

Summary of Updates to the Livestock Project Protocols

The Livestock Project Reporting and Verification Protocols, adopted by the California Registry Board in June 2007, provide accurate, conservative, and consistent methodologies for determining the eligibility requirements, monitoring and reporting guidelines, and emission reduction calculations for livestock manure digester projects. As the protocols have begun to be put to use for real world digester projects, the California Registry has received an abundance of constructive feedback regarding the usability, readability, and consistency of the methodologies. Utilizing this feedback, together with the results of an auditability assessment performed by Future Perfect consultants and continued interaction with workgroup members and staff at the California Air Resources Board, the California Registry has drafted updated versions of the Livestock Project Reporting and Verification Protocols. The updates to the protocols are intended to achieve the following goals:

- 1) Improve conservatism regarding emission reduction calculations.
- 2) Provide better guidance for project monitoring, reporting, and record keeping,
- 3) Address livestock feed nutrition data issues brought to our attention through user feedback,
- 4) Address, where appropriate, the results of the auditability assessment carried out by Future Perfect,
- 5) Increase consistency with the CCAR Landfill Project Protocols,
- 6) Correct minor inconsistencies in the calculation methodologies, and
- 7) Increase the overall readability and usability of the protocols.

The substantive changes are summarized below.

Changes to the Reporting Protocol:

- **Requirement to compare ex-post metered methane data to the calculation results.** In response to feedback, and the need to maintain consistency with international standards, the California Registry has inserted language into the protocol requiring the comparison of the ex-post metered quantity of methane destroyed in the biogas control system with the results of the calculated methane emission reductions. In the event that the metered quantity of destroyed methane is less than the calculated methane reductions, the metered data is to be used in place of the calculated reductions for determining total GHG reductions. This improvement addresses issues related to the over-estimation of GHG reductions due to sub-optimal digester operation and/or calculation over-estimation. Feedback has been very supportive of including this change in the Livestock Protocol.
- **VS_L Calculations (equation 2d) removed and replaced with EPA State specific VS lookup tables (see Box 2 of the updated protocol).** Across the board, the California Registry received feedback from project developers that the livestock feed nutrition data required to calculate site-specific Volatile Solid (VS) production was extremely difficult, if not impossible, to obtain. Feedback indicated that dairy nutritionists did not know how to extract the necessary data from feed nutrition analysis. Compounding this issue was the comments from potential verifiers that it would be difficult to verify this nutrition data with confidence. Upon further review of international methodologies (IPCC, CDM, EPA Climate Leaders), as well as outreach to certain livestock work group members, the California Registry concluded that it is entirely consistent with international best-practice to obtain VS values from regional lookup tables instead of site-specific calculations. Thus, EPA state-specific VS lookup tables will replace the VS calculations in the updated protocol.

- **Project monitoring section updated.** Additional guidance was added for monitoring, QA/QC, reporting, record keeping, and project submittal. The update provides better guidance for project developers and is more consistent with the monitoring section of the CCAR Landfill Project Reporting Protocol.
- **Added default lookup table for Typical Animal Mass values.** In response to feedback from users and work group members, default animal mass values were added to Appendix B. These values are to be used when site-specific data is unavailable.
- **Added default values for Methane Destruction Efficiencies of various combustion devices.** This update provides better guidance and is more consistent with the CCAR Landfill Project Protocol.
- **Added a default Biogas Control System collection efficiency.** Consistent with CDM methodologies, a default methane collection efficiency of 85% has been added into the protocol, with the option for project developers to provide evidence to verifiers of higher collection efficiencies. This update provides better guidance and is more consistent with international best practice.
- **Additional guidance given for calculating the mass flow of methane (tCH₄/month), and for accounting for the temperature and pressure of the biogas.** This update improves consistency, usability, and auditability.
- **Changed default percentage of VS in digester effluent from 30% to 20% (equation 4b).** In response to feedback, additional research was performed regarding the percentage of VS that decomposes in digesters. It was concluded that an 80% VS decomposition rate is consistent with international guidance and appropriately conservative. Thus, the default amount of VS leaving the digester (as indicated by the percentage of the waste entering the digester) was changed from 30% to 20%.
- **De minimis CO₂ is required to be reported using best estimates.** Previously, CO₂ emissions only had to be reported if they were greater than 5% of the total baseline. In order to maintain consistency with the CCAR GRP, CO₂ will be required to be reported in all cases, however best estimation techniques can be used to estimate CO₂ emissions if the CO₂ can be shown to be less than 5% of the total baseline.

Changes to the Verification Protocol:

- **Added guidance for site visits.** This change was made in response to the auditability assessment.
- **Added guidance for determining materiality.** This change was made in response to the auditability assessment.

The above changes have been reviewed by some of the original livestock working group members, and have gone through a month long public comment period highlighted by a joint public workshop with the California Air Resources Board on July 11th, 2008. Public comments have been incorporated into the updated Livestock Project Reporting and Verification Protocols where appropriate. A summary of the comments received and their incorporation into the final protocol is included in this board package.