



restore the balance

December 15, 2010

Ms. Mary D. Nichols, Chairman
California Air Resources Board
Via web submission

RE: TerraPass comments regarding the proposed Livestock Manure Compliance Offset Protocol

Dear Chairman Nichols and Members of the Board:

TerraPass is a San Francisco-based company whose mission is to combat climate change by enabling consumers and businesses to understand and take responsibility for their greenhouse gas emissions. TerraPass has specific experience with livestock methane projects; we have originated offsets from more than half a dozen US livestock methane digesters, and have reviewed dozens of others.

We are pleased to offer the following comments concerning the proposed Livestock Manure protocol.

Section	Comment
1	<p>The ARB requires that projects be verified annually. It is TerraPass's experience that annual verifications disproportionately and negatively affect the financial viability of small- to medium-sized digester projects. In addition to ongoing operations and maintenance costs of the digester, the metering system, and the biogas destruction devices, the annual verification has proven to be a large expense for offset projects.</p> <p>Our experience with many digester projects is that offset production can vary widely due to weather conditions (e.g. temperature and severe weather), digester operation, or destruction device maintenance in any given year. In addition, verification costs do not scale with project size, so a project producing 100,000 offsets will cost the same as one producing 10,000. For this reason, and assuming no change in the metering or monitoring of the project, we recommend that the ARB allow Livestock Manure projects to verify on a two-year schedule.</p>
3.3	<p>The ARB has established a single, ten-year crediting period for Livestock Manure projects. It is not obvious whether the protocol fails to mention crediting period renewals because they are addressed in the cap and trade regulation, or because they are not allowed. TerraPass recommends that the ARB allow Livestock Manure projects to extend crediting through renewals as provided by the cap and trade regulation.</p> <p>According to our experience, digesters at small- and medium-sized farms are exceedingly expensive to build and operate. Although multiple revenue streams (e.g. electricity or bedding sales) contribute to returns and decrease the payback period, for the simplest projects, the installation, construction, and maintenance of the digester itself can mean cash payback times of greater than 10 years and negative rates of return.</p>
1, 2.2	<p>In the introduction (Section 1), Livestock Manure projects are restricted to dairy and swine farms. In the Project Definition (Section 2.2), the protocol references "livestock" projects, which should include poultry and egg farms. We recommend the ARB consider the</p>

TerraPass Inc.

	potential for poultry and other livestock manure projects to be included in this protocol.
2.2	In a footnote, the ARB notes that co-digestion of wastes does not preclude a project from inclusion in the Livestock Manure protocol, a position with which we agree. We also suggest that the ARB move quickly to allow co-digestion as a creditable offset stream, as this will allow more projects to be included.
5	The ARB's protocol specifically excludes indirect emissions from electricity consumption by project equipment in footnote #9 of page 10. Following this exclusion, however, in Equation 5.11, are calculations for just such indirect emissions. We request that the ARB clarify regulations related to accounting for indirect emissions from the use of electricity.
Tables A.2 , A.3	TerraPass recommends that B ₀ and VS values be provided for poultry litter, and therefore explicitly included within the context of the Livestock Manure protocol.
Appendix B	The Data Substitution methodology does not refer to missed methane readings at livestock operations. Livestock digester methane readings are only required quarterly. If a quarterly reading is missed, we recommend that the project substitute for the missing data point by taking at least 2 more gas samples during the reporting period, and using the 95% upper confidence level (most conservative) of the annual average methane concentration using all samples from the reporting period. Digesters are optimized for methane gas production, and their insulation and heaters provide for consistent methane concentration year-round. Given that, we feel that a missed quarterly methane reading should not unduly hazard an otherwise well-run project.

Thank you for your ongoing work on the critical issue of addressing climate change, and the opportunity to comment here.

Sincerely,

Erin Craig
Chief Executive Officer
TerraPass Inc.