reductions and Removals

The calculations of net GHG emission reductions and removals are computed using Equation 31 of the methodology, as follows.

$$ER_t = (A_0 \times (\overline{\Delta CO2_t} + \overline{\Delta CH4_t} + \overline{\Delta N2O_t}) - LE_t) \times (1 - UNC_t)$$

The computation is appropriate in incorporating all potential sources of GHG emissions and removals, as defined in the project boundary tables, while also incorporating leakage and uncertainty. The assessment team confirms that the equation is free from error and correctly computes GHG emission reductions and removals.

The assessment team confirmed that the methodology outlines the computation of uncertainty. Combined uncertainty is computed using Equation 46 of the methodology as follows:

$$UNC_t = MIN\left(100\%, MAX\left(0, \frac{T\sqrt{\sum_{\bullet} s^2_{\Delta\bullet,t}}}{\overline{\Delta CO2_t} + \overline{\Delta CH4_t} + \overline{\Delta N2O_t}} - 15\%\right)\right)$$

Uncertainty is computed for individual components of the methodology to address the potential error associated with each quantification method and each GHG source, as outlined in the project boundary section of the methodology. The assessment team confirmed that the quantification of uncertainty elements are appropriate, with the exception model calibration which was reviewed and confirmed for reasonable assurance by Verra. Further the assessment team confirmed that the combined computational approach of uncertainty, displayed above, is appropriate.

3.10 Monitoring

The following are the data, parameters and procedures available at validation:

Data/Parameter	Assessment Team Findings
AR	This is the weighted average adoption rate calculated as a percentage for the project across the group or all activity instances. For the common practice assessment, it must be less than or equal to 20%. This value is derived conservatively and is consistent with VCS rules.
$Area_{an}$	This is the area of proposed project-level adoption of each activity calculated as an area (hectares or acres) of the project across from farm records and project activity commitments. This parameter is included for the common practice assessment and is consistent with VCS rules.
EA_{an}	This is the adoption rate of the n largest, most common proposed project activities in the region. It is calculated as a percentage for the project. For the common practice assessment, it must be derived from publicly available information, peer-reviewed scientific literature, independent research data, reports/assessments compiled by industry associations, or a signed and dated attestation statement from a qualified independent local expert. This value is consistent with VCS rules.
A_0	This is the total project area calculated as a unit of area (hectares or acres) measured prior to validation. This parameter is included for the accurate calculation of total project area based on common industry standards for baseline and project emissions and is consistent with VCS rules.

$EF_{CO2,j}$	This is the emission factor for the type of combusted fossil fuel *j* (gasoline or diesel). The data unit is t CO_2e/liter and is from the 2019 IPCC Guidelines. It is used for calculation of baseline and project emissions and is in line with industry standards and VCS rules.
$FFC_{bsl,j,i,t}$	This is the consumption of fossil fuel type *j* (gasoline or diesel) for sample unit *i* in year *t*. It is measured in liters and can be monitored or estimated using fuel efficiency of the vehicle. Its purpose is for baseline fuel consumption calculation, and its determination is from peer-reviewed published data, in line with IPCC guidelines and VCS rules.
GWP_{CH4}	This is the Global warming potential for CH_4 measured in t CO_2e/t CH_4. The source is the IPCC Fourth Assessment Report (100-year GWP), unless otherwise allowed by VCS. This datum will be used for calculation of baseline and project emissions in line with VCS rules.
$EF_{ent,l}$	This is the enteric emission factor for livestock type *l*, measured in kg CH_4/(head * year). This datum is derived from peer-reviewed, published data based on livestock type. It will be used in baseline and project emissions calculation in line with VCS requirements.
$EF_{CH4,md,l}$	This is the emission factor for methane emissions from manure deposition for livestock type *l*, measured as g CH_4/(kg volatile solids). This datum is derived from peer-reviewed, published data based on livestock type. It will be used in baseline and project emissions calculation in line with VCS requirements.
$VS_{rate,l}$	This is the default volatile solids excretion rate for livestock type *l*, measured as kg volatile solids/(1000 kg animal mass * day). This datum is derived from peer-reviewed, published data based on livestock type. It will be used in baseline and project emissions calculation in line with VCS requirements.
CF_c	This is the proportion of pre-fire fuel biomass consumed as a combustion factor for agricultural residue type *c*. This datum is derived from IPCC guidelines and is in accordance with VCS rules.

$EF_{c,CH4}$	This is the methane emission factor for the burning of agricultural residue type *c*, measured as g CH4/kg dry matter burnt. This datum is derived from IPCC guidelines and is in accordance with VCS rules.
GWP_{N2O}	This is the global warming potential for N_2O, measured as t CO_2e / t N_2O. The source is the IPCC Fourth Assessment Report (100-year GWP), unless otherwise allowed by VCS. This datum will be used for calculation of baseline and project emissions in line with VCS rules.
$EF_{Ndirect}$	This is the emission factor for direct nitrous oxide emissions from n additions from synthetic fertilizers, organic amendments and crop residues. It is measured as t N_2O-N/t N applied. This datum is derived from IPCC guidelines (a value of 0.004 is applied for flooded rice fields; a value of 0.01 is applied for all other fields) and is in accordance with VCS rules.
$Frac_{GASF}$	This is the fraction of all synthetic N added to soils that volatilizes as NH_3 and NO_x. This datum is derived from IPCC guidelines, in accordance with VCS rules.
$Frac_{GASM}$	This is the fraction of all organic N added to soils and N in manure and urine deposited on soils that volatilizes as NH_3 and NO_x. This datum is derived from IPCC guidelines, in accordance with VCS rules.
EF_{Nvolat}	This is the emission factor for nitrous oxide emissions from atmospheric deposition of N on soils and water surfaces, measured as t N_2O-N /(t NH_3-N + NO_x-N volatilized). This datum is derived from IPCC guidelines (a value of 0.01 is applied) and is in accordance with VCS rules.
$Frac_{LEACH}$	This is the dimensionless fraction of N added (synthetic or organic) to soils and N in manure and urine deposited on soils that is lost through leaching and runoff, in regions where leaching and runoff occurs. This datum is derived from IPCC guidelines [for wet climates or in dry climate regions where irrigation (other than drip irrigation) is used, a value of 0.24 is applied; for dry climates, a value of zero is applied] and is in accordance with VCS rules.

EF_{Nleach}	This is the emission factor for nitrous oxide emissions from leaching and runoff, measured as t N_2O-N / t N leached and runoff. This datum is derived from IPCC guidelines (a value of 0.011 is applied) and is in accordance with VCS rules.
$EF_{N2O,md,l}$	This is the emission factor for nitrous oxide from manure and urine deposited on soils by livestock type *l*, measured as kg N_2O-N/kg N input. This datum is derived from IPCC guidelines (for cattle, poultry, and pigs, EFN_2O,md,l = 0.004 kg N_2O-N/kg N input; for sheep and other animals, EFN_2O,md,l=0.003 kg N_2O-N/kg N input is applied) and is in accordance with VCS rules.
Nex_l	This is the Nitrogen excretion of livestock type *l*, measured as kg N deposited/(t livestock mass * day). This datum is derived from peer-reviewed, published data or IPCC guidelines, in accordance with VCS rules.
$\underline{MS_{bsl,l,i,t}}$	This is the fraction of nitrogen excretion of livestock type *l* that is deposited on the project area, measured as a fraction of N deposited. Box 9.1 of the methodology contains the guidance for sourcing this data, which is based on the amount of time spent grazing on the project area during year *t* for each livestock type. In the absence of this meaningful data, a conservative value of 1 may be applied. This is in line with VCS principles.
$N_{content,g}$	This is the fraction of N in dry matter for N-fixing species *g*, measured as t N/t dm, which is based on the N-fixing species type. This is in line with IPCC guidelines and VCS rules.
$EF_{c,N2O}$	This is the nitrous oxide emission factor for the burning of agricultural residue type c, measured as g N_2O/kg dry matter burnt. This is in line with IPCC guidelines and VCS rules.
$P_{bsl,l,i,t}$	This is the population of grazing livestock in the baseline scenario of type *l* in sample unit *i* in year *t*, measured as heads of cattle. It is based on Box 9.1 of the methodology. This is in line with VCS principles.
$Days_{bsl,l,i,t}$	This is the average grazing days per head in the baseline scenario inside sample unit *i* for each livestock type *l* in year *t*, measured in days. It is based on Box 9.1 of the methodology. This is in line with VCS principles.
$MB_{bsl,c,i,t}$	This is the mass of agricultural residues of type *c* burned in the baseline scenario for sample unit *i* in year *t*, measured in kilograms. It is based on peer-reviewed, published data, and

	it is assumed 100% of aboveground biomass is burned in both the baseline and project cases. This datum is used for calculation of the baseline emissions, in line with VCS principles.
$M_{bsl,SF,i,t}$	This is the mass of baseline N containing synthetic fertilizer applied for sample unit *i* in year *t*, measured in t fertilizer. It is based on Box 9.1 of the methodology. This is in line with VCS principles.
$NC_{bsl,SF,i,t}$	This is the N content of baseline synthetic fertilizer applied, measured as t N/t fertilizer. It is used for calculation of baseline emissions. It is based on Box 9.1 of the methodology, in line with VCS principles.
$M_{bsl,OF,i,t}$	This is the mass of baseline N containing organic fertilizer applied for sample unit *i* in year *t*, measured as t fertilizer. It is used for calculation of baseline emissions. It is based on Box 9.1 of the methodology, in line with VCS principles.
$\underline{Nex_l}$	This is the average annual nitrogen excretion per head of livestock type *l*, measured as kg N/head/year. It is based on peer-reviewed, published data or IPCC guidelines for both the baseline and project emissions. It is in line with IPCC guidelines and VCS rules.
$NC_{bsl,OF,i,t}$	This is the N content of baseline organic fertilizer applied, measured as t N/t fertilizer. It is based on peer-reviewed, published data for baseline emissions. It is in line with VCS rules.
$MB_{g,bsl,i,t}$	This is the annual dry matter, including aboveground and below ground, of N-fixing species *g* returned to soils for sample unit *i* at time *t*, measured as t dm. It is calculated for baseline emissions and is derived from Box 9.1 of the methodology, in line with VCS principles.
$Pbsl,p$	This is the average productivity for product p during the historical baseline period, measured as productivity (e.g., kg) per hectare or acre. This is needed for determination of baseline productivity for future market leakage analysis, derived from Box 9.1 of the methodology, in line with VCS principles.
$RPbsl,p$	This is the average regional productivity for product p during the same years as the historical baseline period, measured as productivity (e.g., kg) per hectare or acre. It is used for determination of baseline productivity ratio for future market

	leakage analysis. It is derived from secondary evidence sources of regional productivity in line with Box 9.1 of the methodology and VCS rules.

The data and parameters monitored are as follows.

Data/Parameter	Assessment Team Findings
AR	This is the weighted average adoption rate, measured as a percent. It is appropriately calculated for the project across the group or all activity instances on an annual basis. The purpose of the data is for the common practice assessment, and the QA/QC and calculation methods are appropriate for the datum.
$Area_{an}$	This is the area of proposed project-level adoption of each activity, measured as a unit of area (hectares or acres). It is appropriately calculated for the project from farm records and project activity commitments on an annual basis. The purpose of the data is for the common practice assessment, and the QA/QC and calculation methods are appropriate for the datum.
$EAan$	This is the adoption rate of the n largest most common proposed project activity in the region, measured as a percent. It is appropriately calculated for the project from publicly available information or from an attestation from a qualified independent local expert on an annual basis. The purpose of the data is for the common practice assessment, and the QA/QC and calculation methods are appropriate for the datum.
Ai	This is the area of sample unit *i*, measured as unit area. It is appropriately calculated for the project from the determination of the project area at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
i	This is the defined area selected for monitoring (sample unit), measured as dimensionless. It is appropriately calculated for the project from the determination of the project area at least

	every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
j	This is the type of fossil fuel combusted, measured as dimensionless. It is appropriately calculated for the project from the determination of sample unit *I,* at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
l	This is the type of livestock, measured as dimensionless. It is appropriately calculated for the project from the determination of sample unit *I,* at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
g	This is the type of N-fixing species, measured as dimensionless. It is appropriately calculated for the project from the determination of sample unit *I,* at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
c	This is the type of agricultural residue, measured as dimensionless. It is appropriately calculated for the project from the determination of sample unit *I,* at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
•	This is a gas or pool, measured as dimensionless. It is appropriately calculated for the project from the determination of sample unit *I,* at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions,

	and the QA/QC and calculation methods are appropriate for the datum.
SF	This is the type of synthetic N fertilizer, measured as dimensionless. It is appropriately calculated for the project from the determination of sample unit *I,* at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
OF	This is the type organic N fertilizer, measured as dimensionless. It is appropriately calculated for the project from the determination of sample unit *I,* at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline and project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$fSOC_{bsl,i,t}$	This is the modelled soil organic carbon stocks pool in the baseline scenario for sample unit *i* at time *t*, measured as t CO_2e/unit area. It is appropriately modelled in the project area, at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline emissions, and the QA/QC and calculation methods are appropriate for the datum.
SOCbsl,i,t	This is the areal-average soil organic carbon stocks in the baseline scenario for sample unit *i* at time *t*, measured as t CO_2e/unit area. It is appropriately modelled or measured in the project area, at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline emissions, and the QA/QC and calculation methods are appropriate for the datum.
SOCbsl,i,t-1	This is the areal-average soil organic carbon stocks in the baseline scenario for sample unit *i* in year *t-1*, measured as t CO_2e/unit area. It is appropriately modelled or measured in the project area, at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline emissions, and the QA/QC and calculation methods are appropriate for the datum.

$SOC_{wp,i,t}$	This is the areal-average soil organic carbon stocks in the project scenario for sample unit *i* at time *t*, measured as t CO_2e/unit area. It is appropriately modelled or measured in the project area, at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
SOCwp,i,t-1	This is the areal-average soil organic carbon stocks in the project scenario for sample unit *i* in year *t-1*, measured as t CO_2e/unit area. It is appropriately modelled or measured in the project area, at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$fCH4soil_{bsl,i,t}$	This is the modelled methane emissions from the soil organic carbon pool in the baseline scenario for sample unit *i* in year *t*, measured as t CH_4/unit area. It is appropriately modelled in the project area, at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline emissions, and the QA/QC and calculation methods are appropriate for the datum.
$fN2Osoil_{bsl,i,t}$	This is the modelled nitrous oxide emissions from the soil in the baseline scenario for sample unit *i* in year *t*, measured as t N_2O/unit area. It is appropriately modelled in the project area, at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline emissions, and the QA/QC and calculation methods are appropriate for the datum.
$\Delta SOC_{bsl,i.t}$	This is the Estimated temporal change in carbon stocks in the soil organic carbon pool in the baseline scenario for sample field *i* in year *t* based on approved performance benchmark expressed in terms of change in soil organic carbon stocks per unit area per unit time, measured as t CO_2e/unit area. It is appropriately sourced from an approved performance benchmark at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of emissions reductions, and the QA/QC and calculation methods are appropriate for the datum.

Δ−·,t and ·−t	This is the average emission reductions from pool or source •, or stock of pool •, in year t, measured as t CO_2e/unit area. It is appropriately modelled or calculated from values in the project area at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of emissions reductions, and the QA/QC and calculation methods are appropriate for the datum.
$\Delta C_{TREE,bsl,i,t}$	This is the change in carbon stocks in trees in the baseline, measured as t CO_2e/unit area. It is appropriately calculated using an approved CDM tool at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of baseline emissions, and the QA/QC and calculation methods are appropriate for the datum.
$\Delta C_{SHRUB,bsli,t}$	This is the change in carbon stocks in shrubs in the baseline, measured as t CO_2e/unit area. It is appropriately calculated using an approved CDM tool at least every five years, or prior to each verification event (if less than five years). The purpose of the data is for the calculation of baseline emissions, and the QA/QC and calculation methods are appropriate for the datum.
$\Delta C_{TREE,wp,i,t}$	This is the change in carbon stocks in trees in the project, measured as t CO_2e/unit area. It is appropriately calculated using an approved CDM tool at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$\Delta C_{SHRUB,wp,i,t}$	This is the change in carbon stocks in shrubs in the project, measured as t CO_2e/unit area. It is appropriately calculated using an approved CDM tool at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$FFC_{wp,j,i,t}$	This is the consumption of fossil fuel type *j* in the project for sample unit *i* in year *t*, measured in liters. It is appropriately monitored or estimated using vehicle fuel efficiency at least

	every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$P_{wp,l,i,t}$	This is the population of grazing livestock in the project scenario of type *l* in sample unit *i* in year *t*, measured as a head. It is appropriately sourced from records of the numbers of grazing livestock by type, monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$Days_{wp,l,i,t}$	This is the average grazing days per head in the project scenario inside sample unit *i* for each livestock type *l* in year *t*, measured in days. It is appropriately sourced from records of the numbers of grazing livestock by type, monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$MB_{wp,c,i,t}$	This is the mass of agricultural residues of type *c* burned in the project for sample unit *i* in year *t*, measured in kilograms. It is appropriately estimated from at least three plots prior to burning and is monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$M_{wp,SF,i,t}$	This is the mass of N containing synthetic fertilizer applied in the project for sample unit *i* in year *t*, measured as t fertilizer. It is appropriately measured via Box 9.1 and monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$M_{wp,OF,i,t}$	This is the mass of N containing organic fertilizer applied in the project for sample unit *i* in year *t*, measured as t fertilizer. It is appropriately measured via Box 9.1 and monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project

	emissions, and the QA/QC and calculation methods are appropriate for the datum.
$W_{wp,l,i,t}$	This is the average weight in the project scenario of livestock type *l* for sample unit *i* in year *t*, measured as kg animal mass/head. It is appropriately sourced from peer-reviewed published data or expert judgement and is monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$MB_{g,wp,i,t}$	This is the annual dry matter, including aboveground and below ground, of N-fixing species *g* returned to soils for sample unit *i* in year *t*, measured as t dm. It is sourced from direct measurement or peer-reviewed published data and is monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$LE_{,t}$	This is the leakage in year t, measured as tCO_2e. It is equal to zero per concurrence from VCS and is monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.
$M\_manure_{prj,l,t}$	This is the project manure applied as fertlizer on the project area from livestock type *l* in year *t*, measured in tonnes. It is sourced from guidance from Box 9.1 and is monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions from leakage, and the QA/QC and calculation methods are appropriate for the datum. This item was approved via VCS.
$CC_{prj,l,t}$	This is the carbon content of manure applied as fertilizer on the project area from livestock type *l* in year *t*, measured as a fraction. It is sourced from guidance from Box 9.1 and is monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions from leakage, and the QA/QC and calculation methods are appropriate for the datum. This item was approved via VCS.

Δp	This is the change in productivity, measured as a percent. It would be calculated but is not applicable to projects, as confirmed by VCS. It would be measured every 10 years for determination of change in crop/livestock productivity for leakage analysis, but since leakage is zero, this is not applicable.
Pwp,p	This is the average productivity for product *p* during the project period, measured as productivity per hectare or acre. It would be calculated based on farm records but is not applicable to projects, as confirmed by VCS. It would be measured every growing season.
p	This is the crop/livestock product, measured as a categorical variable. It would be calculated based on guidance from Box 9.1 but is not applicable to projects, as confirmed by VCS. It would be measured every growing season for market leakage analysis.
ΔPR	This is the change in productivity ratio, measured as a percent. It would be calculated but is not applicable to projects, as confirmed by VCS. It would be measured every 10 years for leakage analysis.
$RPwp,p$	This is the average regional productivity for product *p* during the same years as the project period, measured as unitless. It would be sourced from regional productivity data but is not applicable to projects, as confirmed by VCS. It would be measured every 10 years for market leakage analysis.
$Buffer_{,t}$	This is the number of buffer credits to be contributed to the AFOLU pooled buffer account in year *t*, measured as tCO_2e. It is determined through the approved VCS AFOLU Non-permanence Risk Tool. It must be monitored at least every 5 years, or prior to each verification event (if less than 5 years). The purpose of the data is for the calculation of project emissions, and the QA/QC and calculation methods are appropriate for the datum.

Based on the findings of each data/parameter required in this methodology, the Assessment Team concludes that monitoring procedures for the methodology are appropriate, adequate and in compliance with the VCS rules and requirements. In addition, the monitoring section of the methodology is written in a clear and precise manner for QA/QC. All data collection and calculation procedures and activities are overseen by a qualified professional, ensuring the high level of quality of data/parameters being monitored. The Assessment Team confirms

the monitoring plan ensures GHG emission reductions and removals are monitored and reported appropriately.

4 ASSESSMENT CONCLUSION

Aster Global Environmental Solutions, Inc., has completed the first assessment of VCS Methodology. The assessment team confirms the methodology adheres to the criteria established for this assessment, which are documented and complete. Aster Global concludes without any qualifications or limiting conditions that the methodology documentation meets the requirements of the: VCS Program Guide v4.0, VCS Standard v4.0, and the VCS Methodology Approval Process v4.0. Therefore, Aster Global recommends that Verra approve the methodology (Methodology for Improved Agricultural Land Management) as prepared by Indigo Ag, Inc.

5 EVIDENCE OF FULFILMENT OF VVB ELIGIBILITY REQUIREMENTS

As set out in the VCS Methodology Approval Process for AFOLU:

1) “Both validation/verification bodies shall be eligible under the VCS Program to perform validation for sectoral scope 14 (AFOLU); AND

2) At least one of the validation/verification bodies shall use an AFOLU expert in the assessment; AND

3) At least one of the validation/verification bodies shall have completed at least ten project validations in any sectoral scope. Project validations can be under the VCS Program or an approved GHG program, with the projects having been registered under the applicable program. A validation of a single project under more than one program (e.g., VCS and CDM) counts as one project validation. The validation/ verification body that meets this eligibility requirement may be the same validation/verification body that uses an AFOLU expert.”

4) 1) The validation/verification body shall be eligible under the VCS Program to perform validation for sectoral scope 142 (AFOLU); AND 2) For non-ARR methodologies, the validation/verification body shall use an AFOLU expert (see Section 10) in the assessment; AND 3) The validation/verification body shall have completed at least ten project validations in any sectoral scope. Project validations can be under the VCS Program or an approved GHG program and projects shall be

registered under the applicable program. A validation of a single project under more than one program (e.g., VCS and CDM) counts as one project validation.

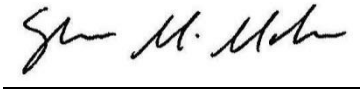
Aster Global fulfils the eligibility requirements in the following ways:

- Aster Global is accredited by the American Standards Institute under ISO 14065:2007 for GHG Validation and Verification Bodies, including validation/verification of assertions related to GHG emission reductions and removals at the project level for Land Use and Forestry (Group 3). VCS accepts this accreditation.
- Aster Global utilized Shawn McMahon (WRC non-peatlands, IFM, ALM, and REDD expert) as VCS-approved experts who participated in the comprehensive review.
- To date, Aster Global has completed greater than 25 VCS project validations under AFOLU.

6 SIGNATURE

Signed for and on behalf of:

Name of entity: Aster Global Environmental Solutions, Inc.

Signature: 

Name of signatory: Shawn McMahon

Date: 15 December 2020

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K: pf20201215f ____

APPENDIX A

Item Number	1
VCS Standard VCS Version 4.0 Requirements Document 19 September 2019, v4.0 (Description)	3.2.8 Where ARR, ALM, IFM or REDD project activities occur on wetlands, the project shall adhere to both the respective project category requirements and the WRC requirements, unless the expected emissions from the soil organic carbon pool or change in the soil organic carbon pool in the project scenario is deemed below *de minimis* or can be conservatively excluded as set out in the VCS Program document *VCS Methodology Requirements*, in which case the project shall not be subject to the WRC requirements.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	No mention of the exclusion of wetlands or saturated soils could be found in the methodology. If they are not excluded, all WRC requirements will have to be considered/included.
NCR/CL/OFI	CL: Please include a statement in the methodology that wetlands/saturated soils are excluded, otherwise please inlcude demonstrations/requirements to show how all WRC requirements will be addressed.
Response from Project Proponent	Added eligibility criteria in section 4 excluding wetlands, "The project activity cannot occur on a wetland "
Aster Global Findings	A wetland exclusion eligibility criteria was added to the methodology. Wetlands are excluded in entirety. The item has been addressed.

Item Number	2
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	2.1.2 New methodologies shall not be developed where an existing methodology could reasonably be revised (i.e., developed as a methodology revision) to meet the objective of the proposed methodology.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Unnumbered page between title page and table of contents of 7 February 2020

Aster Global Findings	Methodology authors state that **9** methodologies were identified for review for potential revision and refer to Table 1 for a list of these methodologies (see table on unnumbered page between cover sheet and table of contents). The table includes **5** methodologies: VM0017, VM0021, VM0022, VM0026 and VM0032. It is further stated that overall, no existing methodology includes both ICM and IGM activities in one. This methodology captures changes in carbon pools impacted by regenerative agriculture practices on both croplands and grasslands. Modeling may be used to simplify estimation. Problems with the 5 listed methodologies are provided: VM0017 - baseline requires land under cultivation to be constant or increasing in region; VM0021 - requires direct measurement and does not allow modeling changes in carbon stocks; VM0022 - only covers N2O emission reductions through N-rate reductions; VM0026 - only covers IGM activities; VM0032 - only covers IGM activities. VM0021 is based only on direct measurement, VM0017 requires land to be degraded or continuously degrading, requires ag land use to be steady or increasing and is specific to the Roth C model, VM0022 is only applicable to N2O emissions reductions through reduced application rates, VM0026 and VM0032 are restricted to grassland activities and VM0032 does not allow the "net import of..." fertilizers. As these are the only ALM methodologies in the VCS program, the 9 methodologies mentioned was a typo.
NCR/CL/OFI	CL: Please correct typo stating there are 9 ALM methodologies.
Response from Project Proponent	Nine changed to five.
Aster Global Findings	The authors now include 8 ALM methodologies -- the 5 VCS methodologies, a CDM Afforestation-Reforestation methodology, the CAR rice management methodology and the CAR nitrogen management methodology.
NCR/CL/OFI	OFI: If CAR protocols and CDM methodologies are included, should the ACR ALM methodologies be included, as well?
Response from Project Proponent	The authors chose to include only 8 ALM methodologies -- the 5 VCS methodologies, a CDM Afforestation-Reforestation methodology, the CAR rice management methodology and the CAR nitrogen management methodology.
Aster Global Findings	The Clarification is closed. Item addressed.

Item Number	3
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	2.1.4 Methodologies shall be informed by a comparative assessment of the project and its alternatives in order to identify the baseline scenario. Such an analysis shall include, at a minimum, a comparative assessment of the implementation barriers and net benefits faced by the project and its alternatives.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 6 of the methodology, v. 1.0, 7 February 2020.

Aster Global Findings	The baseline scenario is described as the continuation of pre-project agricultural management practices. These practices are determined by using a 5-year look-back period to produce an annual schedule of events to be repeated over the first ten-year baseline period. Crops and practices assumed for the baseline are re-evaluated every ten years and revised, if necessary, to reflect current ag. commodiaty production in the region. Determining the baseline involves no comparative assessments of the implementation barriers and net benefits of the management practices.
NCR/CL/OFI	CL: The baseline sections of the methodology explain how the baseline practices are determined for the sake of modeling. There is no comparison of the barriers growers face in using new practices or the net benefits of each practice, as required by this section of the Requirements. Please expand the section on the determination of the baseline, using comparisons between the management practices to be implemented and the practices to be abandoned.
Response from Project Proponent	Pending review of additionality updates by Ken
Aster Global Findings	Some work done in additionality section, but clearly this has not yet been answered.
NCR/CL/OFI	
Response from Project Proponent	In an email dated 18 Aug 2020 Verra communicated "where a methodology developer can demonstrate that there is a single most plausible baseline scenario, that scenario can be written into the methodology, the requirements of Section 3.4.1 of the VCS Methodology Requirements can be ignored." Language in Section 6 has been edited to clarify: "Continuation of pre-project agricultural management practices is the most plausible baseline scenario."
Aster Global Findings	The validators were copied on the email from Andrew Beauchamp allowing this requirement to be ignored. The validators are also in agreement that it is reasonable to assume the baseline is a continuation of past practices. Item closed.

Item Number	4
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	Additionality and Crediting Baseline Approaches 2.2.2 Methodologies shall use a standardized method (i.e., performance method or activity method) or a project method to determine additionality and/or the crediting baseline, and shall state which type of method is used for each.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 2 of V1.0 of the methodology.
Aster Global Findings	The methodology states a project method is used for both additionality and the crediting baseline. While it may be justified to call the baseline a project method, since it will differ from field to field, additionality appears to be automatic with a change in practice, regardless of whether the practice is economically beneficial to the grower in other respects, or how common the practice is.
NCR/CL/OFI	CL: See findings. Please explain how additionality qualifies as a project method.

Response from Project Proponent	Methodology uses a project method to establish additionality, by implementing a stepwise approach within the methodology.
Aster Global Findings	The crediting baseline is considered the previous land management activities, which is determined through a 3-year look-back period. Determining additionality is now a step-wise process. Step 1 is identifying barriers to the new activities; step 2 is a demonstration that adoption of sustainable ag activities is not a common practice for projects that receive no C financing. If the first two steps are satisfied, the project is additional. The methodology dictates a project method for additionality and the baseline. Under section 8.2, Baseline Emissions, under Quantification Approach 2 it states, "Where a Verra-approved applicable performance benchmark exists, the baseline is equal to the performance benchmark. Performance benchmarks for demonstration of the crediting baseline may be established through a revision to this methodology following requirements in the most current versions of the VCS Standard and VCS Methodology Requirements." Mention of a potential, future performance benchmark is mentioned elsewhere in the methodology, as well. The methodology uses a project method for the crediting baseline, not a performance method.
NCR/CL/OFI	NCR: Since the methodology uses a project method for the crediting baseline and the methodology requires a revision before a performance method/benchmark can be used, please justify its mention in this version of the methodology.
Response from Project Proponent	The methodology has been designed to accommodate, under quantification approach 2, future revision for use of a performance benchmark for soil organic carbon expressed in terms of change in soil organic carbon stocks per unit area (deltaSOCbsl,i,t Equation 31). The definition of deltaSOCbsl,i,t in Equation 31 has been updated for clarification. The model calibration and validation module has been updated to accommodate use with a performance benchmark for soil organic carbon
Aster Global Findings	This item is pending discussion with Verra.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Verra has stated this item is in line with their expectations. The item has been addressed.

Item Number	5

VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**Requirements 2.3.1** Additionality and/or the crediting baseline are determined for the class of project activity, and qualifying conditions and criteria are set out in the methodology. Individual projects need only meet the conditions and apply the pre-defined criteria set out in the standardized method, obviating the need for each project to determine additionality and/or the crediting baseline via project-specific approaches and analyses.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Sections 2, 6 and 7 of v 1.0 of the methodology.
Aster Global Findings	The baseline is project specific, additionality appears to be a standardized method, although the methodology states it is a project method. Aside from regulatory surplus, literally any agricultural practice that is deemed to reduce emissions or increase SOC sequestration is additional. If a rate reduction of an amendment is involved, there is a requirement that it be at least 5% below the baseline value. It is not clear whether this means an amendment rate reduction or an emissions reduction.
NCR/CL/OFI	CL: The adoption of a myriad of pre-determined activities and unnamed activities are automatically considered additional. This appears to be a standardized method. Please explain why this is considered a project method for determining additionality.
Response from Project Proponent	Methodology does not include a performance method.
Aster Global Findings	Section 7 of the 15 April version of the methodology describes a project method. This item is not applicable to the updated methodology. 1 May 2020

Item Number	6
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	1) Performance methods: These methods establish performance benchmark metrics for determining additionality and/or the crediting baseline. Projects that meet or exceed a pre-determined level of the metric may be deemed as additional and a pre-determined level of the metric may serve as the crediting baseline.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 7 of v 1.0 of the methodology
Aster Global Findings	The methodology uses a performance benchmark of 5% for the class of projects that include rate reductions of a fertilizer/soil amendment for additionality, but it is not clear whether this benchmark represents the reduction in the fertilizer/amendment or an emissions reduction/SOC sequestration increase.
NCR/CL/OFI	CL: See the NCR above, regarding project/standardized methods. Please clarify whether the performance benchmark of 5% refers to the rate reduction or the emissions reduction.
Response from Project Proponent	Methodology does not include a performance method.

Aster Global Findings	Section 7 of the 15 April version of the methodology describes a project method. This item does not appear to be applicable to the updated methodology. Pending 2.2.2
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The above item has been addressed.

Item Number	7
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	2) Activity methods: These methods pre-determine additionality for given classes of project activities using a positive list. Projects that implement activities on the positive list are automatically deemed as additional and do not otherwise need to demonstrate additionality. One of three options (namely activity penetration, financial feasibility or revenue streams) is used to qualify the project activity for the positive list, as set out in Section 3.5.9.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Sections 2, 7 and Appendix 1 of v 1.0 of the methodology
Aster Global Findings	The methodology uses a partially defined positive list of regenerative practices in appendix 1, but there is no use of any of the three options (activity penetration, financial feasibility or revenue streams) to qualify the list
NCR/CL/OFI	See the NCR in line 26 regarding project/standardized methods. A way to qualify the list of practices to deem it additional must be developed.
Response from Project Proponent	
Aster Global Findings	Section 7 of the 15 April version of the methodology describes a project method. This item is not applicable to the updated methodology. 1 May 2020

Item Number	8

VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**2.3.6** The performance benchmark metric shall be specified in terms of tonnes of CO2e per unit of output (i.e., GHG emissions per unit of product or service), tonnes of CO2e per unit of input (e.g., GHG emissions per unit of input per unit of land area) or as a sequestration metric (e.g., carbon stock per unit of land area), as appropriate to the project activity applicable under the methodology. This may represent tonnes of CO2e reduced or tonnes of CO2e sequestered. An input metric shall only be used where an output metric is not practicable (e.g., the corresponding output metric is subject to influences outside the control of the project proponent) and leakage shall be addressed. The unit shall be unambiguously defined to allow a consistent comparison of project performance with the performance benchmark. The GHG Protocol for Project Accounting, Chapter 7 (WRI-WBCSD) provides some examples of products and services that may serve as candidates for performance benchmark metrics. Note that proxies for the performance benchmark metric may be used for determining additionality, as set out in Section 3.5.7.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 7 of v 1.0 of the methodology
Aster Global Findings	The applicability condition benchmark for rate reductions of fertilizers/amendments is described as 5% below the baseline value. It is not clear whether this is an input metric of the amount of amendment or an output metric of the emissions reductions.
NCR/CL/OFI	CL: Please explain whether the benchmark is an output or input metric, and describe it in terms of tonnes CO2/unit input or output.
Response from Project Proponent	Methodology does not include a performance method.
Aster Global Findings	Section 7 in the 15 April update to the methodology describes a project method for determining additionality. The language now makes clear that the 5% specification refers to an input metric. This item is not applicable.

Item Number	9
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	1) Methodologies shall provide a description and analysis of the current distribution of performance within the sector as such performance relates to the applicability of the methodology or each performance benchmark (see Section 3.2.5 for further information on applicability of methodologies and performance benchmarks). Methodologies shall also provide an overview of the technologies and/or measures available for improving performance within the sector, though an exhaustive list is not required recognizing that performance methods may be somewhat agnostic with respect to the technologies and/or measures implemented by projects.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Sections 2 and 7 of the methodology.
Aster Global Findings	The reasoning behind a 5% reduction benchmark is not discussed.
NCR/CL/OFI	CL: Please fully justify the benchmark with the required analysis.

Response from Project Proponent	Methodology does not include a performance method.
Aster Global Findings	Section 7 in the 15 April update to the methodology describes a project method for determining additionality. The language now makes clear that the 5% specification refers to an input metric. This item is not applicable.

Item Number	10
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	2) Methodologies shall discuss and evaluate the trade-off between false negatives and false positives and shall describe objectively and transparently the evidence used (including reference to primary and secondary data sources), experts consulted, assumptions made, and analysis (including numerical analysis) and process undertaken in determining the selected level(s) of the performance benchmark metric (noting that expert consultation is a key part of this process, as set out below). The selected level(s) shall not systematically overestimate GHG emission reductions or removals.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 7 of v 1.0 of the methodology
Aster Global Findings	This was not addressed in the methodology.
NCR/CL/OFI	CL: Please fully justify the benchmark with the required analysis.
Response from Project Proponent	Methodology does not include a performance method.
Aster Global Findings	Section 7 in the 15 April update to the methodology describes a project method for determining additionality. The language now makes clear that the 5% specification refers to an input metric. This item is not applicable.

Item Number	11
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	a) The objective of the expert consultation shall be to engage and solicit input from technical experts on the appropriateness of the proposed level(s) of the performance benchmark metric to ensuring environmental integrity and provision of sufficient financial incentive to potential projects. Technical experts are persons who have specific knowledge or expertise relevant to the methodology and performance benchmark metric.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 7 of v 1.0 of the methodology
Aster Global Findings	This was not addressed in the methodology.
NCR/CL/OFI	CL: Please fully justify the benchmark with the required analysis and consultations.
Response from Project Proponent	Methodology does not include a performance method.
Aster Global Findings	Section 7 in the 15 April update to the methodology describes a project method for determining additionality. The language now makes clear that the 5% specification refers to an input metric. This item is not applicable.

Item Number	12

VCS Methodology Requirements 19 September 2019, v4.0 (Description)	b) The methodology developer shall ensure that a representative group of experts participates in the consultation, including, but not limited to, representation from industry, environmental non-governmental organizations, and government or other regulatory bodies. Where a diverse range of views can be expected with regard to the appropriate level of the performance benchmark metric, experts representing the range of views shall participate in the consultation. Participation by experts shall be pro-actively sought and facilitated. Consultation that does not involve a representative group of experts shall be deemed insufficient.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 7 of v 1.0 of the methodology
Aster Global Findings	This was not addressed in the methodology.
NCR/CL/OFI	CL: Please fully justify the benchmark with the required analysis and consultations.
Response from Project Proponent	Methodology does not include a performance method.
Aster Global Findings	Section 7 in the 15 April update to the methodology describes a project method for determining additionality. The language now makes clear that the 5% specification refers to an input metric. This item is not applicable.

Item Number	13
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**2.3.10** Activity methods shall set out, using the specification of the project activity under the applicability conditions, a positive list of project activities that are deemed as additional under the activity method (see Section 3.2 for further information on providing specification of project activities). All such project activities are deemed as additional under the activity method.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Sections 4, 7 and Appendix 1 of v.1.0 of the methodology
Aster Global Findings	The methodology includes a list of activities in Appendix A, but it is described as a "Non-exclusive list of potential regenerative agriculture practices that could constitute the project activity," indicating the intention that the list remain open-ended.
NCR/CL/OFI	VCS methodology requirements require activities to be specified (see section 3.2 of the methodology requirements). An open-ended list of activities does not appear to be allowed.
Response from Project Proponent	Methodology does not use an activity method
Aster Global Findings	Section 7 in the 15 April update to the methodology describes a project method for determining additionality. This item is not applicable.

Item Number	14
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**Concept** Methodologies may set out defined terms in addition to those already included in the VCS Program Definitions to help users understand the context of the methodology and improve its readability.

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 3 of the methodology
Aster Global Findings	It was noted that definitions are included in section 3 that are already defined in the VCS Program Defnitions.
NCR/CL/OFI	NCR: Please remove VCS defined definitions from this section, per requirements.
Response from Project Proponent	Deffinitions removed from Section 3
Aster Global Findings	The audit team confirmed that VCS defined definitions have been removed. The item has been addressed.

Item Number	15
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.1.1** Definitions shall be written in a clear and concise manner.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 3 of the methodology
Aster Global Findings	"Synthetic nitrogen fertilizer" is defined as "any synthetic fertilizer containing nitrogen."
NCR/CL/OFI	CL: Please provide a definition that is not a rearrangement of the words in the term being defined.
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	This looks like a closed finding
Aster Global Findings	The finding is open. The definition of synthetic nitrogen fertilizer is still "Any synthetic fertilizer (solid, liquid, gaseous) containing nitrogen (N)." Please address.
NCR/CL/OFI	CL: Please provide a definition that is not a rearrangement of the words in the term being defined.
Response from Project Proponent	Deffinition has been changed: Synthetic nitrogen fertilizer Any fertilizer made by chemical synthesis (solid, liquid, gaseous) containing nitrogen (N). This may be a single nutrient fertilizer product (only including N), or any other synthetic fertilizer containing N, such as multi–nutrient fertilizers (e.g., N–P–K fertilizers) and 'enhanced–efficiency' N fertilizers (e.g., slow release, controlled release and stabilized N fertilizers).
Aster Global Findings	The change to the definition was made and it is no longer a rewording of the term. Item closed. 24 September 2020

Item Number	16

VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.1.2** Defined terms shall be used within the methodology and methodologies shall not define terms that are already included in the VCS Program Definitions.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 3 of the methodology
Aster Global Findings	It was noted that definitions are included in section 3 that are already defined in the VCS Program Defnitions.
NCR/CL/OFI	NCR: Please remove VCS defined definitions from this section, per requirements.
Response from Project Proponent	Deffinitions removed from Section 3
Aster Global Findings	The audit team confirmed that VCS defined definitions have been removed. The item has been addressed.

Item Number	17
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	3.2.1 Methodologies shall use applicability conditions to specify the project activities to which it applies and shall establish criteria that describe the conditions under which the methodology can (and cannot, if appropriate) be applied. Any applicability conditions set out in tools or modules used by the methodology shall also apply.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 4 of the methodology
Aster Global Findings	The methodology template requires that projects "Describe the project activity(s) to which the methodology applies." within the applicability section 4. This section does not list activities, though a non-inclusive list of activities is provided in appendix A. This list should be included in section 4 Applicability Conditions. In the applicability section the methodology states "One or more new agriculture practices are introduced and implemented in the project." Further it provides the applicability condition that "One or more new agriculture practices are introduced and implemented in the project;" This does not appear to sufficiently address the requirement that "Methodologies shall use applicability conditions to specify the project activities to which it applies and shall establish criteria that describe the conditions under which the methodology can (and cannot, if appropriate) be applied." In further support of this concern, the methodology template requires that project developers "Describe the project activity(s) to which the methodology applies. Then, set out specific applicability criteria that define project eligibility, such as geographic location, technology type, historical land use, and any other conditions under which the methodology is applicable." This has not been done.

NCR/CL/OFI	NCR: Please include the list of eligible project activities (currently listed in appendix A) within section 4 Applicability Conditions of the methodology template. NCR: Please see the finding and address the requirement. Please provide a detailed description of the project activities, sufficient to address the requirement in the Methodology Requirements and in the Methodology Template.
Response from Project Proponent	Applicability conditions that define eligibility have been edited: Land is either cropland or grassland at the start of the project and remains in agricultural production throughout the project crediting period; One or more new agriculture practices are introduced and implemented in the project which result in one or more changes in:in the following categories; Fertilizer (organic or inorganic) application Water management/irrigation Tillage and/or residue management Crop planting and harvesting (e.g. crop rotations, cover crops) Grazing practices The project activity is not expected to significantly decrease carbon stocks in woody perennials via de minimis demonstration; The project activity does not result in a sustained reduction (over > 10 years) in productivity or sustained displacement of any pre-existing productive activity in the project area; The project activity is not expected to significantly displace livestock outside of the project area via de minimis demonstration: The project activity cannot occur on a wetland (this does not necessarily exclude crops subject to artificial flooding)

Aster Global Findings	It does not appear the individual conditions were revised to show eligible activities from Appendix A or to refer to Appendix A. Condition 5 shows eligible activities, but each condition should be tied to eligible activities. The first applicability condition is written in the form of a phrase, not a sentence. It should be prescriptive and include the word "must" or "shall" and include the appropriate punctuation at the end. It is unclear why displacement is limited to livestock project activities in the fourth applicability condition and why displacement of other activities is not precluded. No geographical location applicability condition was noted. No project start date or temporal boundary applicability conditions were noted. Further, it is noted that an applicability condition previously existed as item 7 in the March submittal has now been removed. It is unclear why this was removed. Please address. For the second item it notes "...(i.e. land use change is not eligible)..." it is unclear if this negates the use of projects that the convert from cropland to grassland and the alternative. Further the item requires continued monitoring to ensure the project remains in continued production, which goes against requirements specified in the template. Please address.
NCR/CL/OFI	NCR: Please review and address the Finding, providing clarity to ensure the VCS template requirements are achieved.
Response from Project Proponent	All applicability conditions were agreed upon during Boston site visit. Applicability condition language was edited to prohibit conversion from grassland to cropland and cropland to grassland
Aster Global Findings	Language added to applicability conditions section removes all question of land conversions within the definition of agricultural land. The previous finding noted that an applicability condition previously existed as item 7 in the March submittal has now been removed. This item was added while verifiers were in Boston in discussion with Indigo. The newer versions do not include this and it is unclear why it was stricken from the document.
NCR/CL/OFI	CL: Please address the findings.
Response from Project Proponent	In response to Verra review this applicability condition was edited to read, "The project activity area must not have been cleared of native ecosystems within the 10-year period prior to the project start date. " in the version of the methodology (Indigo-VCS-ALM-Methodology-Draft_20Mar2020 +Verra 1APR2020). The addition of woody biomass as an optional pool would negate the need for an applicability condition to address these reductions.

Aster Global Findings	The inclusion of the woody biomass as a optional pool does negate the need for the applicability condition. The item has been addressed.

Item Number	18
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.3.4** The relevant carbon pools for AFOLU project categories are aboveground tree biomass (or aboveground woody biomass, including shrubs, in ARR, ALM and ACoGS projects), aboveground non-tree biomass (aboveground non-woody biomass in ARR and ALM projects), belowground biomass, litter, dead wood, soil (including peat) and wood products. Methodologies shall include the relevant carbon pools set out in Table 1 below.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology table 5.1
Aster Global Findings	Methodology states for Aobeground Woody Biomass "Per applicability conditions of this methodology, the project activity is not expected to decrease carbon stocks in woody perennials". How does this work in orchards or similar ALM activities that focus on woody perennials? If fertilization is reduced is it not possible that woody growth and carbon sequestration in this biomass would be reduced?
NCR/CL/OFI	CL: Please clarify how aboveground woody biomass can be conservatively excluded for apple, pecan and other orchards or ALM projects that necessitate the maintinence of aboveground woody biomass.
Response from Project Proponent	Addressed in applicability conditions
Aster Global Findings	This does not appear to have been addressed in the applicability conditions, but above-ground woody biomass is now included as an optional pool, with instructions to use a CDM tool to calculate it. It is noted that the pool is marked as optional in the text but required with a yes in the pools this conflicts as it makes it required for all cases. Is this the intention of the methodology developer? It is noted that woody biomass is designated with a yes for inclusion into the project but its gases are not included in the relevant carbon pool tables. It is unclear how this is appropriate, please address.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	Table 5.1 has been updated. Aboveground woody biomass must be included where project activities may significantly reduce the pool. In all other cases aboveground woody biomass is an optional pool. Belowground woody biomass is an optional pool.
Aster Global Findings	Table 5.1 was updated to show aboveground woody biomass as optional unless it is significantly reduced. It is noted that woody biomass is now appropriately designated in table 5.1 It is noted that the gases associated with woody biomass are still not included in the relevant carbon pool tables. Please address.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Table 5.1 has been updated to show gases associated with woody biomass are included in the relevant carbon pool tables

Aster Global Findings	It is still noted that woody biomass and associated gases are still not included within table 5.2 and table 8.1, it is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	Woody biomass and its associated gasses are now included in tables 5.2. and 8.1.
Aster Global Findings	It was noted that woody biomass was added to table 8.1. Woody biomass is still not included in table 5.2 in the most recent submittal. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Added to Table 5.2
Aster Global Findings	The element has been added to the table the item has been addressed.

Item Number	19
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.3.6** Specific carbon pools and GHG sources, including carbon pools and GHG sources that cause project and leakage emissions, may be deemed de minimis and do not have to be accounted for if together the omitted decrease in carbon stocks (in carbon pools) or increase in GHG emissions (from GHG sources) amounts to less than five percent of the total GHG benefit generated by the project. The methodology shall establish the criteria and procedures by which a pool or GHG source may be determined to be de minimis. For example, peer reviewed literature or the CDM A/R methodological tool Tool for testing significance of GHG emissions in A/R CDM project activities may be used to determine whether decreases in carbon pools and increases in GHG emissions are de minimis.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology table 5.1 and 5.2
Aster Global Findings	The methodology states "Where the increases in greenhouse gas emissions from any project emissions or leakage source, and decreases in carbon stocks in carbon pools, is less than five percent of the total net anthropogenic GHG emission reductions and removals due to the project, such sources and pools may be deemed de minimis and may be ignored (i.e., their value may be accounted as zero)." however the requirement states that "***The methodology shall establish the criteria and procedures by which a pool or GHG source may be determined to be de minimis.***" THis could not be located.
NCR/CL/OFI	NCR: Please establish the criteria and procedures by which a pool or GHG source may be determined to be de minimis.
Response from Project Proponent	Section 4 now references to de minimis demonstration will apply CDM A/R methodological tool Tool for testing significance of GHG emissions in A/R CDM project activities.

Aster Global Findings	In the June 2020 version of the methodology, applicability condition 5 includes the passage, "Significance must be demonstrated via de minimis demonstration. This and all subsequent references to de minimis demonstration are conducted via application of CDM A/R methodological Tool for testing significance of GHG emissions in A/R CDM project activities." This addresses the NCR, though an OFI has been generated.
NCR/CL/OFI	OFI: Since there is only one further mention of the need for a de minimis demonstration in the methodology, in the Project Boundary section, inclusion of the reference to the CDM tool could aid future users of the methodology.
Response from Project Proponent	Noted

Item Number	20
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.3.7** Specific carbon pools and GHG sources do not have to be accounted for if their exclusion leads to conservative estimates of the total GHG emission reductions or removals generated. The methodology shall establish criteria and procedures by which a project proponent may determine a carbon pool or GHG source to be conservatively excluded. Such conservative exclusion may be determined by using tools from an approved GHG program, such as the CDM A/R methodological tool Procedure to determine when accounting of the soil organic carbon pool may be conservatively neglected in CDM A/R project activities, or by using peer-reviewed literature.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx table 5.2
Aster Global Findings	While CO2 emissions from fossil fuels has been included in table 5.2, it does not appear that CO2 emissions from soils have been included nor has a de minimis demonstration been provided.
NCR/CL/OFI	CL: Please clarify why CO2 emissions from soils have not been included. If they are intended to be excluded please provide a de minimis demonstration per the requirement.
Response from Project Proponent	Table 5.2 updated
Aster Global Findings	The June 2020 version of the methodology includes an updated table 5.2, explaining that CO2 emissions from soil are included by measuring stock change. Item closed.

Item Number	21
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.3.8** Reductions of N2O and/or CH4 emissions are eligible for crediting if in the baseline scenario the project area would have been subject to livestock grazing, rice cultivation, burning and/or nitrogen fertilization.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx table 5.2

Aster Global Findings	The methodology states in table 5.2 "If synthetic and/or organic nitrogen fertilizers are applied in the **project**, N2O emissions from nitrogen fertilizers must be included in the project boundary". The requirement is "*Reductions of N2O and/or CH4 emissions are eligible for crediting if in the **baseline scenario** the project area would have been subject to livestock grazing, rice cultivation, burning and/or nitrogen fertilization."*
NCR/CL/OFI	NCR: Please correct the statement in table 5.2 to state "*If in the baseline scenario the project area would have been subject to nitrogen fertilization, N2O emissions from nitrogen fertilizers must be included in the project boundary."*
Response from Project Proponent	Updated table 5.2, "If in the baseline scenario the project area would have been subject to nitrogen fertilization, or If nitrogen fertilization is greater in the with project scenario relative to the baseline scenario, N2O emissions from nitrogen fertilizers must be included in the project boundary.."
Aster Global Findings	The June 2020 version of the methodology includes the described update to tale 5.2, which closes this item.

Item Number	22
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.3.9** Reductions of CH4 emissions are eligible for crediting if fire would have been used to clear the land in the baseline scenario.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx table 5.2
Aster Global Findings	This is sufficiently addressed as the methodology states in an astrisk footnote to table 5.2 that for biomass burning, "*Must be included where the project activity may significantly increase emissions compared to the baseline and may be included where the project activity may reduce emissions compared to the baseline.*"
NCR/CL/OFI	OFI: To improve readability, consider removing the asterisk and instead include this language in the body of the table for biomass burning and soil methanogenesis.
Response from Project Proponent	Table 5.2 adjusted
Aster Global Findings	The June 2020 version of the methodology was not adjusted, according to the OFI. However, there is no requirement for closing this OFI.
NCR/CL/OFI	
Response from Project Proponent	Our team thinks the current format is clear

Item Number	23
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.3.13** Where energy-conserving practices reduce emissions of CO2, such as adopting no-till practices to reduce fuel use, the methodology may include these GHG emissions reductions in the project boundary.

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	This does not appear to be specifically addressed within the methodology.
NCR/CL/OFI	NCR: Please specifically address the requirement within the methodology.
Response from Project Proponent	Project boundary section states, "Must be included where the project activity may significantly increase emissions compared to the baseline and may be included where the project activity may reduce emissions compared to the baseline. "
Aster Global Findings	The statement is in the footnote after table 5.2 of the June 2020 version of the methodology . Item closed.

Item Number	24
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.3.14** Where activities convert drained, farmed organic soils to perennial non-woody vegetation and reduce or eliminate drainage to reduce CO2 and N2O emissions from organic soils, such activities may increase CH4 emissions. Methodologies applicable to such activities shall include CH4 emissions in the project boundary.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	This does not appear to be specifically addressed within the methodology.
NCR/CL/OFI	NCR: Please specifically address the requirement within the methodology. Please modify the pools table 5.1 and 5.2 as appropriate.
Response from Project Proponent	CH4 emissions are accounted for in the methodology.
Aster Global Findings	This is included as soil methogenesis in table 5.2 of the June 2020 version of the methodology, if such an activity would be permitted by applicability conditions. Item closed.

Item Number	25
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.4.1** Methodologies using a project method shall establish criteria and procedures for identifying alternative baseline scenarios and determining the most plausible scenario, taking into account the following:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 2 of V1.0 of the methodology.
Aster Global Findings	Pending the determination of whether the methodology uses a project, performance or activity method for determining additionality, and a project or performance method for determining the crediting baseline. In its current form it states it is using a project method, but the structure appears to be that of a standardized approach.
NCR/CL/OFI	

Response from Project Proponent	
Aster Global Findings	The methodology is using a project method. However, the baseline is determined to be a continuation of historical activities of the past 3 years, with no examination of alternative baselines.
NCR/CL/OFI	NCR: Devise a method for identifying alternative baseline scenarios, as required .
Response from Project Proponent	Please see response to Item 3.
Aster Global Findings	VCS has expressly allowed the previous land use to be considered the baseline case, without investigating alternative scenarios. Item closed.

Item Number	26
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	2) Existing and alternative project types, activities and technologies providing equivalent type and level of activity of products or services to the project.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 2 of V1.0 of the methodology.
Aster Global Findings	Pending the determination of whether the methodology uses a project, performance or activity method for determining additionality, and a project or performance method for determining the crediting baseline. In its current form it states it is using a project method, but the structure appears to be that of a standardized approach.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The methodology uses a project method, however the baseline is determined to be the activities during the historical look back periond of 3 years, and includes no alternatives to activities or technologies.
NCR/CL/OFI	NCR: See item 3.4.1, above. Alternative baseline activities and technologies must be assessed according to methodology requirements.
Response from Project Proponent	Please see response to Item 3.
Aster Global Findings	VCS has expressly allowed the previous land use to be considered the baseline case, without investigating alternative scenarios. Item closed.

Item Number	27
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	3) Data availability, reliability and limitations.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 2 of V1.0 of the methodology.

Aster Global Findings	Pending the determination of whether the methodology uses a project, performance or activity method for determining additionality, and a project or performance method for determining the crediting baseline. In its current form it states it is using a project method, but the structure appears to be that of a standardized approach.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The methodology uses a project method, however the baseline is determined to be the activities during the historical look back periond of 3 years, and includes no alternatives to activities or technologies.
NCR/CL/OFI	NCR: See item 3.4.1, above. Alternative baseline activities and technologies must be assessed according to methodology requirements.
Response from Project Proponent	Please see response to Item 3.
Aster Global Findings	VCS has expressly allowed the previous land use to be considered the baseline case, without investigating alternative scenarios. Item closed.

Item Number	28
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	4) Other relevant information concerning present or future conditions, such as legislative, technical, economic, socio-cultural, environmental, geographic, site-specific and temporal assumptions or projections.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 2 of V1.0 of the methodology.
Aster Global Findings	Pending the determination of whether the methodology uses a project, performance or activity method for determining additionality, and a project or performance method for determining the crediting baseline. In its current form it states it is using a project method, but the structure appears to be that of a standardized approach.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The methodology uses a project method, however the baseline is determined to be the activities during the historical look back periond of 3 years, and includes no alternatives to activities or technologies. None of the information described was used in examining alternatives.
NCR/CL/OFI	NCR: See item 3.4.1, above. Alternative baseline activities and technologies must be assessed according to methodology requirements.
Response from Project Proponent	Please see response to Item 3.
Aster Global Findings	VCS has expressly allowed the previous land use to be considered the baseline case, without investigating alternative scenarios. Item closed.

Item Number	29

VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.4.9** The determination and establishment of a baseline scenario shall follow an internationally accepted GHG inventory protocol, such as the IPCC 2006 Guidelines for National GHG Inventories.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Pending other findings about baseline elsewhere.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	VCS has expressly allowed the baseline case to be determined as described in this methodology. Item closed.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	30
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.6.1** Methodologies shall establish criteria and procedures for quantifying GHG emissions and/or removals, and/or carbon stocks, for all selected GHG sources, sinks and/or reservoirs identified in the project boundary.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The methodology establishes procedures for quantifying GHG emissions in line with the requirements, however there is a lack of detail on how and when the various computational methods should be applied.
NCR/CL/OFI	CL: Please include additional information in the methodology to specify exactly when and for what the equations should be applied. Further please include detail that specifies scope for the application.

Response from Project Proponent	Guidance in the quantification section has been included
Aster Global Findings	Additional detail has been included. The item will remain open pending other open items.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The item remains open pending other open items.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	31
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	2) Dead wood;
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The justification implies that the pool is optional, which is in contrast with the included column. Please provide clarity to ensure that a reader would correctly interpret the intent of the developer, otherwise please define the pool as optional.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Phrasing has been changed to "is not included" to provide clarity, for deadwood and also for litter.
Aster Global Findings	Additional detail has been provided to clarify these pools are not used. The item has been addressed.

Item Number	32

VCS Methodology Requirements 19 September 2019, v4.0 (Description)	3.64 Where carbon would have been lost in the baseline scenario due to land use conversion or disturbance, GHG emissions from soil carbon, belowground biomass, wood products and dead wood carbon pools generally occur over a period of time following the event. It shall not be assumed that all GHG emissions from these carbon pools in the project categories specified below occur instantaneously or within a short period of time.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	It is unclear how this is addressed, if applicable.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It is unclear how GHGs relating to the conversion of lands from grasslands to croplands and croplands to grasslands are addressed in the methodology.
NCR/CL/OFI	CL: Please clarify how the methodolgy accounts for the GHGs associated with the conversion of grasslands to croplands and croplands to grasslands.
Response from Project Proponent	Applicability condition 2 has been updated to explicitly prohibit conversion from cropland to grassland and grassland to cropland.
Aster Global Findings	Conversions between grassland/woody crops and row crops are excluded. This item does not apply to the methodology. Item closed.

Item Number	33
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	Where appropriate, belowground biomass, soil carbon and dead wood decay models shall be calibrated. Where models are calibrated using measurement plots or data from research plots, sound and reliable measurement methods shall be applied as set out in Section 3.9.5.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The methodology states that models must be validated. It does not state sound and reliable measurement methods shall be applied.
NCR/CL/OFI	CL: Please include detail on how measurements shall be taken to determine calibrations of the model are appropriate. Further, please ensure this detail in line with sound and reliable methods.
Response from Project Proponent	Added requirements to section 4 , point 3 of the modeling section. Model structural uncertainty equation will also be updated (section 8).
Aster Global Findings	Additional language has been added. Pending related items in the calibration module checklist.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Conversions between grassland/woody crops and row crops are excluded. This item does not apply to the methodology. Item closed.

Item Number	34
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.6.5** Where activity-based methods are used for determining baseline soil carbon stocks, estimates shall be conservatively determined relative to the computed maximum carbon stocks that occurred in the designated project area within the previous 10 years. For example, if carbon stocks in the project area were 100 tonnes C/ha in 2002 and declined to 90 tonnes C/ha by 2007 after intensive tillage, the minimum baseline carbon stock for a project established in 2008 would be 100 tonnes C/ha.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The approach outlined in the methodology is based on a 5 year look back, not a conservative application of the most conservative approach within the last 10 years.
NCR/CL/OFI	CL: Please clarify how the methodology is in compliance with this requirement. If unable to do so, please adjust methodological approaches to meet the requirement.
Response from Project Proponent	The methodology does not use an activity based method.
Aster Global Findings	N/A as activity based methods are not used. The item has been addressed.

Item Number	35
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.6.7** Methodologies that target soil carbon stock increases shall quantify, where significant, concomitant increases in N2O, CH4 and fossil-derived CO2. Similarly, methodologies targeting N2O emission reductions shall establish the criteria and procedures by which the changes in soil carbon stocks may be deemed de minimis (as set out in Section 3.3.6) or conservatively excluded (as set out in Section 3.3.7).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The methodology defines that pools are to be included. It is noted that N20 and CH4 are to be included in all cases, unless deemed de minimis. It was noted that the exclusion of stocks is provided, but limited detail is provided in determing how a pool is de minimis
NCR/CL/OFI	CL: Please provide additional detail on the determination of how a pool is found to be de minimis. The level of detail should be sufficient to ensure that all project developers will apply the exact same approach.
Response from Project Proponent	Section 4 now references to de minimis demonstration will apply CDM A/R methodological tool Tool for testing significance of GHG emissions in A/R CDM project activities.
Aster Global Findings	A reference to T-Sig has been included within Sectio 4. The item has been addressed.

Item Number	36

VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.7.1** The methodology shall establish criteria and procedures for quantifying leakage.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The methodology states that there is no leakage as per applicability conditions. It is unclear how the applicability conditions of the methodology address why leakage is zero. Further, it is unclear how all facets of leakage are addressed for this project type.
NCR/CL/OFI	CL: Please clarify how applicability conditions address all elements of leakage, defining it as zero. Further, please clarify how all facets of leakage are appropriately attributed to a value of zero for all possible projects that might occur using this methodology.
Response from Project Proponent	Suggested approach is to specifically state that crop production leakage is zero, according to 3.7.12 because the project area remains in commercial crop cultivation. Then note that if overall livestock populations decrease, and the emissions impact is not de minimis, the reduced emissions must be accounted for as leakage.
Aster Global Findings	It is unclear how applicability conditions are viable to fully assert that leakage is non-significant throughout the project life, as they are addressed at project validation and not verification. Futher, the response denotes that livestock leakage must be accounted for when de minimis demonstration cannot be made, however it is unclear where this occurs within the methdology.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	This item was addressed and discussed at length during Boston site visit. The potential for leakage is assessed at validation for livestock as well as crop production. Further VCS reviewed eligibility criteria and had no issues. The term "grazing forages" was removed from examples of safeguards under applicability condition 5.
Aster Global Findings	Pending discussion with Verra.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Pending discussion with Verra.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Verra has reviewed/closed all leakage items. The item has been closed.

Item Number	37
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.8.3** In any given verification period, a methodology may result in the project's GHG emission reductions or removals being quantified as negative. This is permitted and the project shall be granted no credit in such periods.

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	No specific detail is given to this criteria.The methodology is silenet on how negative crediting shall be dealt with.
NCR/CL/OFI	CL: Please provide detail on how negative crediititing will be dealt with, should it occur in a monitoring period.
Response from Project Proponent	This is a VCS requirement addressed by a loss event and would be treated as a reversal.
Aster Global Findings	The audit team agrees with this and considers this item addressed.

Item Number	38
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.8.4** AFOLU methodologies shall establish procedures for quantifying the net change in carbon stocks, so that the number of buffer credits withheld in the AFOLU pooled buffer account and market leakage emissions may be quantified for the project.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	Computation of buffer credits is not described in the methodology.
NCR/CL/OFI	CL: Please include language identifying how buffer credits are accounted.
Response from Project Proponent	The methodology meets the requirement of establishing procedures for quantifying the net change in carbon stocks.
Aster Global Findings	The audit team agrees with this and considers this item addressed.

Item Number	39
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.8.5** AFOLU methodologies shall include procedures to determine the number of GHG credits issued to projects, which is determined by subtracting out the buffer credits from the net GHG emission reductions or removals (including leakage) associated with the project. The buffer credits are calculated by multiplying the non-permanence risk rating (as determined by the AFOLU Non-Permanence Risk Tool) times the change in carbon stocks only. The full rules and procedures with respect to assignment of buffer credits are set out in the VCS Program document Registration and Issuance Process. This calculation process is illustrated in the example below.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	Pending above finding
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	Net GHG emission reductions are computed in Equation 28, however it is unclear where procedures to determine the number of GHG credits issued to projects, which is determined by subtracting out the buffer credits from the net GHG emission reductions or removals (including leakage) associated with the project are located.
NCR/CL/OFI	CL: Please address the findings.
Response from Project Proponent	Procedures have been added - see new Section 8.7 and Equation 48
Aster Global Findings	Equation 48 has been appropriately added. The item has been addressed.

Item Number	40
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**Concept** Methodologies shall describe the data and parameters available at validation (i.e., those that are fixed for the duration of the project crediting period) and data and parameters monitored (i.e., those that must be monitored during the project crediting period for each verification). Additionally, methodologies shall describe the criteria and procedures for obtaining, recording, compiling and analyzing monitored data and parameters.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The monitoring plan addresses a number of the items described in the concept, but lacks sufficient detail to ensure consistancy between different project developers.
NCR/CL/OFI	CL: Please include enough detail to allow for consistent development of monitoring activities in line with the concept of monitoring and all related elements.
Response from Project Proponent	Added guidance in section 9.3 of definition of parameters monitored for various project activities. Bullet added, "Definition of the accounting boundary, spatially delineating any differences in the accounting boundary ". VM0033 and VM0039 were referenced as a templates to build out this section. Consulted with Verra (A. Beauchamp on 03/05/2020) for additional review on this item (concluded it enough to include an outline for a monitoring plan in the methodology).
Aster Global Findings	Discussion with Verra and additional outline language has been included within Section 9.3. The item has been addressed.

Item Number	41
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.9.2** When highly uncertain data and information are relied upon, conservative values shall be selected that ensure that the quantification does not lead to an overestimation of net GHG emission reductions or removals.

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	Conservative items are mentioned for a few values, however this largely ignored throughout the methodology.
NCR/CL/OFI	CL: Please include language in the methodology to ensure the conservative use of values and data when taken for uncertain data sources.
Response from Project Proponent	Added language to section 9, specifying conservativeness in selection of data and parameter values, "Where discretion exists in the selection of a value for a parameter, the principle of conservativeness shall be applied. "
Aster Global Findings	Additional language has been included in the beginning of Section 9 to address the item. The item has been addressed.

Item Number	42
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	3) Procedures for managing data quality.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The purpose of managing data quality is largely undefined, aside from noting QA/QC procedures are required.
NCR/CL/OFI	CL: Please include additional detail to fully describe data quality management in the monitoring plan.
Response from Project Proponent	See finding response for item 41
Aster Global Findings	Additional QA/QC procedures and detail have been included in Section 9.3. The item has been addressed.

Item Number	43
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**3.9.5** Where measurement plots or data from research plots are used to calibrate belowground biomass, soil carbon and dead wood decay models (as described above in Section 3.6.4), sound and reliable methods for monitoring changes in carbon stocks, including representative location of samplings sites and sufficient frequency and duration of sampling shall be applied. In addition, plots used to calibrate soil carbon models shall be measured considering appropriate sampling depths, bulk density and the estimated impact of any significant erosion (or plots with significant erosion shall be avoided). Data used to calibrate belowground biomass and dead wood models shall consider an estimation of oven-dry wood density and the state of decomposition.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx

Aster Global Findings	The methodology states that models must be validated. It does not state sound and reliable measurement methods shall be applied, such as considering bulk density, and the estimated impact of significant erosion.
NCR/CL/OFI	CL: Please include detail on how measurements shall be taken to determine calibrations of the model are appropriate. Further, please ensure this detail in line with sound and reliable methods, considering bulk density and the estimated impact of significant erosion.
Response from Project Proponent	Added requirements to section 4 , point 3 of the modeling section. Model structural uncertainty equation will also be updated (section 8).
Aster Global Findings	Pending findings in the calibration module tab.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	44
VCS Methodology Requirements 19 September 2019, v4.0 (Description)	**A1.2** Eligible ALM activities are those that reduce net GHG emissions on croplands and grasslands by increasing carbon stocks in soils and woody biomass and/or decreasing CO2, N2O and/or CH4 emissions from soils. The project area shall not be cleared of native ecosystems within the 10-year period prior to the project start date. Eligible ALM activities include:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	No mention of the clearing of native ecosystems is mentioned within the methodology.
NCR/CL/OFI	CL: Please include language to ensure that native ecosystems have not been impacted within the last 10 years for inclusion in the project.
Response from Project Proponent	Section 4 updated with new applicability condition, "The project area shall not be cleared of native ecosystems within the 10-year period prior to the project start date. "
Aster Global Findings	The audit team confirms that language has been added to address this element. The item has been addressed.

Item Number	45
Non-Checklist Elements **(Description)**	Table of Contents
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The table of contents is incomplete.
NCR/CL/OFI	CL: Please adjust the table of contents to allow for navigation throughout the document, in line with good table of contents practices.
Response from Project Proponent	Table of contents updated
Aster Global Findings	The table of contents has been completed. The item has been addressed.

Item Number	46
Non-Checklist Elements **(Description)**	Page Numbering
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The page numbering is non-consistent throughout the document
NCR/CL/OFI	CL: Please ensure page numbering is consistent throughout the document, in line with good scientific page numbering practices.
Response from Project Proponent	Page numbers inserted
Aster Global Findings	Page numbers are still not consistent, in line with the previous finding. The previous finding stands.
NCR/CL/OFI	CL: Please ensure page numbering is consistent throughout the document, in line with good scientific page numbering practices.
Response from Project Proponent	The page number is continuous and consistent (missing header and footer on page 34 re-inserted).
Aster Global Findings	Page numbers have been added. The item has been addressed.

Item Number	47
Non-Checklist Elements **(Description)**	Equation References
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	It was noted that equation references are not included in related equations. These should be included for the sake of readability.

NCR/CL/OFI	CL: Please include equation references to source equations where appropriate to allow for readability.
Response from Project Proponent	Terra Carbon to update equation references. Variables are used in multiple equations and this should be clear (insert something at the end referencing other equations variables are derived from) Terra carbon could alternatively include a flow chart of equations into the methodology
Aster Global Findings	A flow chart has been included within the document to allow easier understanding of equation elements. It was noted that text associated with parameters is quite blurry and lacks definition to be read when either zoomed or not zoomed in.
NCR/CL/OFI	CL: Please correct the flow chart to ensure readability, in line with findings.
Response from Project Proponent	Flowchart, Figure 8.1, has been updated to match current version of methodology.
Aster Global Findings	It was noted that the flowchart was updated for equations. The figure is still quite blurry and the previous finding remains.
NCR/CL/OFI	CL: Please correct the flow chart to ensure readability, in line with findings.
Response from Project Proponent	It appears that Word was automatically compressing image files. This setting has been disabled and the graphic has been re-inserted at full resolution.
Aster Global Findings	The flow chart has been corrected and is now readable. The item has been addressed.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It was noted a number of changes occurred to the equations in the most recent submittal. Changes are not reflected in the flowchart. Please update in line with current document.
NCR/CL/OFI	CL: Please correct the flow chart to ensure accuracy with current methodology document.
Response from Project Proponent	Flow chart has been updated to add Eq 36-37 and renumber all subsequent equations
Aster Global Findings	All updates were correctly made. The item has been addressed.

Item Number	48
Non-Checklist Elements **(Description)**	Parameter Table
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	Data units vary throughout the methodology, for example both litres and liters are used at different points.
NCR/CL/OFI	CL: Please ensure consistent use of data units throughout parameter table and document

Response from Project Proponent	Parameter and units consistent
Aster Global Findings	Parameters seem to now be conistent throughout. The item has been addressed.

Item Number	49
Non-Checklist Elements **(Description)**	Parameter Table
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	No parameter for ΔCTREE and ΔCSHRUB exist for the project case. It is unclear if this intentional, and if so how these stocks are monitored as no parameter is defined. Further, it is unclear how this is used in the computation of equation 29.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Parameter tables for deltaCTREE and deltaCSHRUB were added. These parameter tables reference Section 8.2.2
Aster Global Findings	The related parameters were added. Additional requests are addressed in parameter specific findings if needed. The item has been addressed.

Item Number	50
Non-Checklist Elements **(Description)**	Parameter Table
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	A number of input parameters that occur within equations are not included in the either of the data parameter tables.
NCR/CL/OFI	CL: Please include parameters for all values used in equations.

Response from Project Proponent	Need to insert generic model input variables Var A and VarB in the parameter tables. Look at VM0026 or other methodologies at examples for generic variables and how these are handled Possibly need to have variables added to 9.1 and 9.2 and or definitions section Var j (defined in section 3), include in section 9.1. and 9.2 as appropriate. i, SF Need to ensure that all variables in each equation are then defined in the parameter tables in some way. Parameters used to index other parameters should have their own "where" statements in the equations
Aster Global Findings	A number of input parameters that occur within equations are not included in the either of the data parameter tables.
NCR/CL/OFI	CL: Please include parameters for all values used in equations as addressed in specific equations.
Response from Project Proponent	All index parameters have their own parameter tables now - parameter tables for SF and OF added, and FN and ON were moved from a subscript into the parameter name. Note that there is a parameter table for i. All variables are included in parameter tables - note that parameters that are calculated using equations within the methodology are not included in parameter tables. VarA and VarB were moved into the parameter table for modeled SOC, modeled soil CH4, and modeled soil N2O. Note that modeled SOC, modeled soil CH4, and modeled soil N2O are now treated as parameters in the methodology.
Aster Global Findings	All parameters have now been included. Specific elements are addressed in parameters as needed. The item has been addressed.

Item Number	51
Non-Checklist Elements **(Description)**	Development of schedule of activities in the baseline scenario
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Source of quantitative information a)
Aster Global Findings	Receipts and invoices for fertilizers, seed and other amendments are difficult to tie to a particular field, if an entire farming operation is not part of the project. Management records sometimes consist of word or excel documents.
NCR/CL/OFI	CL: Please provide guidance on how receipts for inputs, seed or any service that does not include field specific location information can be tied to the activities on a field if only part of a farming operation is within the project area? Please provide guidance on how farm records are to be authenticated.

Response from Project Proponent	Additional language was added to the methodology in section 6 to address, "Where the evidence is not field specific, conservatively derived field specific values must be supported by a documented method of field specific values from non-field specific documentation. " Records are authenticated when they are supported by evidence.
Aster Global Findings	The described text was not found in the latest version of the methodology
NCR/CL/OFI	CL: Please address first clarification requiest.
Response from Project Proponent	This finding is now addressed with more extensive guidance in Box 9.1
Aster Global Findings	The guidance provided in Box 9.1 in Rev04 of the draft methodology satisfies the auditor's concerns. Item closed. 4 September 2020

Item Number	52
Non-Checklist Elements **(Description)**	Development of schedule of activities in the baseline scenario
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Source of quantitative information c) and d).
Aster Global Findings	Priority c) appears to deal with missing data for a field or year on a farm operation that otherwise has that data, except where it then suggests comparing the kinds of regional, average values suggested in priority d). Priority d) uses regional data.
NCR/CL/OFI	CL: It is understandable to use data from similarly managed neighboring fields on the same farm operation if data is missing for one field, for some reason. It is also reasonable to use data from adjacent years when data from a single year is missing. But what is the difference between a farmer with no records to back his claims and a farmer with no records to back his claims, but has "consulted with" the project developer to derive some bit of missing data? Please provide more guidance on when data derived through consultation are more acceptable than regional average values in the case of farmers with no records.
Response from Project Proponent	Note: reference VM0017 and application in Kenya project for precedence. This was relayed to Verra for guidance (call with A Beauchamp on 03/03/2020). This is related to grower attestation supported by a range of values from literature. Clarifying text was added to section 6 option c, "The determination of the sufficiency of data is subject to the discretion of the validator. In circumstances where this requirement cannot be met, option d must be followed."
Aster Global Findings	Clarifying text was added to option c, which satisfies this item. Item closed, 12 August 2020

Item Number	53

Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Table 8.2
Aster Global Findings	Soil "structural" characteristics are to be measured or taken from published soil maps. These characteristics do not include soil structure. Values from USDA-NRCS pubished surveys are notoriously inaccurate for site specific values.
NCR/CL/OFI	CL: Please provide evidence that data derived from published soil surveys are a reasonable substitute for site-measured values. Please be aware of accepted soil science terminology and definitions.
Response from Project Proponent	Added clarification language about uncertainty into table 8.2, "Directly measured at t=0 or (back-) modeled to t =0 from measurements collected within +/-5 years of t =0, or determined for t=0 via emerging technologies (e.g. remote sensing) with known uncertainty. See parameter table for SOCwp,i,t=0. At time t=0 "
Aster Global Findings	Described changes were made. The term "structural characteristics" was changed to "properties." Item closed. 12 August 2020.

Item Number	54
Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Table 8.2
Aster Global Findings	How are "best practices" typically determined? Can a single, biased entity (a project proponent) determine what best practices are for a branch of science?
NCR/CL/OFI	CL: See findings. It is probably best to specify some examples of accepted methods rather than leave it to a project developer to proclaim a "best practice" without outside authority.
Response from Project Proponent	Added clarification language about uncertainty into table 8.2, "Accuracy of measurements is ensured through adherence to best practices."
Aster Global Findings	Best proactices are not determined by the project developer in the July 2020 version of the methodology. Item closed. 12 August 2020.

Item Number	55
Non-Checklist Elements **(Description)**	Baseline Emissions

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Quantification Approach 2
Aster Global Findings	"Where an applicable performance benchmark exists, the baseline is equal to the performance benchmark."
NCR/CL/OFI	CL: It is unclear what is meant by a benchmark, in relation to SOC content. Can examples be provided here?
Response from Project Proponent	Added clarification language to section 8.2, "Verra approved".
Aster Global Findings	The mention of Verra approval for benchmarks is noted. In sections 8.1 and 8.2 of the methodology (and other places), it is stated that the methodology would have to be revised in order to allow the use of performance benchmarks. This item remains open, pending closure of Additionality and Crediting Baseline Approaches 2.2.2 line in Methodology Requirements.
NCR/CL/OFI	Additionality and crediting basline issues were closed.
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The item was addressed by Verra.

Item Number	56
Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Quantification Approach 2
Aster Global Findings	"There are no geographic proximity requirements for control sites to their paired sample units (e.g. control sites could be established and managed on a designated experimental farm outside of the project area). "
NCR/CL/OFI	CL: Please justify the lack of geographic proximity requirements. Can the control sites be in a different county, state, MLRA?
Response from Project Proponent	Control plots no longer applicable

Aster Global Findings	No longer applicable.

Item Number	57
Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Control site similarity criterion table
Aster Global Findings	"Average slope within +/-20% slope of paired sample field."
NCR/CL/OFI	CL: Please justify the wide range in slope. Will a 20% slope accumulate SOC at the same rate as a 0% slope? A 40% slope?
Response from Project Proponent	Control plots no longer applicable
Aster Global Findings	No longer applicable.

Item Number	58
Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Control site similarity criterion table
Aster Global Findings	%OC criterion: "Within +/-2% of dry weight of average percent soil organic carbon of paired treatment (project) site
NCR/CL/OFI	CL: Please justify the use of a raw %OC range to cover all soils in all regions. Is it conceivable that a range of 2% OC is the difference between baseline %OC and the equilibrium %OC of the project scenario?
Response from Project Proponent	Control plots no longer applicable
Aster Global Findings	No longer applicable.

Item Number	59
Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Control site similarity criterion table
Aster Global Findings	Bulk Density criterion: "Within +/-0.5 g/cm3 of average bulk density of paired treatment (project) site"
NCR/CL/OFI	CL: A swing of 0.5 g/cm3 results in a difference in SOC density of >35%. Justify that rates of OC accumulation are similar in soils with different levels of compaction.

Response from Project Proponent	Control plots no longer applicable
Aster Global Findings	No longer applicable.

Item Number	60
Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Control site similarity criterion table
Aster Global Findings	Length of time under cultivation criteria: "Not less than 50% of length of time the project area has been under cultivation prior to project start."
NCR/CL/OFI	CL: Is this rule reasonable in the case of a project field that has been cultivated for 10 years and a control site that has been cultivated for 5 years? Would these two sites be at similar parts of an SOC vs. time graph?
Response from Project Proponent	Control plots no longer applicable
Aster Global Findings	No longer applicable.

Item Number	61
Non-Checklist Elements **(Description)**	Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Control site similarity criterion table
Aster Global Findings	Management activity schedule criteria: "Implemented ex post per schedule of management activities in the baseline scenario."
NCR/CL/OFI	CL: Please clarify how precise this management schedule should be.
Response from Project Proponent	Response: Added clarification language "Implemented ex post per similar schedule of management activities in the baseline scenario, at the discretion of the project validator/verifier. Note: This approach with paired plots may be stricken from the methodology
Aster Global Findings	No longer applicable.

Item Number	62
Non-Checklist Elements **(Description)**	Baseline Emissions

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Control site similarity criterion table
Aster Global Findings	Footnote at end of table
NCR/CL/OFI	CL: See Line 10. It is probably best to specify some examples of accepted methods rather than leave it to a project developer to proclaim a "best practice" without outside authority.
Response from Project Proponent	Clarified language in footnote in section 8.2. There is also a text reference to 8.2 in the SOC parameter table in section 9.2.
Aster Global Findings	Best practices no longer defined by the project developer.

Item Number	63
Non-Checklist Elements **(Description)**	Project Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Table 8.3
Aster Global Findings	Timing for remeasuring SOC stocks is 5 years or less, but the ability of lab procedures to accurately detect changes in SOC over periods <5 years may not be up to the task.
NCR/CL/OFI	CL: Is it wise for a project developer to rely on ΔSOC from measurements over intervals shorter than 5 years?
Response from Project Proponent	5 year re-measurement requirement is in line with VCS requirements.
Aster Global Findings	It is true that VCS requires remeasurement every 5 years or less. CL closed. OFI opened.
NCR/CL/OFI	OFI: Given the difficulty in measuring small incremental changes in SOC over short periods of time (less than 5 years), it could be useful to remind project developers of this difficulty.
Response from Project Proponent	Noted

Item Number	64
Non-Checklist Elements **(Description)**	Section 9.1
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	$Frac_{LEACHMD}$ From eq. 17
Aster Global Findings	Fraction of N added (synthetic or organic) to soils that is lost through leaching and runoff, *in regions where leaching and runoff occurs*
NCR/CL/OFI	OFI: To avoid problems, some guidance or reference to guidance as to how to determine whether a project area is subject to leaching or runoff should be provided.

Response from Project Proponent	Inserted comment in equation 17, "Value = 0 where average annual precipitation is less than potential evapotranspiration unless subject to irrigation."
Aster Global Findings	Comment added to equation 17 defintion for the case where there is no leaching. However, the factor in the equation represents both leaching AND runoff. Runoff can and does occur when precipitation is less than potential evapotranspiration.
NCR/CL/OFI	CL: Please provide guidance to explain situations where N losses from runoff can be set to zero.
Response from Project Proponent	Per 2019 refinement to the 2006 IPCC guidelines direct and indirect emissions associated with manure deposited on agricultural soils and pasture, range, and paddock systems are treated in Ch 11 Section 11.2 Eq 17 clarified FracLEACH for wet climates or in dry climate regions where irrigation (other than drip irrigation) is used, a value of 0.24 is applied and for dry climates a value of zero is applied, per Ch 11 Section 11.2.2.2. Footnote from 11.2.2.2 added clarifying criteria for wet and dry climates. FracLEACH parameter table updated.
Aster Global Findings	The methodology authors are correct in that the IPCC guidelines lump leaching and runoff together, and consider the fraction leached/runoff to be zero in areas where evaporation > precipitation. Item closed.

Item Number	65
Non-Checklist Elements **(Description)**	Typographical Errors
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	
Aster Global Findings	It was noted that a number of typographical errors exist in the document.
NCR/CL/OFI	CL: Please correct typographical errors.
Response from Project Proponent	
Aster Global Findings	Pending corrections and updates.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It is noted that a numbe of typographical errors still exist within the document
NCR/CL/OFI	CL: Please correct typographical errors.
Response from Project Proponent	Typographical errors corrected
Aster Global Findings	Typographical errors have been largely corrected. This item will remain open pending updated documentation.
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	The recent updates to the methodology have resulted in a further number of typographical and grammatical errors along with issues in section numbering and incorrect formatting.
NCR/CL/OFI	CL: Please review both documents and ensure that typographical and grammatical errors as well as formatting issues are corrected.
Response from Project Proponent	Verra to fix
Aster Global Findings	This item has been reviewed/addressed by Verra. The item has been closed.

Item Number	66
Non-Checklist Elements **(Description)**	Equation Denotation
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Equations 28,29, 33, 38, 41, 44, 45
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It is noted that a single footnote in equation 28 specifies that values with a bar are areal averages. This footnote does not appear for other equations making it often unclear if an aerial or more common simple average is needed. For parameters that that have a bar over them clearly specify in the definition of the parameter that the value is an aerial average, in line with the approach defined in equation 28.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Added "areal" to parameter definitions in where statement in each equation specified in this finding
Aster Global Findings	The language has been added to each equation. The item has been addressed.

Item Number	67
Non-Checklist Elements **(Description)**	Page 41 of Methodology
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 8.6 Uncertainty
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	Section 8.6 references the parameter At in the text. It is unclear where this parameter is located, in line with the text.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	At has been changed to Ai
Aster Global Findings	The change has been confirmed. The item has been addressed.

Item Number	68
Non-Checklist Elements **(Description)**	Crediting Baseline
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	See section 2.2.2 of Methodology Requirements, V4.0 Non-Conformance Request.
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	This item depends on client response to the NCR of section 2.2.2 of the methodology requirements. If it is deemed important to maintain language regarding performance benchmarks, how are baseline model parameters determined to ensure parallelism with the parameters for the project case? Other questions regarding the use of performance benchmarks are pending the response to 2.2.2.
NCR/CL/OFI	CL: See findings and respond to the inquiry if discussion of performance benchmarks are essential in a methodology that does not use performance benchmarks.
Response from Project Proponent	Language in the modeling module has been updated to ensure parallelism with the parameters in the project case.
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	This has been addressed by Verra. Item closed.

Item Number	69
Non-Checklist Elements **(Description)**	Page 17/18 of the methodology
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 8.1 Summary

Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Page I8 of the text denotes that "For each pool/source, subdivisions of the project area using different quantification approaches must be stratified…" This appears to be in contrast with the text on page 17 which states, "When more than one quantification approach is allowable for a given gas and source, either approach may be used..." This implies that only one of the options is viable, not both as page 18 implies. Please address.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Text clarifying that "more than one approach may be used" in the project has been added to Section 8.1
Aster Global Findings	The change has been confirmed. The item has been addressed.

Item Number	70
Non-Checklist Elements **(Description)**	Page 19 of the methodology
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 8.2 Baseline Emissions, Table 8.2
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Climate variables are defined as needing to be measured from a weather station within 50km of the sample field or a synthetic weather station (e.g. PRISM). It is understood the application of the sythetic weather station is appropriate. It is unclear how a weather station of 50km away is appropriate in all instances. For example, in the US near cities a number of stations may exist closer than 50km and be more appropriate than one 50km away. No verbage addresses this instance. Likewise a case could exist where a closer weather station on one side of a mountain range would be less appropriate than a further away station on another side of the mountain given the orthographic lifting effect. Please address.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The referenced text states "within 50km" implying that a station at any distance from the project site (i.e. from 0 - 50km) may be used.
Aster Global Findings	The provided response does not directly address the previous finding and clarification request. It was noted that public comments speak to the application of the methodology and no best practice guidance for chosing among weather stations within that 50 mile radius has been provided in the methodology.
NCR/CL/OFI	CL: Please include additional detail to address the finding and provide best guidance for the user.

Response from Project Proponent	Text in Tables 8.2 and 8.3 has been revised from: "Measured for each model-specific meteorological input variable at its required temporal frequency (e.g. daily) model prediction interval. Measurements are taken at a continuously-monitored weather station within 50 km of the sample field, or from a synthetic weather station (e.g. PRISM[1])." To "Measured for each model-specific meteorological input variable at its required temporal frequency (e.g. daily) model prediction interval. Measurements are taken at the closest continuously-monitored weather station, not exceeding 50 km of the sample field, or from a synthetic weather station (e.g. PRISM[2])." [1] https://climatedataguide.ucar.edu/climate-data/prism-high-resolution-spatial-climate-data-united-states-maxmin-temp-dewpoint [2] https://climatedataguide.ucar.edu/climate-data/prism-high-resolution-spatial-climate-data-united-states-maxmin-temp-dewpoint The method suggested in our wording of "closest-continuously-monitored weather station" is unbiased and repeatable at scale. This methodology is specifically designed for grouped projects and thus the scenarios of topographical risk outlined by the verifiers in a call on 09,10,2020 would not be expected to be significant over the whole project.
Aster Global Findings	The language for closest continuously monitored weather station has been included. While this may not be appropriate in all cases it a sensible approach. The item has been addressed.

Item Number	71
Non-Checklist Elements **(Description)**	Section 8.2 Baseline Emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Section 8.2 Baseline Emissions
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	A number of equations require an effective input of zero where a given activity is not practiced for a project. No language exists stating that this should be done. Similarly, if a given practice is not done it would not make sense to require all equation elements to be required in a project PD where those activities are not monitored/measured. Please address.
NCR/CL/OFI	CL: Please address verifier findings.

Response from Project Proponent	The following text was added to the end of Section 8.1: "Where a given activity is not practiced in the baseline or project, resulting in an effective input of zero for any equation element in this methodology, that equation element is not required."
Aster Global Findings	The change has been confirmed. The item has been addressed.

Item Number	72
Non-Checklist Elements **(Description)**	Section 9.2: Data and parameters monitored
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	SOCwp,i,t
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	For soil sampling guidance, the methodology suggests a 76 year old publication and a 1,358 page book.
NCR/CL/OFI	The guidance provided is not specific enough to be of any aid to a user of the methodology. Most of the procedures in Methods of Soil Analysis are unrelated to this methodology. Please provide specific guidance on collecting the data required.
Response from Project Proponent	Several additional lines of text have been added to make the sampling guidance more specific. - "All organic material (e.g., living plants, crop residue) must be cleared from the soil surface prior to soil sampling" - "Geographic locations of intended sampling points must be established prior to sampling. The location of both the intended sampling point and the actual sampling point must be recorded. If multiple cores are composited to create a single sample, these cores must all be from the same depth and be fully homogenized prior to subsampling. Soils must be shipped within 5 days of collection and should be kept cool until shipping. "
Aster Global Findings	The additions to sampling guidance are welcome, however, some guidance on procedures is still needed. For example, the guidance references several sources that include multiple methods to determine SOC (Schumacher document from EPA). Are all methods acceptable? Is there a preference for one over others?
NCR/CL/OFI	CL: See findings. Are all methods described within the documents refrenced in the parameter table for SOCwp,i,t valid?

Response from Project Proponent	All procedures that are demonstrably well-accepted and widely applied are acceptable. Given the variability of resources and valid approaches to measure SOC, however, we do not want to be too restrictive. The ideal solution is to use methods that align with measurement standardization initiatives, but these are currently in development worldwide and no single standard is yet widely accepted. With this in mind following text and reference was added: "Standardization of soil measurement methods is a globally recognized need (for example: ISRIC World Soil Information Service (WoSIS)- see Ribeiro et al. (2018)). Measurement procedures for soil organic carbon and bulk density should be thoroughly described, including all sample handling, preparation for analysis, and analysis techniques. Procedures must be demonstrably well-accepted and widely applied, for example using approaches described in widely referenced publications like the ones listed above, or by using standards proposed by standard alignment initiatives like WoSIS." Ribeiro, E., N. H. Batjes and A. van Oostrum. 2018. World Soil Information Service (WoSIS) - Towards the standardization and harmonization of world soil data. ISRIC Report 2018/01, 2018, Wageningen, Netherlands
Aster Global Findings	The response is reasonable and provides sufficient guidance for project developers, who will likely have access to soils expertise. Item closed. 24 September 2020

Item Number	73
Non-Checklist Elements **(Description)**	Table 8.1
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology; Page 20 Woody Biomass
Aster Global Findings	Previously Not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously Not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously Not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously Not provided.
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	Tabel 8.1 defines the application of woody biomass as available for all 3 quantitative methods. Based on review it is unclear how this is appropriate. It is unclear if in tree sequestered carbon can be modeled by soil modeling processes. Please address. It is unclear how the quantitative approach 2 is appropriate given that it is reserved for SOC. It is unclear how woody biomass is allowable under quantification approach 3 given that it is defined as 2019 Refinement to 2006 IPCC Guidelines for National Greenhouse Gas Inventories. It is noted that the current woody biomass computational approaches follows the application of a CDM tool, not the IPCC. Please address.
NCR/CL/OFI	CL: Please address how woody biomass is appropriate for the 3 quantification approaches identified in Table 8.1. Please address verifier commments related to this determination. Futher, please clarify how by following the allotted quantification approaches. uncertainty is appropriately computed.
Response from Project Proponent	
Aster Global Findings	The woody biomass has been updated and determined to address the finding. The item has been addressed.

Item Number	74
Calibration Module Element (Description)	Section 2 - Summary Description of Module
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Paragraph 3
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Is acceptance for publication in one of the peer reviewed journals listed identical to a VVB conducted validation, using the guidance in the module? It is unclear how a a peer reviewed publication would confirm calibration findings in line with VCS. Further, VCS Validation and Verification Manual specifies that VVB must review calibration, it is unclear how a publication's acceptance of a model would therefore substitute.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Module module changed to state that a peer-reviewed publication must be approved by VVB for use (section 5.2.6 Reporting on Model Validation)
Aster Global Findings	Pending discussion with Verra.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Pending discusion with Verra.
NCR/CL/OFI	

Response from Project Proponent	
Aster Global Findings	This item has been reviewed/addressed by Verra. The item has been closed.

Item Number	75
Calibration Module Element (Description)	Section 5.1 - Model Calibration
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Paragraph after #2
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The module states, "...However, it is acceptable for different parameter sets to be used as long as they are defined at scales no smaller than climate zones (Section 5.2.2) i.e. the same parameter set is used for all simulations within a given climate zone." Please demonstrate that models can be calibrated with one set of parameters to accurately describe SOC accumulation or GHG emissions throughout the zone. For example, North Lawrence, Ohio and the Aleutian Islands are in the same IPCC climate zone.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	We recognize the need to allow parameter sets to be defined at smaller scales than IPCC climate zones. This section was revised to allow more flexibility to assign parameter sets at scales finer than IPCC climate zones. We propose that parameter sets may be either by IPCC climate zones or a nationally defined agricultural land region, like Land Resource Regions in the US. If the latter, VVB approval would be required
Aster Global Findings	The validator's concern here is that IPCC climate zones cover too large an area to be described by a single parameter set. It still remains unclear how global scales are appropriate given the specific growth patterns of crops in more more local areas. It would seem the newly included major land resource areas would be more acceptable than global scale areas and be less in need of a VVB's approval.
NCR/CL/OFI	CL: Please justify the appropriateness of modeling region size/scope in line with current and past verifier findings.
Response from Project Proponent	Please see full response provided on Sep 18, 2020.

Aster Global Findings	The full response was provided on 18 September 2020, in an email from Melissa Motew of Indigo. The preference for larger areas, defined globally is understood, as is the desire of modelers to calibrate models as little as possible. This seems like a goal of model developers, rather than a claim that models have advanced to the state where we can be confident in whether a dozen or fewer parameter sets are appropriate to describe soil processes around the world. In the explanation, it is stated that model validation and uncertainty requirements would eliminate situations where a parameter set was not adequate to describe SOC accumulation, but model validation requirements would be unable to detect "over-tuning." Is there an explanation for that? When the VVB asked: Do DNDC experts agree that the zones for model calibration can be IPCC climate zones, or similarly vast areas? The reply was: When we've spoken to DNDC experts about model calibration they've expressed a desire to calibrate the model as little as possible, and generate a static parameter set -- including crop growth parameters -- to be used throughout the US. The question was not stated properly. The desire to calibrate as little as possible is understood. A better way to ask the question is: Given the state of models today, is there evidence indicating climate zones are appropriate areas for which we can assume calibration parameters should be constant? Over-tuning: The model developers are presenting what appears to be a false dichotomy between the use of roughly a dozen zones to describe calibration sets for the world, to over-tuning. We are not trying to force over-tuning, we are concerned about three main points: 1. Climate zones were created for reasons that have nothing to do with the soil processes that calibration parameters are supposed to describe. What evidence indicates climate zones are appropriate zones for soil process calibration parameters? 2. In their SEP, Climate Action Reserve chose LRRs as the area for which models should use a single set of calibration paramenters and climate zones for areas outside the United States. This appears to indicate that experts do not agree climate zones are appropriate area units for calibration for nations in which a lot of soil data is available and, ostensibly, for nations where soil models have been used and calibrated more than in most other nations. That is, the more that is known the smaller the area for which a set of calibration parameters is valid. 3. If the goal is to "enhance the model's process representation and

	predictive ability…" how is this aided by choosing what might be an inappropriate set of zones at the outset?

NCR/CL/OFI	See findings. How is grouping calibration parameter sets by climate zone justified? Is there a demonstrated correlation between soil processes and climate zones? Part of the justification for using climate zones is to enhance the model's predictive ability. If the choice of climate zones is not related to the soil processes described in model calibration, how will predictive ability be enhanced? If soil madeling experts who contributed to CAR's SEP saw fit to separate the US into much smaller areas for purposes of model calibration, and that the US likely has more soil data available and has had models applied to it more often than most other countries, it appears there is not agreement that larger calibration areas are preferable. Please address. NOTE: Using climate zones to group calibration parameters was found acceptable by Verra expert. Item closed.

Response from Project Proponent	There is a significant body of literature demonstrating how various kinds of ecosystem models representing soil biogeochemistry apply single, validated parameter sets across large geographic regions, comparable in size to IPCC climate zones. Here are just a few: Liang et al. 2009 applied a single parameter set across the US. (CQSTR model). Kucharik 2003: applied a global parameter set calibrated for the Upper Mississippi Basin to Central US including Corn Belt + Great Plains (AgroIBIS model). Kaplan et al. 2012: applied global parameter set to Europe (LPJ model) The basic goal of model validation is to gauge a model's accuracy in representing soil biogeochemistry and greenhouse gas emissions, and quantify the uncertainty in its estimates. This accuracy is dependent on being robust, i.e. consistent across a range of conditions. If the model is not consistent across a range of conditions, we should not trust the model's performance nor any estimate of uncertainty from that model. Because models used to issue credits under IALM are expected to be used across a range of conditions, robustness is a necessary qualification. If parameter sets are allowed to vary at fine scales, it may be possible to calibrate the model for a small geographic region containing a validation site, making it easier to pass the requirement of being unbiased since the model is tuned to "know" only that region. Its uncertainty will reflect this by being minimized. Our argument is that this is not a fair assessment of the model's robustness, and will ultimately underestimate the uncertainty used to scale credits. If we instead require the parameters to be set at a larger spatial scale, the model is then forced to become more robust in order to pass the test for bias across multiple sites. Uncertainty will then be more reflective of the model's ability since performance will be based more on inherent quality of the model, and will give a better and more conservative characterization of uncertainty. The sample list of papers above demonstrate cases where models have been calibrated for spatial scales commensurate with or greater than climate zones. It is also worth explaining how zones were chosen, as it seems there is some confusion as to the motivation behind them. Ultimately, it is not the relevance to calibration and parameter set extent that motivated the use of zones; rather it was the general size of the zones in relation to the abundance of validation data and our choice of zone minimums (i.e. 3), and the fact that these zones are defined throughout the globe. We are not aware of another spatial unit defined globally that has uniformity in climate, is large enough to make validation data requirements achievable, and is not so small as to invite over-tuning. We would argue the size of LRRs in the US is acceptable and does not invite over-tuning, but we would be hesitant to consider geographic zones smaller than LRRs. The use of LRRs also has the advantage of being supported by a wealth of validation data in the US. We have made the revision to allow a nationally defined boundary to be used, such as LRRs, but if we eliminate IPCC zones entirely and require only that a developer use a nationally defined unit, we risk (1) inhibiting achievability for small countries/projects, (2) may have situations where validating a model for a certain region is impossible because no such boundaries are defined or deemed appropriate; (3) become vulnerable to

	over-tuning if the nationally-defined units are very small, requiring a verifier to make a judgement (i.e. has the model actually demonstrated its worthiness, or is it only mimicking data from each (small) specific zone?) Please see previous response that cites the above list of papers and our rationale for choosing IPCC zones. The CAR SEP is only relevant to the United States and, as such, many aspects of the protocol and the modeling guidance are tailored to the conditions of the US. This VCS module is meant to be globally applicable. As mentioned above, the choice to use IPCC zones was less about parameter sets and calibration and more about validation minimums. The size of the zone was of central interest since this was the unit that would determine the amount and variety of validation data required to demonstrate a robust performance. It's use in determining calibration parameter sets followed naturally, since the validation data would be derived from these minimums, and thus the calibration data too. The zones were an acceptable size as compared with commonly used models (see list above). Another point is that the origin of calibration data often is decoupled from where it is applied; this is a central idea in process-based modeling. It's not clear to us what is meant by "inappropriate". If "inappropriate" in size, we hope the above list of papers demonstrates that parameter sets are commonly set at comparable sizes, or else globally. If "inappropriate" in qualities, such as the range of soils and clay contents, that aspect of environmental variability is addressed through the other minimums required for the validation dataset (3 declared textures, and clay contents spanning 15%). If "inappropriate" in terms of climate, we would need a superior alternative climate zone to use in its place, and we are not aware of one. The ideal parameter set is globally applicable, because it means the model is capturing natural phenomena as best as possible and does not need local adjustment. Allowing adjustment is reasonable, but should not be encouraged, thus we have placed a guardrail. Perhaps most importantly, the attributes of a parameter set's spatial domain (i.e. the climate zone) should not have a significant impact on the model's performance. The performance should be dictated by the inherent quality of the model and not the geographic boundary across which parameters are defined. If those boundaries do have a significant impact, that would arguably reflect an over-reliance on calibration and further support the need for a guardrail.
Aster Global Findings	This item has been reviewed/addressed by Verra. The item has been closed.

Item Number	76
Calibration Module Element (Description)	Section 5.1 - Model Calibration
Evidence Used to Assess (Location in	Fourth bullet point on Page 8

PD/MR or Supporting Documents)	
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The module states, “Once calibrated, the same parameter set can be used for multiple climate zones or for all climate zones in a project. Each climate zone should have only 1 declared parameter set used for all model simulations within that climate zone.” See item above. Please justify that a single parameter set would be valid for multiple climate zones. Note, for example, that the three rice growing regions in the US are calibrated differently from each other when modeled in DNDC.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	We recognize the need to allow crop parameters to vary at finer scales, compared to soil parameters. This section was refined to allow an exemption for crop growth parameter sets to further vary within the land boundaries defined for the project. This would allow for more accurate simulation of maturity groups, for example. The variance of such parameters within land boundaries must be clearly defined for each land boundary, to support verification that these same parameter sets are used in project simulations.
Aster Global Findings	Pending above item.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The item above has been addressed. The item has been addressed.

Item Number	77
Calibration Module Element (Description)	Section 5.2.3 - Gather Validation Data
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Page 14
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	The module states, "… if there is peer-reviewed support or independent expert support approved by the Reserve for their use in SOC monitoring…" It is unclear how the Reserve approval is important for a Verra module. Please clarify the appropriateness and justify its inclusion.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The text "or independent expert support approved by the Reserve" has been removed
Aster Global Findings	The text has been modified. The approach defined appears to be appropriate. The item has been addressed.

Item Number	78
Calibration Module Element (Description)	Section 5.2.4 - Assessment of Bias for Each Practice Category
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Equation 1.
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter I is undefined in the where statement. Additionally, it is unclear whether all models would output into t CO2e, as described in the where statements for Pi and Oi, if not some conversion method would be needed.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	This section revised to more clearly define equation and its use to assess model performance. t CO2e is an unnecessary conversion and was removed from the equation
Aster Global Findings	The parameter i remains undefined in the where statement.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The where statement has been updated to clarify that i is an index of observations within a given study. For symmetry, we have also updated Equation 5.2 to clarify that j is an index of observations within the whole dataset (i.e. across all studies).
Aster Global Findings	The language has been updated to ensure clarity. The item has been addressed.

Item Number	79
Calibration Module Element (Description)	Section 5.2.6 - Reporting on Model Validation
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Page 17
Aster Global Findings	Previously not provided.

NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The module states that model validation reports can be assessed either by a VVB or accepted for publication. It is unlear how the use of an accepted publication and peer review is in line with the requirements put on a VVB in the Validation and Verification Manual.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Module module changed to state that a peer-reviewed publication must be approved by VVB for use (section 5.2.6 Reporting on Model Validation)
Aster Global Findings	Pending discussion with Verra.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Pending discussion with Verra.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	This item has been reviewed/addressed by Verra. The item has been closed.

Item Number	80
Calibration Module Element (Description)	Section 5.3 - Substitution for Missing Crop Types
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Page 19
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	This section outlines the options for crop substitution in modeling. It is unclear how the proposed approach of appliying an unfertilized perennial grass is approprite in all cases for the baseline, for example in cropland for a tree species not accounted for. Similarly, there are insufficient guidelines for determining the appropriate species substitution for applicability. Based on previous discussion with Indigo staff it was understood where insufficient data were appropriate in the form of published data, etc quantification approach 2 was deemed to be appropriate. It is unclear why that is not used in this instance.
NCR/CL/OFI	CL: Please address verifier findings.

Response from Project Proponent	We have revised this section to address these concerns, as well as address the fact that the previous version allowed an entirely different CFG to be substituted for a missing CFG based on similar attributes, even though this is fundamentally at odds with the requirement to validate CFGs. In total, the following revisions have been made: 1. allowance for alternative crops from within the same CFG to be used in both baseline and with-project simulations. This is aligned with the purpose of grouping CFGs by crop attributes. 2. removed unfertilized perennial grass as a default replacement in the baseline, and instead require that any baseline replacement crop be shown to be conservative with literature support, with conservative equating to fewer emissions than the missing crop. 3. similarly to the baseline, require a default replacement in the project scenario to be shown to be conservative with literature support, with conservative equating to greater emissions than the missing crop. 4. We have also added a sentence indicating that Quantification Approach 2 (Measure and Remeasure) is an available option in the case where the model is not validated. Quantification approach 2 only applies to soil carbon. For all other pools/sources covered by this methodology, approach 3 is available when there is no applicable model, except for methane emissions from soil. We don't envision that project developers would collect direct measurements of for example soil N2O emissions from fertilizer inputs (approach 2).
Aster Global Findings	Section 5.3 crop states replace with "a more conservative crop…" it is unclear how that could be determined when you have no data to support the GHG value associated with the crop that requires substitution.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	The demonstration of a more conservative crop “should be clearly supported with peer-reviewed literature”, as stated in Section 5.3. If no literature are available to support it, then no substitution can be made. A VVB has final approval of whether sufficient demonstration of conservativeness, based on literature, has been provided.
Aster Global Findings	The demonstration of a more conservative crop “should be clearly supported with peer-reviewed literature”, as stated in Section 5.3. If no literature are available to support it, then no substitution can be made. A VVB has final approval of whether sufficient demonstration of conservativeness, based on literature, has been provided.

Item Number	81
Calibration Module Element (Description)	Section 6.1 - Data and Parameters Available at Validation

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Missing parameters
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It was noted that parameters J and i were not defined in the parameters at validation. Please address how this is appropriate or include.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	This finding is closed
Aster Global Findings	The previous finding has not been addressed.
NCR/CL/OFI	CL: Please address previous verifier findings.
Response from Project Proponent	We have added definitions of i and j, and in the process we noticed and fixed out-of-date definitions for parameters k, sigma_j, and n_j (formerly m_j): The definitions of all of these have been updated to clarify that j is an index across all the observations in the validation dataset, not across the studies it comprises.
Aster Global Findings	Definition of the parameters have been updated in line with response. It is noted that for equation 5.2 sigma j is defined as the standard error of the Jth observed change however the parameter in 6.1 defines it as the standard deviation. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.'
Response from Project Proponent	We confirm that standard error is the correct term here, as confirmed by the definition in Figure 5.3 in the gray box labeled "Observation 1". We have replaced "standard deviation" with "standard error" in the parameter table for sigma_j in Section 6.1. The terminology now matches that used in Figures 5.3 and 5.4 and the discussion in that section.
Aster Global Findings	The language has been corrected to be in parallel. The item has been addressed.

Item Number	82
Calibration Module Element (Description)	Section 5.2.3 Requirement 2
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Page 19
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously not provided.
NCR/CL/OFI	

Response from Project Proponent	
Aster Global Findings	The language in the requirement 2 item is circular in nature as it state to use the logic defined below and then provides no logic. It appears that in order to determine the number of climate zones you must know the number of climate zones. It is unclear how this should be applied and needs additional clarification.
NCR/CL/OFI	CL: Please provide additional detail to clarify how requirement 2 is applied.
Response from Project Proponent	Thank you for this comment; we've identified an important mistake that likely causes this confusion. The following sentence erroneously includes the word "declared": "The following logic is used to determine the number of declared climate zones required, in total, in the combination's dataset." We've removed the word "declared". To summarize, the number of climate zones required to validate a PC/CFG/ES combination depends on the number of declared climate zones in the project domain, which is previously outlined in Section 5.2.2. Based on the number of zones declared, the logic of Req 2 is then applied to determine the number of zones required for inclusion in the validation dataset.
Aster Global Findings	It was noted that the language was updated to remove the circular reference. Based on review of the current language it is noted that if 3 or more climate zones are within the project domain, validation is not needed for more than 3 of those zones. It is unclear how this is appropriate as opposed to all climate zones being validated. How does this approach appropriately account for areas that are not validated?
NCR/CL/OFI	CL: Please address verifier findings.'
Response from Project Proponent	The goal is to demonstrate robust model performance across a range of conditions, and yet still be achievable. A minimum of 3 zones was chosen as an achievable requirement (i.e., not overly burdensome in terms of the data gathering requirements), that sufficiently tests the model across different climates, soils and clay contents. Note also that these datasets must be compiled for each combination of Practice Category, Crop Functional Group, Emissions Source. For each combination these minimums must be met. Requiring additional zones to be represented would increase the data requirements of each combination in a factorial fashion. Upon discussion with the validation body, it was made clear that this question assumes there is no upper limit on the size of a project and thus the total number of different climate zones which might be included. Note that there are other, more "natural" aspects of project development which will effectively limit the scope of any single project (e.g., regulatory requirements, complexity of common practice assessments, agronomic calendars, local languages for farmer communications, practical ability of the project developer to service all farmers in the project, etc.).

Aster Global Findings	Validators have spoken with Verra on this issue. It was noted that the application of only 3 areas was to present a methodology that was not overly burdensome. It is unclear how this results in a proper accuracy assesment of the model, if it is being applied to more than 3 areas. Similarly, this approach allows for a developer to potentially select the 3 best areas for validation, to reduce uncertainty, with no concern being applied to any other area. The responses states that additional zones over 3 would be unlikely, however based on discussions with Indigo it was noted they may include the entire United States of America, for example. This region encompasses more than 3 regions and it is unclear if this is likely the case how the previously provided arguement is applicable.
NCR/CL/OFI	CL: Please clarify how the 3 validation areas is appropriate for areas where greater than 3 areas are used. In doing so, please address validator findings addressing how this approach would allow for proper assesment of bias for unexamined regions and how the module as written would not allow for possible non-real modeling, due to a lack of potential assessment.
Response from Project Proponent	We have requested that Verra weigh in on this issue. Revised to: "For all PC/CFG/ES combinations, each climate zone or nationally defined agricultural land region, depending on which is used, must be represented in the validation dataset." Further below we've updated the language regarding exceptions: "If the available data fail to meet one of these minimums due to data scarcity, or fails while also exceeding the others in a way that supports a demonstrable test of generalized model performance, a case may be made for a valid exception to Requirement 2."
Aster Global Findings	This item has been reviewed/addressed by Verra. The item has been closed.

Item Number	83
Calibration Module Element (Description)	Section 5.2.3 Special Rules for Practice Categories
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Page 20
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	The perenial grass combination for grazing in Special Rules for Practice Categories section combining C3 and C4 plants, appears to go against language in 5.2.2 item 1 that specifies similar pathways. It is unclear how these are not in direct conflict with one another.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	It is true that the special rule made for grazing stands in conflict with the requirements of Section 5.2.2, which is why it is considered a 'special rule.' The rule is intended to increase the achievability of validating grazing practices in particular, given the lack of published grazing data that distinguishes C3 from C4 forages.
Aster Global Findings	This item was specified on a call with the verifiers. It is understood that C3/C4 are not typically separated and the special rule is needed for applicability of modeling. The item has been addressed.

Item Number	84
Calibration Module Element (Description)	Gather Data to Validate Model Performance and Uncertainty
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Page 19
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The text states "If the available data fail to meet one of these minimums but exceeds the others in a way that supports a demonstrable test of generalized model performance, a case may be made for a valid exception to Requirement 2. This should be addressed explicitly in the Model Validation Report and will need to be approved by the independent expert and reviewed by the VVB." It is unclear how a valid exception would be defined. Please provide additional detail to outline when this is appropriate and provide framework for acceptable instances.
NCR/CL/OFI	CL: Please address verifier findings

Response from Project Proponent	Valid exceptions might be made under the following circumstances: -Only 2 of 3 declared zones are included in the validation dataset because no data could be obtained in the third, but 5 or more soil types are included (as opposed to 3), and the furthest geographic extent between experimental sites is at least 500 km. -Only 2 of 3 declared soil types are included because no data could be obtained for the third, but 5 or more different soil types are included, with a span in clay content >= 30% The idea is that because the availability of validation data will be irregular across these dimensions we want to provide a means to still demonstrate generalized model performance, at the discretion of the VVB. If needed we could suggest a more formal framework but want to suggest that this process allow some room for unforeseen circumstances.
Aster Global Findings	Validators understand the provided exceptions. No detail is included within the module to address this. Please include these examples within the module to provide some basis for what types of cases would be appropriate for independent reviewer approval.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	This section has been revised to the following (see also previous item above that relates to this): "If the available data fail to meet one of these minimums due to data scarcity, or fails while also exceeding the others in a way that supports a demonstrable test of generalized model performance, a case may be made for a valid exception to Requirement 2. For example, a case could be made if only two of three declared climate zones are included in the validation dataset because no data can be found, but five or more soil types are included (as opposed to three), and the furthest geographic extent between experimental sites is at least 500 km. Or, if only two of three declared soil types are included because no data could be obtained for the third, but five or more different soil types are included, with a span in clay content ≥30%. Any such cases should be addressed explicitly in the Model Validation Report and will need to be approved by the independent expert and reviewed byby the VVB and by the external reviewer."
Aster Global Findings	The included language has been added. The item has been addressed.

Item Number	85
Calibration Module Element (Description)	Section 5.2.2
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Page 16
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Previously not provided.
NCR/CL/OFI	

Response from Project Proponent	
Aster Global Findings	Previously not provided.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It was noted that Climate Zones are to be sourced 2006 IPCC Guidelines for National Greenhouse Gas Inventories. It is unclear how this is appropriate given that Verra requires IPCC sources to be based on 2019 refinements to the 2006 IPCC guidelines.
NCR/CL/OFI	CL: Please clarify why the currently applied 2006 climate zones are applied rather than the updated 2019 refinements.
Response from Project Proponent	Reference has been updated
Aster Global Findings	The updates have been included. The item has been addressed.

Item Number	86
Equations **(Description)**	Eq. 1
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	Equation applied is analagous to tier 2 equation 3.3.1 of the 2006 IPCC. Values sourced for parameters are not country specific in line with the recommendation of the application of that equation. The parameter J is undefined within the methodology.
NCR/CL/OFI	CL: Please define the term "J" as it is used, without definition.
Response from Project Proponent	Definitions in equation 1, make sure that all variables are defined in where statement in the equation, such as j, and J (look at VM0021 for examples. IPCC factors for equation 1 are not country specific, and also do not have specificity for when to choose for example on road vs. off road equations. (this is included in another finding). This is information that can go in the parameter tables. Clarifying language added to section 9.1, "Factors should be country specific values", and table 5.2.
Aster Global Findings	It was noted that J has now been defined. Var A and Var B in the where statement reference the project scenario. It is unclear how this is appropriate given that this equation is for the baseline.
NCR/CL/OFI	CL: Please address findings and clarify or correct as needed.

Response from Project Proponent	Var A and Var B have been removed from Eq 1. FSOC is now defined as a parameter.
Aster Global Findings	The updated equation was examined and confirmed to be appropriate. The item has been addressed.

Item Number	87
Equations **(Description)**	Eq. 2
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	Equation applied is analagous to part of the tier 2 equation 3.3.1 of the 2006 IPCC. Values sourced for parameters are not country specific in line with the recommendation of the application of that equation. All parameter values are defined in data and parameters.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The where clause uses variable EFFbsl,i,j,t where all other instances use EFFbsl,j,i,t. It is unclear why this inconsistency is appropriate.
NCR/CL/OFI	CL: Please address findings and clarify or correct as needed.
Response from Project Proponent	All instances use variable EFFbsl,j,i,t now
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	88
Equations **(Description)**	New Eq. 3
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The newly presented equation 3 in the where clause defines FFCbsl,j,I,t: Consumption of fossil fuel in vehicle/ equipment type j. However it is noted elsewhere that j denotes the fuel type not the vehicle type. Further it was noted that IPCC 2006 uses fuel type j for vehicle type i.
NCR/CL/OFI	CL: Please address findings and clarify or correct as needed.
Response from Project Proponent	FFCbsl,j,i,t is now defined in the where clause as consumption of fossil fuel type j for sample unit i in year t. This is consistent with the parameter table for j.

Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	89
Equations **(Description)**	Eq. 3 Previously/ Now Eq. 4
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	The outputs of the equation do not match the variables of the equation. FCH4SOC is not defined in either parameter table. Clarify the source of the equation.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	Equation 3 was edited. We need to add a data and parameter as FCH4SOC to sections 9.1 and 9.2 specify units. May need to remove GWPs from equations related to glasses (i.e. CH4). Note, this should apply to all the gasses output from models
Aster Global Findings	It was noted that FCH4SOC is still not defined in either parameter, in line with the changes set out by Indigo. Further, it is still unclear the origin of this equation. Please provide detail as to where the equation is derived from in IPCC, etc. It is also noted that the ouput untis are in tCO2e, however per the parameter table the FCH4SOC outputs in tCO2e/ac, it in unclear how the final CH4Soil_bsli,t, is then appropriate. Likewise, it is unclear why if the equation does output in tCO2e it is appropriate, given that it is then sourced by equation 34.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	FCH4SOC is now defined as a parameter
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	90
Equations **(Description)**	Eq. 4 previously / now Eq. 5
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	The outputs of the equation do not match the variables of the equation. FCH4ent is not defined in either parameter table. Clarify the source of the equation.
NCR/CL/OFI	CL: Please address findings.

Response from Project Proponent	Equation 3 was edited. We need to add a data and parameter as FCH4SOC to sections 9.1 and 9.2 specify units. May need to remove GWPs from equations related to glasses (i.e. CH4). Note, this should apply to all the gasses output from models
Aster Global Findings	The equation is based on the 2019 refinements to 2006 IPCC enteric fermentation equation. It was noted that Daysbsl,l,i,t is written differently in the where statement as Daysbsl,i,l,t, and defined as such. It is unclear why this incosistency is appropriate.
NCR/CL/OFI	CL: Please address findings and clarify or correct as needed.
Response from Project Proponent	All instances now use Daysbsl,l,i,t which is defined as such in the where statement now
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	91
Equations **(Description)**	Eq. 6
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation appears to be based on the 2019 refinements to 2006 IPCC tier 1 manure equation 10.22. It is also noted that neither animal waste management system nor productivity class were included in the computation, similar to eq 10.22. Clarify why this is appropriate or if the equation source is different than the aforementioned equation. It was noted that Daysbsl,l,i,t is written differently in the where statement as Daysbsl,i,l,t, and defined as such. It is unclear why this incosistency is appropriate.
NCR/CL/OFI	CL: Please address findings and clarify or correct as needed.
Response from Project Proponent	Productivity system is omitted as allowed for Tier 1 approach. Waste management system is pasture, range, and paddock as specified now in parameter tables for EFCH4,md,l. All instances use Daysbsl,l,i,t which is defined as such in the where statement now.
Aster Global Findings	The first element was confirmed to be appropriate ine line with the simple tier 1 application. Daysbsl,l,i,t was appropriately corrected. The item has been addressed.

Item Number	92

Equations **(Description)**	Eq. 7
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Volatile solids are largely computed in line with 2019 refinements to 2006 IPCC guidelines for tier 1. It is noted that the concept of productivity class is not included, similar to the aforementioned.
NCR/CL/OFI	CL: Please clarify why productivity classes are not included in the determination of equation 7. Likewise please clarify if the source of the equation differs from IPCC.
Response from Project Proponent	Productivity system is omitted as allowed for Tier 1 approach.
Aster Global Findings	A simple tier 1 approach was used. The item has been addressed.

Item Number	93
Equations **(Description)**	Eq. 9
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	This equation is based on model output. It is noted that a function fN2Osoil is used. Per the where clause this outputs into t N2O/ unit area. It is unclear how the output of equation 9 is in tCO2e if the output of the previous is not converted. Further fN2Osoil is not defined in either the parameters at validation or monitored. Additionally, GWP_{CH4} is sited in parameters where clause but GWP_{N2O} is used in the equation, it is unclear how GWP_{CH4} is appropriate.
NCR/CL/OFI	CL: Please address findings and clarify or correct as needed.
Response from Project Proponent	FN2Osoil is now defined as a parameter. GWPN2O is now cited in the where clause.
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	94

Equations **(Description)**	Eq. 12
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is in line with computational approach of 2019 revisions to IPCC 2006 Chapter 11. It is unclear how the multiplication of area Ai results in a per unit area.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output results per unit area
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	95
Equations **(Description)**	Eq. 15
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is in line with computational approach of 2019 revisions to IPCC 2006 Chapter 11. It is unclear how the multiplication of area Ai results in a per unit area.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output results per unit area
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	96
Equations **(Description)**	Eq. 17
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology

Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is in line with computational approach of Chapter 11 of 2019 revisions to 2006 IPCC and appropriately computed.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It was noted that updated where statement includes FSNbsl,bsl,i,t and FONbsl,bsl,i,t. These appear incorrect and do not match the parameters used in equation 17.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	This appears to be an artifact of track changes. The extra "bsl" subscripts have been deleted.
Aster Global Findings	The additional subscript has been removed. The item has been addressed.

Item Number	97
Equations **(Description)**	Eq. 18
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is in line with computational approach of 2019 revisions to IPCC 2006 Chapter 11. It is unclear how the multiplication of area Ai results in a per unit area.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output results per unit area
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	98
Equations **(Description)**	Eq. 20
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	

NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is in line with computational approach of Chapter 10 of 2019 revisions to 2006 IPCC and appropriately computed. It is unclear why the parameter l, type of livestock, is included in the where statement.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The parameter l has been removed from the where statement
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	99
Equations **(Description)**	Eq. 21
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation appears to be based on the 2019 refinements to 2006 IPCC tier 1 manure equation 10.25. It is also noted that the animal waste management system is not included, unlike eq 10.25. Clarify why this is appropriate or if the equation source is different than the aforementioned equation. It is unclear how the multiplication of area Ai results in a per unit area. It is noted that in the where clause Fbsl,manure,l,i,t is in tons and EFN2O,md,l is in kg. It is unclear how how this results in appropriate conversion to the output units.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output results per unit area. EFN2O,md,l units are kg N2O-N/kg N input and therefore effectively unitless - the ratio of the molecular weight of N2O to N is applied to convert N2O-N emission to N2O emissions, following eq 10.25. To provide clarity, the constant 44/28 has been defined in the where statement, following equation 10.25
Aster Global Findings	Other elements have been addressed. The equation appears to be based on the 2019 refinements to 2006 IPCC tier 1 manure equation 10.25. It is also noted that the animal waste management system is not included, unlike eq 10.25. Clarify why this is appropriate or if the equation source is different than the aforementioned equation. Alternatively, if the approach is in line with section 11.2 please clarify how the computation of direct nitrogen includes the MS in line with equation 11.5.
NCR/CL/OFI	CL: Please address verifier findings.

Response from Project Proponent	The animal waste management system is specified in multiple where statements as "deposition" or "deposited on soils." This can only be interpreted as pasture/range/paddock or grazing. No other waste management system is relevant. We have revised equation 22 to match the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 Chapter 11 equation 11.5. A new where statement and parameter table has been added for the MS term.
Aster Global Findings	The item has been corrected. The item has been addressed.

Item Number	100
Equations **(Description)**	Eq. 23
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is in line with computational approach of Chapter 10 of 2019 revisions to 2006 IPCC and appropriately computed. It is unclear how the multiplication of area Ai results in a per unit area.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output results per unit area
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	101
Equations **(Description)**	Eq. 24
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation appears to be based on the 2019 refinements to 2006 IPCC tier 1 manure equation 10.26. It is also noted that the animal waste management system is not included, unlike eq 10.26. Clarify why this is appropriate or if the equation source is different than the aforementioned equation.

NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Productivity system is omitted as allowed for Tier 1 approach. Waste management system is pasture, range, and paddock. Per the 2019 refinement to the 2006 IPCC guidelines direct and indirect emissions from manure and urine deposition are treated in Ch 11, Section 11.2. EFN2O,md,l now references Ch 11 Table 11.2. Parameter tables for FracGASMD and FracLEACHMD parameter tables have been removed because these parameters are redundant.
Aster Global Findings	It was note that the equations are based on 11.2. The item has been addressed.

Item Number	102
Equations **(Description)**	Eq. 25
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation appears to be based on the 2019 refinements to 2006 IPCC tier 1 manure equation 10.27. It is also noted that the animal waste management system is not included, unlike eq 10.27. Clarify why this is appropriate or if the equation source is different than the aforementioned equation.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	See response to item 34.10
Aster Global Findings	It was note that the equations are based on 11.2. It was noted that $Frac_{LEACHMD}$ is specified in the equation, however $Frac_{LEACH}$ is defined in the where clause. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The "MD" was appended to the subscript in error. This term should be FracLEACH. Change made.
Aster Global Findings	The item has been corrected. The item has been addressed.

Item Number	103
Equations **(Description)**	Eq. 26
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	

NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Biomass burning is performed in line with volume 2 of the IPCC 2006. It is unclear how the multiplication of area Ai results in a per unit area.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output results in per unit area
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.

Item Number	104
Equations **(Description)**	Eq. 29
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It is noted that parameters in the equation definitions are defined as t COe/unit area, it is unclear how this is appropriate, as these do not align with related equations.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	See parameter tables in Section 9.2 for derivation of these parameters
Aster Global Findings	It is still noted that parameters in the equation definitions are defined as t COe/unit area, rather than tCO2e/unit area, it is unclear how this is appropriate, as these do not align with related equations.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Instances of tCO-e have been changed to tCO2-e
Aster Global Findings	The item has been corrected. The item has been addressed.

Item Number	105
Equations **(Description)**	Eq. 30
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	Where statement incorrectly names the "CO_F Fbsli,t" rather than CO2
NCR/CL/OFI	CL: Please correct input variable name.

Response from Project Proponent	Edited CO2in equation 30, page 30.
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The item has been addressed.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	It is noted that parameters in equation 33 (formerly equation 30) are not included in the where definition of the equation. It is unclear how this is appropriate. Further, it was noted that the parameters in this equation are not defined in either section 9.1 or 9.2, it is unclear how this is appropriate.
Aster Global Findings	It is noted that parameters in equation 33 (formerly equation 30) are not included in the where definition of the equation. It is unclear how this is appropriate. Further, it was noted that the parameters in this equation are not defined in either section 9.1 or 9.2, it is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifer findings.
Response from Project Proponent	The parameters in Eq 33 ARE addressed in the Where statements.
Aster Global Findings	Ithe element was reviewd. It was noted that parameters have now been appropriately included in sections 9.1 and 9.2. It was noted that not all of the parameters are still included in the where statement, as only 3 of the 4 terms are defined.
NCR/CL/OFI	CL: Please address verifer findings.
Response from Project Proponent	Phantom line break deletion caused one parameter to jump up into the one above. Fixed.
Aster Global Findings	All elements are now defined, the item has been addressed.

Item Number	106
Equations **(Description)**	Eq. 31
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	It is unclear why Equation 31 computes based on the change of stocks where as Equation 30 just uses the end of stocks. Further, it is unclear how these values would result in a similar input into equation 29 which uses the result of the appropriately related quantification method.
NCR/CL/OFI	CL: Please address verifier findings.

Response from Project Proponent	In equation 30, the initial stock of carbon is assumed to be the same in the project and baseline scenarios, and the equation was simplified by canceling the subtraction of the initial stock from itself. That assumption can't be made when using a performance benchmark, which is why equation 31 has two expressions for two temporal changes. The following statement has been added below Equation 30: "In Equation 30 it is assumed that the initial SOC is the same in both the baseline and project scenarios at the outset of the project."
Aster Global Findings	Pending discussion with Verra
NCR/CL/OFI	
Response from Project Proponent	The equation has been modified based on discussion between Verra and Indigo, it is noted that the text below the equation states, "Where the period between time t and time t_previous spans multiple calendar years, the project proponent shall pro-rate the results of Equation 34 across the relevant vintages." It is unclear as written how this is to be applied.
Aster Global Findings	The equation has been modified based on discussion between Verra and Indigo, it is noted that the text below the equation states, "Where the period between time t and time t_previous spans multiple calendar years, the project proponent shall pro-rate the results of Equation 34 across the relevant vintages." It is unclear as written how this is to be applied.
NCR/CL/OFI	CL: Please address verifier comments and clarify how this should be applied. Further, please update language as necessary to ensure all project proponents will apply the same approach.
Response from Project Proponent	Language has been expanded to the following: "Where the period between time t and time previous spans multiple calendar years, the project proponent shall pro-rate the results of Equation 34 across the relevant vintages according to the number of days in the monitoring period contained within each vintage. For example, if the total stock change is measured across exactly three calendar years, then one third of the stock change would be attributed to each vintage. "
Aster Global Findings	Additional detail has been provided to clarify how pro-rating shall occur. The lanuage is sufficient. The item has been addressed.

Item Number	107
Equations **(Description)**	Eq. 32
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	The equation expands on area Ai, however this expansion has already occurred in the computation of the inputs. It is unclear why it would expand again based on that value. Further, inputs defined are in disagreement with the outputs of precedent values.
NCR/CL/OFI	CL: Please address findings.
Response from Project Proponent	Updated equation 32, removed variable Ai.

Aster Global Findings	The equation is appropriately implemented.

Item Number	108
Equations **(Description)**	Eq. 34
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Input parameter unit matches if equation 5 is used but not if equation 4 is used. This pertains more to the previous equations but needs to be consistent in application throughout.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output equation 4 results per unit area
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The per unit items have been addressed. The item has been addressed.

Item Number	109
Equations **(Description)**	Eq. 39
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Input parameter unit matches if equation 10 is used but not if equation 9 is used. This pertains more to the previous equations but needs to be consistent in application throughout.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Division by Ai to output equation 9 results per unit area
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The per unit items have been addressed. The item has been addressed.

Item Number	110

Equations **(Description)**	Eq. 44
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is appropriately implemented, however the parameter mi is not defined in the where clause.
NCR/CL/OFI	CL: Please include the definition for mi in the where clause of the equation definition.
Response from Project Proponent	mi has been defined in the where statement
Aster Global Findings	It was noted that elements within the where clause include reference to j, which is not reference elsewhere in the related equation. It is unclear why this is appropriate. It was also noted
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Change was made in the document using k instead of j. Equation now uses k as the index of the sample point within a field (or more generally of the second-state unit in the two-stage design).
Aster Global Findings	The item has been corrected. The item has been addressed.

Item Number	111
Equations **(Description)**	Eq. 45
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is appropriately implemented, however no parameters are defined for the equation.
NCR/CL/OFI	CL: Please included a where clause defining parameters as included elsewhere throughout the methodology.
Response from Project Proponent	Parameters have been defined for the equation in the where statement
Aster Global Findings	It was noted that elements within the where clause include reference to j, which is not reference elsewhere in the related equation. It is unclear why this is appropriate. It was also noted
NCR/CL/OFI	CL: Please address verifier findings.

Response from Project Proponent	Change was made in the document using k instead of j. Equation now uses k as the index of the sample point within a field (or more generally of the second-state unit in the two-stage design).
Aster Global Findings	The item has been corrected. The item has been addressed.

Item Number	112
Equations **(Description)**	Eq. 46
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is appropriately implemented, however no parameters are defined for the equation.
NCR/CL/OFI	CL: Please included a where clause defining parameters as included elsewhere throughout the methodology.
Response from Project Proponent	Parameters have been defined for the equation in the where statement
Aster Global Findings	The updated equation and where clauses were examined and confirmed to be appropriate. The per unit items have been addressed. The item has been addressed.

Item Number	113
Equations **(Description)**	Eq. 47
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The equation is appropriately computed. However, it is unclear where the output of the equation is used.
NCR/CL/OFI	CL: Please clarify where equation 47 is used in the determination of uncertainty. Likewise ensure transparency of its application within the methodology.
Response from Project Proponent	Further clarified language around Eq 47 output, variance not standard error
Aster Global Findings	Additional detail has been provided. It is noted that N is defined in the where statement but only n is used in the equation.

NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	N has been changed to n in the where statement.
Aster Global Findings	The item has been corrected. The item has been addressed.

Item Number	114
Method Template (Description)	**TITLE PAGE:** Complete all items in the box on the title page using Arial or Century Gothic 10.5 point, black, regular (non-italic) font. This box must appear on the title page of the final document. Methodologies may also feature the project title and preparers' name, logo and contact information more prominently on the title page, using the format below (Arial or Century Gothic 24 point and Arial or Century Gothic 12 point, black, regular font).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	The table is not filled up using the correct font.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Font changed to century gothic 10.5
Aster Global Findings	The correct font is now used. The item has been addressed.

Item Number	115
Method Template (Description)	**Contents Page**
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	The "Contents" header needs to be re-added.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Contents header added back in document
Aster Global Findings	The "Contents" header has been re-added. The item has been addressed.

Item Number	116
Method Template (Description)	**Contents Page**
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	The "…" are missing from the title page.
NCR/CL/OFI	CL: Please correct in line with findings.

Response from Project Proponent	....'s are back
Aster Global Findings	The item has been corrected. The item has been addressed.

Item Number	117
Method Template (Description)	**VCS Header**
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	VCS template header does not exist on all pages.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	VCS header inserted in Methodology document
Aster Global Findings	This item still persists and is being reissued.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	The VCS header has been added to all pages
Aster Global Findings	The header and page numbers have been corrected. The item has been addressed.

Item Number	118
Method Template (Description)	**4 APPLICABILITY CONDITIONS:** Applicability conditions must not contain procedures or obligations upon the project proponent. Rather, they must be conditions against which project eligibility can be determined at the time of validation and must not require the project proponent to undertake ongoing actions to ensure continued eligibility.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	It was noted that current applicability conditions violate the requirement of ongoing acctions to ensure eligibility.
NCR/CL/OFI	CL: Please clarify how applicability conditions meet these requirements.
Response from Project Proponent	Table for discussion with VCS
Aster Global Findings	It is unclear how this element has been addressed.
NCR/CL/OFI	CL: Please address the previous findings and clarify how none of the applicability conditions violate the requirement of ongoing actions.
Response from Project Proponent	All applicability conditions were agreed upon during Boston site visit.
Aster Global Findings	Pending discussion with Verra
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	This item was reviewed/closed by Verra. The item has been closed.

Item Number	119
Method Template (Description)	**4 APPLICABILITY CONDITIONS:** This methodology applies to project activities that…
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	It was noted that the required language was not used.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Applicability section re-organized
Aster Global Findings	The project has been update to address the item. Pending other items related to applicability.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Pending items pertaining to applicability.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	120
Method Template (Description)	**4 APPLICABILITY CONDITIONS:** This methodology is applicable under the following conditions:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	It was noted that the required language was not used.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Applicability section re-organized
Aster Global Findings	The project has been update to address the item. Pending other items related to applicability.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Pending items pertaining to applicability.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	121
Method Template (Description)	**4 APPLICABILITY CONDITIONS:** This methodology is not applicable under the following conditions:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	It was noted that the required language was not used.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Applicability section re-organized
Aster Global Findings	The project has been update to address the item. Pending other items related to applicability.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	Pending items pertaining to applicability.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	122
Method Template (Description)	**5 PROJECT BOUNDARY:** Methodology Template Table 2.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	It was noted that the table structure has been deviated from the required template element.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Table 5.2 not changed to match template format, VCS will also review this table.
Aster Global Findings	It is noted that the default template has not been used, this results in some difficulties in the interpretation of the methodology.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	VCS waived requirement to follow VCS methodology template Table 2 format per verbal communication during meeting in Boston and review of methodology document.
Aster Global Findings	Further issue can be followed up by Verra, if warranted. The item has been addressed.

Item Number	123

Method Template (Description)	**7 ADDITIONALITY:** This methodology uses a project method for the demonstration of additionality.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	It was noted that the required language was not used.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Added the language, "This methodology uses a project method for the demonstration of additionality." to section 7.
Aster Global Findings	The language stated has been included. The item has been addressed.

Item Number	124
Method Template (Description)	**8.1 Baseline Emissions:** Ensure equations are provided to cover all GHG sources, sinks and reservoirs set out in the Section 5 (Project Boundary) above, including sources, sinks and reservoirs that the project proponent may optionally include. Include summary information to describe the context of equations, and use an appendix for any lengthier explanations.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	SOC is not included in this section, per the requirements.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	SOC equation inserted into section 8
Aster Global Findings	Pending other findings related to equations.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	125
Method Template (Description)	**8.1 Baseline Emissions:** Use the example format below (copy and paste) for specifying equations and defining the associated parameters and variables, including the unit of measure. Ensure all equations are numbered using captions to specify the equation number and enable cross-referencing. Ensure that parameters and variables are consistently applied throughout the equations in the methodology.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology

Aster Global Findings	It was noted that inconsistent application of parameters exist throughout the methodology.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Parameters changed in equation 40
Aster Global Findings	Pending other findings related to equations.
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	126
Method Template (Description)	**8.2 Project Emissions:** Describe the criteria and procedures, including relevant equations, for the quantification of GHG emissions and/or removals for the selected GHG sources, sinks and/or reservoirs for the project. Follow the instructions for equations provided in Section 8.1 (Baseline Emissions) above
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	Per the requirements, equations need to be specified.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	addressed by Verra on a phone call with Andrew Beauchamp on 03/05/2020
Aster Global Findings	The item has been addressed in a call with Verra.

Item Number	127
Method Template (Description)	**8.3 Leakage:** Describe the criteria and procedures, including relevant equations, for the quantification of GHG emissions and/or removals for the selected GHG sources, sinks and/or reservoirs for leakage. Follow the instructions for equations provided in Section 8.1 (Baseline Emissions) above.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	No equation for Leakage exists, as per the requirement.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	Leakage equation added.
Aster Global Findings	Pending leakage findings elsewhere.
NCR/CL/OFI	

Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	All related items have been addressed. The item has been addressed.

Item Number	128
Method Template (Description)	**8.4 Net GHG Emission Reductions and Removals:** Net GHG emission reductions and removals are calculated as follows:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Methodology
Aster Global Findings	It was noted that the required language was not used.
NCR/CL/OFI	CL: Please correct in line with findings.
Response from Project Proponent	and removals added to section 8.4
Aster Global Findings	This has been added to section 8.4. The item has been addressed.

Item Number	129
Parameter (Description)	VarAbsl,i, VarBbsl,i, VarCbsl,i
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	Previously not included
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter includes VarCbsl,i however that component is not used elsewhere in the methodology. It is unclear why that portion of the data parameter is appropriate. The description of the parameter specifies the project scenario, however the subscript is for the baseline. It is unclear why these differ. Additionally, the description specifies at time t however no t value is included in the data parameter. Please address why time t is relevant given the data parameter.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	This parameter table has been removed
Aster Global Findings	The parameter no longer exists. The item has been addressed.

Item Number	130

Parameter **(Description)**	$EF_{CO2,j}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	It is noted that the desription is not in line with the definition provided within Equation 2. Additionally, it is noted that 2006 IPCC Guidelines for National GHG Inventories Volume 2 Chapter 3 Table 3.3.1 however it is unclear how the values sourced were derived. Values sourced are for Europe, it is unclear how they are appropriate for all geographic regions in line with approach defined in IPCC.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Used Tier 1 equations from IPCC. See equation 1
Aster Global Findings	The previous finidng has been addressed. It has been noted that the value applied for gasoline has the unit tCO2 per liter, it appears that this should be in tCO2e per liter, it is unclear why this is not the case. The value applied diesel units are "per liter" it is unclear how this is appropriate. The comments section references the IEA, but no full reference exists in the reference section.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Units have been changed to t CO2e per liter for gasoline and diesel. The IEA reference has been added to the reference section.
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	131
Parameter **(Description)**	$FFC_{bsl,j,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The term is defined as used for both the baseline and the project emissions, however a with project term is applied in the parameters monitored.
NCR/CL/OFI	CL: Please clarify why this term is appropriate for both the baseline and the project.
Response from Project Proponent	Parameter table edited in section 9.1
Aster Global Findings	The previous finding has been addressed. A data unit of liters/yr is specified however this does not agree with the value in the equation 3. It is unclear which is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The data unit has been changes to liters
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	132
Parameter **(Description)**	$Ef_{Ndirect}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	A value of 0.01 is used in line with table 11.1 of the 2019 refinement to IPCC 2006. It is unclear how this value is appropriate for all instances as different values are appropriate for flooded rice fields, per the table.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The data unit has been changes to liters
Aster Global Findings	The provided response does not address the finding, however changes were made to the parameter to address the item. The item has been addressed.

Item Number	133
Parameter **(Description)**	$Frac_{GASF}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	A value of 0.1 is used citing table 11.3 of the 2019 refinement to IPCC 2006. It is unclear how this value is appropriate, given that table 11.3 has a value of 0.11 for FracGasf
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The value applied has been changed to 0.11
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	134
Parameter **(Description)**	$Frac_{GASM}$

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	A value of 0.3 is used citing table 11.3 of the 2019 refinement to IPCC 2006. It is unclear how this value is appropriate, given that table 11.3 has a value of 0.21 for FracGasm
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The value applied has been changed to 0.21
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	135
Parameter **(Description)**	FracLEACH
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	A value of 0.3 is used citing table 11.3 of the 2019 refinement to IPCC 2006. It is unclear how this value is appropriate, given that table 11.3 has a value of 0.24 for FracLeach
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The value applied has been changed to 0.24
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	136
Parameter **(Description)**	Ef_{NLeach}
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	A value of 0.0075 is used citing table 11.3 of the 2019 refinement to IPCC 2006. It is unclear how this value is appropriate, given that table 11.3 has a value of 0.011 for EFNLeach
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The value applied has been changed to 0.011
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	137
Parameter **(Description)**	$Frac_{LEACHMD}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	A value of 0.3 is used citing table 11.3 of the 2019 refinement to IPCC 2006. It is unclear how this value is appropriate, given that table 11.3 has a value of 0.24 for FracLeach
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The value applied has been changed to 0.24
Aster Global Findings	The parameter no longer exists. The item has been addressed.

Item Number	138
Parameter **(Description)**	$P_{bsl,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	The parameter references "See Section 6." for source of data, value applied and justification of choice. Section 6 is insufficient in describing how this parameter is sourced or what it should be.
NCR/CL/OFI	CL: Please provide additional detail, in line with findings.
Response from Project Proponent	Terra Carbon to define box in section 6 referenced in data and parameters and model inputs.
Aster Global Findings	The parameter references box 9.1. This is appropriate. The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.

Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	139
Parameter **(Description)**	$Days_{bsl,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	140
Parameter **(Description)**	$MB_{bsl,c,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	141

Parameter **(Description)**	$MB_{bsl,SF,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	142
Parameter **(Description)**	$NC_{bsl,SF,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	143
Parameter **(Description)**	$MB_{bsl,c,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology

Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	144
Parameter **(Description)**	$NC_{bsl,OF,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	145
Parameter **(Description)**	$W_{bsl,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.

NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	146
Parameter **(Description)**	$H_{bsl,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	147
Parameter **(Description)**	$MB_{g,bsl,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The purpose of the data is defined as the calculation of the baseline and project emissions. It is unclear how this parameter is used in the project emissions.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of the data has been defined as calculation of baseline emissions now
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	148

Parameter **(Description)**	$VarA_{wp,i}$, $VarB_{wp,i}$, $VarC_{wp,i}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter includes VarCbsl,i however that component is not used elsewhere in the methodology. It is unclear why that portion of the data parameter is appropriate. Additionally, the description specifies at time t however no t value is included in the data parameter. Please address why time t is relevant given the data parameter.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The parameter table has been removed
Aster Global Findings	The parameter no longer exists. The item has been addressed.

Item Number	149
Parameter **(Description)**	$SOC_{bsl,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The description states that the parameter is the areal-average stock. It is unclear how this is the case, given that multiple measurements are not used. Similarly, this description does not line up with equation 30. The purpose of the data specifies calcualtion of project emissions, however this parameter is for the baseline.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	In equation 30, the initial stock of carbon is assumed to be the same in the project and baseline scenarios, and the equation was simplified by canceling the subtraction of the initial stock from itself. That assumption can't be made when using a performance benchmark, which is why equation 31 has two expressions for two temporal changes. The following statement has been added below Equation 30: "In Equation 30 it is assumed that the initial SOC is the same in both the baseline and project scenarios at the outset of the project."

Aster Global Findings	The parameter has been removed. It is unclear how this is appropriate given this parameter is still required for equation 30.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	We have added the variables for the SOC stock at time "t – 1" to Equation 30 to make it explicit and complete. Accordingly, the sentence after Equation 30 now points out that a simplication can be made when Equation 30 is applied for the first time on a particular sample unit, as in that case the initial carbon stock is the same in the project and baseline scenarios so those terms cancel each other. With this change, it is now clearer that this cancelation does not occur in subsequent reporting periods.
Aster Global Findings	It is noted that the parameter has not been included in line with the previous finding. It is unclear how the response addresses the previous finding.
NCR/CL/OFI	CL: Please clarify how the removal fo the parameter is appropriate in line with verifier round 3 findings.
Response from Project Proponent	Parameter tables have been added for Sublimit, SOCbsl,i,t-1, and SOCwp,i,t-1
Aster Global Findings	The parameters have been appropriately included. The item has been addressed.

Item Number	150
Parameter **(Description)**	$\Delta C_{TREE,bsl,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter specifies ΔCTREE,bsl,i,t however the applicable equation does not use the parameter, rather it specifies ΔCTREE,t bar. It is unclear how this is appropriate. The purpose of the data specifies baseline and project emissions but this is in contrast of the defined parameter and its description. It is unclear how this is appropriate. Further, the description specifies the baseline w, however no mention of w occurs elsewhere, please clarify this usage.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of data has been defined as calculation of baseline emissions now and "w" has been removed from the data description. Parameter table now references Section 8.2.2 under Equations
Aster Global Findings	The parameter references a section, but not an equation as required in the template. The relevant equation where this parameter would be used does not exist in the methodology in its current state as it would feed into equation 29.
NCR/CL/OFI	CL: Please address verifier findings.

Response from Project Proponent	Reference has been added to Eq 29. This parameter is calculated outside of this methodology, and thus would not appear in any other equations. Our treatment was deliberate and discussed at length with the Validation team in March 2020. The treatment allows flexibility in sampling approach, and is consistent with the opening text in section 8.6 and referenced parameter tables. There is sufficient guidance in the referenced tables to produce these parameters.
Aster Global Findings	The validation team is not concerned with how this parameter is generated, rather how it is used in the computation of equation 32 (formerly 29). As stated on a call with Indigo this parameter is not directly included in equation 32, nor is there any equation that uses this parameter in the methodology as currently written. It was the validation team's understanding that changes were going to be made to equation 32 to address this, as discussed in a call with the validation team. This has not occurred.
NCR/CL/OFI	CL: Please address verifier findings and address how this parameter is used in the methodology.
Response from Project Proponent	New Equations (36 and 37) have been added to make it abundantly clear how the average tree and shrub emission reductions are calculated by subtracting the baseline stock change from the project stock change.
Aster Global Findings	An equation has been appropriately applied. The parameter has been appropriately adjusted to refer to the equation. The item has been addressed.

Item Number	151
Parameter **(Description)**	$\Delta C_{SHRUB,bsl,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter specifies ΔCSHRUB,bsl,i,t however the applicable equation does not use the parameter, rather it specifies ΔCSHRUB,t bar. It is unclear how this is appropriate. The purpose of the data specifies baseline and project emissions but this is in contrast of the defined parameter and its description. It is unclear how this is appropriate. Further, the description specifies the baseline w, however no mention of w occurs elsewhere, please clarify this usage.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The purpose of data has been defined as calculation of baseline emissions now and "w" has been removed from the data description. Parameter table now references Section 8.2.2 under Equations

Aster Global Findings	The parameter references a section, but not an equation as required in the template. The relevant equation where this parameter would be used does not exist in the methodology in its current state as it would feed into equation 29.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Reference has been added to Eq 29. This parameter is calculated outside of this methodology, and thus would not appear in any other equations. Our treatment was deliberate and discussed at length with the Validation team in March 2020. The treatment allows flexibility in sampling approach, and is consistent with the opening text in section 8.6 and referenced parameter tables. There is sufficient guidance in the referenced tables to produce these parameters.
Aster Global Findings	The validation team is not concerned with how this parameter is generated, rather how it is used in the computation of equation 32 (formerly 29). As stated on a call with Indigo this parameter is not directly included in equation 32, nor is there any equation that uses this parameter in the methodology as currently written. It was the validation team's understanding that changes were going to be made to equation 32 to address this, as discussed in a call with the validation team. This has not occurred.
NCR/CL/OFI	CL: Please address verifier findings and address how this parameter is used in the methodology.
Response from Project Proponent	New Equations (36 and 37) have been added to make it abundantly clear how the average tree and shrub emission reductions are calculated by subtracting the baseline stock change from the project stock change.
Aster Global Findings	An equation has been appropriately applied. The parameter refers to the updated equation but also still refers to equation 32. An examination of equation 32 does not indicate the use of the parameter. Please address.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Reference to Eq 32 deleted.
Aster Global Findings	The reference has been removed. The item has been addressed.

Item Number	152
Parameter **(Description)**	$\Delta C_{TREE,wp,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	

Response from Project Proponent	
Aster Global Findings	The parameter references a section, but not an equation as required in the template. The relevant equation where this parameter would be used does not exist in the methodology in its current state as it would feed into equation 29.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Reference has been added to Eq 29. This parameter is calculated outside of this methodology, and thus would not appear in any other equations. Our treatment was deliberate and discussed at length with the Validation team in March 2020. The treatment allows flexibility in sampling approach, and is consistent with the opening text in section 8.6 and referenced parameter tables. There is sufficient guidance in the referenced tables to produce these parameters.
Aster Global Findings	The validation team is not concerned with how this parameter is generated, rather how it is used in the computation of equation 32 (formerly 29). As stated on a call with Indigo this parameter is not directly included in equation 32, nor is there any equation that uses this parameter in the methodology as currently written. It was the validation team's understanding that changes were going to be made to equation 32 to address this, as discussed in a call with the validation team. This has not occurred.
NCR/CL/OFI	CL: Please address verifier findings and address how this parameter is used in the methodology.
Response from Project Proponent	New Equations (36 and 37) have been added to make it abundantly clear how the average tree and shrub emission reductions are calculated by subtracting the baseline stock change from the project stock change.
Aster Global Findings	An equation has been appropriately applied. The parameter has been appropriately adjusted to refer to the equation. The item has been addressed.

Item Number	153
Parameter **(Description)**	$\Delta C_{SHRUB,wp,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	The parameter references a section, but not an equation as required in the template. The relevant equation where this parameter would be used does not exist in the methodology in its current state as it would feed into equation 29.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Reference has been added to Eq 29. This parameter is calculated outside of this methodology, and thus would not appear in any other equations. Our treatment was deliberate and discussed at length with the Validation team in March 2020. The treatment allows flexibility in sampling approach, and is consistent with the opening text in section 8.6 and referenced parameter tables. There is sufficient guidance in the referenced tables to produce these parameters.
Aster Global Findings	The validation team is not concerned with how this parameter is generated, rather how it is used in the computation of equation 32 (formerly 29). As stated on a call with Indigo this parameter is not directly included in equation 32, nor is there any equation that uses this parameter in the methodology as currently written. It was the validation team's understanding that changes were going to be made to equation 32 to address this, as discussed in a call with the validation team. This has not occurred.
NCR/CL/OFI	CL: Please address verifier findings and address how this parameter is used in the methodology.
Response from Project Proponent	New Equations (36 and 37) have been added to make it abundantly clear how the average tree and shrub emission reductions are calculated by subtracting the baseline stock change from the project stock change.
Aster Global Findings	An equation has been appropriately applied. The parameter has been appropriately adjusted to refer to the equation. The item has been addressed.

Item Number	154
Parameter **(Description)**	$FFC_{wp,j,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	A data unit of liters/yr is specified however this does not agree with the value in the equation 3. It is unclear which is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	Units have been changed to liters
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	155
Parameter **(Description)**	$P_{wp,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	QA/QC outlines how information will be monitored, but it is unclear how the the first sentence is relevant given that the parameter is a quantiative element and would therefore be solely supported by the second sentence.
NCR/CL/OFI	CL: Please clarify why the first sentence of the QA/QC is appropriate, in line with findings.
Response from Project Proponent	Parameter will be updated to reference box language from current section 6.
Aster Global Findings	The parameter references box 9.1. This is appropriate. The description of the parameter sepcifies that it is for the baseline scenario, however the parameter is for the with project scenario. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The description of the parameter now specifies that it is for the project scenario.
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	156
Parameter **(Description)**	$DAYS_{wp,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The description of the parameter sepcifies that it is for the baseline scenario, however the parameter is for the with project scenario. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The description of the parameter now specifies that it is for the project scenario.
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	157

Parameter **(Description)**	$MB_{wp,c,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The description of the parameter sepcifies that it is for the baseline scenario, however the parameter is for the with project scenario. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The description of the parameter now specifies that it is for the project scenario.
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	158
Parameter **(Description)**	$M_{wp,SF,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The description of the parameter sepcifies that it is for the baseline scenario, however the parameter is for the with project scenario. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The description of the parameter now specifies that it is for the project scenario.
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	159
Parameter **(Description)**	$M_{wp,OF,i,t}$
Evidence Used to Assess (Location in	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx

PD/MR or Supporting Documents)	
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The parameter references box 9.1. This is appropriate. The description of the parameter sepcifies that it is for the baseline scenario, however the parameter is for the with project scenario. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The description of the parameter now specifies that it is for the project scenario.
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	160
Parameter **(Description)**	$W_{wp,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	
Aster Global Findings	The description of the parameter sepcifies that it is for the baseline scenario, however the parameter is for the with project scenario. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The description of the parameter now specifies that it is for the project scenario.
Aster Global Findings	The parameter has been updated and the item has been addressed.

Item Number	161
Parameter **(Description)**	$H_{wp,l,i,t}$
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Indigo Methodology
Aster Global Findings	
NCR/CL/OFI	
Response from Project Proponent	

Aster Global Findings	The description of the parameter sepcifies that it is for the baseline scenario, however the parameter is for the with project scenario. It is unclear how this is appropriate.
NCR/CL/OFI	CL: Please address verifier findings.
Response from Project Proponent	The description of the parameter now specifies that it is for the project scenario.
Aster Global Findings	The parameter has been updated and the item has been addressed.

APPENDIX B

File	Date Received
Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx	2/7/2020
Indigo-VCS-ALM-Methodology-Draft_20Mar2020 (submitted to Verra).docx	3/20/2020
Indigo-VCS-ALM-Methodology-Draft_7Feb2020 (submitted to Verra).docx	3/20/2020
VCS Methodology Revisions (exported 3.20.20).xlsx	3/20/2020
Indigo-VCS-ALM-Methodology-Draft_ROUND2_rev10 (CLEAN).docx	4/20/2020
Indigo-VCS-ALM-Methodology-Draft_ROUND2_rev10 (REDLINE).docx	4/20/2020
VCS Methodology Revisions (exported 4.17.20).xlsx	4/20/2020
Methodology-for-Improved-Agricultural-Land-Management-5JUNE2020.docx	6/5/2020
Methodology-for-Improved-Agricultural-Land-Management-DRAFT FOR APPROVAL-rev02_TC_indigo_ 20Jul2020 (CLEAN).docx	7/20/2020
Methodology-for-Improved-Agricultural-Land-Management-DRAFT FOR APPROVAL-rev02_TC_indigo_ 20Jul2020.docx	7/20/2020
VCS IALM Methodology Public Comments 2020.xlsx	7/20/2020
Verra-Model-Guidance-Module-hardcopy1_TC (1) (CLEAN).docx	7/20/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev04 (CLEAN).docx	8/26/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev04.docx	8/26/2020
VCS Methodology Validation Findings Round 2.xlsx	8/26/2020
Verra-Model-Guidance-Module-rev03 (CLEAN).docx	8/26/2020
Verra-Model-Guidance-Module-rev03.docx	8/26/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev05.docx	9/10/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev05_CLEAN.docx	9/10/2020
VCS Methodology Revisions v2_Round 3 responses.xlsx	9/10/2020
Verra-Model-Guidance-Module-rev04.docx	9/10/2020
Verra-Model-Guidance-Module-rev04_CLEAN.docx	9/10/2020

Methodology-for-IALM-DRAFT FOR APPROVAL-rev06(vsent to AG 9.21.20).docx	9/21/2020
VCS IALM methodology Round 3 findings responses (9.21.20).xlsx	9/21/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev08.docx	9/25/2020
Verra-Model-Guidance-Module-rev06.docx	9/25/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev08 CV edits 9.26.docx	9/26/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev10.docx	9/28/2020
Verra-Model-Guidance-Module-rev08.docx	10/2/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev14 (1).docx	10/9/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev14 (1)_CLEAN.docx	10/9/2020
VCS Methodology Revisions_Round 4 Indigo Responses.xlsx	10/9/2020
Verra-Model-Guidance-Module-rev09.docx	10/9/2020
Verra-Model-Guidance-Module-rev09_CLEAN.docx	10/9/2020
Methodology-for-IALM-DRAFT FOR APPROVAL-rev15 (1).docx	10/9/2020
VCS-SOC Methodology-Concept-Note-Template-v3.0 KN 101219 DF for Indigo (1).docx	for PRO

APPENDIX C

Commenter Number and Questions	Public Comment	Response	Final Assessor Conclusion
1 (1)	Comment 1: Provide guidance on how to implement the protocol Because of constant evolution in modeling capacity, we endorse the approach of providing general guidance not tied to one model such that there is opportunity for continued improvement. However, we feel that the level of detail of the protocol requires a level of pre-existing knowledge with biogeochemical models that will be a barrier to entry to all but the most technically sophisticated. We worry that this approach alleviates the main barrier to entry of prior protocols being financial cost of sampling and replaces it with a new barrier to entry of technical sophistication. To avoid this, we recommend that the protocol include examples and clear steps of how to implement this protocol for a set of commonly used models. Because of the international focus of this protocol, we believe it is especially important to demonstrate how to use this protocol for areas without much public data or coverage from scientific studies. We feel strongly that this is an essential piece for ensuring that the protocol is usable and not just a technical document.	We agree with the concern that some projects may be disadvantaged in validating a biogeochemical model due to data scarcity and/or technical sophistication. To specifically address this issue, the methodology allows for a measure/re-measure approach to quantify credits that avoids any need to run a model. In cases where running a model is preferred, note that IPCC climate zones generally span large geographic regions (thousands to millions of square kilometers) as well as across multiple continents, which provides a wide geographic domain from which to draw validation data. As an example, the Cool Temperate Moist zone can be found in N. America, S. America, Europe and Asia. We also now require a model validation report to be submitted with the monitoring report, to be approved by the validator. If approved, the model validation report will become a public document that describe in detail: the calibration and validation (cal/val) procedures used, datasets used (which must be publicly available), and the model version(s) and parameter set(s) successfully validated according to the methodology. Having these reports be public documents will increase transparency into calibration and validation procedures and the datasets used in executing them, as well as identify models that have successfully undergone calibration and validation. Lastly, we have engaged with Verra to collaborate on clarifying documentation and support for model approval. Box 4.1 of the methodology has been moved to an external module and expanded with further clarification (see *Model Calibration and Validation Guidance for Improved Agricultural Management*) to	The auditors agree the use of soil models will require technical sophistication, but this is true whenever a methodology includes most soil models. The methodology authors chose IPCC climate zones for calibration of models in order to increase the likelihood that sufficient data exists for the purpose, in many parts of the world. When a model is calibrated and validated for a region, subsequent projects will be able to use them, rather than go through the expense of recalibrating. The methodology requires soil sampling, regardless of the use of models, and a project can be carried out without modeling and without additional soil sampling. The barrier created by the sophistication of models is unavoidable. This comment was adequately addressed.

		accommodate registry coordination and future versioning.	
1 (2)	Comment 2: Appropriate threshold for bias needed This protocol makes the important point that the use of models should be unbiased, or conservatively biased. Practically, it remains unclear to us what is an acceptable level of bias. For instance, we are aware of work that has compared multiple biogeochemical models by calibrating and validating the models to long-term field data in a well-studied region1. Even with these long-term data, models were shown to have bias in predicting N2O for high levels of N2O. It is not clear to us whether the level of bias shown to already exist for the most common models is considered acceptable. And, related to our prior comment, what practical guidance can you offer about how a user could reasonably demonstrate minimum bias given that most places do not have the long-term data used for papers such as the one referenced above (and even that paper had demonstration of bias)?	We have updated the bias evaluation to contain a two-part procedure that now sets a quantitative threshold with which to evaluate bias, based on the variability of the validation data. The evaluation also ensures conservativeness by requiring the average model bias across all validation studies to be < 0. Per Section 5.2.4. of *Model Calibration and Validation Guidance*: "Bias is evaluated in two ways. First, bias must be calculated for each individual experimental study since different studies may use different temporal units of aggregation, soil depths, or measurement techniques [see Equation 1]. Since observed values are measured with some error, it is sufficient for validation to show that model bias for a given study is less than the uncertainty of the observed value. Concretely, bias of an individual study must be shown to be <= pooled measurement uncertainty in all cases. Pooled measurement uncertainty is defined as the pooled standard deviation of all the measured values for a practice change [see Equation 2]. Second, the model must be shown to be unbiased or conservatively biased on average, i.e. when considering all studies the mean of the computed biases must be <= 0." If a model fails to meets these criteria, re-calibrating and adjusting parameters to achieve an unbiased or conservatively biased state still remains an option. Lastly, validation data do not need to be site-specific so long as the dataset includes the relevant IPCC zones, which tend to be geographically large areas (thousands to millions of square kilometers). Validation is meant to ensure adequate biogeochemical response across a range of biophysical conditions. This allows, to a limited extent, a model to be used in an extended geographic	A model calibration and validation guidance module was created that covers the commenter's questions regarding the calculation of model bias. This comment was adequately addressed.

		domain beyond where the validation data originated.	
1 (3)	Comment 3: Clarify temporal scale of N2O/CH4 measurements, ideally for annual coverage At several points in the document, the protocol refers to the need to include "annual/seasonal measures of N2O and CH4". To us, annual versus seasonal sampling can show different impacts of management practices and it is important to specify which is preferred. For instance, it has been shown that seasonal sampling of N2O may lead one to conclude that tillage can increase N2O; however, year-round sampling demonstrates no net change2. Because of this apparent bias from seasonal sampling, we believe annual coverage should be required. However, we recognize that fewer studies in agricultural systems have full year-round coverage. Because of this there should be at minimum guidelines for how to avoid bias associated with only seasonal sampling.	We have updated the guidance to require N2O and CH4 measurements be aggregated to the annual scale, in agreement with the comment.	Section 8.2 of the methodology expresses N2O and CH4 emissions on an annual basis. Calibration guidance requires justification when emissions for portions of the year were missing. This comment was adequately addressed.
1 (4)	Comment 4: Clarify sources of error Section 8.6 seems to define how uncertainty is quantified. In this approach, error associated with field sampling is determined by a two-stage simple random sampling. From our reading, it seems to be assumed that this random sampling leads to unbiased estimates of true soil C stocks; however, this is not demonstrated, nor is it asked for land managers to demonstrate this. In our experience, determining adequate sample coverage for estimating "true" carbon stocks is a non-trivial problem and even the best-designed efforts have some error between the observed stock and the true, unobserved stock. To our understanding, the protocol does not consider this error between observed stocks and unobserved true stocks in overall calculations of uncertainty. Error in the protocol, to our understanding, is quantified for analytical measurement of the collected samples and model structural uncertainty. If our reading is correct, we recommend adding in this important element of uncertainty. If our reading is incorrect and that uncertainty is already incorporated, we recommend highlighting that further because it was not apparent to us.	Section 8.6 of the methodology now requires that an unbiased random sampling design is used. Demonstration of this criteria would occur at project listing and would be reviewed by Verra.	The methodology prescribes a 2 stage, random sampling design -- the first sampling help determine the necessary sample size, given its variability. This comment was adequately addressed.

1 (5)	Comment 5: Clarify “statistical robustness” “Statistical robustness” in the methodology is used to describe minimum levels of rigor around “measurements of SOC change” (Box 4.1), “evaluation of multi-year impacts on SOC stock changes” (Box 4.1), and “sample designs” (Section 8.6). Measurements, evaluation, and sample designs are each distinct activities. We think it would improve the clarity of the methodology to explicitly define what is meant by “statistical robustness” in each of these instances.	We removed or replaced those instances of "statistical robustness" to enhance clarity. (1) In Section 8.6 the term "statistically robust" has been replaced with the term "unbiased" (2) In Section 5.2.3 of Model Calibration and Validation Guidance for Improved Agricultural Management, we have removed three references to “statistical robustness” in Requirement 1 and replaced them with the following two terms in bold ("able to", and "accurate"): “In the case of SOC stocks, repeat measurements of SOC stock change must be able to capture multi-year changes, as practice effects on SOC may combine short and long-term changes in soil biogeochemical processes. Measurements from paired fields leveraging space-for-time analysis methods that approximate multi-year changes may also be used for SOC validation. Newer methods for SOC stock monitoring are becoming available that can observe changes with greater precision at shorter time intervals. These methods will be acceptable if there is peer-reviewed support or independent expert support approved by Verra for their use in SOC monitoring and demonstrate accurate evaluation of multi-year impacts on SOC stock changes.”	The methodology authors have removed the term "statistical robustness," substituting it with more appropriate statistical terms and explanations. This comment was adequately addressed.

2 (1)	"4.The project activity is not expected to result in a sustained reduction (i.e. over at least 10 consecutive years from the project start date, supported by peer reviewed and/or published studies) in productivity or sustained displacement of any pre-existing productive activity in the project area" South Pole's comment: What is the expected supporting document or justification to prove that implementing activities such as the introducing trees, which can bring shade on grass or crop and/or switching from high N-content synthetic fertilizer to lower N-content organic fertilizer won't negatively impact productivity? While it appears to be a relevant condition for a sustainable agriculture project to be designed, we are concern it might be difficult to prove it when operating project, where high rate of chemical inputs are already used. Soil may be highly degraded, yet productivity may be maintained by the application of high rates of chemical inputs, for instance.	Supporting documents or justification to prove that implementing activities are not expected to result in a sustained reduction in productivity or sustained displacement of any pre-existing productive activity in the project area are provided at validation and are subject to approval by a validation and verification body. This documentation is intended to cover the broad catagories of agriculture practices listed in applicability condition 1. Evidence provided to validators for these practices can be peer reviewed and/or published studies or representative biogeochemical model runs but again are subject to approval by a validation body.	The necessary criteria for demonstrating no yield loss is expected has been provided by the methodology. If the project subsequently is found to have caused sustained yield reductions after implementation, a leakage deduction is incurred. This comment was adequately addressed.
2 (2)	4. Applicability conditions: "Additional conditions where models are applied […] 4.Validated per datasets and procedures detailed in Box 4.1, with model structural uncertainty calculated using datasets as detailed in Box 4.1, using the same parameters or sets of parameters applied to estimate stock change/emissions in the project.". South Pole's comment: 2 Do the authors provide a list of models already know to meet these requirements along with the methodology? Is the Roth-C model part of it?	Authors do not provide a list of approved models. Roth-C may meet these requirements for some crop types and some regions and can theoretically be used. Please see our responses to Comments 1(1) and 2(4) which helps explain why there are no pre-approved models identified in the methodology.	Since this comment was made, methodology authors created a module on model calibration and validation. Clearly Roth-C can be used in this methodology, provided it is validated and calibrated for the region, crop and activity. Authors have addressed this comment satisfactorily.

2 (3)	Box 4.1. Model validation requirements: "if using Quantification Approach 1, flux change of N2O and CH4, when adopting eligible practices. Model validation steps are as follows:…" South Pole's comment: Box 4.1. describes requirements for an empirical or process-based model to be created, used and validated for the purpose of project emission reduction accounting. It is unclear whether an existing peer reviewed SOC modelling tool can be used and what type requirements of Box 4.1 would apply in that case.	Please see our response to Comment 1(1) which helps explain why there are no pre-approved models or other "SOC modelling tools" identified in the protocol. To reiterate, both models created by the project, and peer reviewed models, must be validated. Lastly, recognizing that more detailed guidance on modeling is needed, we have actively engaged both the Climate Action Reserve and Verra to collaborate on clarifying documentation and support for model approval. Box 4.1 of the methodology is being expanded with further clarification and moved to an external module (see *Model Calibration and Validation Guidance* for Improved Agricultural Management) to accommodate registry coordination and future versioning.	The methodology has undergone significant revision since this comment was made. It is clear from the Model Calibration and Guidance module that existing SOC models can be used. This comment was adequately addressed.
2 (4)	Step 3) Gather validation data that meet the following requirements Requirement 1: "Measured datasets must be drawn from peer-reviewed and published experimental datasets with measurements of SOC stock change (and annual/seasonal measures of N2O and CH4 change if applicable) using control plots to test the practice effect requiring evaluation […] measurements of SOC stock changes must be statistically robust capture multi-year changes" Requirement 2: "It is in a project's interest to exceed these minimums and validate the model across more soil-climate zones, soil texture classes, and clay contents" South Pole's comment: While we observe the step 3 "gather validation data" helps building a robust SOC model we are concerned this type of data might not be available for sustainable agriculture project happening in developing countries. This condition might then reduce opportunities for projects to access voluntary carbon market where academics or research and development infrastructure are weak, which may be the case in developing countries. Whereas the US and European countries might be better equipped to provide improved land management project with robust datasets and studies. What is the position of this methodology regarding a SOC modelling	We feel that increased stringency around requirements for model validation are needed to ensure that estimates of project GHG emission reductions and removals are accurate and precise. The methodology is meant to cover both developed and developing countries, by allowing the use of either quantification approaches 1, 2, or 3 where a project developer can choose between models, measurements, or default factors for reporting. In the case of SOC, where appropriate models or validation data are not available, the project may use approach 2 whereby at each monitoring event SOC is directly measured in the project and compared to a SOC performance benchmark, which must be approved by VCS. Keep in mind also that if a modeling approach is preferred, IPCC climate zones generally span large geographic regions (thousands to millions of square kilometers) as well as across multiple continents, which provides a wide geographic domain from which to draw validation data. As an example, the Cool Temperate Moist zone can be found in N. America, S. America, Europe and Asia. Lastly, please see our response to	The comment is not a technical fault with the methodology. Less developed parts of the world can still use the methodology through other quantification approaches, and the areas from which data sets can be taken, IPCC Climate Zones, are vast, increasing the likelihood that sufficient data sets exist for a project area. This comment was adequately addressed.

	approach as in VM0017? i.e. using an existing peer-reviewed tool (Roth-C or other) that is adapted to the bio-climatic conditions, with no validation dataset required. It was applied in Kenya and is being applied in India as per VCS database. Would this methodology allow for a similar approach? If not, do the authors consider the application of this methodology in developing countries feasible and cost-effective?	Comment 1(1) that describes our approach to Model Validation Reporting, a process meant to enhance transparency and accessibility to validation procedures, datasets, and validated models.	
2 (5)	8.2 Baseline Emissions - Quantification Approach 1: "Where an applicable performance benchmark exists, the baseline is equal to the performance benchmark" South Pole's comment: How does the methodology define an applicable performance benchmark?	The methodology defines an applicable performance benchmark as one approved by the VCS following methodology requirements for standardized methods.	There is currently no benchmark for this methodology. The methodology authors include mention of performance benchmarks in anticipation that VCS will adopt them in the future. This comment was adequately addressed.
2 (6)	Equation 12 to 14: "Under approach 3 direct nitrous oxide emissions due to fertilizer use in the baseline scenario are quantified in Equations 12, 13, and 14." South Pole's comment: Organic fertilizer emission and Synthetic fertilizer emission are accounted in the same way, in the same equation, yet synthetic fertilizer is imported from outside the project boundaries and organic fertilizer appears to be defined as vegetal and animal organic matter coming from inside the project boundaries. See appendix 1, "Organic fertilizer application (e.g., manure, compost)". In that case the organic matter would be given a different end-use within the same farm boundaries, hence no emission generated (or emission from a decay process).	Organic fertilizer may come from within the project boundary or it may be imported from outside the project boundary. If organic fertilizer comes from within the project boundary, there is no net impact on GHG emissions. For example, if manure is removed from one part of the project boundary and applied to another part of the project boundary, then N2O emissions from manure deposition decrease in the area of origin and increase in the area of destination. Adequate sampling across the project area allows that the net impact is captured.	The methodology authors have adequately addressed the comment, and agree with the commenter that organic fertilizer, produced within the project area, there is no net increase in GHG emissions

2 (7)	Table 8.3. “Soil organic carbon stock and bulk density Determined at project start (re- measured every 5 years or less)” South Pole’s comment: The methodology does not describe how to proceed in the approach 1 case (soil sampling and modelling) where verification is performed against modelled SOC values, but SOC stock measurement must be reported every 5 years. For instance, a project is verified at t = 3 years against modelled SOC values; at t = 5 years the project proceeds to SOC measurements; then how are issued VERs from year 3 considered against direct measurement from year 5. An ER calculation based on year 5 measurement could result in more ERs or less ERs than verified in year 3. In the more ERs case next verification will account for it, in the less ERs case projects could end up next verification with negative ERs. How is this covered by the methodology? Equation 41. Uncertainty deduction South Pole’s comment: The uncertainty deduction is based on the sum of uncertainties of the sub-activities included to the project. The methodology does not set any requirements related to individual uncertainties to sub-activities. Does this mean that for the SOC change value in soil carbon, even if the uncertainty is more than 100% , the value modeled is valid for use, as long as bias is reduced to a minimum (<=0)? What are the implications to farmers that have individual SOC model results with high uncertainties (for instance above 50%, 70% or 100%), which may be a common case for SOC modelling on small farm areas? In addition, the uncertainty deduction equation seems to favor larger areas or group of farmers submitting their project together since they will most probably be able to account for soil variability with a relative lower sample size by stratifying and grouping their land profiles. Could the methodology also accommodate a benchmarking tool for individual farmers that allows to use of regional default data in addition to in-situ soil samples, thus the measured values can be adjusted and uncertainties lowered?	In the "less ERs" case the negative balance will be handled as a loss event or a reversal, as appropriate, following guidance in Section 5.3 of VCS Registration and Issuance Process v4.0 It is true that stratification of large project areas can account for variability with a relatively lower sample size, but this is the case for all VCS projects. A benchmarking tool for individual farmers is beyond the scope of the current methodology, but we would welcome such revisions in the future.	The question of modeled SOC values was discussed with Verra. It was agreed that in the case where it is determined that there are less ER's than the modeled values predicted at a verification previous to a 5 year verification event where there is SOC sampling, it will be handled as a loss event. A benchmarking tool was also discussed and determined to be beyond the scope of the current methodology.

2 (8)	Box 9.1. Accounting for uncertainty associated to model input values South Pole's comment: Regarding the data provided by farmers from invoices, management records, etc.: how does the ALM methodology suggest to estimate the uncertainty associated to the input data values?	Per precedence with other methodologies (VM0017 etc.) management reccords have no associated uncertainty.	The precedence mentioned does exist with all other agricultural methodologies. Methodology authors appear to have addressed this comment satisfactorily.
3	Conclusion I, as well as the undersigned stakeholders, strongly support the work of the Climate Action Reserve and Verra to develop new approaches to assessing additionality for ALM projects. The opportunity to positively impact the climate is massive but will only become reality if we are able to take a global approach. We urge you to avoid reverting back to traditional approaches which are neither appropriate nor effective for ALM projects. We urgently need incentives to overcome cultural and economic barriers to change, and climate finance can provide this incentive. This feeds into the need for a sensible, pragmatic approach to additionality for new science-based soil organic carbon methodologies. Successful ALM methodologies should define eligibility in relation to adoption of practice changes generally, and quantify crediting based on performance (in the form of GHG benefits). The practice changes are needed to get into the program, but the farmers must actually reduce their GHG emissions and/or increase their carbon sequestration in order to benefit from the project.	We thank the author and signatories for their support of this methodology.	No response required by methodology authors.

4	I'm writing to comment on the 'Methodology for Improved Agricultural Land Management' submitted by Indigo. Note that this message does not constitute an endorsement of the approach or any related products, but is simply a scientific comment. The rationale behind this approach is sound: in order to provide price signals to farmers to manage their lands for improved sequestration of GHGs, there needs to be a) a thriving GHG market and b) a robust way to quantify GHG capture. Regenerative Agriculture is a metric-based approach to agricultural land management that focuses on improvements in soil quality, on-farm biodiversity and agroecosystem resilience. The proposed method creates a means of estimating the ecosystem services being provided by varying ALM practices. The modeling approach appears to be a good first step in approximating GHG capture. It will be important to conduct subsequent verification studies to compare predictions to observations across the range of production environments included in the project.	We thank the author for their support for the science behind the methodology.	No response required by methodology authors.
5 (1 and 2)	1 We like this methodology and believe it is an improvement over several similar methodologies, including those used in the Clean Development Mechanism for over a decade. However, we also think this methodology is relevant primarily to the US, Canada and other industrial countries where data sets are more easily available. We can understand your focus in these areas because that's where you expect most of your projects to come from. 2 But we believe that you should not ignore the developing region—the other half—where landholdings are a few acres and data not easily available. Why not develop a more simplified methodology for these countries using the existing methodology as a starting point? This way you could also get projects from developing countries and a better geographical spread.	The existing methodology is meant to cover both developed and developing countries, by allowing the use of either quantification approaches 1, 2, or 3 where a project developer can chose between models, measurements, or default factors for reporting. This choice of quantification method is predicated on where in the reporting cycle the project lies temporally (i.e. y = 1, or y = 4), and also the existence of VCS approved performance benchmarks, however a simplified measurement and reporting quantification is allowed and could be applied in a data limited region.	The methodology can be used around the world, though countries where a lot of pertinent data exists may have an advantage in modeling quantification methods. The extremely large areas where the data for calibration may be derived (IPCC climate zones) open possibilities for data sources. The methodology authors appear to have made significant efforts to include as much of the world as possible for potential project areas for this methodology.

5 (3)	We do not see a need for baseline data for three years. A baseline before the start of a project, based on adequate soil samples showing soil organic carbon and other parameters, should be sufficient. The methodology would create a huge burden for small farmers. There are no performance benchmarks approved by Verra.	A minimum 3 year period of continuous observations is being used for the historic lookback period to establish baseline agricultural management practices, per discussion with Verra staff on 04/03/2020. Verra acknowledged that defining the timeframe to establish baseline agricultural managemen practices "is a challenge for a comprehensive ALM that covers SOC/GHG changes that are either highly sensitive or relatively insensitive to previous agricultural management practices. SOC response to tillage is an example of the former and it's clear that documenting tillage in one year of the previous five wouldn't be sufficient for documenting baseline emissions (via sampling) if the site was under no-tillage for the other four years. Other processes are insensitive and there is little memory of previous management. For example, CH4 emissions from enteric emissions from a given year don't have an impact on future emissions. This suggests that a single lookback period will be insufficient if it isn't long enough to account for accumulating impacts (i.e., like no-tillage and SOC changes), but such a lookback period would require longer observations than necessary for history-insensitive changes." The three year lookback follows the "principle of conservativeness" as agreed with Verra.	The auditors disagree with this commenter. A project requires a change in practice, which should be documented. The previous management also offers insight into the state of the soil. The methodology authors' response adequately addresses this comment.
5 (4)	We question the need for "Additionality." If a farmer follows good agricultural practices (eg, conservation agriculture) GHG reductions would surely follow. At the Webinar on June 17, it was explained that this was a buyer's requirement. This is akin to a tail wagging the dog! To us the important issue is whether a farm reduces carbon emissions; a particular agricultural practice by a farmer matters less. Yes, one could give brownie points—pay a premium—for demonstrating reductions in chemical fertilizers, water use, etc. But by making Additionality a requirement you are setting up a needless barrier.	Additionality is required under the VCS standard (Section 3.13), and VCS methodology requirements (section 3.5).	Additionality is required by VCS and other platforms. This comment was adequately addressed by the methodology authors.

5 (5)	The compliance cost of this methodology is not clear. What are the transaction costs of monitoring, verification, validation, etc? How do these costs compare with benefits? It would help if you provide the costs and benefits on a per acre or per ton basis.	Estimates of operational costs are beyond the scope of methodology development. With that said, the transaction costs of complying with any carbon project methodology are certainty a key component of project success or failure. As project developers ourselves, we took pains to consider the practical implications of methodology requirements and to minimize costs wherever possible. That is, of course, without sacrificing rigor.	The commenters are asking for information beyond the scope of any methodology. This comment was adequately addressed.
5 (6)	Finally, you could illustrate a typical project you envisage in the form of a Box item. It could provide project description, process protocols followed, amount of emissions reduction, transaction costs and payment on a unit basis (acre or tons of Co2), time line from project development to payment for emissions reduction.	Project Proponent's will be able to find much of this information in project documentation such as the Project Description, once the methodology is implemented.	Methodologies do not include examples of potential projects, as requested by this commenter. The suggestion that the commenters peruse the project documentation of projects once they are implemented, is reasonable and would fulfill the needs of the commenter. This comment was adequately addressed.
6 (1)	Box 4.1: aren't step 3 and 4 the same (page 13 in the pdf)?	Step 4 was inserted twice in the document. We have edited the document to make the correction.	The methodology was changed considerably. These steps are now sections 5.2.1 and 5.2.2 of the Model Calibration module. This comment was adequately addressed.

6 (2)	Some technologies could increase C sequestration but also increase N leaching. Since N Leaching is a primary concern in the type of agriculture described in the project, could it be included that the project has to show that is not increasing N leaching? Example: a farmer that goes from tiling the soils and not using N fertilizer, to no-till and, since mineralization is lower in no-till, use N fertilizer?	The methodology accounts for the impact of N leaching on GHG emissions using IPCC equations and parameters. The impact of N leaching on water quality is something that can be included in co-benefits reporting such as Carbon Community and BIodiversity (CCB) or SDVista that can optionally be attached to any Verra project. All project activities are currently required to be regulatory compliant and cannot increase nitrogen leaching in a way that is illegal.	The methodology accounts for N leaching in section 8.2.8. This comment was addressed.
6 (3)	Showing additionality is the key to make this helpful for decreasing GHG and not just allowing more emissions by industry, because they think that those emissions are being compensated when they are not. Practices and technologies in farming evolve, and there is an economic theory that explains how early adopters adopt the technology first and test it. Then, laggards or slow adopters start to select it, and if the technology increases production, the higher offer makes the price of grains decrease. The early adopters get the most benefit of a new practice, and the slow adopters are forced to adopt it to avoid being out of business (http://www.dartmouth.edu/~iispacs/Education/EARS18/Agriculture_2011/cochraneagricultural-treadmill.html). The protocol could separate that natural change in practices that will slowly be adopted from practices that need the carbon selling push to be adopted. If it doesn't, the carbon selling will just give extra profits to the early adopters, which are also the ones that get the most benefits from the practice. That will increase inequality among farmers and also will not be "additional" since the method is changing naturally. One option for this is that the identification of the barriers stated in step 1 of additionality, ask to show why the new technology is not expected to be a "natural evolution or change in practices," that in a few years everyone will be using in the region. That is to ask the project to look at future scenarios besides present ones and ask for proof of why the barriers will hold during the time	This is also a good point, and the reason why additionality is assessed at project initiation (and is good for a limited amount of time). New projects must follow the additionality demonstration per section 7 of the methodology, and this assessment is valid for the project crediting period (20 years).	There are pros and cons to additionality rules which will be debated into the future. The methodology authors are following the additionality requirements of the Verified Carbon Standard. This comment was adequately addressed.

	horizon of the project. For example, if a practice is profitable and the restriction is lack of machinery, it is just a matter of time until farmers will see the benefit and invest in machinery.		
6 (4)	Another point is related to step 2 of additionality: "Demonstrate that the activity is not common practice." Some practices are profitable per se and do not need C selling to be adopted, but other barriers restraint the adoption. In this case, a VCS project introduces the practice in a region, and then other farmers see the benefit and adopt it without the need to sell C. In this case, the C selling helped to break the barrier. Still, later the practice is naturally being adopted without being "additional" anymore. Protocols could state a regional threshold, and also state if the early adopters that brought the method to the region are going to lose their ability to sell C credits or not.	This regional threshold is included in the demonstration of additionality and specified at 20%.	This is the second step in determining additionality. This comment was adequately addressed.
7 (1)	Equation 1 (Section 8.2.1) calculates soil organic carbon stocks as tCO2e/unit area, while Equation 4 (Section 8.2.4) calculates methane emissions from the soil organic carbon pool and then multiplies it by the area (Ai) of the sample unit. These calculations should be standardized so that they both refer to the same area when completed.	We have updated equations in Section 8 to change units their units from "tCO2e" to "tCO2e/unit area". The probability proprotional to area selection of fields makes estimators just a simple average of field averages. Because the area of every field is known, not just the sampled fields, the estimate of the spatial average of emission reduction in tCO2e/unit area will be more accurate, and then at the last step we multiply by the stratum-wide (or project-wide) acreage A_0. This also now matches the sample design given in Section 8.6	The methodology authors changed all units as recommended by the commenter. This comment was adequately addressed.
7 (2)	Why does Quantification Approach 1 (Measure and Model) employ a dynamic baseline approach to calculating GHG flux when the approach also requires measurement every 5 years to true up model estimates? This seems inconsistent with Quantification Approach 2 (Measure and Remeasure) which employs a fixed baseline approach. Under this inconsistency, the same measurement data from t = 0 and t = 1 would seemingly result in a different total credit yield depending on the approach.	Quantification approach 2 (like approach 1) does not credit the additional carbon sequestered from baseline activities. Instead, this is deducted from total emission reductions/removals through the use of the performance benchmark. It is also true that if both methods were used, crediting on a given field would differ, however VCS requires the use of a performance benchmark baseline over a project method when such benchmarks exist (See VCS Standard Section 3.1.6).	This comment is in regard to a potential future addition to the methodology and is not under review by the validators.

7 (3)	I'm concerned that there aren't more rigorous requirements for soil sampling with regards to sample size and stratification. It appears that these decisions are left entirely up to the project developer. I'm concerned that a lack of guidelines will incentivize under sampling that will reduce confidence in claims of carbon sequestration while providing no guidance to a VVB on how to audit such a design.	Under sampling will increase sampling uncertainty and uncertainty reduction resulting in lower (or no) credit issuances. Please see the uncertainty calculation and deduction from Net GHG emissions in sections 8.5 and 8.6 of the methodology	The methodology authors are correct: undersampling would be penalized due to the uncertainty deduction. This comment was adequately addressed.
7 (4)	Remeasurement of soil carbon stocks (under Approaches 1 and 2) should employ equivalent mass sampling procedures to correct for changes in bulk density that may occur in the project scenario. Failure to account for these changes would lead to erroneous conclusions on changes in SOC stocks that could exaggerate project benefits (see Wendt and Hauser 2013 for a great review of this).	The equivalent soil mass (ESM) method is indeed more accurate if changes in bulk density is expected, and it is starting to become accepted in the soil science community. However, it remains prohibitively expensive outside of research settings. For example, Wendt and Hauser (2013) make the following note on page 6 about their proposed method (a cubic spline fit to measurements on two or more layers in the core): "Multiple-layer assessments are useful for investigative research purposes. For routine monitoring for greenhouse gas mitigation accounting purposes, reducing costs is critical, as sampling and measurement costs detract from the potential value of the C sequestered". The method of Ellert & Bettany (1995), described on page 7 of Wendt and Hauser (2013), introduces further costs from: (a) sampling to greater depths and (b) weighing and combining two layers in the lab. Because of these extra costs and complexities, fixed-depth sampling, despite its shortcomings for estimating effects of changes in tillage, is still the most common way to measure carbon stocks today. Some reassurance can be found in the largest meta-analysis to date on the effects of no-till (Mondal et al., Land Degradation & Development, 2019, DOI 10.1002/ldr.3470): they find that changing from conventional tillage to no-till increases bulk density by a relatively small amount (+5% at the peak at years 6–10 in the top 5 cm and +4% in 5–	Remeasurement does include remeasurement of bulk density, according to the final version of the methodology. This comment was adequately addressed.

		10cm), but the effect declines thereafter and approaches zero beyond year 10.	
8 (1)	We are delighted to see the Methodology for Improved Agricultural Land Management being developed - it is wonderful this effort is being taken, as it goes a long way towards developing a market in which we do hope to participate in and benefit from	We thank the author and signatories for their support of this methodology.	No response required by methodology authors.
8 (2)	The benchmarking period for establishing a baseline should be longer than three years (ideally five years) in order to provide a more robust baseline.	A minimum 3 year period of continuous observations is being used for the historic lookback period to establish baseline agricultural management practices, per discussion with Verra staff on 04/03/2020. Verra acknowledged that defining the timeframe to establish baseline agricultural managemen practices "is a challenge for a comprehensive ALM that covers SOC/GHG changes that are either highly sensitive or relatively insensitive to previous agricultural management practices. SOC response to tillage is an example of the former and it's clear that documenting tillage in one year of the previous five wouldn't be sufficient for documenting baseline emissions (via sampling) if the site was under no-tillage for the other four years. Other processes are insensitive and there is little memory of previous management. For example, CH4 emissions from enteric emissions from a given year don't have an impact on future emissions. This suggests that a single lookback period will be insufficient if it isn't long enough to account for accumulating impacts (i.e., like no-tillage and SOC changes), but such a lookback period would require longer observations than necessary for history-insensitive changes." The three year lookback follows the "principle of conservativeness" as agreed with Verra. However, this minimum would not preclude the use of more years of data in an individual project design.	The length of the lookback period would always be better if it were longer, but tradeoffs were made in order to include as much farmland as possible. Using soil sampling, repeated at least ever 5 years, allows for regular adjustment of the model, which is a sufficient safeguard for any cropping history errors in the 4th and 5th year before the project start date.

8 (3)	The Methodology should allow for the baseline to be developed without taking into account the current commodity production in the region. This is because some speciality crops may not be eligible for the Methodology if the regional production benchmark is required. Also, in numerous regions of the world, regional data is not available, dated, or unreliable. This will unnecessarily penalise future-oriented farms, which want to lower their environmental impacts. In such cases, the field-specific benchmark should be required and used.	We appreciate the comment and would like to expand the scope of the methodology as much as is practical. Current commodity production in the region is needed to account for leakage in the methodology, as well as to establish eligibility.	The methodology authors described the kind of tradeoffs that must be made when developing any methodology. This comment was adequately addressed.
8 (4)	We welcome the 5% threshold to demonstrate additionality.	The additionality threshold is set at 20% in section 7 of the methodology. Further, the 5% threshold used in the methodology relates to eligibility of practices (in section 4 of the methodology) and not additionality.	This comment did not require a response, though the correction offered by the methodology authors was welcome.
8 (5)	We welcome three approaches for calculating emissions. However, the Methodology should specifically require a Life Cycle Assessment (LCA) of each agricultural operation going through the assessment.	The accounting boundary for VCS project methodologies includes only the GHG sources, sinks and reservoirs that are controlled by the project proponent, are related to the project or are affected by project activities (see VCS Methodology Requirements Section 3.3). While LCA is important for understanding the regional or global impact of agricultural commodity production, it is not relevant for accounting the benefits of the VCS project activity in terms of emissions that occur within the project boundary.	The validators agree with the methodology authors. A life cycle assessment is not needed to calculate emissions
8 (6)	Critically, it is necessary for the Methodology to cover land-use change driven emission changes. Without including land-use changes the Methodology will have a tremendous accounting leakage potential and will not be valid. Such land-use changes should include specifically: arable -> grassland, grassland -> agroforestry and arable -> agroforestry, but should not be limited to those three land-use change scenarios.	We agree with the comment that it is necessary for the Methodology to cover land-use change driven emission changes. Applicability conditions 2 and 3 ensure that land use change is not eligible. Furthermore, applicability condition 4 prevents activity shifting leakage.	The commenter did not justify the claimed necesity of covering emissions from land use change in this methodology. Land use changes are not permitted, as is expected of a methodology of this nature.

8 (7)	As for applicability conditions: We insist that the threshold in point 4.3 (page 8) be changed from 10 into 25 years. Similarly, the numbers should be changed from 10 to 25 years in point 4.4 (page 8).	The intent of the two time periods referenced here are different, so we will address them separately. Applicability Condition 3 is meant to discourage the clearing of native ecosystems for the purpose of conducting a carbon project in compliance with VCS Standard 4.0 Section A1.1. 10 years is considered a sufficiently-long period of time to discourage management decisions related to a future carbon project. It is also sufficiently long that any land use change which had occurred in the past would have time to materially impact both the soil carbon stocks and the trajectory of change of those stocks. Beyond 10 years, evidence of historical land cover is likely to become increasingly difficult to obtain with useful resolution. Applicability Condition 4 is meant to protect against the possibility of market-shifting leakage due to yield declines related to project activities. It is our opinion that 10 years is sufficiently generous, especially considering that more recent studies are showing positive yield impacts from adoption of the practice changes incentivized by this methodology. Were this period to be extended to 25 years, there is a much higher risk that market-shifting leakage could occur for much of the project lifetime without detection by this methodology.	The reasoning behind these applicability conditions are sound. The commenter did not provide reasoning for the demands made. This comment was adequately addressed.

8 (8)	As for points 1-4 on page 9: Great publicly available data is required in order to fit into the Methodology. On peer-review data, we recommend for this point to be clarified further by requiring at least one peer-reviewed scientific study from a region, where the assessment is taking part to be included in the model, so that localization of the models applied is achieved. This will ensure both more accurate measurements, as well as a quick uptake of the Methodology across the world. It is necessary for the Methodology to specify further what exactly is being meant by "comparable to FAO". What is the decision-making framework for establishing whether a certain organization is "comparable to FAO" and who is responsible for evaluating whether this decision making framework has been followed?	The validation requirements specify that data must come from the relevant climate zones where the project is located, which helps to ensure specificity of the model. By “comparable to FAO” we mean that the organizational affiliation of such an expert, who has published on behalf of that organization, is credible within the scientific and agricultural communities associated with climate smart agricultural.	Climate zones are the chosen study regions from which data may be taken, so a lot of data is probably available for most agricultural lands. This comment was adequately addressed.
8 (9)	As for the approved peer-review journals (page 15) - it is necessary for a clear mechanism for adding new peer-review journals into this list to be specified together with specifying time intervals on which such expansions of the list will take place.	This is now addressed in *Model Calibration and Validation Guidance for Improved Agricultural Management* Section 5.2.6. A new journal may be added to the list per the VCS Methodology and Approval Process (v4.0), or at the discretion of the approved VVB.	This comment was addressed in the model calibration guidance module, as described.
8 (10)	It seems that Step 3 (pages 13-16) and Step 4 (pages 16-18) are repeating itself and are exactly the same steps - revision here is needed.	The methodology document has been revised to correct the mistake.	The methodology has changed considerably and this typo was addressed.

8 (11)	It is necessary for the Methodology to specify what happens to the old measurements when the models are recalibrated (page 18).	We have added a new section on model calibration (see *Model Calibration and Validation Guidance for Improved Agricultural Management* Section 5.1) that specifies how calibration data are to be used. Most importantly: "For any model used with this module, model calibration must be a separate process and use separate datasets from model validation." Thus, measurement datasets can be re-used when redoing calibration so long as the data remain separate from the validation data, and all other data requirements are met.	The new calibration module should answer the commenter's question.
8 (12)	For table 5.2 (pages 20-21) including the introduction to the table on page 19 - life-cycle assessment of the farm should be required specifically by the Methodology.	Please see response above regarding LCA. The accounting boundary for VCS project methodologies includes only the GHG sources, sinks and reservoirs that are controlled by the project proponent, are related to the project or are affected by project activities (see VCS Methodology Requirements Section 3.3).	The commenter does not explain why life-cycle assessement is necessary to calculate emissions related to project activities. The validators agree with the methodology authors.
8 (13)	Table 6.1 (pages 21-22) seems to be missing incorporating the rest period for the pasture in calculating GHG emissions.	The rest period is incorparated in the annual estimate of GHG emissions/removals in pastures by accounting the length of time animals are grazing in the sampled field in a year. We have added the word "annually" to make this more clear.	Accounting for the length of time animals are grazing a field incorporates any rest periods. This item was adequately addressed.

8 (14)	As for Additionality (pages 23-24): Step 1. It is almost impossible to well define "social pressure". This requirement should be completely re-thought and possibly voided in the final version of the Methodology. Step 2. Both the "region", as well as what constitutes a "common practice" should be very clearly specified by the Methodology. With its current phrasing, the Methodology leaves out a significant room for subjective inclusion/exclusion of farms into the assessment. This cannot be the case in the final version of the Methodology. Also, out of the three proposed forms of verification (Step 2, points 1-3 - page 24) at least one (peer-reviewed scientific literature) and in reality, all three are hard to access to an average farmer. This accessibility issue has to be seriously through about and addressed in the final Methodology.	We have added more context for the term "cultural and/or social barriers" in Section 7. These barriers are related to technological, local tradition, and social condition-type barriers identified in the CDM A/R Methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities". We agree that there is ambiguity around what constitutes a region, but the language in Step 2 flows directly from Section 3.5.5 of the VCS Methodology Requirements v4.0. Until VCS might provide more specificity in around what constitutes a region, the methodology should stay silent on this issue. The specific language related to the threshold for common practice is the term "predominantly". The methodology is not intended for application by a typical individual farmer without the support of a technical entity. We agree that peer-reviewed scientific literature, and perhaps additionally government or independent research data or an expert attestation, could be difficult for an average farmer to access, and we would add that the costs of VCS carbon project validation, registration, monitoring and credit verification are too high for it to be cost-efficient or even feasile for the typical individual farmer to develop a stand-alone VCS carbon project. We think that the methodology will be attractive for groups that wish to increase farmers' access to carbon markets and can provide the necessary technical support.	Cultural and social barriers are better defined in the final version of the methodology. The language described was taken from VCS methodology requirements. Unreasonable definitions of regions would be caught by validators, though it is true that would be somewhat subjective. The average farmer or landowner would be unable to conduct most carbon offset projects on their own. This is not the fault of this methodology.

8 (15)	As for the Quantification of GHG Emission Reduction and Removals (pages 25-52): It is critical to underline in the Methodology that Global Warming Potential of 100 years in being used. As for Table 8.1 on pages 25-26 - each of the three quantification approaches should be allowed for calculating each emission source. Even if with the today's technology certain approaches are not yet ready to be used, the Methodology should allow for a situation in which technology and science develop, so that those approaches will be applicable in the future. The Methodology should specify why "15%" is the threshold beyond which there is an uncertainty deduction (page 48). Why is this threshold not set at 5% or 25%?	The selection of GWP (e.g. 100 or 20 year GWP) must follow VCS requirements. We have limited the description of specifications for GWP to parameter tables in Section 9.1 to facilitate potential future updates to VCS requirements. Please refer to these parameter tables. Parameter tables state that unless otherwise directed by the VCS Program, VCS Standard v4.0 requires that CH4 and N2O must be converted using the 100-year global warming potential derived from the IPCC Fourth Assessment Report. We appreciate the comment regarding quantification approaches. The existing methodology is meant to cover both developed and developing countries, by allowing the use of either quantification approaches 1, 2, or 3 where a project developer can chose between models, measurements, or default factors for reporting. This choice of quantification method is predicated on where in the reporting cycle the project lies temporally (i.e. y = 1, or y = 4), and also the existence of VCS approved performance benchmarks, however a simplified measurement and reporting quantification is allowed and could be applied in a data limited region. We have sought to balance the need for maximum flexibility and efficiency in methodology application, which is particularly important in data scarce environments, while maintining the integrity of GHG emission accounting. For example, because SOC is expected to be the major carbon pool impacted by the project activity, a default approach (approach 3) would not be appropriate. Changes in soil methane emissions, where applicable (e.g. in flooded systems) can be large, direct measurement is too expensive for most project developers, and approach 3 is not appropriate, therefore we have specified approach 1 (modeling) for soil methane emissions. Conversely, changes in fossil fuel emissions are expected to be small; a default approach for this	The selection of the GWP is not in the hands of the methodology authors. The methodology allows for two, and soon three approaches for quantification. The methodology authors correctly point out that direct measurement of all GHG sources would likely increase the cost of monitoring and verification, without increasing overal precision. The 15% threshold is part of VCS methodology requirements. This comment has been adequately addressed.

		emission source allows for greater efficiency without sacrificing accounting integrity. A more sophisticated approach for this source, and other approach 3 sources, would likely increase the cost of monitoring without a corresponding increase in overall precision of estimated GHG emissions/removals. Regarding the question about the 15% threshold for uncertainty, this follows VCS Methodology Requirements V4.0 Section 2.4.1	
8 (16)	As for the Monitoring (pages 52-90): As for the Box 9.1 (pages 52-53) - in point (b) the highest emissions in the baseline scenario should be applied and not the lowest. This should be revised in the final version of the Methodology.	Please note that the methodology accounts for reductions of emissions in the project compared to the baseline scenario (eg Equation 34), therefore application of the lowest expected emissions in the baseline scenario results in the most conservative estimate of emission reductions in the project.	The methodology authors are correct. The lowest expected emissions in the baseline would be most conservative.
8 (17)	On page 77 there seems to be a small mistake with Var(a) and Var(b) - the equation uses "bsl" parameter for both values, when actually "wp" values should be used in those equations. Please correct this mistake.	We have made the correction to the subscripts in the equation on page 77.	The subscripts were corrected.
8 (18)	On page 88, when measuring annual dry matter of N-fixing species, not only-peer reviewed data, but also direct measurements should be allowed as a source of data.	The parameter table on page 88 has been updated to clarify that direct measurements from the project area may be used to estimate the annual dry matter of N-fixing species in addition to data that has been peer-reviewed and published.	The methodology now allows for direct measurement.
8 (19)	Critically, the Methodology should provide equivalent papers and regulations similar to those of the EPA, including specifically those of the European Union authorities, each time it makes a reference to the EPA. It is critical that the final version of the Methodology is not US-centric, but global in its structure. Inclusion of the European Union, and other key regional players, papers will go a long way towards implementing this objective in real life.	We appreciate this very legitimate critique. The EPA papers are given only as examples of an acceptable type of data source. We have added language referencing the European Environmental Agency whenever the EPA is mentioned, to make more clear that other regionally appropriate data sources are entirely acceptable under this globally applicable methodology.	The EPA is clearly used as an example in the methodology.

8 (20)	Governance between Verra, TerraCarbon LLC and Indigo Ag Inc. now and the framework for managing it in the future should be clearly outlined and specified alongside the proposed Methodology.	Please note that once approved, VCS methodologies are managed by Verra exclusively.	The methodology authors are correct. Methodology authors and validators have no authority over the methodology once it is adopted.
8 (21)	Similarly, the process of updating and revising the Methodology together with specific time intervals should be defined and presented alongside the Methodology.	Please refer to the VCS Methodology and Approval Proces v4.0 for more information on Verra's process for VCS methodology revisions.	The methodology authors properly directed the commenter to the information requested.
9 (1)	1.applying a 3-year historic look-back period to produce an annual schedule of activities to determine baseline scenario (p.6): a. We think 3 years may not adequately represent baseline scenario conditions. A 3 year period may be much influenced by specific year to year weather conditions and their effects on crop yields, residue inputs, and management practice. We suggest a minimum of 5-6 years as a baseline period.	A minimum 3 year period of continuous observations is being used for the historic lookback period to establish baseline agricultural management practices, per discussion with Verra staff on 04/03/2020. Verra acknowledged that defining the timeframe to establish baseline agricultural managemen practices "is a challenge for a comprehensive ALM that covers SOC/GHG changes that are either highly sensitive or relatively insensitive to previous agricultural management practices. SOC response to tillage is an example of the former and it's clear that documenting tillage in one year of the previous five wouldn't be sufficient for documenting baseline emissions (via sampling) if the site was under no-tillage for the other four years. Other processes are insensitive and there is little memory of previous management. For example, CH4 emissions from enteric emissions from a given year don't have an impact on future emissions. This suggests that a single lookback period will be insufficient if it isn't long enough to account for accumulating impacts (i.e., like no-tillage and SOC changes), but such a lookback period would require longer observations than necessary for history-insensitive changes." The three year lookback follows the "principle of conservativeness" as agreed with Verra. However, this minimum would not preclude the use of more years of data in an individual project design.	As mentioned previously, the 3-year lookback period was a tradeoff agreed upon with Verra.

9 (2)	2.Any quantitative adjustment (e.g. decrease in fertilizer application rate) must exceed 5% of the pre-existing value to demonstrate additionality (p.6, p.23): a. This is clear for the case of fertilizer use. But for other practices such as no till… How is the 5% value assessed? (surface, residue inputs, projected yield increase, projected carbon stocks?). We think this section should be specified in order to numerically assess additionality prior the implementation the proposed practices.	The 5% value is assessed as a percent change in a quantitative input (e.g. fertilizer application rate), this threshold relates to eligibility in section 4 of the methodology. For other quantitative practices, Section 7 of the methodology requires that the project proponent must determine whether the proposed change or changes in agricultural management practices expected to reduce GHG emissions and/or increase GHG removals (including both quantitative and qualitative changes). It is true that this demonstration does not specifically require a quantitative change in emissions, however the methodology will not credit practice changes that in the end do not provide evidence of reduced GHG emissions and/or increased GHG removals through both measurement and modeling.	The methodology is now clear that the 5% value relates to a quantitative change in practice, like a reduction in fertilizer use.
9 (3)	3. Although the description on model validation requirements is extense (p.11- 18), procedures for model validation are not specified. Data availability required for model validation (e.g. measurements from chambers and/or eddy covariance flux towers) may restrict the use and applicability of the protocol.	The methodology's modeling guidance has been expanded to include procedures for model validation as well as calibration, and this information has been moved from Box 4.1 to an external module from the methodology (see *Model Calibration and Validation Guidance for Improved Agricultural Management*). Procedures for model validation center on evaluation of bias and confirmation that model prediction uncertainty boundaries are sufficiently wide.	This comment was written before the separate module on model calibration and validation was created. Data availability my restrict the use of the modeled approach, but the methodology authors chose extremely large regions of the world (IPCC climate zones) from which data sets may be used for model calibration. In the absence of such data, the measured approach is available. This item was adequately addressed.

9 (4)	4. Minimum specifications on agricultural management practices for the baseline scenario (p.22): a. We think other data requirements that are needed to define the baseline, as a minimum, include: crop yields and harvest indexes, fertilizer/product type, tillage type (no-till, reduced tillage, full tillage), •	Please note that Table 6.1 addresses only specifications on baseline agricultural management practices that are relevant for accounting the impact of changing practices on GHG emissions and carbon stocks, which do not include the crop yield and harvest index explicitly, but do include the crop residue management practices, which are included under quantitative requirements. Furthermore, because a dynamic baseline is modeled using actual climate data during each monitoring period, the historical crop yield doesn't impact accounting. However we have updated the quantitative data requirements for fertilizer to make clear that information on the manure or compost type or N application rate in synthetic fertilizer is needed (which implicitly requires information on the synthetic fertilizer/product type). Please note that no-till, reduced tillage, and full tillage practices are covered in more specific detail by requiring quantitative information on the depth and frequency of tillage as well as the percent of soil area disturbed and crop residue removed.	The methodology authors explained that the table described only included necessary data for th model used. Tillage is covered elsewhere. More fertilizer information is now required. This item was adequately addressed.
9 (5)	5. Baseline period to determine SOC stocks (+/-5 years) should be consistent with baseline period to determine baseline scenarios (3 years)	This might be a misunderstanding, the length of +/- 5 years in the methodology refers to the allowed time a measurement can be modelled to t = 0, and not a baseline period.	The methodology authors properly cleared up this misunderstanding.
9 (6)	6. Modeling procedures should clarify time-span to be modeled	Please note that the baseline is dynamic and modeled for each monitoring period, therefore the time-span to be modeled depends on the length of the monitoring period. This has been clarified in the external module.	The auditors believe it is understood the period monitored is the length of the montoring period.

9 (7)	7. A detailed soil sampling protocol should be included	While inclusion of a detailed soil sampling protocol would contribute to streamlining audits of methodology application and potentially provide helpful guidance to project developers, we want to avoid adding prescriptions that could make the methodology too restrictive, and we believe that there is ample external guidance on best practices for soil sampling. We have added FAO manuals available on the FAO soils portal as an additional recommended source for soil sampling protocols in the parameter tables for SOCbsl and SOCwp in Section 9.2	The response to this comment is in line with discussions the validators had with the methodology authors. No soil sampling method is provided, though sources for methods are provided. A competent soil scientist would be able to develop an acceptable SOP and sample the soils satisfactorily. Some degree of technical knowledge is needed for many parts of this and other methodologies.
10 (1)	Page 9 point 3 – Additional Conditions where models are applied. If Tier 2 factors from a measurement campaign in the project area itself are used in a model how should these be documented/referenced and what are the conditions they must meet before being used?	Once the Validation Report has been approved for a given model version and its internal set of parameters, those parameters may not be changed under any any circumstance until a new Validation Report has been approved by the verifier for the new parameters. This includes any Tier 2 factors that may be used internally. This safeguard is necessary since there is no guarantee that updating the parameter will improve model performance or maintain an unbiased or conservatively biased estimate of emissions reduction.	This comment was written before the separate module on model calibration and validation was created. The separate module provides significant clarity on model calibration and validation of that calibration. This item was adequately addressed.

10 (2)	Box 4.1 Are green manures subject to the same 'Practice effect requiring evaluation' as 'Organic amendments application?'	Green manure, if defined as growing plants that are plowed back into the soil, would be treated under residue management in modeling, and modeled or measured as a change in soil organic carbon stocks in methodology accounting procedures. To help clarify the modeling implications, the practice category "Soil disturbance and/or residue management" in Table 5.3 of Model Calibration and Validation Guidance for Improved Agricultural Management has been updated to include green manure as follows: "Soil disturbance including tillage and compaction, and residue management encompassing soil exposure after harvest and physical incorporation of green manure." Additionally, the practice category "Organic Amendments Application" in Table 5.3 has been updated by replacing "manure" with "animal manure".	The methodology authors properly explained that grean manure is covered under residue management in models, like DNDC. The authors further clarifed the model calibration guidance module by refering to organic amendments as animal manure. This comment was adequately addressed.
10 (2)	Section 6. Baseline Scenario If the baseline scenario is more complex than continuation of pre-project agricultural management can the methodology still be used? For example if the baseline is a growing trend to the introduction of another crop and the project scenario is the introduction of CA, can the methodology still be used?	It is true that the example proposed would be additional, and the methodology could be used. The baseline scenario will capture both the continuation of pre-project agricultural management, and a growing trend to the introduction of another crop. However credits issued in a situation like the example would be minimal.	The methodology authors' response adequately addresses the comment by explaining the practice could be used as a project activity, but that gradual changes, especially captured in the baseline, are unlikely to result in many credits.
10 (3)	Section 7 Additionality Can a DPSIR analysis be used to identify and articulate barriers to uptake? DPSIR is in line with UNCCD methods.	DPSIR analysis could be used to identify and articulate barriers to uptake, but the demonstration of any barriers identified in DPSIR would need to be supported by peer-reviewed and/or published studies per requirements in Section 7.	The methodology authors concisely answered this commenter's question and that similar requirements exist regardless of the method for demonstrationg barriers. This item was adequately addressed.
11 (1)	1- The methodology says that where soil models are not yet parameterized to use the second approach - benchmarking. Let's assume there is a region where there are a) published articles demonstrating a positive performance of the model and b) a good SOC flow benchmark. The question is, what approach should be selected?	VCS requires the use of a performance benchmark baseline over a project method when such benchmarks exist (See VCS Standard Section 3.1.6).	The use of the benchmark would indeed be required, if it existed. This comment was adequately addressed.

11 (2)	2- The methodology considers a historical period of 3 years to determine current practices. The question is: Is it possible to include a minimum historical period of 3 years for the baseline scenario? Or more years?	Section 6 of the methodology requires a minimum of 3 years of historical data to establish a baseline scenario, and must cover at least one crop rotation (where applicable), however more years can be used if data are available (e.g when a crop rotation extends past three years).	The methodology is clear in that a lookback period of 3 years is adequate.
11 (3)	3- What is the status of the development of the performance indicators that will be approved by Verra (indicators for the benchmark)?	Performance benchmarks approved by Verra have not yet been developed.	This simple question was answered correctly.
11 (4)	4- Considering approach 2: Is it possible to include the analysis of soil organic matter (SOM) as an indirect measure of soil carbon? Considering: i) that in Brazil it is the most conventional analysis and would not require farmers to do an additional more costly and complex soil analysis; and ii) carbon can be estimated from SOM. The question is: can we allow the determination of carbon in the soil from conventional soil analyses that are already routinely done by the producer?	The methodology does allow some flexibility in soil sampling techniques. However, page 78 states: "measured soil organic carbon must be determined from samples collected from sample plots located within each sample unit. Soil must be sampled to a minimum depth of 30 cm. Acknowledging the wide range of valid monitoring approaches, and that relative efficiency and robustness are circumstancespecific, sampling, measurement and estimation procedures for measuring are not specified in the methodology and may be selected by project proponents based on capacity and appropriateness. Stratification may be employed to improve precision but is not required. Estimates generated must: ● Be demonstrated to be unbiased and derived from representative sampling ● Accuracy of measurements and procedures is ensured through employment of quality assurance/quality control (QA/QC) procedures (to be determined by the project proponent and outlined in the monitoring plan) Soil sampling should follow established best practices, such as those found in: Cline, M.G. 1944. Principles of soil sampling. Soil Science. 58: 275 – 288.	This question was discussed between validators and methodology authors during validation. The reasoning for not requiring a specific lab procedure is to allow projects in parts of the world were choices for analysis methods are limited. This comment was adequately addressed.

		Petersen, R.G., and Calvin, L.D. Sampling. In A. Klute, editor, 1986. Methods of Soil Analysis: Part 1—Physical and Mineralogical Methods. SSSA Book Ser. 5.1. SSSA, ASA, Madison, WI. Determination of percent soil organic carbon should follow established laboratory procedures, such as those found in: Nelson, D.W., and L.E. Sommers. 1982. Total carbon, organic carbon, and organic matter. p. 539–580. In A.L. Page et al. (ed.) Methods of soil Analysis. Part 2. 2nd ed. Agron. Monogr. 9. ASA and SSSA, Madison, WI. Schumacher, B. A. Methods for the determination of total organic carbon (TOC) in soils and sediments. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-02/069 (NTIS PB2003-100822), 2002. " Comments on this page also allow further flexibility and state, " The soil organic carbon stocks at time t=0 are directly measured at t=0 or (back-) modeled to t =0 from measurements collected within +/-5 years of t =0,or determined for t=0 via emerging technologies (e.g. remote sensing) with known uncertainty, and must be used in both the baseline and with- project scenario for the length of the project."	
11 (5)	5- Is retroactive crediting possible? Considering farms with good soil management and annual SOM analyzes? See that paragraph on page 8: "Project activities must be implemented on land that is either cropland or grassland at the project start date (i.e., land use change is not eligible), and remains in agricultural production throughout the project crediting period."	The project must have been developed with the intent to create offsets and the VCS does not credit existing practices.	This simple question was answered correctly.

11 (6)	6- Is it possible to increase the distance from the weather stations monitored continuously? The methodology speaks of 50 km distant from the project's accounting area, but in Brazil, especially in regions such as the North of the Amazon or the Central Cerrado region, the weather stations are often located at distances greater than 50 km.	The methodology allows the use if data from synthetic weather stations to be used in such instances (i.e. PRISM data). Please see table 8.2 of the methodology.	As the methodology authors explain, synthetic weather stations are acceptable sources of data in the situation described. This information is available in tables 6 and 7 of the methodology.
11 (7)	7- According to the methodology, in approach 1 the direct measurements of C in the soil to feed the model must be done every 5 years or less. It also says that this direct measure can be replaced by emerging technologies. Considering this item, is it possible to replace the standard direct measurement of carbon and density with the use of Pedotransfer function (PTF)? Or Determination of soil Carbon by spectroscopic methods?	Either approach referenced could be acceptable at the discretion of the Validation Verification Body.	Methodology authors appear to have addressed this comment satisfactorily. Item closed.
12 (1)	Early Adopters Both Verra and CAR acknowledged the need to include early adopters for their value in stimulating recruitment and out of a sense of fairness. Both Verra and CAR have thus far structured their methodologies to exclude them, except insofar as they adopt a new practice. We believe this is a strategic mistake, given the environmental imperatives at stake. Crediting only the new practice will, in most cases, credit too few accruals for aggregators to include them cost-effectively. Farmers take baby steps. They try conservation tillage on this field for a few years. Not enough accruals for an aggregator to pay attention. Then they try it on the next field. Still not enough. Then they go to multi-pass direct seeding (MPDS) on that first field and see how that goes for a few seasons. Still not enough. Then they try MPDS on the rest of their fields, and try single pass on field one, and after a decade or so they are in single pass on all fields but with equipment that can only achieve a 60 STIR, but aggregators start to get interested. Then they buy equipment that can get below a 30 STIR and are finally accruing enough carbon for an aggregator to commit. Except no aggregator will commit, because the methodology will only credit the spread between 60 and 30, and that spread is too small to be the basis of a commercially viable carbon project. To create a viable project, we need to accelerate	The VCS Standard v4.0 states in Section 3.13 that a project activity is additional "if it can be demonstrated that the activity results in emission reductions or removals that are in excess of what would be achieved under a "business as usual" scenario and the activity would not have occurred in the absence of the incentive provided by the carbon markets." Early adopters do not meet this criteria. The same section goes on to emphasize, "Additionality is an important characteristic of GHG credits, including VCUs, because it indicates that they represent a net environmental benefit and a real reduction of GHG emissions, and can thus be used to offset emissions." The VCS Methodology Requirements v4.0 specifies that methodologies adopting a project method for demonstration of additionality must include steps to demonstrate regulatory surplus, implementation barriers, and common practice in accordance with the requirements in sections 3.5.3, 3.5.4, and 3.5.5. A positive list would facilitate crediting of early adopters, but development of a positive list under Option A: Activity Penetration was not feasible for this methodology due to lack of data on implementation rates of individual or combined improved	Closed by Verra

	that transition from tillage to the highest end of no- till. But even if we accelerate it from its historic 10-15 year timeframe to, say 5 years, the methodology is set up to punish the farmer for trying - every step the farmer takes raises his baseline such that when his accruals compared to what the farmer was doing 4 years ago practice become a commercially viable volume, they immediately become commercially non-viable because his baseline is weighted to last year - not what he was doing before he took his first step in the transition. Saying that the methodology would credit the farmer for the improvements from every step in that 5-year transition, which it technically would, doesn't help. The market won't. We would recommend that Verra use its positive list as a mechanism to include early adopters. In that approach, based on low adoption, the practice itself is deemed to be additional (as opposed to the conduct of that practice on a particular field). When additionality is a feature of the practice, the particular circumstances/history of those who conduct it becomes irrelevant to the question of additionality. Additionality is asked and answered through the adoption rate. That allows early adopters to participate and to receive enough crediting per acre to be commercially viable for the aggregator. In this context, Verra could require measurement upon entry into the project, and credit only accruals that represent increases above that static baseline. We're in a climate emergency and we need to scale up SOC immediately. Crediting a few early adopters is a very small price to pay for their value in driving scale. We will simply fail without them being on board and fully credited for all of their accruals from everything they do. And to the extent that baseline practices and newly adopted practices are synergistic, the methodology already credits the enhancing influence of baseline practices on accruals from the new practices. Why not go whole hog? Penny pinching for perfect credibility won't create a market. We understand the reluctance to face criticism for crediting accruals that farmers were already on a path to produce. But there is a strong policy case for doing so. Gold Standard credits reductions that	agricultural management practices. We also explored the possibility of developing a positive list under Option B: Financial Feasibility. Based on the insufficient data for projection of financial outcome resulting from the implementation of regenerative agricultural practices, we have determined that application of Activity Method Option B is also not a viable option for the proposed methodology. Option B procedures require information on the full range of cost and/or revenue estimates for the project activity to determine whether the project activity is not the most economically or financially attractive alternative, or that it is not economically or financially feasible, without revenue from the sale of carbon offsets. The body of literature on the impact of improved agriculture practices on soil carbon stocks and overall emissions from agricultural operations is growing however, information needed to project the financial outcome of implementing any one agricultural practice or combination of practices in a given region is lacking due to the emerging nature of the field. Furthermore, improved agriculture management encompasses an enormous variety of practices, with tremendous potential for development of new practices. It would not be practical or even feasible to compile financial data or data on implementation rates for the full suite of existing practices much less potential future practices. We would welcome the development of positive lists by other groups for specific interventions of interest.	

	don't even happen, through its suppressed demand approach. They articulated the policy case for doing so and the world didn't come crashing down on them. ACR was prepared to* credit early adopters in their GLLM methodology (and articulated the policy case for doing so in the methodology) and the world didn't come crashing down on them either.		
12 (2)	Permanence We encourage Verra to adopt the approach CAR is taking. In recognition that most ALM project (other than ACOGs) will be aggregates, and that farming/ranching practices are "sticky," it is possible to put the reversal risk at the aggregate level and deem permanence to have been achieved based on a low enough recidivism rate following the crediting period that the likelihood of an aggregate-wide reversal is statistically insignificant, let alone a net reversal across all VCS aggregates.	VCS requirements for addressing non-permanence are found in the AFOLU Non-Permanence Risk Tool v4.0 and Registration and Issuance Process v4.0 and are beyond the scope of the methodology.	Closed by Verra
12 (3)	Vintages The methodology requires monitoring data to be provided by calendar year within a multi-year monitoring period, for the expressed purpose of ascribing calendar year vintages to the issuances for the monitoring period. Given that ALM measured-to-measured projects require 5+ year monitoring periods for the accruals to be statistically significant, and that modeled projects may need multi-year monitoring periods to reduce verification costs, this will force developers to bring 5-, 4-, 3- and 2-year old credits to a market that values current vintages and significantly devalues older credits. * We understand that the GLLM methodology is inactive, but for disuse for reasons other than its crediting of early adopters. For example, Native Energy would have to pay $3.20 for 2019 U.S. wind VCUs but can buy 2018 U.S. wind VCUs for $2.85. Applying that discount linearly over five vintages (and we believe the discount rate would increase with vintage age) results in a single issuance of 2015 – 2019 vintages having an average of 20% less market value than they otherwise could.	The methodology does not require monitoring data to be provided by calendar year within a multi-year monitoring period. Where a monitoring period crosses multiple calendar years, the equations quantify emission reductions by year (as defined in Section 3) in order to appropriately define vintage periods.	Closed by Verra

	This is an unnecessary impediment to bringing carbon funding to farmers to change practices. There is no inherent, practical or environmental value in separating a five-year monitoring/issuance into annual vintages. We would encourage Verra either to ascribe a single vintage to multi-year issuances based on the final year of the multi-year monitoring period, or a multi-year vintage to all of the credits in that issuance, such as "vintage 2015-2019," so they all have parity. Otherwise buyers will say "we only want the 2019s." That's not a prediction. We're already seeing this with the Kenya Grasslands Project.		
13 (1)	Recommendation: The methodology should clearly repeat throughout that a performance benchmark does not exist, particularly on pgs 26, 27, 44, 79. Further the methodology should point to VCS documents that define performance benchmarks and describe how they're developed.	We have added text clarifying that performance benchmarks for establishing the crediting baseline for SOC do not exist as of the methodology publication date and such benchmarks may be developed through revision to the methodology, following requirements of the most current version of the VCS Standard and VCS Methodology Requirements. The additional text has been inserted in the sections indicated in the recommendation from VCS ALM WG.	Closed by Verra
13 (2)	Recommendation: Further clarification on how to "true up" biogeochemical models with periodic directly measured estimates should be added to the methodology.	Clarification on how to periodically "true up" biogeochemical models with periodic directly measured soil organic carbon stocks has been added to the parameter table for SOCwp,i,t on page 80. In terms of accounting, "true ups" are handled as for loss or reversal events, when needed, following the most current version of VCS Registration and Issuance Process.	Closed by Verra
13 (3)	Recommendation: The reference to "predominant practice" in the IALM meth should include a footnote explaining this definition and linking to The GHG Protocol for Project Accounting.	Section 7 of the methodology has been revised and now sets an area weighted average additionality threshold is set at 20%.	Closed by Verra

13 (4)	Recommendation: While there is no concrete recommendation here, there should be consideration of ways to reduce chances of gaming when the assessment is conducted across the suite of practices. For example, if no-till is the main practice in the aggregated project that will be used to demonstrate additionality for the individual farmer participant, could Step 2 be weighted to place more emphasis (e.g., higher burden of proof with peer reviewed papers or research data) on the demonstration of additionality for the main practice (i.e., no-till) with lesser weight on other less common practices? This is just an example and not a concrete recommendation. We are open to hearing other ideas/suggestions to minimize this risk.	A revised approach to the demonsration of additionality has been added to the methodology. The assessment uses an area weighted average common practice assessment that is intended to place more emphasis as suggested (e.g., higher burden of proof with peer reviewed papers or research data) on the demonstration of additionality for the main practice (i.e., no-till) with lesser weight on other less common practices.	Closed by Verra
13 (5)	Recommendation: Where organic amendments are used as a practice category, it may be necessary to include 1) a correction of SOC stock change to account for carbon added in organic amendments, or 2) a requirement to avoid sampling e.g., for 6 months after application of compost or manure, to avoid crediting activities that merely move carbon around the landscape.	It is true that sampling areas immediately after addition of organic amendments may generate estimates of increases in SOC that area higher than the longer-term accrual rate. However, any over-estimation of SOC stock increase in the short-term is implicitly addressed in periodic remeasurement and "true up", under both approach 1 and approach 2.	Closed by Verra
14 (1)	The appropriate approach would vary with the organic amendment type: for compost and manure, that have a high proportion of readily decomposable organic matter, and a mean residence time a delay in sampling solves the problem. The Australian methodology “Measurement of soil carbon sequestration in agricultural systems method” requires that sampling is undertaken at least 24 months after application of organic amendments	We assume that this comment is referencing the required attributes for datasets that may be used to validate a model simulating SOC change for a VCS project (Step 3, Requirement 1 in the public comment version, now Section 5.3.2, Requirement 1 in the Model Guidance Module). We agree that the appropriate approach to measure SOC change may vary by the practice change that is occurring. Requirement 1 was written to be generally inclusive of available, high-quality experimental datasets. To support expert evaluation of whether specific datasets are appropriate for use, the Module now includes the following language: "Project developers are expected to use a process for selecting data for validating model performance and uncertainty that results in the assembly of validation datasets	Closed by Verra

		that are representative of the range of peer-reviewed observed results." The Module also specifies reporting requirements that include the process of data selection, as well as resulting dataset attributes (see Summary of Requirements box for Section 5.3.2).	
14 (2)	I also want to mention that I find certain aspects to be overly prescriptive or specific, and inconsistent with the flexibility offered by most aspects of the approach. These are: · Specifying that Datasets [for model validation] may be drawn from a benchmark database that reports dataset sources, maintained by a 3rd party and, approved by the Global Soils Partnership (or comparable). I don't think it is appropriate to specifically refer to the GSP in this context; the GSP does not approve datasets, but does collate datasets. This could imply that the GSP/ITPS datasets must be used. It is not clear what would be "comparable" to the GSP. The ISRIC soilgrids dataset is likely to be useful, as are national databases. · GSP, FAO or UNCCD would not be appropriate bodies to review or approve a validation report. · The list of journals is quite comprehensive but doesn't include journals with regional focus, which may be more appropriate vehicles for publication of validation studies. Is there a reason why "Soil Research" is excluded? I suggest that it would be adequate to require that the study is published in a peer-reviewed journal that is indexed by Scopus.	References to GSP approval have been removed from the methodology and newly added model guidance module. Section 5.2.3 of the Model Guidance Module now states, "Datasets can be drawn from a benchmark database maintained by a third party, if approved by VVB. The use of datasets from a benchmark database should include full citation of the database as well as a description of how datasets were extracted, including exclusion criteria for any records not used in the validation." The current revision clarifies that only the VVB is responsible to reviewing and approving validation reports, even those published in peer-reviewed journals. References to GSP and UNCCD have been removed entirely, and FAO is now listed only as an example of an expert organization whose reports may be used as sources for model parameters.	Closed by Verra