



CLIMATE ACTION RESERVE

SUMMARY OF COMMENTS & RESPONSES ON THE DRAFT LANDFILL PROJECT PROTOCOL VERSION 3.0 November 2009

5 sets of comments were received during the public comment period for the Draft Landfill Project Protocol, Version 3.0. The comment letters have been summarized and can be viewed in their entirety on the Reserve's website at:

<http://www.climateactionreserve.org/how/protocols/adopted/landfill/update/>

Comments received by:

1. EcoSecurities (EcoSecurities)
2. Sage Metering (SM)
3. Solid Waste Industry for Climate Solutions (SWICS 1)
4. Solid Waste Industry for Climate Solutions (SWICS 2)
5. TerraPass (TerraPass)

Summary of Public Comments:

2 The GHG Reduction Project

2.2 Project Definition

1. SWICS believes that all landfills, bioreactor or otherwise should be able to use the protocol to calculate GHG reduction benefits. For the time being that option is precluded for bioreactor landfills. This is ironic because bioreactor landfills are specifically designed to maximize the capture and beneficial use of methane – along with other environmental benefits.

You have added some language to the bioreactor definition, which includes, in addition to meeting EPA's definition of bioreactor---being designated by local, state, or feds as

bioreactor and received grants to operate as bioreactor. It is not clear whether the now 3 parts to this definition are an AND or OR. If it is an OR, then I think we have problems. We could then have a landfill that does not meet EPA definition but some local agency decides to call it one, under whatever definition they want to use, and our project would be negated. Also, just because a site gets grant funding, it still may take years to get to point where we have actual bioreactor, so we would lose those years as part of GHG reduction project. Finally, there are many forms of liquid waste, leachate, and precipitation management in landfills – as well as many different levels of moisture content below the 40% that defines a bioreactor under the US EPA definition. [See SWICS 1 public comment submission for more detailed information.]

We strongly recommend that the only definition for Bioreactor that makes sense is the definition adopted by US EPA in Regulation. We request that you not deviate from that term. **(SWICS 1)**

RESPONSE: Agreed. The Reserve has modified and clarified the bioreactor language in the protocol. The definition of a “bioreactor” no longer includes the two clauses regarding 1) government designation, and 2) grants and funding. Instead, the exclusion is limited to the EPA definition of a bioreactor, and any other landfill which circulates liquid other than leachate.

The Reserve is aware of the issues regarding bioreactor landfills, and will continue to research this issue and explore the possibility for future inclusion with SWICS.

3 Eligibility Rules

2. We do not believe landfills who experimented with “novel” passive flares in the late 1990’s or rented a temporary flare skid to conduct a pilot test should be treated the same as a landfill with destruction devices as a regular and ongoing facet of a landfill’s operations. We urge the Reserve to consider these cases either by delegating the decision of whether such cases of prior combustion truly represent “methane destruction that would have happened without the project” by enabling their consideration at project listing (as a variance or otherwise). [See the TerraPass public comment submission for more information.] **(TerraPass)**

RESPONSE: Agreed. The Reserve has added language that devices installed exclusively for testing or pilot purposes do not need to be considered when determining project eligibility.

3.4.1 The Performance Standard Test

3. [pg. 7] Point 4 is a bit confusing, so an example (similar to Box 5.1) with: a) dates explaining the GCCS evolution over time, b) LFG volumes for the existing and expansion system, c) final CRT issuance, would help demonstrate the intent of this new eligible project-type. **(EcoSecurities)**

RESPONSE: Noted. The Reserve has clarified the language.

4. [pg. 7] Point 4 states that the flare that was installed in the past needs to continue to operate. This prohibits projects where the flare needs to be replaced for whatever reason. Expansion of the well field may require a higher capacity flare and in this case the previous flare may be discontinued. Additionally, as the gas curve declines in the future, developers may choose to rotate equipment between active sites to reduce costs. We suggest the wording be clarified. **(EcoSecurities, TerraPass)**

RESPONSE: Agreed. The Reserve has clarified the language to make clear that additional flares or flare upgrades are permitted under this provision.

5. [pg. 8, paragraph 2] To make this a bit more clear, perhaps state “In these cases, expanding a well-field (either in conjunction with, or subsequent to, installing a new destruction device) is allowable but the additional gas is to be included as part of the original project (defined by the destruction device), and does not constitute a new, separate project.” **(EcoSecurities)**

RESPONSE: Noted. The Reserve has clarified the language in this section.

6. CAR is allowing closed landfills with existing gas systems before 2001 to claim credits for an expansion of wellfield that happens after 2001. This is good and we certainly support that change. We can use existing control device, and the baseline is defined as the amount of LFG collected in pre-2001 gas system, not the capacity of flare. This is what SWICS has previously asked for but we wanted it for active sites as well. CAR was apparently only comfortable with closed sites because a closed site will always have less gas each year, so the previous protocol was unfair to make use the baseline the capacity of the control device since a closed landfill could never reach that capacity ever again. However, apparently CAR does not feel the same about active sites since the flare was probably designed for future gas so they still want to hold active sites to the capacity of the pre-2001 control system as baseline. Frankly, we don't see the difference and feel they could make the same allowance for active sites by simply requiring active sites to clearly document and demonstrate the added gas production that can be achieved by expanding the system – even though you may be using the same flare system. CAR is essentially adding a back-door financial additionality test---that is, an active site must buy a new flare along with expanding the wellfield to qualify. [See SWICS 1 public comment submission for more detailed information.] **(SWICS 1)**

There really is no substantial distinction that should cause CAR to allow this option for closed sites but not active ones. The argument that including this option for active sites could make them choose a flare over energy recovery is a hollow one. Sites will continue to implement energy recovery when it makes environmental and economic sense. Allowing active sites this option under the protocol will not play into that decision in the least. Also, we are mostly talking about small, non-NSPS landfills that could qualify for credits anyways under the CAR protocol, so energy recovery may not actually be a viable option for them anyway, but flaring might if they can get the GHG credits for it. [See SWICS 2 public comment submission for more detailed information.] **(SWICS 2)**

RESPONSE: Thank you for the support of the change. The Reserve will continue to consider the possibility of extending this change to active landfills, but at present feels that the limitation to closed landfills is conservative and appropriate.

3.4.2.3 NMOC Threshold

7. It is our understanding that the Reserve is using the NMOC threshold as a performance-standard screening device to help distinguish regulatory installations of landfill gas control systems from voluntary ones. We recommend striking all of the first paragraph of this section, except the first sentence, as this paragraph provides confusing and unnecessary information which implies this screening device is only appropriate in cases where NMOC air emissions are a factor, and our experience with CAR indicates that this is not its intention. **(TerraPass)**

RESPONSE: The NMOC threshold does indeed apply only to those landfills which are required to treat NMOC air emissions. This language has been retained.

5 Quantifying GHG Emission Reductions

8. [pg. 17] Although the annual verification requirement has been defined for quite some time, we would like to remind the Reserve that for small projects it may not be economical to verify on an annual basis. This may actually limit the number of small projects that are developed. Perhaps the Reserve could make an exception for projects estimated to generate below a certain threshold of CRTs per year. **(EcoSecurities)**

RESPONSE: The Reserve is aware of the significant costs associated with verification for smaller projects. This issue is not unique to landfill projects, and as such will be considered in the broader context of the Climate Action Reserve program. At this time, however, we maintain the requirement for annual verification.

5.1 Quantifying Baseline Emissions

9. [pg. 20, Equation 5.3] The equation states that the discount factor, DF to be used to account for uncertainties associated with the monitoring equipment may have values ranging from 0 to 0.25. Section 6.1 is referenced for further information. However Section 6.1, only states the instances for the use of a DF value of 0.10 or 0.20 corresponding to weekly or monthly methane concentration measurements. It is unclear when values of 0.05, 0.15 and 0.25 are to be used. **(EcoSecurities)**

RESPONSE: Noted and corrected. The language has been edited as suggested to provide only for a DF value of 0.10 or 0.20.

6 Project Monitoring

10. It is TerraPass' understanding that the Reserve has adopted Figure 6.1 and several other aspects of the Landfill Project Protocol from CDM's ACM0001. However, when asked whether a single flow meter would suffice to meter landfill gas delivered to a power plant (as pictured in Figure 6.1), the Reserve's initial response was that this would be insufficient and that one flow meter would be required for each new generator within one power plant. TerraPass requests that the Reserve reconsider its previously stated position and adopt the relevant terms and definitions from the CDM that have been used

RESPONSE: Agreed. The Reserve has included additional language to provide the requested flexibility in metering multiple identical destruction devices via a single flow meter.

6.1 Monitoring Requirements

11. [pg. 28] The discount factor for weekly measurements of methane concentration is 10%. If measurements are taken daily, what discount factor is to be used? (**EcoSecurities**)

RESPONSE: The Reserve has clarified the language and specified that the 10% discount applies to any measurement frequency less often than 15 minutes, but no more than 1 week.

6.2 Instrument QA/QC

12. [pg. 30] It is unclear whether the cleaning, inspection and quarterly field accuracy checks need to be conducted by a third party. (**EcoSecurities**)

RESPONSE: The Reserve has clarified this point in the protocol. Cleaning and inspection do not need to be conducted by a third-party. Field checks and calibrations, however, do need to be conducted by a third-party.

13. [pg. 30] What are the maintenance requirements for portable methane analyzers? The QA/QC requirements noted for continuous flow meters and continuous gas analyzers are not readily applicable to handheld methane analyzers and the resulting interpretations can be cause for variability and confusion. EcoSecurities recommend following the manufacturer's recommendations for calibration (manufacturer or certified technician) and weekly field calibration (the 10% discount on non-continuous measurements accounts for conservativeness). [See TerraPass public comment submission for more information.] (**TerraPass, EcoSecurities**)

RESPONSE: Calibration requirements for handheld devices have been added to the protocol.

14. TerraPass requests that the Reserve clarify its meaning of the phrase "on a quarterly basis." One interpretation of this phrase could be "occurring once per quarter." Similarly, TerraPass understands that "weekly" means "once per week." However, we have encountered different interpretations of this text during verification activities. Please offer more exact language. (**TerraPass**)

RESPONSE: The Reserve has clarified this meaning in a footnote on page 30, which reads "For the purposes of this protocol, quarterly is defined as once per each three month period."

15. TerraPass requests that the Reserve detail what actions will be taken or discounts applied, if any, for missing a quarterly cleaning and inspection, considering that

discounts are already built-in to project calibrations and calibration checks. Transparency in this matter will benefit project developers by allowing any risks associated with the cleaning and inspection schedule to be properly assessed and conveyed to project owners. **(TerraPass)**

RESPONSE: The Reserve has added language to the protocol indicating that no emission reductions may be credited for periods when these requirements have not been met.

16. Required periodic calibration, field check, inspection and cleaning events do not always occur at the scheduled time. Many devices and the equipment used in their calibration are able to perform “as found” tests which provide rigorous evidence of reading errors. We suggest that the Reserve provide guidance for circumstances where a meter has missed a scheduled calibration but an “as found” check or calibration finds the device to be within acceptable tolerances. To be clear, this is a different circumstance than a “failed calibration.” **(TerraPass)**

RESPONSE: The Reserve has added language to the protocol indicating that no emission reductions may be credited for periods when these requirements have not been met.

17. This protocol requires that projects monitor and record the hourly operational activity of gas destruction devices in order to ensure that gas is not being sent to an inoperable device and subsequently vented to the atmosphere. In most instances this requirement is unnecessary as the majority of destruction devices *cannot* accept gas if the device is not operating. We recommend that if a destruction device can be verifiably demonstrated to be “closed” to gas flow at the location of the flow meter when the destruction device is not combusting whether due to a planned and unplanned shut-down event, then an hourly record of operations is unnecessary. [See TerraPass public comment submission for more information.] **(TerraPass)**

RESPONSE: Noted. The Reserve will explore this option for some destruction devices; however it is the feeling of staff that a better understanding of these devices is needed before this approach is adopted.

18. [pg. 30] Please amend footnote 25 as follows (the appended words are in red italics):

²⁵ Field checks and calibrations of the flow meters shall assess the volumetric output of the flow meter, *or verify that the meter has not shifted or drifted since original factory calibration.*

The reason for this requested change in the Protocol is to permit users who have a Sage Metering Thermal Mass Flow Meter or Landtec Thermal Mass Flow Meter (manufactured by Sage) to take advantage of its unique capability to provide a Sensor Functionality and Zero Calibration Self Check. The digital drive and unique temperature compensation mapping of the Sage technology, allows Sage to provide this methodology. [Please see the accompanying excerpt in the Sage Metering public comment submission.] **(SM)**

RESPONSE: Noted. This language has been modified slightly to allow flexibility in demonstrating meter accuracy. However, the suggested language has not been included verbatim.

6.3 Missing Data

19. [pg. 31] Reference to Appendix E for data substitution is missing (“...methodology provided in 0”). **(EcoSecurities)**

RESPONSE: Noted. This has been corrected.

Table 6.1 Monitoring Data to be Collected and Used to Estimate Emission Reductions

20. [pg. 32] The operation of the destruction device is a monitoring parameter with an hourly measurement frequency. However, it is unclear how this is to be monitored. For instance, are the continuous thermocouple readings sufficient to meet this requirement? How is a pipeline project to be monitored adequately? In the case of electricity generation, most genset computers record and totalize engine run hours, but does this really need to be recorded each hour, or is the totalized value on a monthly basis sufficient? **(EcoSecurities)**

RESPONSE: Noted. Additional guidance and clarification has been added.

21. [pg. 34] The requirement to aggregate flow volumes on a daily basis seems unnecessary. Clearly, aggregations must be done at a minimum on a monthly basis so that vintages can be determined. The added value of daily aggregation is unclear and creates an additional level of complexity to CRT calculation workbooks. **(EcoSecurities)**

RESPONSE: The Reserve acknowledges that this process adds complexity, but nonetheless feels that this procedure is necessary to uphold the integrity of the data.

22. [pg. 36, table item ‘Equation 5.9’] It is stated that the total electricity consumed by the landfill gas collection system can be obtained either by on-site metering or through utility purchase records. Usually utility bills are for the entire facility and not just the collection and destruction system. Some projects may choose to install on-site metering for the collection and destruction system, only. In such instances, the calibration requirements of electricity meters have not been mentioned in the protocol. **(EcoSecurities)**

RESPONSE: Emissions from electricity use are small relative to the overall project. As such, the Reserve is comfortable deferring to verifier professional judgment in assessing the accuracy of these meters.

8 Glossary of Terms

23. [pg. 39] You are proposing that a closed site is defined as no longer accepting waste and having initiated final closure. We don’t think the second part of that definition should be there, as it does not define “initiated” final closure. Having stopped accepting waste should be good enough. One could argue that the concept of "initiated final closure

plans" is ambiguous and is inconsistent with Federal Practice particularly for Subtitle D and NSPS landfills, and common industry standards/concepts. Thus we recommend: A closed landfill is closed when it ceases waste acceptance (and has submitted a closure report to EPA or the state or the climate action registry indicating it will no longer accept waste). [See SWICS public comment submission for more detailed information.]
(SWICS)

RESPONSE: Agreed. The definition of a closed landfill has been modified per SWICS suggestion.

Appendix D Pre-Project Monitoring and Calculation of LFG_{PP1} and PP_{CH4}

24. [pg. 57, Equation D.1] In Equations 5.6 and 5.7, $Closed_{discount}$ and $NQ_{discount}$ are defined, and Appendix D is referenced for guidance on calculation of LFG_{PP1} and LFG_{PP2} . However, Appendix D, Equation D.1 provides a separate equation to calculate $Closed_{discount}$ and $NQ_{discount}$ and discusses monitoring requirements for LFG and PP_{CH4} . Appendix D should explain how LFG_{PP1} , LFG_{PP2} and PP_{CH4} are calculated based on the 90% upper confidence limit. **(EcoSecurities)**

RESPONSE: Noted and corrected. The equations in the Appendix have been modified to more cleanly tie together with the equations in the body of the protocol.