

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

Workgroup Meeting Date: 11/7/2024

Workgroup Members in attendance:

Name	Organization	Present (P)/Absent (A)
Margaret Kosmala	CIBO	P
Jocelyn Lavallee	Environmental Defense Fund (EDF)	P
Emily Oldfield (alternate)	Environmental Defense Fund (EDF)	P
Jay Weeks	Grassroots Carbon LLC	P
Ben Chen	HabiTerre	A
Missy Motew	Indigo Ag	P
Charlie Brummitt (alternate)	Indigo Ag	P
Kevin Tu	Kateri	A
Kevin Silverman (alternate)	Kateri	P
David Schurman	Perennial	P
Beth Ziniti	Regrow Ag	P
Jason Ackerson	Soil Health Institute (SHI)	P
Negar Tafti	The Nature Conservancy (TNC)	P
Brian McConkey	Viresco Solutions	P

Agenda:

- **Application of SOC re-measurement (SEP Section 5)**
 - o **Current “True-up” language and SOC re-measurement**
 - o **Proposed alternatives to current “true-up” language**
- **Cumulative Accounting – Brief overview/introduction**
- **Section 6.5 – Soil Sampling and Testing Guidance**
 - o **Minimum standards for sampling soil organic carbon (Table 6.2)**
 - o **Minimum standards for laboratory analysis (Table 6.3)**

Note on slides:

- Discussion on Section 5 – Soil Sampling and Testing Guidance was cut short due to time constraints for the allotted meeting time, so presentation slides were only discussed up until slide 24 (slide 22 was also omitted from this discussion).

Main Points of Discussion in Meeting:

- **Application of SOC Re-measurement**
 - o Overview provided of the current language in the SEP related to the 5-year SOC re-measurement requirement and how this “true-up” language is not currently operational given the modeling requirements for SOC. See slides for the language that needs to be addressed in the protocol.
 - o Presented Indigo Ag’s proposed alternative to current language, which would replace “true-up” language with a model forecast evaluation approach. This would require re-measurement data to be used to conduct a check on the model’s performance by evaluating SOC temporal flux as an indicator of the model’s accuracy in overall emission reductions.
 - o “Model forecast evaluation” title comes from the approach used by weather models, where forecasters report on their model’s accuracy (for example, how well their models did at predicting 10-day weather forecasts). This approach would also bring public visibility, in the same way as the model cal/val reports, into the performance of a model compared with re-measurements taken on fields.
 - o This proposal would require PDs to publish their model forecasts starting in year 7 of the project, and then every 5 years after that. Soil samples would be re-sampled every 5 years, but pushing the model forecast to year 7 initially would give PDs sufficient time to re-calibrate their model if the model forecast showed this was needed and update the model cal/val report.
 - Questions were raised related to the timing requirement for when the re-calibration from the model needs to be applied to future RPs following the re-sampling in year 5. For example, if the model forecast evaluation isn’t required until year 7 (at the latest), would the fields in year 6 be able to receive credits using the previous model version before re-calibration with year 5 data? Further language is needed to align timelines for applying the model forecast evaluation with verification and reporting period timelines.
 - o This would also entail a new Equation 6.1 to capture the calculation that would be applied to determine if there is a significant difference between predicted versus observed values. See slides for more specifics.
 - A clarification was made that this equation was meant to give projects the option of using either the residual in stocks OR the residual in stock

- change based on how projects approached uncertainty and quantification – for example, some projects use models validated for SOC stocks, whereas other are validated on SOC stock change.
- Clarification was made that the model forecast evaluation being proposed here is more a reporting requirement that would be added to the protocol, and not a requirement to how quantification may be changed with re-sampled soil data.
 - A point was also raised that the uncertainty is determined based on the SOC stock change, not absolute stocks, so gauging whether model outputs have been conservative or not will still be challenging because the re-sampling is still not going to be informative for assessing baseline assessments.
 - To address this point, it was raised that updates could be made to the methodology to require projects to also assess the certainty of temporal change, which then would allow for re-measurement data to be used to test conservativeness of the predictions.
 - There was concern raised about treating samples as independent point samples and whether this is not accounting for some uncertainty.
 - This could be added to the details of the proposal – specifically in the section related to the statistical test that is done on the assessment, details on what this statistical test entails still need to be worked out.
 - One challenge raised was also that currently control plot data is already very limited, so as project data is coming in and soil samples from project activities are being added to calibration datasets, this could skew the dataset and result in the model calibration being biased toward project activities and increase uncertainty of baseline scenarios.
 - It was acknowledged that this may be unavoidable, but that projects should then account for that in tests on model performance and how failure of models is defined.
 - Another point is that project activities are conducted on a spectrum, so some fields' project activities are very similar to other fields' baselines, which means the project dataset may capture more of the range of baseline and project conditions.
 - This could also be addressed by adding more requirements to the statistical tests being done on model performance and require different tests that look at model performance of the baseline that may be a work around in absence of control plot data.
- **Cumulative Accounting**
- The general concept of cumulative accounting was presented with examples for how it may be applied in SEP projects in comparison with the approach that is currently being applied.
 - Questions presented to the workgroup focused on whether cumulative accounting should be added to the protocol as a first step in the update, with details on how it may be applied to be worked out in the future if it is decided that it should be used.
 - Support was voiced for adopting cumulative accounting, with the main benefit being that it would allow for uncertainty to be accounted for over a larger time frame. Given that certainty is more likely to increase when SOC impacts are accounted for over a longer period, cumulative accounting would allow for more accurate accounting of the uncertainty.
 - Clarification was made that the outcome variable being looked at in cumulative accounting would be the project SOC stock at the end of the total period of

interest minus baseline SOC stock at the end of that same period. Currently in the SEP, the outcome variable is the change in project scenario during just the latest reporting period minus the baseline scenario change during that same reporting period.

- A question was raised whether this approach would be affected by whether the change that's being estimated is linear or non-linear over the whole time period of the project. It was thought that this would not matter to how cumulative accounting is estimating SOC, in that the outcome variable of interest is only the cumulative impact of the change in SOC.
- Impacts on reversals – it was clarified that cumulative accounting is only being proposed as an addition to how new credits are generated under the SEP. However, the concept of cumulative accounting could be applied to other areas, such as the leakage deduction and reversal calculations.
- Cumulative accounting would also be applied to other emission sources, not just SOC, and default equations for N₂O and CH₄ if those had been applied. For example, if there's new data that suggests the default equations need to be updated, such as from a new IPCC report, that would also be accounted for.
- Support was also voiced for cumulative accounting from the perspective that it also incentivizes model developers to continually improve their models.
 - However, with that, it was noted that the language around applying cumulative accounting needs to be very clear to ensure guardrails are in place to prevent gaming of these model improvements, either through selective model improvement that may ignore negative consequences to projects from improved models or backwards cumulative accounting.

- **Soil Sampling and Testing Guidance**

- The discussion on soil sampling guidance was cut short due to time constraints, but the main topics covered included the current guidance in the protocol on minimum requirements for soil sampling and analysis, including guidance on stratification and selection of re-measurement points.
- For stratification, support was voiced for keeping the stratification guidance non-prescriptive, with points raised that the list provided in Table 6.2 should just be a suggestion. Particularly since stratification uncertainty is accounted for in the overall uncertainty deduction, if a project creates a stratification that doesn't adequately cover the variability in their project locations, their uncertainty deduction is going to be a lot higher.
 - Another point raised was that some of the variables in the list are at different spatial scales, and if a set of criteria are required then projects would be forced into that specific spatial scale which may not be appropriate for their project. For example, precipitation may not be an appropriate variable to stratify on if a project is only in a few counties.
 - A suggestion was made that it may be more appropriate to say that sampling design and stratification should reflect the range in land use and management and the range and variability in soils across the project area. Projects must be able to demonstrate that the stratification will reliably sample spatial variation in soil carbon levels across the project area.
- For reporting on stratification, it was recommended that the random sample units chosen for assigning sample points should be reported to the verification body to ensure that the randomization was done appropriately. It was also recommended that the labs being used for sampling be included in reporting so that there's a record of which labs are being used.

- It was also noted that verification bodies might not understand the purpose or principles of stratification, and that it might be helpful to have more guidance for VBs so that they know what they're looking for.
- One area that was noted as missing in the SEP was around guidance for choosing which points to re-visit during the 5-year re-sampling, specifically noting that the current guidance in the SEP is directed at sampling design related to one point in time. However, what's needed is more guidance on monitoring over time and how projects should be conducting their temporal sampling designs.
- The current guidance also stipulates that remeasured sample points may comprise no more than 50% of the total number of sample plots. This requirement originally was intended to prevent gaming of re-sampled points, where it was thought that if the sample areas were able to be re-visited, then those areas may receive preferential treatment in application of a project activity to increase SOC in those sample areas at a higher rate than the larger project area. This guidance however goes against re-sampling needs for SOC modelling, where repeat data from the same areas is more informative for improving the modelling than adding in new random locations that don't have a corresponding measurement from 5 years prior. As such workgroup members voiced support for dropping this restriction.
- Further guidance is also needed on how many sample points need to be re-sampled, and how those are chosen. There was discussion that the SEP does not currently incentivize re-sampling more points, unlike in the initial sampling which is tied to the uncertainty deduction, the re-sampling data is not included in the uncertainty deduction. While the uncertainty deduction would get updated under cumulative accounting and if the re-sampled data showed the model needed to re-calibrated, but this may not directly incentivize projects to take more re-sampled data.
- The issue of spatial dependence of samples was also raised – specifically that there could be concern that samples within a stratum are close together in a way that would make them highly spatially correlated. This would provide an underestimate of the actual variability of the area from the sampling. A recommendation was made to add a requirement that samples cover the stratum spatially and prohibit stacking samples in one small area of the stratum.
- Sample timing was seen as less of an issue due to the same variability from sample timing being present in the calibration data as well, so project sample timing wouldn't be introducing any new variability.

Action Items for the Reserve:

- Review proposals for model forecast evaluation and cumulative accounting.
- Draft language for workgroup review based on proposals. Follow up with workgroup with additional questions and details that are needed if proposals are adopted.
- Compile feedback from taskforce members and provide to main workgroup for review.
- Follow-up with taskforce members on soil sampling and testing guidance topics that were not reviewed during meeting due to time constraints.
- Start redlining of Model Validation/Calibration Guidance Document and Protocol for distribution to the workgroup