Rice Cultivation Project Protocol Version 1.0
ERRATA AND CLARIFICATIONS

The Climate Action Reserve (Reserve) published its Rice Cultivation Project Protocol Version 1.0 (RCPP V1.0) in December 2011. While the Reserve intends for the RCPP V1.0 to be a complete, transparent document, it recognizes that correction of errors and clarifications will be necessary as the protocol is implemented and issues are identified. This document is an official record of all errata and clarifications applicable to the RCPP V1.0.[1]

Per the Reserve's Program Manual, both errata and clarifications are considered effective on the date they are first posted on the Reserve website. The effective date of each erratum or clarification is clearly designated below. All listed and registered rice cultivation projects must incorporate and adhere to these errata and clarifications when they undergo verification. The Reserve will incorporate both errata and clarifications into future versions of the protocol.

All project developers and verification bodies must refer to this document to ensure that the most current guidance is adhered to in project design and verification. Verification bodies shall refer to this document immediately prior to uploading any Verification Statement to assure all issues are properly addressed and incorporated into verification activities.

If you have any questions about the updates or clarifications in this document, please contact Policy at policy@climateactionreserve.org or (213) 891-1444 x3.

[1] See Section 4.3.4 of the Climate Action Reserve Program Manual for an explanation of the Reserve's policies on protocol errata and clarifications. "Errata" are issued to correct typographical errors. "Clarifications" are issued to ensure consistent interpretation and application of the protocol. For document management and program implementation purposes, both errata and clarifications are contained in this single document.

Errata and Clarifications (arranged by protocol section)

Section 2

1. Allowing for Single-Field Projects (ERRATUM – January 29, 2013)

Section: 2.2 (Project Definition)

Context: This section sets out the basic criteria defining a rice cultivation project. The second paragraph in this section sets out a requirement that all individual rice fields must be part of a project aggregate in order to be a valid project under this protocol. The inclusion of this paragraph has the effect that no single field projects are possible under this protocol. This paragraph was erroneously included in the final version of the protocol, as this requirement was removed elsewhere in the protocol in response to public comment. The Reserve's intent is to allow for projects to be implemented on a single field (Single Field Projects) as well as on multiple fields, aggregated into a single project.

Correction: The second paragraph in Section 2.2, beginning with "Individual participating fields…" and ending with "…the marketing of offset credits at volume" shall be deleted.

Section 3

2. Anaerobic Baseline Requirements Limited to Five Year Baseline Period (CLARIFICATION– January 29, 2013)

Section: 3.4 (Anaerobic Baseline Conditions)

Context: This section sets out the requirements for demonstrating that rice cultivation practices prior to the field's start date resulted in anaerobic conditions. The project developer demonstrates that a field meets the anaerobic baseline requirement by meeting three separate conditions, which are set out in this section in separately numbered points. While the first and third of these requirements explicitly state that the relevant requirement must be met for "five years preceding the field's start date," the second of these requirements does not, implying that the requirement may be applicable beyond the five year baseline period.

Clarification: The second anaerobic baseline condition shall apply only during the five year baseline period. The current text in the protocol for this condition shall be replaced with the following text:

"Each individual rice field was flooded for a period of at least 100 days during each of the five rice growing seasons preceding the field's start date."

Section 5

3. Static Input Parameters (CLARIFICATION – January 29, 2013)

Section: 5.1.1.2 (Static Input Parameters)

Context: This section sets out key parameters that define the project scenario in the DNDC model and explains where data must be sourced for each parameter. The section classifies a number of parameters as "static" and indicates that data for these parameters must come from actual field level data for each cultivation cycle of the project.

The section specifies that static inputs "must be the same when modeling baseline and project emissions for a specific cultivation cycle," i.e., that the value entered in the DNDC model for each parameter must be the same for both the baseline and the project. Although in practice these inputs may change between baseline and project years, there is no need to explicitly capture such change within the DNDC model. For instance, although the planting date may change as a direct result of project activities, it is the changes in flooding and fertilization practice relative to the planting date (captured in the project inputs) that are important for understanding GHG fluxes.

Clarification: This section shall be modified to make it clearer that data for static parameters shall be sourced from field-level data for the given cultivation cycle of the project, and that data shall be used in running the DNDC model for both the baseline and project scenario.

Under the heading Management Input Parameters, the first sentence of that paragraph reads: "All static management input parameters must be set for each cultivation cycle based on actual data…" That sentence shall be replaced (in its entirety) by the following sentence: "All static management input parameters must be set for each cultivation cycle based on actual data *from the cultivation cycle of the project* as they are assumed to have been identical regardless of the existence of the project activity" (emphasis added).

4. Equation 5.2 (CLARIFICATION – January 29, 2013)

Section: 5.1.4 (Modeling Field Level Baseline Emissions)

Context: Equation 5.2 in this section sets out the formula for calculating baseline GHG emissions for each field. While Equation 5.2 is only applicable to calculating baseline emissions, it is not explicitly labeled as such.

Clarification: The title of Equation 5.2 shall read "Average *Baseline* GHG Emissions from Monte Carlo Runs for Field *i*" (emphasis added) in order to make it explicit that Equation 5.2 only applies to the calculation of baseline emissions.

5. Equation 5.3 (CLARIFICATION – January 29, 2013)

Section: 5.1.5 (Modeling Field Level Project Emissions)

Context: Equation 5.3 in this section sets out the formula for calculating project GHG emissions for each field. While Equation 5.3 is only applicable to calculating project emissions, it is not explicitly labeled as such.

Clarification: The title of Equation 5.3 shall read "Average *Project* GHG Emissions from Monte Carlo Runs for Field *i*" (emphasis added) in order to make it explicit that Equation 5.3 only applies to the calculation of project emissions.

6. Accounting for Changes in Soil Organic Carbon (ERRATUM – January 29, 2013)

Section: 5.1.7 (Calculation of GHG Emission Reductions for the Project)

Context: This section sets out how to use Equation 5.4 to calculate the total primary effect GHG emission reductions for project aggregates. Equation 5.4 contains the variable $MPER_i$, defined as the modeled primary effect GHG emission reductions for a single field, *i*. This definition contains an asterisk, which points to additional guidance about $MPER_i$ that is provided directly below the formulas within the equation box. The first sentence of this additional $MPER_i$ guidance reads "In order to ensure that only reductions in CH_4 are credited on each field, the term ($N_2O_{BL,i} - N_2O_{P,i}$), and ($SOC_{BL,i} - SOC_{P,i}$) must be set equal to zero if they are > 0."

The guidance is incorrect with respect to soil organic carbon (SOC), and shall be reversed. Changes in soil organic carbon are assumed to be zero only when there is an increase in SOC, while SOC losses would need to be accounted for. The term ($SOC_{BL,i} - SOC_{P,i}$) must be set equal to zero if it is less than zero.

The second sentence of the additional $MPER_i$ guidance, which reads "As an example, if both N_2O and SOC terms are > 0 for a particular field *i*, then the Modeled Primary Emission Reductions for that field are equal to the CH_4 reductions only: $MPER_i = \{(CH_{4\ BL,i} - CH_{4\ P,i}) /1000 \times Area\}$ in this case," is therefore also incorrect.

Correction: The guidance given as part of the definition of MPERi, which appears directly below the formulas in Equation 5.4, shall be deleted in its entirety and replaced with the following:

"In order to ensure that only reductions in CH_4 are credited on each field, the term ($N_2O_{BL,i} - N_2O_{P,i}$), must be set equal to zero if it is > 0; and the term ($SOC_{BL,i} - SOC_{P,i}$) must be set equal to zero if it is < 0. As an example, if N_2O is > 0 and SOC < 0 for a particular field *i*, then the Modeled Primary Emission Reductions for that field are equal to the CH_4 reductions only: $MPER_i = \{(CH_{4\ BL,i} - CH_{4\ P,i}) /1000 \times Area\}$ in this case."

7. Multiplicative Structural Uncertainty Adjustment (ERRATUM – January 29, 2013)

Section: 5.1.7 (Calculation of GHG Emission Reductions for the Project)

Context: This section sets out how to use Equation 5.4 to calculate the total primary effect GHG emission reductions for project aggregates.

The first part of Equation 5.4 is arranged in a way that implies that the structural uncertainty deduction is multiplicative, rather than additive. According to currently available data, this is incorrect for the state of California.

The first part of Equation 5.4 is currently structured as follows:

$$\boldsymbol{MPER} = \mu_{\boldsymbol{struct}} \times \sum_{\boldsymbol{i=1}}^{\boldsymbol{m}} \mu_{\boldsymbol{inputs\_i}} \times (\boldsymbol{MPER_i})$$

Correction: The first part of Equation 5.4 shall be replaced with the following corrected formula:

$$\boldsymbol{MPER} = \sum_{\boldsymbol{i=1}}^{\boldsymbol{m}} \left\{ \left(\mu_{\boldsymbol{inputs_i}} \times \boldsymbol{MPER_i} \right) - \mu_{\boldsymbol{struct}} \right\}$$

8. Normalizing Crop Yields to Account for Leakage (CLARIFICATION – January 29, 2013)

Section: 5.2.3 (GHG Emissions from the Shift of Rice Production Outside of Project Boundaries)

Context: In the unlikely event that rice yields decrease as a direct result of the project activity, this protocol conservatively assumes that the decrease in rice production on the project field (or fields) causes a net increase in production outside the project boundary. This section outlines how to calculate emissions associated with this shift in production. More specifically, the project must account for an increase of rice production outside of the project area (and the increased emissions associated with this shift in production) if the annual yield from the project area is less than the historical yields over the past five years from the same project area, normalized to average annual county yields using USDA NASS statistics.

At present the protocol does not provide specific guidance on how to normalize the historical yields to average county yields in the case where aggregate fields span across multiple counties.

Clarification: Step 1 of the normalization procedure guidelines in Section 5.2.3 beginning with "1. For the five years *t* prior to implementation of the project…", shall be deleted and replaced with the following guidance and additional Equation 5.9:

> 1. For the five years *t* prior to implementation of the project, normalize the yield of the field by the county average for that year, y_norm_t. If the project is an aggregate, calculate y_norm_t for each of the historical years as the weighted average (by percent of field area) of all fields in the aggregate following Equation 5.8. The distribution of y_norm_t will have five data points. If the historical years include a fallow year, that fallow year shall be ignored for the purpose of calculating leakage for that particular field, resulting in four total data points.[2]

Equation 5.9. Normalized Yield for Each Year *t*

For single-field projects: $$\boldsymbol{y\_norm_t} = \frac{Y_{f,t}}{Y_{county,t}}$$

For aggregate projects: $$\boldsymbol{y\_norm_t} = \sum_f \left(A_f \times \frac{Y_{f,t}}{Y_{county,t}} \right) / \sum_f A_f$$

Where,

			Units
A_f	=	Size of field *f*	ha
$Y_{f,t}$	=	Yield of field *f* in year *t*	Mg/ha
$Y_{county,t}$	=	County average yield in year *t*	Mg/ha

If aggregates span multiple counties, $Y_{county,t}$ must correspond with the county in which field *f* is located.

[2] Notably, the t-distribution value in step 4 of this section will need to be adjusted to reflect the correct number of data points (i.e. n<5).

Section 8

9. Submitting an Updated List of Aggregate Fields Prior to COI Review (CLARIFICATION – January 29, 2013)

Section: 8.1 (Preparing for Verification)

Context: This section provides guidance with respect to the interaction between project developers and the verification body engaged to verify a given project. The second paragraph in this section states that verification bodies must pass a conflict-of-interest review against the project developer and, in the case of project aggregates, all project participants and the aggregator, but does not outline a mechanism for the verification body to identify all of the project participants in an aggregate. in this section. However, Section 7.1.2 (Project Aggregate Submittal Documentation) states that the aggregator must include "the initial number of fields and the names of project participants for each individual enrolled field" for project submittal. The Reserve's intent is that this list, first submitted earlier in the process, would be updated by the aggregator prior to the conflict-of-interest review if any additional fields have been added to the project.

Clarification: If any additional fields have been added to the aggregate since the time of project submittal or the previous conflict-of-interest review, aggregators must resubmit a list of enrolled fields and project participants to the Reserve and their chosen verification body prior to the verification body commencing the conflict-of-interest review.