

Chile a Landfill Protocol Workgroup Meeting Notes and Takeaways

Workgroup Meeting #3 Notes – 9/30/2025 | 11:00am – 1:00pm (Santiago time)

Reserve Attendees: Celeste Melendez, Miguel López Delgado

[Link to review recording](#)

Workgroup Members in attendance:

Organization (alphabetically)	Name	Present (P) or Absent (A)
Energylab	Cristian Mosella	P
CO2CERO	Wilmer Martinez	P
ImplementaSur	Gerardo Canales	A
Grupo de Residuos Solidos Pontifica Universidad Católica de Valparaíso Chile	Marcel Szanto Nerea	A
KDM Empresas	José Santiago Zuñiga Irazabal	A
Mexico2	David Colín	P
Núcleo Biotecnología Curauma Pontificia Universidad Católica de Valparaíso	Andres Morales	P
Superintendencia del Medio Ambiente Gobierno de Chile	Karin Salazar	P
Superintendencia del Medio Ambiente Gobierno de Chile	Christian Calderón Duarte	A
Sustentalia Consultores	Javiera Labbé	P
UniCarbon	Nuno Barbosa	P
Veolia	Laura Landeta	P
VOLTA SpA	Pedro Alarcón Retamal	P
Windfall Bio	McKenzie Wilson	A

Agenda:

1. Introduction & GT
2. Protocol Considerations
 - a. Previous meeting pending questions
 - b. Summary of Sections Reviewed in previous meetings
 - i. Remaining topics
 - c. Sections to review:
 - i. Reporting Parameters
 - ii. Power Generation
 - iii. Verification Guidance
 - iv. Appendix A
 - v. Appendix B
 - vi. Appendix C
3. Next steps

Main Points of Discussion and Decisions Made:

The Reserve presented the proposed timeline for the development of the protocol, emphasizing the deadline for the Working Group (WG) to provide comments on the previously shared draft protocol.

- A WG member requested an extension of the proposed review period.
- The Reserve responded that flexibility would be granted, establishing October 9, 2025, as the deadline for submitting comments as part of the WG process.

1. Previous meeting pending questions

The Reserve reminded participants of the role of the Working Group (WG) and invited them to review the pending issues from previous meetings for which no information had been received. In addition, space was left for anyone wishing to share other comments/documents. The following points were highlighted:

- Please review the Free Prior Informed Consent and Notification and Participation (SS1 and SS2), and provide an overview of the stakeholders involved
- Regarding the SS and SA, please provide any other SA or SS proposals
- Please provide inventories or databases that track the operation of each landfill and data on landfill gas collection and control systems at any scale.
- Please provide studies and/or data to confirm that the installation of landfill gas collection and control systems is not common practice at landfills in Chile
- Please provide information on the participation of landfills projects in Chile in CDM or other international standards.
- Please confirm feasibility of the suggested arrangement for the landfill gas flow meters and methane concentration metering equipment
- Please provide further information about the potential third-party technician for the field check for calibration accuracy. Location of the instrumental labs, ownership (private/public), services and/or expertise, accreditation and/or approval from the manufacturer, and others.
- Please send any questions or additional comments on the topics presented during WG meetings 1 and 2 of this protocol.

- Currently, the Reserve's landfill protocol does not account for CO₂ reductions associated with the displacement of electricity generated by fossil fuels and supplied by the grid or the replacement of natural gas. In this regard, please submit any comments or justification as to why the protocol should account for this, if it is common practice in Chile, and a proposal on how you would assess its additionality.
 - No comments were received from the WG

2. Summary of sections reviewed in previous meetings

- The Reserve presented the revised Protocol Sections from previous meetings:

First meeting:

- Project Definition – Eligible landfills
- Project Ownership

Second Meeting

- Social and Environmental Safeguards
- Parameters/Default Values
- Social Safeguards MRV
- The GHG Assessment Boundary
- Quantifying GHG Emission Reductions
- Project Monitoring & Monitoring Requirements
- QA/QC requirements

3. Power Generation

The Reserve presented the proposal to include energy generation as an eligible activity, as follows:

- As a result of the carbon project, greenhouse gas emissions associated with fossil fuel-based energy are avoided.
- Renewable energy generated from biogas—whether in the form of electricity, heat, or upgraded biomethane—displaces the energy that would have been produced using fossil fuels such as coal, diesel, natural gas, fuel oil, etc.
- The Reserve defined the quantification of avoided emissions from fossil fuel displacement as: $\text{Avoided emissions} = \text{Energy generated} \times \text{Emission factor}$.
 - The Working Group (WG) confirmed that, in the case of fossil fuel emission factors, the values from the IPCC are generally used. In some cases, local global warming potential (GWP) values are available, but this is not the common practice. Regarding the national grid emission factor, it does exist; however, it does not follow the calculation methods used in the CDM tools. For this reason, projects calculate their own emission factor using the official data available.

4. Remain topics

- The Reserve highlighted pending issues in the following sections.
 - Section 5.1 Quantifying Baseline Emissions - The oxidation factor (OX)
The OX reflects the amount of methane from landfills that is oxidized in the soil or other material covering the waste. Well-managed landfills may have a higher OX rate than uncontrolled dump sites, where sites with thick, well aerated material differ from those with no cover. The OX shall be determined based on the following scenarios:

- Equal to 0.0 for landfills that have a geomembrane (synthetic) cover with less than 12 inches of cover soil for above, the landfill area.
- Equal to 0.10 for landfills that don't meet the condition above, and the methane flux is unknown or if the landfill does not have a soil cover of at least 24 inches for the majority of the landfill area.
- Equal to 0.10 for landfills that have a soil cover of at least 24 inches for a majority of the landfill area and the methane flux rate is greater than 70 g/m²/d.
- Equal to 0.25 for landfills that have a soil cover of at least 24 inches for the majority of the landfill area and the methane flux rate is 10 – 70 g/m²/d.
- Equal to 0.35 for landfills that have a soil cover of at least 24 inches for a majority of the landfill area and the methane flux rate is less than 10 g/m²/d.
- The WG confirmed that, in general, the value proposed by the CDM in its methodology¹ is used. It was also confirmed that OX is not reported, nor is methane flow testing a common practice in landfills in the country. In addition, there is no update of the oxidation factor at the national or regional level, nor are there officially defined values for this purpose. Furthermore, it was emphasized that OX is a variable factor that depends on many site-specific aspects of each landfill, its operating conditions, and its context. It was understood that the proposal originates from U.S. regulation and may not be fully applicable to the context of the sector in Chile. In addition, the impact of choosing one oxidation factor over another on total emission reductions (values ranging from 0 to 0.35) was noted, as such an approach would increase uncertainty for the project developer. This could represent a barrier to the implementation of landfill projects. It was also mentioned that methane flow testing could likewise be perceived as a barrier by stakeholders, whereas making it optional would be more feasible.
- The Reserve clarified that the intention is not to propose a scheme identical to that of the U.S. EPA, but rather to review this concept and assess whether processes exist for officially reporting on this factor, for reporting methane flow rates, or for the existence of a nationally or regionally defined factor. If no defined values or reporting processes are in place in the country, and no comments are received on this matter, the default factor proposed by the IPCC would, in principle, be applied, OX = 0.1 (10%).
- Section 3.4.2 Limits on Credit Stacking: Protocol credit stacking is defined as receiving both carbon credits and other types of mitigation credits for the same activity on spatially overlapping areas (i.e., in the same landfill). Projects that receive mitigation credits for upgrading landfill gas into high-Btu fuels, or other mitigation credits directly related to the project activity will not be eligible to receive offset credits for the same period of time under this protocol.

¹ Default value OX = 0,1 o 10%. Section 6.3 of the CDM TOOL 04 Methodological Tool 'Emissions from solid waste disposal sites' <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-04-v8.1.pdf>. In the CDM methodology ACM001 – 'landfill gas flaring or use' <https://cdm.unfccc.int/UserManagement/FileStorage/HEJ2MD41GB0PUZISL9FNTAYQV38750>

- No comment received from the WG
- Section 6.1 Monitoring Requirements – The Reserve discussed the requirements for non-continuous measurements (i.e., weekly) and the application of a 10% discount. When the fraction of methane in the landfill gas is not measured continuously and recorded every 15 min and averaged at least daily then a 10% discount is applied in the quantification of the baseline emissions.
 - No comment received from the WG
- Section 6.2 Instrument QA/QC The Reserve presented the concept of a field check as an on-site validation of a meter to determine drift and ensure accuracy.
 - All flow meters and continuous methane analyzers must be field checked for calibration accuracy by a third-party technician with the percent drift documented, using either a portable instrument (such as a pitot tube) or manufacturer specified guidance.
 - All flow meter, continuous methane analyzer, and portable methane analyzer field checks and calibrations must have “as found” and “as left” conditions documented, and percent drift calculated and recorded. The percent drift must be assessed relative to the expected reading rather than the full-scale reading of the device.
 - The Reserve asked for further information about the potential third-party technician for the field check for calibration accuracy. Location of the instrumental labs, ownership (private/public), services and/or expertise, accreditation or approval from the manufacturer, other.
 - No comment received from the WG

5. Sections to Review

- The Reserve presented the Protocol Sections for review
 - Reporting Parameters
 - Verification Guidance
 - Appendix A
 - Appendix B
 - Appendix C
- The Reserve presented Section 7 of the Protocol “Reporting Parameters” that provides guidance on reporting rules and procedures. The priority is to facilitate consistent and transparent information disclosure among project developers.
 - It was confirmed that all project submittal and registration documentation is listed in this section. Record keeping is also covered in this section. In addition, this section also brings clarity on Reporting Periods, Verification Periods and the Verification Site Visit Schedule
 - Project developers must submit verified emission reduction reports to the Reserve annually at a minimum.
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 - No comment received from the WG

- The Reserve presented Section 8 of the Protocol “Verification Guidance” provides verification bodies with guidance on verifying GHG emission reductions from landfill gas projects developed to the standards of this protocol.
 - Verification bodies shall confirm that the monitoring plan covers all aspects of monitoring and reporting contained in this protocol and specifies how data for all relevant parameters in Table 6.1 are collected and recorded.
 - No comment received from the WG
- The Reserve presented Table 8.1. Summary of Eligibility Criteria with the eligibility rules, the eligibility criteria and the frequency of rule application
 - The WG raised questions regarding clarity on the project start date
 - The Reserve noted that the project start date is related to the moment when the project begins to destroy/use the landfill gas continuously. Before the project begins, pilot tests may be carried out to test the landfill gas capture and destruction systems for a maximum of 9 months. The protocol also states that the project start date must be defined by the project developer, but it must be no later than 90 days after landfill gas is first destroyed in a project destruction device, regardless of whether sufficient monitoring data are available to report the reductions. The start date is defined in relation to methane destruction, not by other activities that may be associated with the initiation or development of the project.
- The Reserve presented the Section A1 National Regulation from Appendix A and requested the WG’s support to confirm the regulation presented
 - No comment received from the WG
- The Reserve presented the Section A2 Regional and Municipal Regulations and requested the WG’s support to confirm the regulation presented.
 - No comments received from the WG
- The Reserve asked the WG if there are any other relevant provincial and/or municipal law or regulations to consider and add to the Protocol.
 - No comments received from the WG
- The Reserve presented the Appendix B Development of the Performance Standard Threshold and encouraged the WG to review the section in detail and send comments and/or documentation for its finalization. The Section was divided into:
 - Waste management Practices in Chile
 - Participation in the Carbon Market
 - Recommendation for Performance Standard

The Reserve requested more information about the landfills functioning in the country and any capture and destruction systems functioning, installed, or in development. Besides, requested confirmation that the capture and destruction of landfill gas is not common practice

- No comments received from the WG

- The Reserve presented the Appendix C Emissions Factors and noted that some documents and information have already been shared, which will be reviewed and incorporated into the protocol as appropriate
 - No comments received from the WG

Other WG matters

- The WG requested additional information on social and environmental safeguards and whether standardized templates exist.
- The Reserve confirmed that standardized templates are available and that the protocols also provide guidance.
- The WG sought clarification on the origin of the data substitution appendix and its relation to any existing regulation. In addition, it was confirmed that comments will be provided regarding the standardization of data presentation.
- The Reserve confirmed that this approach is present in all landfill protocols.

6. Next steps

Working Group notes: The Reserve team will compile summarized notes on the discussion of the third WG meeting, which will be open for any comments until **October 7**. Following this, the recording, notes, and presentation will be published on the website: <https://climateactionreserve.org/es/how/protocols/waste/chile-landfill/dev/>

- **Working Group on the draft protocol:** The Reserve will incorporate WG comments before opening the public comment period. Therefore, participants are kindly requested to submit observations on the Draft Protocol (already shared) no later than **October 9, 2025**. After this date, the WG will still have the opportunity to submit comments until the end of the public comment period, but these will be incorporated as part of the general process.
- **Public comment period:** The Chile Landfill Protocol draft will be published on the Reserve's website for a 30-calendar-day public comment period. During this period, any individual or organization—local or international—may submit observations. This period is expected to begin around **October 15**. Once the period concludes, no new comments or observations will be accepted.
- **Pending questions for the Working Group:**
 - Please provide observations on the shared draft protocol before October 9, 2025.
 - Please provide any observations or relevant comments from the meetings held with Working Groups 1, 2, and 3, by October 7.
 - Please submit comments or observations on the proposal to include the energy generation activity in the forest protocol for Chile, as well as any relevant information requested during the WG meeting.
 - Information on landfills that have energy generation systems using biogas.
 - Please justify whether you consider the energy generation proposals feasible in Chile, and whether other technologies or methods are in use.
 - Is the generation and use of renewable energy from biogas a common practice in landfills in Chile? If not, what barriers or challenges exist?

- Is there any regulation requiring renewable energy generation or waste valorization related to the proposed activity?
- Are there incentives (economic, fiscal, etc.) for renewable energy generation that apply to the proposed project activity (circular economy, waste valorization, renewable generation, etc.)?
- Are there specific emission factors available for Chile for substituted fossil fuels or the electricity grid (official data from CEN, Ministry of Energy, ACERA)?
- Please provide further information about the potential third-party technician for the field check for calibration accuracy. Location of the instrumental labs, ownership (private/public), services and/or expertise, accreditation and/or approval from the manufacturer, other.
- Please send comments, documentation or references to the national or provincial regulations that relevant for a Landfill Project.
- Please provide inventories or databases that track the operation of each landfill and data on landfill gas collection and control systems at any scale.
- Please provide studies and/or data to confirm that the installation of landfill gas collection and control systems not common practice at landfills in Chile.
- Please provide further information on the passive destruction systems usually installed and the monitoring equipment used, if any.
- Please provide examples of commonly used equipment for:
 - Continuous flow meters
 - Continuous methane concentration analyzers
 - Portable instruments to acquire methane data (i.e., handheld methane analyzer)
 - Portable instruments to conduct field checks for calibration accuracy of monitoring equipment
 - Devices that can automatically self-calibrate
 - Pressure transmitters for alternative flow monitoring
 - Meters installed on the wellhead to improve biogas collection efficiency
 - Thermocouples to confirm operational status of flares
- Please confirm feasibility of the suggested arrangement for the landfill gas flow meters and methane concentration metering equipment in Figure 6.1 from the WG Draft Protocol.