Mexico Livestock Project Protocol Version 2.0
ERRATA AND CLARIFICATIONS

The Climate Action Reserve (Reserve) published its Mexico Livestock Project Protocol Version 2.0 (MXLSPP V2.0) in September 2010. While the Reserve intends for the MXLSPP V2.0 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 MXLSPP V2.0.[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 MXLSPP 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 MXLSPP.

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 to the LSPP are contained in this single document.

Errata and Clarifications (arranged by protocol section)

Section 5

1. Calculating the van't Hoff-Arrhenius Factor (ERRATUM – March 28, 2012)

Section: 5.1 (Modeling Baseline Methane Emissions)

Context: The first step involved in Equation 5.3 (pages 16-17) is the calculation of the van't Hoff-Arrhenius factor (*f*). This factor estimates the percentage of volatile solids (VS) that will be biologically available for degradation in the baseline lagoon, depending on the ambient temperature. The equation is set up with a base temperature of 30°C, based on the assumption that this is the point at which biological availability will reach its maximum. One resultant outcome is that if a temperature of greater than 30°C is input for T_2, the calculated value of *f* will be greater than 100%, which is physically impossible.

Additionally, the reference source for this equation states that, under actual field conditions, the value of *f* is not likely to exceed 95% (Mangino et al., 2001). Thus, the user-calculated value for *f* should never exceed 0.95 (95%), which occurs when $T_2 > 29.5$°C. The current calculation is taken from this specific reference, but the limit of 95% was erroneously omitted.

Correction: The following text shall be added to the definition of T_2 in Equation 5.3 on page 17:

> "If $T_2 > 29.5$°C then $f = 0.95$."

Section 6

2. Adjustments to Metered Biogas Flow Data (ERRATUM – March 28, 2012)

Section: 6.2 (Biogas Measurement Instrument QA/QC)

Context: On page 30 of MXLSPP V2.0, the protocol provides two requirements that govern how metered flow data is scaled in the event that a meter has been confirmed during a calibration event to be outside the allowable +/- 5% accuracy threshold. These two requirements for scaling the data are not intended for livestock project GHG accounting, and are not conservative.

Correction: The requirements on page 30 of the MXLSPP V2.0 shall be replaced with the following requirement:

1. For calibrations that indicate the flow meter was outside the +/- 5% accuracy threshold, the project developer shall estimate total emission reductions using i) the metered values without correction, and ii) the metered values adjusted based on the greatest calibration drift recorded at the time of calibration. The lower of the two emission reduction estimates shall be reported as the scaled emission reduction estimate.

Section 7

3. Initial Reporting and Verification Period (ERRATUM – March 28, 2012)

Section: 7.3.1 (Initial Reporting and Verification Period)

Context: On page 38 of MXLSPP V2.0, the protocol states that "[o]nce a project is registered and has had at least 6 months of emissions reductions verified, the project developer may choose one of the verification options below." The 6 month requirement is inconsistent with the original intent of the protocol, which was to maximize the flexibility of reporting periods and verification schedules. To remain consistent with the original intent of the verification options, the 6 month reporting period requirement shall be changed to a "one quarter" or 3 month reporting period requirement.

Correction: The protocol shall be corrected to read "[o]nce a project is registered and has had at least 3 months of emissions reductions verified, the project developer may choose one of the verification options below."

4. Reporting and Verification Cycle – Option 2 (CLARIFICATION – March 28, 2012)

Section: 7.3.3 (Option 2: Twelve-Month Verification Period with Desktop Verification)

Context: On page 39 of MXLSPP V2.0, the protocol states that under Option 2, "[d]esktop verifications are allowed only for a single 12-month verification period in between 12-month verification periods that are verified by a site visit. Sub-annual verification periods are not allowed under this option." This verification option is intended to provide greater flexibility and ease verification costs for livestock projects. However, the disallowance of sub-annual (i.e. less than 12-month) verification periods, in particular for the initial verification, is inconsistent with the intent of the requirements in Section 7.3.1 (p.38) of the protocol.

Clarification: The protocol shall be clarified to read "[f]or projects using this option, the initial verification in this cycle shall be a full verification, including a site visit, and shall cover a minimum of 3 months and maximum 12 months of project data. All subsequent reporting periods under this option shall be 12-month reporting periods."

5. Reporting and Verification Cycle – Option 3: Monitoring Report (CLARIFICATION – March 28, 2011)

Section: 7.3.4 (Option 3: Twenty-Four Month Maximum Verification Period)

Context: On page 40 of MXLSPP V2.0, the protocol states that "[u]nder this option, the verification period cannot exceed 24 months and the project's monitoring plan and a project monitoring report must be submitted to the Reserve for the interim 12-month reporting period. The project monitoring plan and monitoring report must be submitted for projects that choose Option 3 to meet the annual documentation requirement of the Reserve program. They are meant to provide the Reserve with information and documentation on a project's operations and performance. They also demonstrate how the project's monitoring plan was met over the course of the first half of the verification period." In this context, it is unclear what information is to be

provided in the monitoring plan, and what is to be provided in the monitoring report, and where any overlap may exist. For clarity and ease of use, the Reserve will require only one document, hereafter referred to as "monitoring report" to meet the interim documentation requirement under this option. The template available online provides guidance on what is expected from a monitoring report.

Clarification: The protocol shall be clarified to read "[u]nder this option, the verification period cannot exceed 24 months and the project's monitoring report must be submitted to the Reserve for the interim 12-month reporting period. The project monitoring report must be submitted for projects that choose Option 3 to meet the annual documentation requirement of the Reserve program. They are meant to provide the Reserve with information and documentation on a project's operations and performance, and adherence to the project's monitoring plan."

6. Reporting and Verification Cycle – Option 3: Interim Reporting Period (CLARIFICATION – March 28, 2011)

Section: 7.3.4 (Option 3: Twenty-Four Month Maximum Verification Period)

Context: On page 40 of MXLSPP V2.0, the protocol states that "[t]he monitoring report shall be submitted within 30 days of the end of the reporting period." While the terms "reporting period" and "verification period" are defined in the protocol glossary, with verification period referring to a period that may cover multiple reporting periods under Section 7.3.4, the language regarding when the monitoring report is to be submitted is potentially unclear.

Clarification: The protocol shall be clarified to read "[t]he monitoring report shall be submitted within 30 days of the end of the *interim* reporting period."

Appendix B

7. Default Destruction Efficiency for Upgrade and Injection into Natural Gas Pipeline (CLARIFICATION – March 28, 2011)

Section: Table B.7 (Biogas Destruction Efficiency Default Values by Destruction Device)

Context: On page 62 of MXLSPP V2.0, the protocol provides a table with default values for approved destruction devices that may be used by project developers. The last destruction device listed, described as: "Upgrade and injection into natural gas pipeline," has a listed default destruction efficiency of 98% (0.98). This default destruction efficiency is derived as an average value appropriate for scenarios where the methane component of the biogas is injected into a transmission/distribution system and ultimately distributed to unknown end-users in the residential or commercial sector, or to unknown industrial plants or power stations. This default factor is not intended to be used for scenarios where biogas is destroyed by a third party under a direct-use agreement. Under such a scenario, the destruction efficiency should correspond to the type of destruction device that is used by the third party.

Clarification: The entry in the last row of the first column of Table B.7 on page 62 shall be clarified to read "Upgrade and injection into natural gas *transmission and distribution* pipeline."

8. Default Destruction Efficiency Footnote References (ERRATUM – March 28, 2011)

Section: Table B.7 (Biogas Destruction Efficiency Default Values by Destruction Device)

Context: On page 62 of MXLSPP V2.0, the protocol provides a table with default values for approved destruction devices that may be used by project developers. The footnote citations provided in Table B.7 are not correct for many of the destruction device efficiencies.

Correction: The following table containing the correct footnote references for each destruction device should replace Table B.7 on page 62.

Biogas Destruction Device	Biogas Destruction Efficiency (BDE)
Open Flare	0.96[1]
Enclosed Flare	0.995[2]
Lean-Burn Internal Combustion Engine	0.936[2]
Rich-Burn Internal Combustion Engine	0.995[2]
Boiler	0.98[2]
Microturbine or Large Gas Turbine	0.995[2]
Upgrade and Use of Gas as CNG/LNG Fuel	0.95[2]
Upgrade and Injection into Natural Gas Pipeline	0.98[3]

Source:
[1] Seebold, J.G., et al., Reaction Efficiency of Industrial Flares, 2003
[2] The default destruction efficiencies for this source are based on a preliminary set of actual source test data provided by the Bay Area Air Quality Management District. The default destruction efficiency values are the lesser of the twenty fifth percentile of the data provided or 0.995. These default destruction efficiencies may be updated as more source test data is made available to the Reserve.
[3] The Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories gives a standard value for the fraction of carbon oxidized for gas destroyed of 99.5% (Reference Manual, Table 1.6, page 1.29). It also gives a value for emissions from processing, transmission and distribution of gas which would be a very conservative estimate for losses in the pipeline and for leakage at the end user (Reference Manual, Table 1.58, page 1.121). These emissions are given as 118,000kgCH_4/PJ on the basis of gas consumption, which is 0.6%. Leakage in the residential and commercial sectors is stated to be 0 to 87,000kgCH_4/PJ, which equates to 0.4%, and in industrial plants and power station the losses are 0 to 175,000kg/CH_4/PJ, which is 0.8%. These leakage estimates are compounded and multiplied. The methane destruction efficiency for landfill gas injected into the natural gas transmission and distribution system can now be calculated as the product of these three efficiency factors, giving a total efficiency of (99.5% * 99.4% * 99.6%) 98.5% for residential and commercial sector users, and (99.5% * 99.4% * 99.2%) 98.1% for industrial plants and power stations.[2]

[2] GE AES Greenhouse Gas Services, Landfill Gas Methodology, Version 1.0 (July 2007).