



Summary of Changes for the Mexico Livestock Project Protocols

The Livestock Project Reporting and Verification Protocols (version 2.1) provide accurate, conservative, and consistent methodologies for determining the eligibility requirements, monitoring and reporting guidelines, and emission reduction calculations for livestock manure digester projects. In August 2008, Mexico's six Border States, California, the Pacific Gas & Electric Company, and the Climate Action Reserve signed a "Memorandum of Understanding" (MOU) agreeing to work cooperatively to develop quantification and verification protocols for greenhouse gas (GHG) emission reduction projects in Mexico. The MOU calls on the Reserve to develop protocols that would ensure the integrity of emission reductions from projects in Mexico designed to reduce greenhouse gas pollutants. Pursuant to this MOU, the Climate Action Reserve initiated the adaptation of its Livestock Project Protocol for eligible GHG reduction projects in Mexico. The protocol adaptation process has involved relevant sector-specific stakeholders in Mexico who have addressed issues such as:

1. Regulatory requirements for livestock operations in Mexico
2. Identifying common practices that affect methane emissions
3. Adapting equations and emission factors for GHG emissions in Mexico
4. Adjusting project monitoring and verification activities

The substantive changes are summarized below.

- **Eligibility rules (Location).** Projects located at livestock operations in Mexico are eligible.
- **Eligibility rules (Project start date).** The project start date criterion was based on the establishment of the agreement between the Mexico's six Border States, California, the Pacific Gas & Electric Company, and the Climate Action Reserve: August 15, 2008.
- **Eligibility of pre-existing projects.** For consistency with the Mexico Landfill Protocol, pre-existing projects are eligible. Its description is explained in section 3.3 (Project start date).
- **Performance Standard Threshold.** The analysis of manure management practices in swine and dairy operations for Mexico is explained in Annex C. Based on this analysis, it was concluded that the common practice for manure treatment and storage in medium and large modernized and semi-modernized swine and dairy farms is usually the use of lagoons-based systems. Although the installation of digesters grew rapidly in recent years through CDM projects, it is explained that the implementation of most of these digesters would not have occurred in the absence

of the carbon market due to institutional, technological, financial and cultural barriers explained in this Annex. Hence, by installing a biogas control system a project developer will pass the Performance Standard Test.

- **Regulatory Test.** Environmental regulations related to manure management practices at the federal, state and municipal levels are briefly described. It was found that no Mexican regulations obligate livestock owners to invest in biogas control systems.
- **Modification of project crediting period regarding new regulation.** For consistency with the Mexico Landfill Project Reporting Protocol, the project-crediting period (ten years) will be reduced if any Mexican regulatory agency with authority over a livestock operation passes a rule obligating the installation of a biogas control system. Emissions reductions can be registered in the Reserve in the period from the project start date until the entry into force of the new regulation.
- **Modified default lookup table for Typical Animal Mass values.** Typical Average Mass values in Appendix B (Table B.2) were modified according to Mexican values, when possible; where data were not available default IPCC values are used. These values are to be used when site-specific data is unavailable.
- **Modified default lookup table for VS and B₀ values.** Specific values for VS and B₀ for Mexico were modified in Appendix B (Table B.3), when possible; where data were not available default IPCC values are used. Tables B.4.a – B.4.e from the U.S. Livestock Protocol were deleted as the U.S. state-specific values are not applicable for Mexico and because VS values per region or per state in Mexico were not available.
- **Modified guidance on using appropriate units for VS values.** A formula for adjusting VS according to the on-site specific cow or swine mass (based on the CDM methodology ACM0010) is provided in accordance to the default lookup table for VS values provided in Appendix B of this protocol, instead of the formula for converting VS values into the appropriate units used for U.S. livestock projects (kg/day/1000 kg of live weight to kg/animal/day).
- **Added default lookup table for fuel emission factors and net calorific values.** Specific values for fuel emission factors for mobile combustion and net calorific values were added in Appendix B (Tables B.5 and B.6) according to data of Mexico's National GHG emissions inventory and the Mexico's Energy Balance respectively. Specific values for fuel emission factors for stationary combustion are based on default IPCC values (2006 guidelines). Values for net calorific values are to be used when data from fuel suppliers or laboratory analyses is unavailable.
- **Project monitoring section updated.** Additional guidance was added for monitoring, calibration and data substitution (added Appendix D). The update provides better guidance for project developers and is more consistent with the monitoring section of the Landfill Project Reporting Protocol.
- **Added Appendix D on methods for data substitution and failed calibration.** The Reserve developed an appendix to provide guidance on calculating emission reductions when data integrity has been compromised either due to missing data points or a failed calibration. Project developers can use this appendix instead of the data substitution methods provided for under the US EPA Acid Rain Program in 40 CFR Part 75 Subpart D 75.33 previously mentioned on section 6 (Project Monitoring).

- **Added a Mexican reference as a support tool.** The “Handbook for management and control of wastewater and swine manure in Mexico” and its corresponding software “PigMex”, developed by the Mexican Swine Confederation and the National Autonomous University of Mexico in coordination with international experts, has proved to be a useful tool for Mexican swine producers for providing design parameters for manure and wastewater treatment systems that comply with the Mexican environmental regulations related to the quality of wastewater discharges (i.e. NOM-001-ECOL-1996). In addition to the USDA NRCS standards, it was also recommended this handbook for the design and maintenance of anaerobic manure storage/treatment systems (added in footnote 4). As to GHG Reductions Calculation Methods, in addition to the Reserve’s Livestock Calculation Tool, the software “PigMex” is also recommended as a support tool for swine operations (added in footnote 15). In the updated version of the software “PigMex”, biogas production estimations will be included. However, actual GHG reductions should be calculated according to the guidance of the protocol. This software is also recommended for monitoring the average number of hogs for each livestock category in case that the farm operator does not have a herd management software (added in footnote 42).
- **Modified Livestock Project Submittal Form.** In response to feedback from workgroup members, question 9 in form 1 and question 4g in form 2 related to the compliance of USDA NRCS Conservation Practice Standards no. 359, no. 313 and no. 366 were deleted. The compliance with the USDA NRCS Conservation Practice standards for Mexican projects is not mandatory, and there are no existing Mexican rules or technical standards for the design and maintenance of manure storage facilities, treatment lagoons or anaerobic digesters. Once the Mexican technical standard (NMX) for the design and operation of anaerobic digesters for manure treatment systems is published (currently under development and expected to be published in 2009), question 4g in form 2 will be included making reference to this NMX.

Issues to be further analyzed and developed.

- **Supplement to the protocol for project activities related to renewable electricity generation using biogas.** In response to feedback from workgroup members, footnote 5 was added mentioning that the Reserve anticipates the development of this supplement. Considering this type of projects in Mexico will aim not only to enhance renewable energy generation and GHG emissions reductions, but also to decrease of water pollution in the livestock sector. In the absence of carbon markets, these projects are unlikely to be conducted due to financial, legal, institutional and technological barriers.

The above changes have gone through a month of public comment period. Public comments have been incorporated into the updated Livestock Project Reporting and Verification Protocols where appropriate.