Comments on ARB Compliance Offset Protocols and Rice Cultivation Informal Discussion Draft
Date: June 26, 2014

Contents

Livestock Project Compliance Offset Protocol

Chapter 1.2 (a)(3)

- Current phrasing implies that an anaerobic digester is the "animal excreta" instead of a "containment vessel or covered lagoon," suggest revising for clarity.

Chapter 1.2 (a)(18)

- Not sure if the "hardened cover" and "rigid enclosure" language adequately captures digesters with flexible double membrane covers. Is this intentional?

Chapter 1.2 (a)(22)

- For clarification, consider specifying a threshold level of liquid (or solid) for the classification to remove ambiguity. Climate Action Reserve LSPP v4.0 adopted threshold of <20% dry matter to be considered liquid, per IPCC Guidelines.

Chapter 3.4.1 (b)

- The language here is focused only on legal requirements for "destruction of methane." However, there is the additional, and crucial, consideration of whether there is a legally-binding mandate that would result in methane *avoidance*, rendering the baseline scenario invalid. For example, if a greenfield project were located in an area where new lagoons are prohibited, the methane avoidance would be legally mandated, but not the destruction. There may be other regulations related to manure handling which would result in a baseline scenario that does not allow for an uncontrolled, anaerobic lagoon. Recommend revising to specify "destruction or avoidance of methane in the baseline scenario."

Chapter 3.4.2 (c)

- This says that the baseline scenario for greenfields will be "determined by ARB." How will this occur? Is this a project-by-project determination, or will ARB be producing state-level determinations of greenfield project eligibility?

Chapter 3.5 (b)

- This language is vague and leaves the determination of a project commencement date, which is directly related to additionality, subject to interpretation and potentially gaming by the OPO to most favorably position the crediting period. We recommend tightening the commencement date definition and setting an upper limit on the length of the initial startup period. The CAR LSPP v4.0 defines a commencement date ("start date") relative to the loading of manure in the digester, and limits the initial startup period to 6 months from that date.

Chapter 3.6

- (a) In this sentence the crediting period is defined relative to "the date that the first GHG emission reductions…took place." This ties the crediting period to project activities, not reporting activities. However, the reporting period, as defined in the Regulation, is tied to reporting activities (i.e. the initial reporting period does not have to begin on the project commencement date). The crediting period is also defined as "ten reporting periods." Recommend revising this section to make clear the conceptual boundaries of reporting periods and crediting periods. Recommend tying the definition of the crediting period to the commencement date, rather than the initial reporting period.
- (c) What if the manure is redirected from an offset project that is not listed with ARB and follows a program or protocol with different crediting period policies? In addition, does this "existing project" need to have been verified prior to delivery of the manure to the current project?

Chapter 4 (a)

- (1) Land application is an excluded source, yet since it is combined within SSR 7, it is included within the GHG Assessment Boundary. Suggest splitting SSR 7 and placing Land Application outside of the boundary.
- (2) and (3) The designation of applicability through shading appears to be reversed from the description provided. However, this shading is also inconsistent with the ARB ODS protocol. For that protocol (as well as the Early Action protocols) an unshaded box applies only to the baseline scenario, lightly shaded boxes apply to baseline and project, and darkly shaded boxes apply only to the project scenario.

Chapter 5.1

- (a) Recommend changing all instances (here and elsewhere) of "project baseline emissions" to "baseline emissions." It is nonstandard and potentially confusing terminology, and is inconsistent with the term "project emissions," which would be "project project emissions" if written in the same format. For ease of reading and understanding, perhaps the term "baseline" could be defined in the protocol as shorthand for the term "project baseline" as defined in the regulation.
- Equation 5.2 – Recommend removing the definition of L (livestock category) since this term no longer appears in the equation.
- (g) In the first sentence, the last use of the term "reporting period" appears to be a typo, and should be changed to "reporting month."

- (h) It is contradictory to say that this value "must be taken from site specific data" and then to offer an alternative, default option. Recommend changing to read "if available, site-specific data must be used."

Chapter 5.2

- (e) The requirement that site-specific DE values "must be equally or more accurate than the default destruction efficiencies" is problematic. Unless ARB publishes information regarding the accuracy of these values, users have no way of knowing the accuracy threshold applicable to their destruction device category.
- (i) This requirement is redundant with (d).
- (k) How are users to quantify the amount of methane released prior to "the time of discovery?" Or is this quantity to be excluded from the calculation?
- (t) Recommend clarifying that site-specific data must be used "if available."
- Equation 5.8 – Scenario in which solids are separated from digester effluent and sent to a different storage system is not explicitly addressed in this equation. Recommend expansion to include the calculation of a weighted average MCF based on MS of effluent sent to the pond and MS of effluent sent to other storage or treatment systems.

Chapter 5.4

- (e) Recommend removal of this item entirely. This policy would effectively allow credit for a portion of the project's electricity generation, which could result in double-counting where such generation is also credited on a gross basis by other programs outside of the ARB offsets program.

Chapter 6.1

- (b)(1) and (2) The diagram from the previous COP was removed, so it is unclear whether a header flow meter is required *and* all destruction devices must have an associated flow meter installed, with the exception of multiple identical destruction devices. Is it no longer possible to sum the flow recorded by every destruction device flow meter in order to determine the total flow required in 6.1(b)(1)? If this was not intended, please clarify that the requirement in (1) can be met by compliance with the requirement in (2).
- (b)(2) This section appears to end mid-sentence.
- (d) Recommend deleting the final sentence of the first paragraph: "No registry offset credits or ARB offset credits will be issued for any time period during which the destruction device is not operational." Time periods for which the device is inoperable (or not monitored) are already covered by the policy in 6.1(e).

Chapter 6.2

- (a) Request additional guidance be added to explain how this section applies to meters which are used temporarily or replaced during the reporting period.
- (b) Recommend against assigning a 0% BDE to devices whose biogas measurement equipment which has missed a calibration deadline. This penalty is neither technically nor conceptually related to the offense, and can cause additional complications with the quantification methodology.
- (d) Recommend explicitly stating that portable instruments must be calibrated "per manufacturer's specifications or once per year, whichever is more frequent". Changing "reporting period" to "year" would avoid situations in which a portable analyzer is calibrated once during an initial reporting period of 24 months.

Table A.3

- Request additional guidance be added to explain how this table is to be applied for projects which have multiple digester stages which employ different technologies. Recommend the approach provided in CAR LSPP v4.0, Table B.4.

Table A.4

- Recommend updating with most recent data (2012 values provided in 2014 U.S. GHG Inventory). Also recommend providing the tables for previous years going back to the earliest eligible start date under the Regulation and including guidance that the user should match the VS value with the reporting year. This would result in increased accuracy.

Table A.5

- Recommend providing additional guidance regarding the definition of a "natural crust cover" as this can have a significant impact on the quantification of project emissions.

Table A.8

- Recommend updating to the eGRID 2010 electricity emission factors.

Appendix B

- (a)(2)(A) This requirement should be removed. Data substitution should still be employed when the destruction device is not operational (or not monitored), but a 0% BDE should be applied.
- (c) Recommend removing this requirement for the reason stated above.
- For projects that use a continuous methane analyzer, recommend including a methodology to allow the substitution of methane concentration data for periods up to 3 months in length. This would align with the quarterly measurement requirement in section 6.1(b)(3).

Ozone Depleting Substances Project Compliance Offset Protocol

Chapter 1.2(a)

- (7) Destruction facility definition should be inclusive of approved RCRA-permitted hazardous waste combustion facilities (as indicated in Chapter 2.1(a)(1))

Chapter 2.2

- Somewhere in this subchapter, possibly subchapter 2.2.1, it is important to clarify that a single container cannot contain both refrigerant and foam ODS. The quantification methodology is such that it is necessary to know the exact weight of refrigerant ODS and the exact weight of foam ODS, which is only possible if they are kept in separate containers when weighed at the destruction facility.
- (i) Please clarify what this requirement means. Is it meant to reinforce that the scope of regulatory compliance extends to collection, handling, extraction and destruction or is it meant to signal something else?
- (j) At what point (in time and location) does this requirement start – at the project point of origin forward? Please clarify.

Chapter 2.2.1(d) and 3.4.2 (b)

- ARB should re-consider its decision to make ODS sourced from federal government installations or stockpiles ineligible. Under Version 1.0 of the Climate Action Reserve ODS Protocol, ODS sourced from federal government installations or stockpiles was also deemed ineligible. One reason for this decision was because some ODS sourced from the federal government was already being destroyed and it was suggested that this destruction was undertaken voluntarily as part of its existing commitment to responsible waste disposal. Since the issuance of Version 1.0, the Reserve has learned that the only ODS destroyed by the federal government is through a small number of demonstration projects and is not required by any responsible waste disposal policies. While there is an executive order[1] that sets forth the following policy on ODS management, it does not mandate destruction:

  "Each agency shall amend its personal property management policies and procedures to preclude the disposal of ODSs removed or reclaimed from its facilities or equipment, including disposal as part of a contract, trade, or donation, without prior coordination with the Department of Defense (DoD)."

  The DoD operates an ODS Reserve to ensure adequate supplies of halons and refrigerants for weapons use. Communications with the staff at the DoD ODS Reserve have confirmed that there is no mandate or policy in place requiring or recommending the federal government destroy ODS. In fact, if there is excess refrigerant available from federal installations beyond the inventory needs of the DoD ODS Reserve, the refrigerant is turned over to the U.S. Defense Logistics Agency Disposition Services for resale to the public.

  It is important to note that the federal government also comes to possess refrigerants through seizures of illegal material by U.S. Customs. This seized material would not be available through the U.S. Defense Logistics Agency Disposition Services, but rather through separate auctions conducted by U.S. Customs. ODS sourced from illegal seizures is not eligible under this protocol because it was not produced in the United States.

Chapter 3.4.1 (b)

- The language here limits the legal requirement test to destruction "at the point of origin or the destruction site." This implies that if the material was legally required to be destroyed somewhere else, or there was no location specified, it may not actually fail the legal requirement test. Suggest removing the phrase "at the point of origin or the destruction site" from both (1) and (2) to ensure that the legal requirement test applies regardless of location.

Chapter 3.8 (b)

- Should clarify that regulatory compliance of collection, recovery, storage also apply from point of origin like transportation, per 6.1(b). Otherwise, there is no boundary to the scope of regulatory compliance
- Changes to this section, as well as other areas of the protocol, have clarified that the project must document regulatory compliance for all activities back to the point of origin. The Reserve

[1] Executive Order 13423 - "Strengthening Federal Environmental, Energy, and Transportation Management", March 29, 2007.

believes this application is overly broad, resulting in documentation requirements that apply to activities which are unrelated to the carbon project and out of the control of the OPO. In many cases, refrigerant collection activities are carried out as routine maintenance, and the material may not become affiliated with a carbon project until it is purchased by the OPO. There continues to be an active secondary market for reclaimed refrigerant whose activities should be viewed as independent of those of the carbon market.

We suggest clearly defining project activities as being those directly related to the destruction of eligible ODS, and limiting the boundary of regulatory compliance to these activities. An overly broad application of this requirement could result in reducing the number of feasible projects in cases where the OPO cannot fulfill the documentation requirements. It is worth noting that these collection activities are already regulated and enforced by the U.S. EPA.

Figure 4.1 and Table 4.1

- Should add ODS mixing as an excluded SSR outside of project boundary, applicable to the project scenario.

Figures 4.2, 4.3 and Tables 4.2, 4.3

- Should add transportation to destruction facility as an included SSR inside project boundary, as it is accounted for in the project emissions of appliance and building foam projects (per Chapter 5.2).

Chapter 5

- Recommend changing all instances of the term "project baseline emissions" to "baseline emissions." It is nonstandard and somewhat confusing terminology, and is inconsistent with the use of the term "project emissions," which would be "project project emissions" if presented in the same format. For ease of reading and understanding, perhaps the term "baseline" could be defined in the protocol as shorthand for the term "project baseline" as defined in the regulation.

Chapter 5.1

- (d) and Chapter 5.2 (d) How are project developers supposed to quantify and exclude moisture content? There is requirement in Appendix D(c)(3) that moisture content must be less than 75% of the saturation point, but do they actually calculate a value of moisture to subtract from Qrefr,i? The Reserve's guidance on this issue under its ODS Protocol is:

  "While water is also considered ineligible material, the moisture content requirement in the protocol (i.e. that the moisture content must be less than 75% of the saturation point for the ODS) already ensures that the weight of any moisture present will not have a material impact on the quantification of emission reductions. Thus the weight does not need to be adjusted to reflect the weight of moisture present in the sample."[2]

- (d) Suggest that this definition should focus on what is *included* (i.e. "pure, eligible ODS") rather than what is *excluded* (i.e. "mass of HBR, moisture, and ineligible ODS"), in case it is determined in the future that this list of exclusions is not comprehensive.
- Equations 5.3 and 5.4: Recommend including a deduction for vapor composition risk. This risk is real and can result in an offset material misstatement.

[2] Errata and Clarifications to U.S. ODS Project Protocol Version 2.0 (April 11, 2013)

The Climate Action Reserve ODS Project Protocol v2.0 Section 5.3 describes the nature of the risk and presents two tables and an equation for determining if a discount must be applied and, if so, the value of the discount. The discount is applied to the calculation of baseline emissions (Equation 5.3 and/or Equation 5.4, depending on the nature of the project).

- (i) What is random dumping? Should this be landfilling?

Chapter 5.2 (l)

- Refer to it either as "water" or "moisture" throughout the protocol for consistency.

Chapter 5.3 (c)

- Suggest clarifying the applicability of this section. Presumably this subtraction should occur for the quantification of baseline emissions, as well as project emissions from substitute refrigerants, but not for project emissions from transportation and destruction.

Chapter 6.1

- (c) This section should specify that this documentation should be "generated at the time of collection from the point of origin."
- (f) I think there is a misunderstanding of the use of the term "concentrated" as it applies to refrigerant ODS. Recommend ARB remove all instances of the term "concentrated" unless it is in the context of foam blowing agent. As used in the Climate Action Reserve protocol, "concentrated" is used to mean "non-mixed" in the context of refrigerants. Recommend using only the term "non-mixed" in the ARB protocol.

Chapter 6.2

- (b)(1) Recommend changing "the stockpile" to "the location of the stockpile." The stockpile itself is not a location.
- (b)(3) Should specify point of origin is where 500 pounds of "project" ODS defines the point of origin. Some ODS bound for a project may be at a site where more than 500 pounds of ODS is aggregated, but not all is project ODS.
- (b)(4) Recommend changing "removed" to "removed from service" to enhance clarity.
- (d) "over 500 pound <u>of</u> ODS" ("of" is missing)

Chapter 6.3

- "Calibrated" or "checked for calibration?" Does the scale need to be calibrated even if it is measuring within the required threshold?
- This would be an appropriate place to discuss the accuracy threshold for scale calibration, which is currently only located in the appendix, included in the procedures for ODS composition analysis.

Chapter 6.6

- (b)(1) The second instance of the word "foam" in this sentence appears to be a typo (most likely should be "form").
- (d) See comment on Chapter 6.1 (f) and consider revising the wording to make sure this is applicable to both mixed and non-mixed projects.

Chapter 7.1 (b)(14)

- "~~Initial~~ reporting period" (there is only one reporting period per project per 3.6(a)).

Chapter 8 (e)

- Recommend requiring a site visit to the mixing facility, if applicable (and different from the destruction facility).

Table B.3

- The density column on this table may be problematic as there is no indication of the phase (liquid or gas) or the temperature. At a certain temperature and pressure, which will be different for each ODS species, there will be a phase change from liquid to gas, resulting in a radically different value for the density. If the intent is to assume liquid phase for all ODS, it would help to clarify.

Table B.6

- Suggest changing to most recent 2010 eGRID emission factors.

Appendix C

- The first sentence of Appendix C seems to contradict the language in Chapter 2.2(a) regarding whether building foam must be destroyed intact, or whether it may be extracted and concentrated.
- (a) and Appendix D(a)(2) Recommend adopting Climate Action Reserve ODS V2.0 language on scale calibration (set the accuracy threshold for each scale to the maintenance tolerance listed in the NIST Handbook 44 for the relevant accuracy class). A simple 5% threshold allows for very large errors, and is inconsistent with best practices for calibration accuracy of commercial truck scales.
- (b)(3) The last sentence of the first paragraph contains a typo: “Scheurtz” should be “Scheutz.”

Appendix D

- See comment in 6.1 (f) related to the term “concentrated.”
- (a) For some facilities it may not be feasible for the contents of the container to be “fully purged” during the destruction process. Recommend simplifying this to “after destruction is complete.”
- (c) “ARI” should be “AHRI.”
- (f)(1) Clarify that required sampling *for this section only* may be conducted at destruction facility or prior to delivery.
- (f)(6)(D) Recommend additional flexibility for circulation rate contained in CAR ODS V2.0 (minimum rate of 30 gpm *or* a minimum of 8 hours of circulation).

Rice Cultivation Project Informal Discussion Draft

Chapter 3.1(a)(6)

- (A) Lab testing of soil samples should always be available – however may be cost prohibitive. In the Reserve protocol we specified that field testing be an option if data from SSURGO and then STATSGO databases were not available.

- This subsection (6) is a little circular in that field testing is mandated where possible, but then given as an option in the event that the specified databases do not yield sufficient data. It might be that this section is intended to say that where parties have already sampled their soil, then they must use such samples. If they have not, then they must first look to use data from the specified databases. Where data from those are unavailable, parties can either use published data (from specieid sources) or field samples should be used.

Chapter 3.10

- It is not immediately clear whether ratooning is allowed, but associated emissions are not to be quantified and any associated emission reductions will not be credited – this could perhaps be made a little more clear;
- Per 3.7 (c) the planting and harvesting of a winter crop is not considered as an individual reporting year, but instead is to be included in the reporting period of the following crop, however this is not clearly instructive as to whether any associated emissions needs to be accounted for. This is perhaps particularly important as CH4 emissions are purportedly higher for ratooning rice crops.

Chapter 5.2(c)

- (2) When inputting climate data into the DNDC model, a different format for inputting data is used that includes fewer parameters. It is unclear why this is the case, as the Reserve was directed to use the alternative format by someone expert in using DNDC to model rice emissions.
- (3) & (5) The Reserve was advised that it would not be necessary to collect and input into DNDC actual project data for all of these farming management practices, in order to accurately model rice emissions.

Chapter 5.2.2.1(n)

- This section directs that the baseline scenario must be the same as the current reporting period scenario for rotation and winter crops and fallow years, which appears to suggest that emissions are effectively cancelled out for such practices, however a little more explicit direction would be useful.

Chapter 5.2.3(b)

- This section directs that when equilibrating the DNDC model for subsequent crediting periods at least 20 years of historical data, as well as data from all preceding years must be used. The Reserve was operating with the understanding that DNDC required 20 years of data for this equilibration, and is not certain that a larger amount of data can be used for this purpose. If the model does allow for more than 20 years of data to be used, then this method would be quite suitable.

Equation 5.10

- The Reserve's rice protocol does not use an equation to separately quantify project emissions from rice straw burning, instead relying on the DNDC model to capture any changes in CH4 emissions associated with such practice change, via changes in the crop residue management input data. The Reserve has also chosen to exclude associated CO2 emissions, as it was deemed by the Reserve's work group that such emissions are not expected to rise significantly due to project activities. Specifically, unless significant amounts of rice straw carbon would be permanently sequestered and stored in the baseline case, then project case CO_2 emissions from

rice straw burning should be no greater than long-term baseline CO_2 emissions from rice straw decomposition and oxidation. (Even where some rice straw carbon is emitted in the form of CH_4, this will ultimately oxidize to produce a similar quantity of CO_2 in the atmosphere. For this same reason, project CO_2 emissions from combustion of livestock methane are not quantified in the Livestock Projects protocol.)

Table 6.1

- A footnote to this table directs that soil parameters must be 'recorded again' if certain events were to occur, including 'soil movement'. This term in particular may benefit from some further definition, as it would seem to potentially capture any type of wind/water erosion of soil, which could be occurring relatively frequently. There is no indication as to when any such changes would become significant enough to warrant recording of soil parameters again. There is also no guidance as to how to reconcile any rerecorded data with previously recorded data. Lastly, it is not clear how this requirement would apply if parties were using SSURGO or STATSGO data or data from another eligible published source. For instance, it is unclear whether parties would be required to demonstrate that the published data they have used (from a database or report) was not followed by such an event of 'soil movement', and how they would do so.

Chapter 6.2

- (b)(1)(E) Presumably this requirement would only apply to equipment used in relation to project activities – otherwise this could be unduly burdensome and perhaps deal with sensitive information that stakeholders may be unwilling to share.
- (b)(3) Could perhaps make it a little clearer that this requirement only applies where a project field is leased, and not when owned by the farmer.

Chapter 6.2.4

- The nature of the 'proof' that is called for in this section is a little unclear. Perhaps there are programs which officially record when fallow years occur? This requirement may be a little too restrictive, for instance potentially excluding fields where the farmer has not used any such service or engaged any such party to officially record their use of fallow crops. This section could perhaps include a cover all that farmers could use in instances where they do not have any of the other suggested means to prove their fallow crop (perhaps with a note that this option may be more resource intensive to verify). Aside from the means employed to prove such practices, it is unclear why such proof is necessary. Is there some sort of perceived benefit from asserting that a fallow year occurs? It is unclear what the consequences of not being able to prove that a fallow crop was planted. Any such consequences could perhaps be made more explicit. Similarly, for the data that is to be collected under this section, it is unclear how such data would be used.

Chapter 8.1(b)

- It is a little unclear as to whether deferred 2 or 3 year verifications can be used for fallow crop years. It is unclear whether the reference to a reporting period with no emission reductions as a result of employing eligible project activities, is a reference to winter/rotation crops and fallow crops or not. Elsewhere in the protocol references to 'eligible activities' are confined to those activities set out in Chapter 2, however it is not clear whether such activities could be implemented and not result in some emission reductions (however modest).

Chapter 8.2

- It should be made explicit that fields are to be selected by those performing verification services, rather than OPO's/APDs etc. For the first requirement, could perhaps include a measure whereby if a verifier includes a field for sampling due to exigent circumstances, then any such fields must be included over and above this minimum requirement.

Appendix A

- It may be prohibitive to require some of this data for each of the five years of the baseline, as it simply might not be available. Such data might not be necessary to accurately quantify emission reductions, if data for some of these parameters remains static between baseline and project cultivation cycles. See the comment in relation to Sections 5.2.(C)3 & 5.

U.S. Forest Project Compliance Offset Protocol

General

- Suggest incorporating released FAQs into text of the updated protocol, or updating FAQs where necessary to reflect changes to protocol
- There are references to a "Section 0" throughout the document (e.g. 2.1.2, 2.1.3, 3.5) which does not exist

Chapters 2.1.1, 2.1.2, and 2.1.3

- Each project definition includes a provision stating that an offset project in a voluntary offset program is eligible if it has met all legal and contractual requirements allowing it to terminate the project on the voluntary program. This may be read as contradictory to the guidance provided in the Forestry FAQs released in October 2013 (Section 3.4, page 7). We suggest re-issuing the FAQs to eliminate any possibility of confusion.

Chapter 3.1.2.3

- Suggest clarifying that 40% slope should be calculated as an average slope across the entire project area

Chapter 3.2

- The change to the language of viable commencement dates suggests that the commencement date for an IFM project is now restricted to only the three actions listed, which is not consistent with how this section has been previously interpreted. It might be helpful to clarify whether it is intended that the three activities are the only three activities which can denote a commencement date or whether they are examples of a larger set of activities.

Chapter 3.6

- The Reserve's own review of available data – including U.S. Forest Service FIA data – concluded that sufficient region-specific data are available for certain areas along the Pacific coast of Alaska to allow for projects in this region. See, for example, the Assessment Area Data Files posted here: http://www.climateactionreserve.org/how/protocols/forest/assessment-area-data/. We believe ARB would be justified in making projects eligible in regions of Alaska where assessment area data are available.

Chapter 3.8.1

- The Reserve has limited the scope for the sustainable harvesting requirement to forest landholdings controlled by the Project Operator and its affiliates within the same Assessment Area(s) as the Project Area. This requirement is intended to address the problem of activity shifting leakage, which we do not believe should apply to landholdings throughout the lower 48 United States, as any Project Operator's decision to harvest timber on parcels outside of the carbon project (and outside of the project's assessment area) should be independent of the carbon project itself.
- The language in this section states that the sustainable harvesting practices requirements must be met at the time that commercial harvesting is "either planned or initiated". As "planned" is particularly unclear, we suggest removing "planned" and clarifying the language. As an example, the Reserve has submitted Errata and Clarifications to ARB which were approved for publication, including a Clarification on this requirement. In it, we state "The requirement for meeting one of the Sustainable Harvesting Practices options is to be assessed at the time that a harvest plan is submitted to a state or federal agency or when commercial harvesting is initiated."

Chapter 4

- The protocol reads "…that resulted in the release of at least 20 percent of the project's above ground standing live tree biomass being emitted." This sentence is unclear, as biomass cannot be released or emitted. We suggest revising to make the statement consistent with the reforestation project definition in Section 2.1.1: "…that has been subject to a Significant Disturbance that resulted in the removal of at least 20 percent of the project's above ground standing live tree biomass."
- We recommend clarifying in this section that after the second site visit verification, the Project Area boundaries are set for the duration of the entire project lifetime.

Chapter 6.2.1

- The removal of the evaluation against WCS in Equation 6.5 (the case where Initial Carbon Stocks are above Common Practice) opens the door for selection bias of a project area. We recommend revising the equation to **MBL = MAX (CP, MIN (ICS, CP + ICS – WCS))**, in order to account for this risk.

Chapter 6.2.1.1

- The definition and procedure for determining a Logical Management Unit are unclear. As such, the Reserve drafted an Errata & Clarification to clarify the language in this section. It is replicated here:

"A 'logical management unit' or 'LMU' is defined as either all landholdings, or any subset of the entire landholdings that are/is managed explicitly as a defined planning unit. The area of analysis for defining LMU(s) is the set of landholdings owned by a Forest Owner and its Affiliate(s) within the same Assessment Area(s) where the project is located.

Where LMUs are subsets of the entire landholdings, they are generally characterized by having unique biological, geographical, and/or geological attributes, are generally delimited by watershed boundaries and/or elevational zones, and contain unique road networks. Additionally, where LMUs are defined as subsets of the entire landholdings and are harvested for timber, the Forest Owner must demonstrate that the volume of timber harvested over the past 10 years, scheduled for harvest in a management plan for the next 10 years, or a combination of actual historical harvest and scheduled harvest spanning a contiguous period of 10 years (i.e. 7 years of past harvest and 3 years of scheduled harvest) can be perpetuated for the next 50 years without a decline in onsite standing live carbon stocks. In the absence of a management plan that indicates harvest volumes, the standing inventory of the subset (proposed LMU) must be within 20% of the standing inventory of the landholdings owned by the Forest Owner and its Affiliate(s) within the Assessment Area(s).

The demonstration that the timber volumes harvested or scheduled to be harvested must be conducted through modeling growth and yield with an approved growth and yield model or conducted through a stand table projection that indicates sustainable harvest levels.

If an explicit, existing LMU containing the Project Area cannot be identified, the Project Submitter must define the LMU by identifying all lands where the Project Submitter and its affiliate(s)(as defined above) either own in fee or hold timber rights on within the same Assessment Area(s) covered by the Project Area. Assessment Areas covered by the Project Area are identified in Step 1, above, following the guidance in the Assessment Area Data File."

Chapter 6.2.2

- The guidance in this section for developing a baseline for projects on public lands is unclear. We recommend providing additional clarity around what "comparable forested areas" and "relatively free of harvest" mean. The Reserve has provided clarity around these two terms, and the clarification provided here for reference:

"In order to produce a consistent and standardized approach to baseline for public lands that demonstrate an increasing inventory of carbon stocks over the past ten years, a comparable forest shall be modeled from initiation out to 60 years using an approved growth model as described in Appendix B. The modeled forest shall be comparable to the project area in terms of acreage, site class and species composition. Throughout the 60-year modeling period, only commercial and noncommercial thinning for the purposes of controlling stocking levels will be

allowed. The carbon stocks of the modeled forest at 60 years shall be the project baseline, and shall be considered static throughout the project life."

Chapter 10.2.2.2

- Step 3 includes a term "$|\bar{X}_{N-}|$" which is undefined (the dash after the N)
- The section on sampling results uses the singular and plural forms of stratum/strata incorrectly.

Chapter 10.2.6

- We suggest that a site-visit verification be required whenever confidence deductions and/or reversal risk ratings are changed. This is because changes to reversal risks and confidence deductions need to be confirmed with on the ground observations.

Appendix A

- In Table A.2, it appears that height regressions are still acceptable, but it is somewhat unclear. We recommend clarifying whether the use of regression equations to establish tree heights is acceptable.
- The glossary defines "Standing Live Tree Carbon Stocks" but throughout Appendix A there are references to "Standing Live Carbon Stocks". For consistency, we suggest using "Standing Live Tree Carbon Stocks".
- For calculating the below-ground portion of standing live carbon stocks, the protocol language should clarify whether the Cairns equation is meant to be applied to the Standing Live Tree Carbon Stocks before or after deductions for defects, or at least clarify that, whether the OPO calculates it with gross biomass or net biomass, it must be consistent in both project and baseline accounting.