Landfill Project Protocol Version 3.0
ERRATA AND CLARIFICATIONS

The Climate Action Reserve (Reserve) published its Landfill Project Protocol Version 3.0 (LFPP V3.0) in December 2009. While the Reserve intends for the LFPP V3.0 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 LFPP V3.0.[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 LFPP 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 LFPP.

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 LFPP are contained in this single document.

Errata and Clarifications (arranged by protocol section)

Section 3

Section 5

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Appendix D

Section 3

1. Pilot or Temporary Flares (ERRATUM – June 25, 2010)

Section: 3.4.1 (The Performance Standard Test)

Context: On page 8 of LFPP V3.0, the protocol states that "[d]estruction devices that were installed temporarily and utilized only for pilot or testing purposes shall not be considered in determining project eligibility." By being excluded from eligibility determinations, these devices also are not considered in quantifying emission reductions.

Correction: The protocol shall be corrected to read "[d]estruction devices that were installed temporarily and utilized only for pilot or testing purposes shall not be considered in determining project eligibility or quantification."

2. Pilot or Temporary Flares (CLARIFICATION – June 25, 2010)

Section: 3.4.1 (The Performance Standard Test)

Context: On page 8 of LFPP V3.0, the protocol states that "[d]estruction devices that were installed temporarily and utilized only for pilot or testing purposes shall not be considered in determining project eligibility." This provision was added to the protocol to accommodate circumstances where collection and/or destruction were used for a limited duration to explore the feasibility of a landfill gas project. In these instances, there may be equipment installed in a pilot phase to test gas flow and/or quality, and this occurs prior to the project start date. Previous versions of the protocol required that this destruction be deducted as it occurred prior to the project start date, despite the fact that this destruction results as a direct consequence of the landfill project. It has come to the Reserve's attention that there is confusion as to the rationale behind this added provision in Version 3.0 of the protocol, and confusion about what is meant by "installed temporarily and utilized only for pilot or testing purposes."

Clarification: A pre-project deduction is not necessary when a destruction device was explicitly installed as a direct precursor to the project activity as an information gathering exercise and was installed temporarily, and must be verifiable through appropriate supporting documentation.

3. Attestations (CLARIFICATION – June 25, 2010)

Section: 3.4.2 (The Legal Requirement Test); 3.5 (Regulatory Compliance)

Context: The LFPP V3.0 makes reference to the Regulatory Attestation form. As written, the Regulatory Attestation is used to meet both the Legal Requirement Test and the Regulatory Compliance requirement. However, the Reserve no longer uses the Regulatory Attestation form and instead has developed two separate forms – the Attestation of Voluntary Implementation and the Attestation of Regulatory Compliance – for this purpose. These forms are described in the Reserve Program Manual.

Clarification: The Legal Requirement Test and Regulatory Compliance require execution of the Attestation of Voluntary Implementation and the Attestation of Regulatory Compliance, respectively.

4. Legal Requirement Test for Landfills in California (CLARIFICATION – August 16, 2012)

Section: 3.4.2.2 (State and Local Regulations, Ordinances and Permitting Requirements)

Context: Section 3.4.2 of the protocol states that if an eligible project begins operation at a landfill that later becomes subject to a regulation that calls for the installation of a landfill gas control system, GHG reductions may be reported to the Reserve up until the date that installation is legally required to be operational. The second paragraph of Section 3.4.2.2 on page 10 makes reference to ongoing work by the California Air Resources Board to develop a landfill methane control measure (later adopted June 17, 2010).[2] However, this section does not provide guidance on how landfill projects are to determine the status of their eligibility in regards to the Legal Requirement Test for additionality.

Based on the thresholds and timelines contained within the regulation, the Reserve has developed the following guidance for determining the additionality of landfill projects in California, provided that the projects meet all other requirements of the protocol.

Clarification: The California Landfill Methane Control Measure requires an active landfill gas control system (GCCS) to be installed and operated at MSW landfills that exceed the following two thresholds:[3]

- Size threshold: The regulation only applies to landfills with greater than 450,000 tons waste-in-place (WIP)
- LFG threshold: If a landfill exceeds the size threshold, the regulation only applies if the calculated heat input capacity exceeds 3.0 MMBtu/hr

Landfill projects at active landfills that had exceeded both thresholds and had begun operation of a GCCS prior to June 17, 2010 are eligible to receive CRTs for landfill gas destruction that occurs until December 17, 2012.[4] If the same is true at a landfill that was closed or inactive as of June 17, 2010, eligibility extends until December 17, 2013.[5]

Landfill projects with a start date after June 17, 2010 must assess their status against the regulatory thresholds on an ongoing basis. Any project with a start date after June 17, 2010, but prior to exceeding both thresholds must report its landfill's WIP to the Climate Action Reserve during each verification, as of the end of the previous calendar year. Once the size threshold has been exceeded, the project must also calculate the landfill's heat input capacity according to the regulation[6] and report this figure during each verification, as of the end of the previous calendar year (beginning the year the size threshold is exceeded). If the LFG threshold is exceeded, the project will remain eligible for a period of 30 months for active landfills and 42 months for closed or inactive landfills following December 31 of the year in which the LFG

[2] http://www.arb.ca.gov/cc/landfills/landfills.htm
[3] If a landfill exceeds both thresholds, there is a third, optional threshold for surface emissions specified in the regulation. For the purposes of this policy, it is conservative to assume that this optional testing and reporting would not have been carried out in the baseline scenario and thus is not included in this guidance.
[4] In the baseline scenario for these sites, a design plan would have been required to be submitted by June 17, 2011. Upon approval of that design plan, the system would have been required to be operational within 18 months, or by December 17, 2012.
[5] Closed or inactive landfills are allowed 30 months from the approval of the GCCS design plan before the system must be operational.
[6] A tool for the annual quantification of landfill gas heat input capacity is available at: http://www.arb.ca.gov/cc/landfills/landfills.htm

threshold was exceeded. For example, a landfill project verifying a reporting period covering January 2011 through December 2011 would report its WIP and heat input capacity as of December 31, 2011. A landfill project verifying a reporting period covering June 2011 through June 2012 would report its WIP and heat input capacity as of December 31, 2011.

Any project with a start date that occurs after exceeding both thresholds is not eligible.

In all cases, a project must still meet all other criteria of the Landfill Project Protocol.

Example Scenario	Climate Action Reserve Eligibility Status
A project began operation in 2009, having already exceeded the size and LFG thresholds in the regulation. The landfill remains open and active.	Project is eligible until December 17, 2012.
A project began operation in 2009, having already exceeded the size and LFG thresholds in the regulation. The landfill remains open and active. However, the GCCS does not currently meet the requirements of the regulation and must be modified or upgraded.	Project is eligible until December 17, 2012.
A project began operation in 2009. As of December 31, 2011 the landfill has 400,000 tons of WIP. The landfill continues to receive waste.	Project must monitor and report WIP on a calendar year basis. Once the size threshold is exceeded, project must calculate and report heat input capacity on a calendar year basis. Once the LFG threshold is exceeded, the project is eligible for 30 months if the landfill is active and 42 months if the landfill is closed or inactive.
A project began operation in 2011. As of December 31, 2012, the landfill has exceeded the size and LFG thresholds for the first time. The landfill continues to receive waste.	Project is eligible until June 30, 2014.
A project began operation in 2011. The landfill's report to the ARB for the reporting year 2010 indicated that the site had exceeded both the size and LFG thresholds.	Project is not eligible.
A landfill has exceeded both regulatory thresholds and has submitted a design plan to ARB, but has not yet received approval or begun installation.	Project is not eligible.

Section 5

5. Determining OX (CLARIFICATION – July 11, 2011)

Section: 5.1 (Quantifying Baseline Emissions)

Context: Footnote 19 on page 18 provides guidance for determining the value of OX (used in Equation 5.3) to account for the oxidation of methane by soil bacteria. This guidance is also found in Equation 5.3 on page 20. The project is instructed to use an OX value of 0% for landfills where a synthetic liner is used as a component of the final cover system, and a value of 10% for all other landfills. It is not clear what value should be used for landfills where some portion of the final cover system uses a synthetic liner, and another portion does not.

Clarification: The first sentence of Footnote 19 on page 18 should read: "Landfill cover systems incorporating a synthetic liner throughout the entire area of the final cover system should use a default methane oxidation rate of zero." The second sentence of the guidance for OX in Equation 5.3 should read: "Equal to 0.10 for all landfills except those that incorporate a synthetic liner throughout the entire area of the final cover system, where OX = 0."

6. Equation 5.3 (ERRATUM – January 4, 2011)

Section: 5.1 (Quantifying Baseline Emissions)

Context: On page 19 of LFPP V3.0, Equation 5.3 is used to calculate the baseline emissions. The equation printed in the protocol accounts for oxidation of methane destroyed during the project, but not to the $Dest_{base}$ factor for pre-project destruction. The oxidation factor should be applied to all methane destruction. As written, Equation 5.3 reads as follows:

$$BE = \left(CH_4 Dest_{PR}\right) \times 21 \times \left(1 - OX\right) \times \left(1 - DF\right) - Dest_{base}$$

Correction: Equation 5.3 shall be corrected to read as follows:

$$BE = \left(CH_4 Dest_{PR}\right) \times 21 \times \left(1 - OX\right) \times \left(1 - DF\right) - Dest_{base} \times \left(1 - OX\right)$$

7. Calculating Baseline Emissions (CLARIFICATION – June 18, 2015)

Section: 5.1 (Quantifying Baseline Emissions)

Context: Equation 5.3 on page 20 provides guidance for how to calculate baseline emissions during the reporting period, including discounts that must be applied to account for oxidation and uncertainties associated with monitoring equipment.

The oxidation factor (OX) accounts for the oxidation of methane by soil bacteria. The protocol requires that an OX discount be applied if the landfill does not incorporate a synthetic liner throughout the entire area of the final cover system. No guidance is provided for how to apply the OX discount factor for cover systems that were in place for less than a full reporting period.

The discount factor for uncertainties associated with monitoring equipment (DF) is applied to projects where methane concentration values were taken weekly, rather than continuously. No guidance is provided for how to apply the DF discount factor for methane concentration readings that were taken on a weekly basis using a portable gas analyzer for only part of the reporting period.

Clarification: The intent of the protocol is that both the OX discount factor and the DF discount factor shall only be applied to periods of time during the reporting period for which each factor is applicable. The OX discount factor shall only be applied for the number of days during the reporting period when the landfill did not incorporate a synthetic liner throughout the entire area of the final cover system. The DF discount factor shall only be applied for the number of days during the reporting period when methane concentration values were taken at a frequency that is less than continuous (every 15 minutes). Thus, Equation 5.3 may be calculated separately for different portions of the reporting period, with the results summed to provide a total BE value for the entire reporting period.

8. Service Providers for Site-Specific Destruction Efficiency Testing (CLARIFICATION – January 21, 2014)

Section: 5.1 (Quantifying Baseline Emissions)

Context: Footnote 21 on page 21 states that service providers used to determine site-specific values for methane destruction efficiency must be "state or local agency accredited." It is not clear what specific options are available and permissible to projects located in a state or locality which does not have an accreditation program for source test service providers. The last paragraph of Section 6.2 on page 31, the comment section of Table 6.1 for Equation 5.4 (DE_i) on page 34, and the first paragraph on page 62 of Appendix C contain similar language.

Clarification: The intent of this requirement is to ensure that any source testing conducted for the determination of a site specific value for methane destruction efficiency is of a quality that would be acceptable for compliance by a regulatory body. The following text shall be added to the end of footnote 21 on page 21, after the last paragraph of Section 6.2 on page 31, to the end of the comment section of Table 6.1 for Equation 5.4 (DE_i) on page 34, and after the first paragraph on page 62 of Appendix C:

> "If neither the state nor locality relevant to the project site offer accreditation for source testing service providers, projects may use an accredited service provider from another U.S. state or domestic locality. Alternatively, projects may choose a non-accredited service provider, under the following conditions: 1) the service provider must provide verifiable evidence of prior testing which was accepted for compliance by a domestic regulatory agency, and 2) the prior testing procedures must be substantially similar to the procedures used for determining methane destruction efficiency for the project destruction device(s)."

9. Application of Pre-Project Destruction Adjustment (CLARIFICATION – July 11, 2011)

Section: 5.1 (Quantifying Baseline Emissions)

Context: Equation 5.5 on page 22 of LFPP V3.0 is used to calculate the pre-project adjustment associated with LFG destruction in the project baseline. This equation collects the three potential discounts that may be calculated to account for destruction in the baseline scenario ($Dest_{base}$): $Closed_{discount}$, $NQ_{discount}$, and $Dest_{max}$. The protocol does not specify the time period over which this equation should be totaled.

Equation 5.8 refers to time interval t as the "Time interval for which LFG flow and concentration measurements are aggregated. Equal to one day for continuously monitored methane concentration and one week for weekly monitored methane concentration." It is not clear whether $Dest_{max}$, and thus $Dest_{base}$, should be summed for the entire reporting period, or whether it is permissible to sum these discounts more frequently.

The frequency will only affect the calculation of baseline emissions (Equation 5.3) during periods when the amount of methane destroyed (Equation 5.4) is less than the value of $Dest_{base}$. As shown in Box 5.1 on page 25, a negative value for project reductions is taken as a zero. The example in Box 5.1 is calculated on an annual basis, but it would also apply for sub-annual calculations.

Clarification: On page 22, the following sentence is to be added above Equation 5.5: "The time period over which the value of $Dest_{base}$ is calculated using Equation 5.5 shall be chosen by the project developer, but cannot be less than weekly, and must be applied consistently throughout the reporting period."

10. Determining LFG_{PP2} (CLARIFICATION – June 25, 2010)

Section: 5.1 (Quantifying Baseline Emissions)

Context: Equation 5.7 on page 23 of LFPP V3.0 is used to calculate the pre-project adjustment associated with non-qualifying devices in the project baseline. If monitoring data is not available to estimate the term LFG_{PP2}, the maximum capacity of the pre-project device may be used, per Table 6.1. However, the protocol does not provide explicit guidance in this scenario on the appropriate PP_{CH4} value to be applied.

Clarification: If the term LFG_{PP2} in Equation 5.7 is equal to the maximum capacity of the pre-project non-qualifying device(s) because monitoring data is not available, the term PP_{CH4} shall be equal to the average monitored methane concentration over the reporting period.

11. Equation 5.12 (ERRATUM – June 25, 2010)

Section: 5.2 (Quantifying Project Emissions)

Context: On page 27 of LFPP V3.0, Equation 5.12 is used to calculate the project emissions associated with the use of supplemental fuels. This includes both the emissions of carbon dioxide of oxidized fuel, as well as the emissions of un-combusted fuel. This equation omits the conversion factors from scf to lbs of methane, and from lbs to tonnes when calculating the quantity of carbon dioxide emissions. As written, Equation 5.12 reads as follows:

$$FF_{CH_4} = \sum_i \left[FF_i \times \left[\left(\left(1 - DE_i\right) \times 0.0423 \times 0.000454 \times 21 \right) + \left(DE_i \times \frac{12}{16} \times \frac{44}{12} \right) \right] \right] \times FFG_{CH4}$$

Correction: Equation 5.12 shall be corrected to read as follows:

$$FF_{CH_4} = \sum_i \left[FF_i \times FFG_{CH4} \times 0.0423 \times 0.000454 \times \left[\left(\left(1 - DE_i\right) \times 21 \right) + \left(DE_i \times \frac{12}{16} \times \frac{44}{12} \right) \right] \right]$$

Section 6

12. Metering Multiple Destruction Devices (CLARIFICATION – October 26, 2011)

Section: 6.1 (Monitoring Requirements)

Context: Footnote 23 on page 28 states that: "A single meter may be used for multiple, identical destruction devices. In this instance, methane destruction in these units will be eligible only if both units are verified to be operational."

The Reserve has determined that in certain situations it may be acceptable for one flow meter to be used to monitor the flow of gas to multiple destruction devices without fulfilling the requirement that they be identical or that they all be operational. Such an arrangement will require extra steps for verification, depending on the situation and the monitoring data that are available.

Clarification: The following text shall replace footnote 23 on page 28:

"A single flow meter may be used for multiple destruction devices under certain conditions. If all destruction devices are of identical efficiency and verified to be operational, no additional steps are necessary for project registration. Otherwise, the destruction efficiency of the least efficient destruction device shall be used as the destruction efficiency for all destruction devices monitored by this meter.

If there are any periods when not all destruction devices are operational, methane destruction during these periods will be eligible provided that the verifier can confirm all of the following conditions are met:

a. The destruction efficiency of the least efficient destruction device in operation shall be used as the destruction efficiency for all destruction devices monitored by this meter; and

b. All devices are either equipped with valves on the input gas line that close automatically if the device becomes non-operational (requiring no manual intervention), or designed in such a manner that it is physically impossible for gas to pass through while the device is non-operational; and

c. For any period where one or more destruction device within this arrangement is not operational, it must be documented that the remaining operational devices have the capacity to destroy the maximum gas flow recorded during the period. For devices other than flares, it must be shown that the output corresponds to the flow of gas."

13. Arrangement of LFG Metering Equipment (CLARIFICATION – July 11, 2011)

Section: 6.1 (Monitoring Requirements)

Context: The first sentence of footnote 24 on page 29 states "Methane fraction of the landfill gas to be measured on a wet/dry basis (must be measured on same basis as flow, temperature, and pressure)." However, there is the alternative arrangement of measuring methane content (along with temperature and pressure) on a wet basis and flow rate on a dry basis that would result in a conservative calculation of the fraction of methane in the landfill gas. This is because after the gas is de-watered, the methane fraction will be larger, while the overall volume of gas will be smaller. If methane fraction is measured on a wet basis and flow is measured on a dry basis, the resulting figures for methane volume will always be lower than if both measurements were taken on the same basis (both wet or both dry). The reverse situation, where methane fraction is measured on a dry basis and flow measured on a wet basis, would consistently result in over reporting, and would not be conservative.

Clarification: The following sentence shall be inserted after the first sentence of footnote 24 on page 29: "The methane analyzer and flow meter should be installed in the same relative

placement to any moisture-removing components of the landfill gas system (there should not be a moisture-removing component separating the measurement of flow and methane fraction). An acceptable variation to this arrangement would be in the case where the flow meter is placed after a moisture-removing component (dry basis), while the methane analyzer is placed before this component (wet basis). The opposite arrangement is not permissible."

14. Monitoring Operational Status (CLARIFICATION – October 8, 2013)

Section: 6.1 (Monitoring Requirements)

Context: The first paragraph of page 30 in Section 6.1 states that "operational activity of the landfill gas collection system and the destruction devices shall be monitored and documented at least hourly to ensure actual landfill gas destruction."

Certain types of destruction devices, such as internal combustion engines and most large boiler systems, are designed in such a way that gas may not flow through the device if it is not operational. It has not been clear how the requirements of Section 6.1 apply to these devices. There has been confusion related to the Clarification issued on October 26, 2011 regarding Metering Multiple Destruction Devices.

Clarification: The Clarification regarding Metering Multiple Destruction Devices (October 26, 2011) shall not be construed to relax the requirement for hourly operational data for all destruction devices. Rather, that clarification is allowing a specific metering arrangement during periods when one or more devices are *known* to not be operating. In order to know the operational status of a device, it must be monitored. All destruction devices must have their operational status monitored and recorded at least hourly. In other words, the project dataset will include an indication of operational status corresponding to each hour of landfill gas data. If these data are missing or never recorded for a particular device, that device will be assumed to be not operating and no emission reductions may be claimed for landfill gas destroyed by that device during the period when data are missing.

15. Verifying Off-Site Destruction in Direct Use Projects (CLARIFICATION – January 14, 2015)

Section: 6.1 (Monitoring Requirements)

Context: The protocol requires that "operational status of destruction devices be monitored and documented at least hourly" (Section 6.1, page 30). A clarification issued on October 8, 2013 ("Monitoring Operational Status") reiterates that this requirement applies to all destruction devices.

In scenarios where landfill gas is supplied to a third party end-user via a dedicated pipeline pursuant to a direct use agreement, the project developer may have no management control over the off-site destruction device. It has been unclear whether the operational status of those destruction devices must be monitored, or what alternative assurance may be given to verifiers to confirm that the destruction device is operational and project biogas is being destroyed.

Clarification: The following text shall be inserted after the first paragraph of page 30 in Section 6.1:

"In scenarios where landfill gas is delivered off-site to a third party end user (not to a commercial natural gas transmission and distribution system or to a facility under management control of the project operator), reasonable efforts must be made to obtain data demonstrating the operational status of the destruction device(s). If it is not possible to obtain such data, the verifier must use their professional judgment to confirm that there has been no significant release of project landfill gas and that the project developer is using the appropriate destruction efficiency value. Evidence that may assist a verifier in making a determination to that effect may include, but is not limited to, one or more of the following:

- a signed attestation from the third party operator of the destruction device that no catastrophic failure of destruction or significant release of landfill gas occurred during the reporting period;
- the verifier confirming the same via an interview with the third party operator;
- examination of the safety features and/or design of the destruction equipment, such that the destruction device does not allow landfill gas to pass through it when non-operational and/or that the project developer is able to switch off the flow of landfill gas off-site in the event of emergencies;
- records that can corroborate the type and level of operation of the destruction device during the reporting period, such as engine output data, etc.

If the verifier is reasonably assured that no significant release of landfill gas has occurred off-site during the reporting period, the project can use the destruction efficiency appropriate to that off-site destruction device, despite the lack of hourly data from a monitoring device confirming operational status."

16. Meter Field Check Procedures (CLARIFICATION – October 8, 2013)

Section: 6.2 (Instrument QA/QC)

Context: The second paragraph below the first bulleted list of page 30 in Section 6.2 states that "if the field check on a piece of equipment reveals accuracy outside of a +/- 5% threshold, calibration by the manufacturer or a certified service provider is required for that piece of equipment."

Certain types of gas flow meters and methane analyzers are susceptible to measurement drift due to buildup of moisture or contaminants on the metering sensor, even if the equipment itself is not out of calibration. If the as-found condition of the meter is outside of the accuracy threshold, but the as-left condition (after cleaning) is within the accuracy threshold, it is not clear whether a full calibration is still required for this piece of equipment. In some cases the manufacturer provides specific guidance to that no further calibration is required if the as-left condition shows the meter to be in calibration.

Clarification: The as-found condition (percent drift) of a field check must always be recorded. If the meter is found to be measuring outside of the +/- 5% threshold for accuracy, the data must be adjusted for the period beginning with the last successful field check or calibration event up until the meter is confirmed to be in calibration (unless the last event was during a prior to the current reporting period, in which case adjustment is made back to the beginning of the current reporting period). If, at the time of the failed field check, the meter is cleaned and checked again, with the as-left condition found to be within the accuracy threshold, a full calibration is not

required for that piece of equipment. This shall be considered a failed field check, followed by a successful field check. The data adjustment shall be based on the percent drift recorded at the time of the failed field check. However, if the as-left condition remains outside of the +/- 5% accuracy threshold, calibration is required by the manufacturer or a certified service provider for that piece of equipment.

17. Field Check Requirements (CLARIFICATION – October 26, 2011)

Section: 6.2 (Instrument QA/QC)

Context: Section 6.2 sets the minimum field check requirements for flow meters and methane analyzers, but allows project developers to conduct field checks more frequently to minimize the risk of drift-related deductions. The protocol states that the field check at the end of the reporting period must be performed by a third-party technician, but it is not clear if additional field checks carried out at the project developer's discretion must also be performed by third-party technicians. Furthermore, it is not clear what action is required if the discretionary field check reveals accuracy outside of the +/- 5% threshold, or how a verification body should treat field checks not performed by a third party.

Clarification: The field check that is required to occur within the last two months of the reporting period must be carried out by a third-party technician. At other times during the reporting period, field checks are not required to be performed by a third-party technician. However, any field check that is not performed by a third-party technician shall be subject to additional verifier scrutiny, and may be deemed invalid for satisfying the requirements of Section 6.2. The following text shall be added to Section 6.2:

> "Additional field checks carried out during the reporting period at the project developer's discretion may be performed by an individual that is not a third-party technician. In this case, the competency of the individual and the accuracy of the field check procedure must be assessed and approved by the verification body. Furthermore, if the field check reveals accuracy outside of the +/- 5% threshold, calibration is required and the data must be scaled as detailed above."

18. Portable Instrument QA/QC (CLARIFICATION – June 3, 2013)

Section: 6.2 (Instrument QA/QC)

Context: Section 6.2 (page 31) states that: "If a portable instrument is used (such as a handheld methane analyzer), the portable instrument shall be maintained and calibrated per the manufacturer's specifications, and calibrated at least annually by the manufacturer, by a laboratory approved by the manufacturer, or at an ISO 17025 accredited laboratory."

It has been unclear what sort of portable instruments must satisfy this requirement. Some portable pieces of equipment are used in the process of the field check, but are not themselves instruments that are able to measure and produce data. The Reserve has determined that all portable instruments used for field checks and calibrations that have the ability to measure the parameter that the meter in question would normally measure must themselves be calibrated annually. Some devices however, namely those pieces of equipment that do not produce a data output that could be used in emission reduction calculations, are not considered to be "portable instruments" per the protocol requirement, and must simply be maintained and calibrated according to the manufacturer's specifications.

Clarification: The following text shall replace the third paragraph (cited above) on page 31:

"If a portable instrument either:

1. acquires project data (e.g. a handheld methane analyzer is used to take weekly methane concentration measurements), or

2. is used to field check the calibration accuracy of equipment that acquires project data and the portable instrument produces a data output that is or could be used in emission reduction calculations (i.e. flow or concentration),

the portable instrument shall be maintained and calibrated per the manufacturer's specifications, and calibrated at least annually by the manufacturer, by a laboratory approved by the manufacturer, or at an ISO 17025 accredited laboratory. Other pieces of equipment used for QA/QC of monitoring instruments shall be maintained according to the manufacturer's specifications, including calibration where specified."

Appendix C

19. Determining DE (CLARIFICATION – July 11, 2011)

Section: Appendix C (Emission Factor Tables)

Context: On page 62, 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 a conservative value appropriate for scenarios where the methane component of the landfill gas is injected into a natural gas transmission and distribution system and ultimately distributed to an unknown end-user in the residential or commercial sector, or to an industrial plant or power station. This default factor is not intended to be used for scenarios where landfill gas is destroyed by a third party under a direct-use agreement. In this 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 C.3 on page 62 shall be clarified to read "Upgrade and injection into natural gas *transmission and distribution* pipeline."

Appendix D

20. QA/QC Requirements for Pre-Project Monitoring (CLARIFICATION – July 11, 2011)

Section: Appendix D (Pre-Project Monitoring and Calculation of LFG_{PP1} and PP_{CH4})

Context: The last paragraph in the Monitoring section of Appendix D, on page 64, states that "All metering equipment used in pre-project monitoring is subject to the same maintenance, calibration, and QA/QC requirements outlined previously for project metering equipment."

However, it is not clear how to treat a project that is submitted under one version of the protocol and carries out their pre-project monitoring, and then upgrades to a newer version of the protocol prior to registration. Projects are generally encouraged to upgrade to newer versions of protocols, but in the case of pre-project monitoring that was carried out in the past, it may not be possible to meet the QA/QC requirements of the newer protocol version. The Reserve will allow for this scenario only in the instance noted below and it must be specifically addressed in the Verification Report.

Clarification: The following sentence shall be included at the end of the second paragraph on page 64: "In the case where a project does not meet the pre-project monitoring maintenance, calibration, and QA/QC requirements of this protocol version, it shall be acceptable for that project to have its pre-project monitoring, maintenance, calibration and QA/QC verified against the requirements of a previous version of this protocol, so long as it is the version that was in force on the beginning date of the project's pre-project monitoring period."