Soil Enrichment Protocol V2.0 Update
Workgroup Meeting Notes and Takeaways

Workgroup Meeting Date: 1/22/2025

Workgroup Members in attendance:

Name	Organization	Present (P)/Absent (A)
Lincoln Day	AgriCapture	P
Matt Campbell	Aster Global Environmental Solutions, Inc.	P
Sami Osman	ATOA Carbon	A
George Burba	Water for Food Global Institute/LI-COR Biosciences	A
Jocelyn Lavallee	Environmental Defense Fund	P
Henk Mooiweer	Grassroots Carbon Public Benefit LLC	P
Max DuBuisson	Indigo Ag	P
Ryan Pape (Alternate)	Indigo Ag	P
Jennifer Olson	Land O'Lakes Truterra	P
Jennifer Nelligan	National Association of Conservation Districts	P
Michael Nassry	Nutrien	P
Mike Gill (Alternate)	Nutrien	A
Lucia von Reusner	Regrow Ag	P
Robert Parkhurst	Sierra View Solutions	P
Jason Ackerson	Soil Health Institute	P
Negar Tafti	The Nature Conservancy	P
Brian McConkey	Viresco Solutions Inc.	P
Karen Haugen-Kozyra (Alternate)	Viresco Solutions Inc.	A

Agenda:

- **Summary of Protocol Update topics**
  - Provided summary table of the protocol sections and their discussion status.
- **Items Still Needing Feedback**
  - Items were presented that have yet to be fully discussed during workgroup meetings, however the Reserve believes these items may be best addressed through feedback in writing. The Reserve will contact workgroup members directly on these items as the next step to finalize edits related to these sections.
- **Overview of Technical Task Force Discussion Items**
  - Presented an overview of the topics and discussion items that were discussed during the 3 technical task force meetings.
- **Items for Further Discussion**
  - The topics below were reviewed further and feedback was solicited on improvements needed in the protocol.
    - Baseline Scenarios
    - SOC Removals/Reductions calculation
    - Measure/Re-measure approaches
    - PST – Negative list
    - Reporting Period & Verification Cycle

Main Points of Discussion in Meeting:

- **Summary of Protocol Update topics**
  - In the overview of status on each of the protocol sections being reviewed for this update, a question was asked on the timeline for the overall SEP update. The current goal for completion is to have a draft ready for public comment by the end of March and aim for adoption by the Board by early June. This timeline is tentative and subject to change as topics progress.
- **Technical Task Force Discussion Items**
  - **Model Calibration & Validation Process**
    - One item of discussion was around the review requirements for the Model Validation Reports (MVR) that must be provided for models to be approved for use in projects. Currently the Model Calibration & Validation Guidance document requires that an independent third-party reviewer reviews the MVR or that the MVR be published in a peer-reviewed journal. Based on discussion with the technical task force, the Reserve has determined that the peer-reviewed pathway alone will not be an acceptable pathway for approval.
    - MVRs will also need to be reviewed by two independent reviewers instead of one. Reviewers may review the MVR in parallel - that is one reviewer does not need to finish their review before the other begins. Additional details regarding this process will be provided in the updated Model Cal/Val Guidance document for review by the workgroup.
    - Concern was raised that finding an additional reviewer may be difficult, given

the lack of experts with the necessary expertise to review these reports. It was noted that to support the identification of qualified reviewers, the Reserve will consider developing a public list of qualified reviewers as well as developing a form for potential reviewers to submit to indicate their interest in being contacted as a reviewer.

- Support was voiced for requiring two reviewers, as the current review process does require assessment based on professional judgement and having additional perspectives on model assessments will strengthen consensus around these assessments. It was noted that having these reviewers conduct their assessment in parallel would be preferable as well as ensuring reviewers have access to the other's comments so that reviewers can build on comments if there are areas where there may be disagreement.
- Model Validation Reports: Clarification was provided on the different type of MVRs required by the Model Cal/Val Guidance document. There's been confusion specifically around Type 3 reports and it was clarified that these reports are not currently being used, but that the original intent was that a Type 3 report would be required for projects that were using models validated via a Type 2 report. Task force discussions had raised concern that a Type 3 report may be redundant, as it was not clear what a Type 3 report would include that was not already included in the Type 2 report. The Reserve intends to remove the Type 3 report requirement and description in the Model Cal/Val Guidance document and add additional safeguards in the Type 2 report requirements to address the concerns that were related to the intent of the Type 3 report.
- Clarification was provided on the difference between Type 1 (Project-specific) and Type 2 (Generalized) reports. Typically Type 1 reports are used to validate a model that is explicitly being used for a project and is validated specifically for that project's area. A Type 2 report is typically conducted independent of any project, and once validated can be applied to any project that has a domain that fits within the validated domain of the model.

- **Validating and Reporting Model Performance and Uncertainty**
  - A review of some of the changes to the requirements for model validation was provided, including adding a pathway for inclusion of datasets that have not yet been published in peer-reviewed literature, clarification on the process for using newer methods of SOC stock monitoring, and allowances for grouping practice categories and crop functional groups to achieve suitable geographical coverage of the model (LLRs).
  - For the use of newer methods of SOC stock monitoring, an example of where this has come up has been around the allowance of using eddy covariance flux tower data as an interim SOC metric in between periods of direct SOC measurement. For the allowance of these and other technologies, the Reserve is advising that there will need to be both peer-reviewed literature supporting the use of these measurements in model validation as well as independent expert support. The independent expert would need to evaluate the use of the newer method and confirm that model developers have accounted for any additional biases and uncertainty that are introduced by using these newer methods.
  - For the allowance of grouping practice categories and crop functional groups to achieve the required number of LRRs, one stipulation that will be added for this will relate to having a threshold to ensure that all LRRs with X% of the

project area are represented in the validation dataset.
    - It was noted that as projects change and grow, if the project area changes such that the percentages within different LRRs changes, it should be noted that an updated MVR needs to be required to ensure the current dominant LRRs are adequately represented in the model validation.
- **Permanence & Accounting for Reversals**
    - In discussion on guidance that will be included for accounting for reversals at the field level, it was noted that field-level reversals could include reversal events that only occur on a portion a field, and thus only the CRTs associated with that specific area should be accounted for.
        - The Reserve will add clarification in the protocol that makes clear that accounting for reversals at the sub-project level will be tied to the acreage of the reversal area. For example, if only a portion of a field was observed to have a reversal event, only the CRTs associated with that acreage would need to be compensated for.
- **Application of SOC Re-measurement**
    - A brief overview was provided on how the current protocol language requiring re-measurement of SOC every 5-years is insufficient for providing guidance on how the 5-year SOC measurement should be used. The Reserve is still looking for feedback on how the re-measurement data should be applied for model improvement, including what statistical tests need to be applied as well as how to ensure baseline model predictions are improved along with the project scenario re-measurement data.
- **Cumulative Accounting**
    - Overall, the technical task force supported the addition of cumulative accounting, as long as safeguards are included to ensure that model improvements were not made selectively in way that would favor project developers and instead included improvements that would have both positive and negative consequences to project credit issuances.

- **Items for Further Discussion**
    - **Baseline Scenarios**
        - One area of discussion around the baseline scenarios focused on the use of the matched vs. blended baseline approaches in cases where the main emission source being targeted was N2O or CH4 and due to crop rotations, the intervention targeting these emissions only applied for a specific crop in the rotation.
        - Per the protocol, if the crop rotation in the project remains the same as the historical baseline period, a matched baseline is used whereby the crop grown for a given project year is only compared to the same crop in the historical baseline period. If the project year crop occurs more than once in the baseline period, the matched baseline is an average of the baseline threads containing that crop. If the project crop rotation differs from the historical baseline crop rotation, then the blended baseline approach must be used, whereby each project scenario is compared to an average of all crop years in the historical baseline period.
        - Concern has been raised with the blended baseline approach, which dilutes the emission reductions of a project scenario that includes an intervention like nitrogen management, which may only be applied to one crop type in the rotation, but due to the need to use the blended baseline, that intervention is

being compared to the average emissions of all crops in the historical baseline period.

- Currently the protocol allows for a transition from a matched to a blended baseline, but once a blended baseline approach is used, project developers cannot return back to the matched baseline in later project years.
- There was a preference for improving the matched baseline to make it more practical so that a blended baseline is not needed. For example, including guidance for how to use a matched baseline when a new crop is introduced in the project field's crop rotation.
- Others raised similar concerns with the baseline approach and noted that it can cause issues for SOC accounting as well, and not just N2O or CH4 emissions. In particular, it was noted that the number of years and number of crop types being averaged together in the baseline approach can make a big difference in emission reductions – for example in a field with a historical corn-soybean rotation, if the historical baseline period (which is required to be at least 3 years and include the full crop rotation and management patterns of a given field), includes 2 corn years and 1 soybean year vs. another field with the same historical crop rotation but includes 2 soybean years and 1 corn year in the baseline period, the emissions of those two baseline scenarios is very different even though they're representing the same crop rotation and management history. It was noted that because of this, improvements should be made around requirements for including the optimal number of years in a historical baseline period to provide more flexibility.
- There was some discussion on whether these baseline scenarios related to the need for separating out emissions based on whether they were non-reversable (i.e. N2O and CH4) or reversable (i.e. SOC). It was clarified that the current accounting in the protocol requires emission sources to be calculated separately (for example N2O emissions are calculated separately from SOC) in the final quantification. Although these emissions are modeled together and their biogeochemical cycles are linked, for the purposes of the protocol, the emission reductions related to each are already quantified separately. Therefore, this discussion on baseline scenarios is not changing that separate quantification but rather deciding what an appropriate baseline comparison should be for comparing to the project scenario, given different crop rotations and interventions.

- **SOC Removals/Reductions calculation**
  - There is a desire in the market to be able to label credits as reductions or removals but through the current quantification of SOC in the SEP it is not currently possible to identify whether the SOC credits represent a removal or a reduction. This is because the models that estimate SOC are currently calibrated for the change in SOC between the baseline and the project, but not on the absolute value of those stocks. Therefore, it is unclear from the models if the change being reported represents an increase in SOC compared to the baseline (removal) or just a decrease in loss of SOC compared to the baseline (reduction).
  - Based on the task force discussions it was determined that identifying this nuance is not possible with the current models and that to identify project SOC credits as reductions or removals would require changing the current Model Calibration and Validation guidance and updating the validation to look at the absolute value of SOC predicted.

- As such, the Reserve will plan to tag credits attributed to N2O or CH4 as reductions, but credits that are calculated from SOC changes will be un-tagged.
- It was also proposed that a possible compromise for tagging SOC may be to have some sort of estimation where it could be determined at the project level that a certain percentage of SOC credits were removals vs. reductions and use that to determine which SOC credits were tagged.

- **Measure/Re-measure approaches**
  - The Reserve is considering proposals for adding a measurement-only pathway within the SEP for SOC quantification. While this option had previously been excluded from the protocol due to a perceived lack of interest based on the limitations that measurement-only approaches have, there has been increased interest in this option, particularly for practices that may have limited model validation datasets.
  - It was also proposed that a measurement-only approach be considered as an option both for projects to do only measure-remeasure and for projects that would like to do both measure-remeasure and measure-model. In the case where a project did both, this would entail a project having some project areas under the measure-model approach and other areas (separate strata) as measure-remeasure.
  - Grassroots Carbon (GRC) presented slides on their interest in a measure-remeasure approach and potential edits to the SEP to allow this. GRC will be writing up a proposal with these edits to circulate to the workgroup for written feedback.
- **PST – Negative list**
  - Currently the negative list for the performance standard test (PST) only includes practices that are targeting SOC accrual but given that other practices targeting N2O and CH4 are valid practice changes under the SEP, the negative list should be expanded to include other common practice activities that may occur in SEP projects.
  - A question was raised about whether the negative list was being re-considered as a positive list instead. It was clarified that there's a need to improve the negative list to ensure that it encompasses all practices for which there's data to suggest certain practices may be more common in certain counties. But that creating a positive list would be impractical for the purposes of the SEP.
  - A comment was made that for some practices the data may not exist in federal or state-wide datasets, but at the county-level the data does exist and can be used by projects. While currently the SEP doesn't require projects to source this data on their own, there could be additions to the protocol for cases where a practice is not included on the negative list, a step-wise process would need to be follow where the project could be required to collect extra data to identify adoption rates for their area.
- **Reporting Period & Verification Cycle**
  - Currently the verification timeline for fields within projects is vague, given that a project may verify up to 5 reporting periods at a time, and each individual field may include up to 5 reporting periods. There are concerns that if a field's initial verification does not occur until after 5 RPs, that this could question the additionality of the field.
  - It has been proposed that field deadlines be shortened to address this

concern and ensure fields are included in projects in a reasonable timeframe. Currently for other nature-based protocols at the Reserve there is a 30-month deadline from a field's start date for being included in verification.

- Members expressed support for the current timeline given that there are many reasons a field may need extra time to be brought into verification, such as challenges with data collection or model limitations that are later resolved in future verifications.
- A suggestion was made that deadlines should be tied to reporting periods given that every field has a different start date and using a fixed deadline like 30-months may create more confusion.
- Reporting period dates and deadlines was also mentioned as an administrative area that needs to be clarified so that similar processes are being followed by all projects. It was suggested that the Reserve could provide examples of dates to illustrate the challenge. The Reserve can put together a supporting document, as well as a picture timeline to visually show the different RP dates and deadlines that occur in a project.
- It was also noted that data collection with different growers over different cropping systems and geographies makes sticking to deadlines difficult, so projects also need to be stricter with their own internal deadlines to ensure they are getting their data into verification in time.

Action Items for the Reserve:

- Send red-line edits by section to the workgroup for feedback.
- Measure-remeasure approach draft will be sent to workgroup as well for feedback.
- Review protocol feedback and edits to determine if an additional workgroup meeting will be needed, otherwise future discussions on protocol edits will be done in writing over email.