Climeworks

Mammoth Facility Output Audit Report

For Puro.Earth

CO_2 Removal Supplier	ClimeWorks
Removal Method	Direct Air Capture & CO_2 Storage in Basalt Formations
Production Facility	Climeworks Mammoth
Production Facility Address	Capture Facility: Nordurvellir 4, 816 Ölfus, Iceland
Net Volume of CO_2 Removal	82.300 CORCs
Removal Period	September 1st, 2025 – October 31st, 2025
Auditors	350Solutions: Guy Hardwick Bill Chatterton
Report Date	January 28th, 2026
Version	V1.2

Contents

Acronyms

CDR	Carbon dioxide removal
CO_2	Carbon dioxide
CORC	CO_2 Removal Certificate
DAC	Direct air capture
EF	Emissions factor
GHG	Greenhouse gas
MRV	Measurement, Reporting, Verification
RECs	Renewable energy certificates

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OUTPUT AUDIT REPORT		
Company: Climeworks Mammoth	Company Contact: Pietro Rossi* Fintan Tuohy	VVB: 350 Solutions Guy Hardwick* Bill Chatterton
Removal Method: Direct Air Capture & CO_2 Storage in Basalt Formations		
Report Date: January 28th, 2026		
Document No: 350-PU2601.02-OA		
Revision: V1.2		

**primary contact(s)/lead author(s)*

1. Introduction

Puro.Earth contracted 350Solutions to perform an audit of carbon dioxide removal credit (CORC) claims for Climeworks Mammoth Direct Air Capture (DAC) facility. 350Solutions declares that we are an impartial auditor, free from any conflicts of interest, capable, and qualified to complete this audit according to Puro Standard and related Validation and Verification Body Requirements. The crediting period for the validation is June 1st, 2024 – May 31st, 2029. This Output Audit was conducted to verify Climeworks reported CORCs for the period of September 1st, 2025 – October 31st, 2025.

In September 2025, 350Solutions conducted a Production Output audit of the process and a desk review of documents provided by Climeworks, including the facility audit documentation completed by DNV. 350Solutions affirms that Project Mammoth has the appropriate equipment, procedures, and protocols in place to quantify GHG removal through DAC and CO_2 storage in Basalt Formations in accordance with the requirements of the relevant Puro.Earth General Rules and Geologically Stored Carbon methodology:

- Puro.Earth General Rules v4.0 [1]
- Geologically Stored Carbon v2 (2024) [2]

A summary of the project and Output Audit is provided below.

Table 1: Output Audit Summary

Audit Summary	
CO_2 Removal Supplier	Climeworks AG
Removal Method	Direct Air Capture & CO_2 Storage in Basalt Formations
Verification Type	Supplier Output Audit; Puro Standard General Rules (v4) and Geologically Stored Carbon Methodology (Edition 2024, v2)
Production Facility Name and Registry	Climeworks Mammoth, Facility ID: 417791
Production Facility Locations	Capture Facility: Nordurvellir 4, 816 Ölfus, Iceland
Reporting Period	September 1st, 2025 – October 31, 2025
Verified CORCs	82.300 tonnes CO2-eq
Audit Kickoff Date	December 31, 2025
Audit Report Date	January 28th, 2026

2. Technology Description

2.1. Process Overview

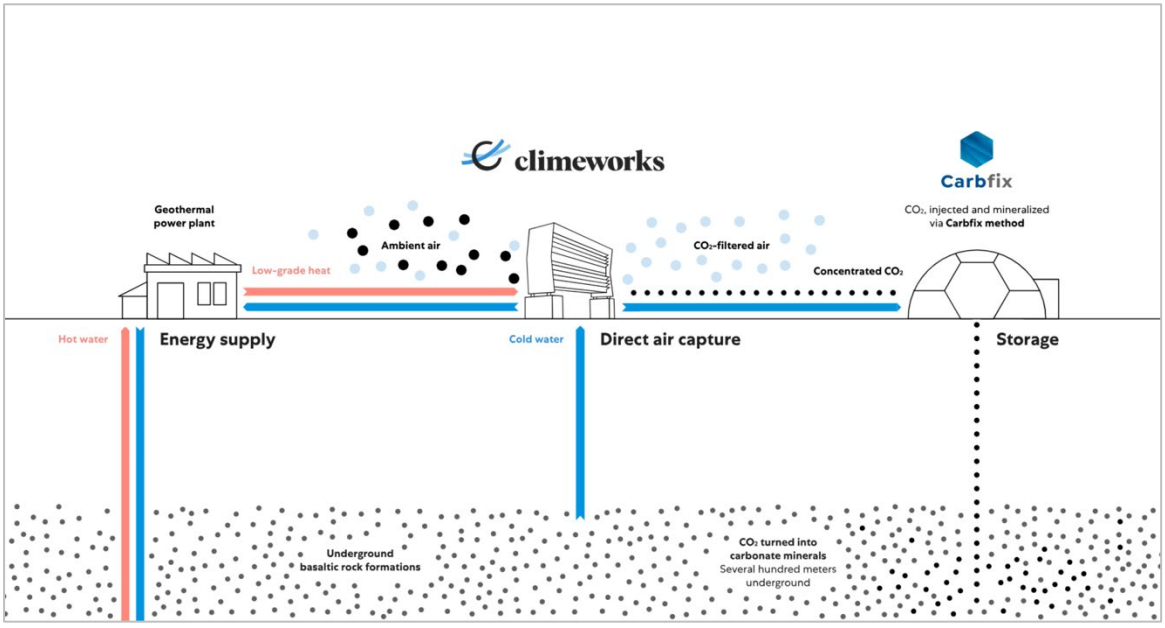

Figure 1: Mammoth process description (Source: Climeworks)

Climeworks Project Mammoth is the second DAC facility with permanent storage capabilities built by Climeworks, after Project Orca, based at the same address at the Hellisheiði geothermal powerplant, 50km southeast of Reykjavik. Project Mammoth operates its DAC facility following the same basic three steps as Orca; capture, transport and storage, with a few minor differences, and at a larger scale (when all collector containers are operational). All operations are powered by low-grade waste heat provided by the Hellisheiði geothermal powerplant, which is operated by the project partner ONPower, a subsidiary of Orkuveita Reykjavík (Reykjavík Energy). ONPower reports power and water usage monthly to Climeworks for use as part of their CORC calculations. Figure 1 shows a simplified process flow diagram for the Mammoth capture and storage system.

2.2. Capture and Processing

The first step of the system involves DAC which utilizes a series of fans and 'collector containers' containing solid sorbent material to chemically bind atmospheric carbon dioxide (CO_2). Air with reduced CO_2 concentration is released back into the atmosphere. Mammoth will have a total of 72 'contactor containers', with 3 in reserve on standby. The containers are stacked in 3's, each consisting of 6 container sub-units which operate in tandem with one another. Once the sorbent in a sub-unit is saturated with CO_2, it enters a desorption phase where the sub-unit is isolated and heated to around 100°C with a vacuum applied, to liberate the CO_2 from the sorbent. The process makes use of waste, low-grade heat from the geothermal facility. The sorbent material can complete [redacted] cycles before needing replacement. Figure 2 shows the front and back of each of the contactor containers, and how individual sub-units are isolated with a door that slides across each container. Figure 3 is a simplified depiction of the vacuum- temperature swing adsorption process.

Figure 2: Left. Rear of contactor containers showing array of fans for drawing CO_2 across sorbent material. Right. Isolation door of contactor container sub-units for application of heat and vacuum for CO2 desorption.

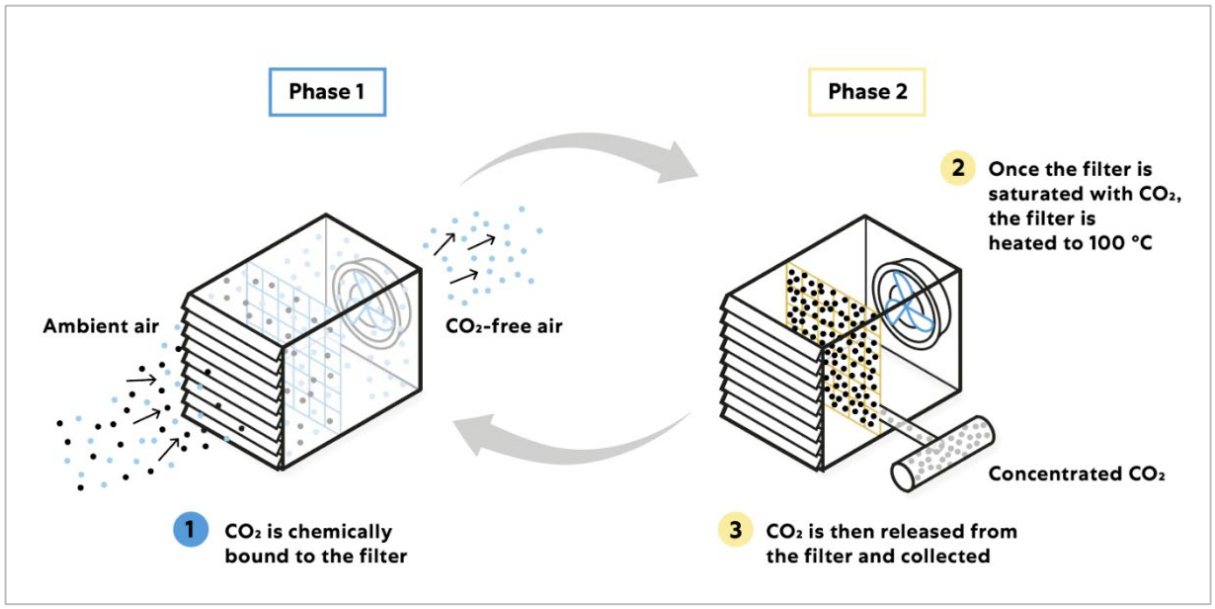

Figure 3: Depiction of the Climeworks vacuum-temperature swing adsorption process

The liberated CO_2 from each collector container feeds to two centralized, temporary, low pressure storage vessels. The CO_2 is then compressed and sent to the absorption tower where it is dissolved in water sourced from ONPower and two local wells. This ensures that water insoluble gases are removed prior to injection without the need for further processing. Figure 4 displays the water absorption tower. Water that is used for CO_2 dissolution is treated with a series softeners and deionizers to prevent carbonate scaling buildup and potential corrosion of equipment in the facility. The water quality is measured continuously to understand the carbonate content of the water (DIC) prior to CO_2 dissolution to determine the baseline for Climeworks CORC calculation.

Figure 4: Absorption tower where the captured CO_2 is dissolved into treated water.

2.3. CO_2 Transportation

Project Mammoth and its injection facilities are located on the same site and are connected for CO_2 charged water by an underground pipeline of less than 300m. Booster pumps, controlled and powered by the DAC facility, feed the CO_2 charged water from the absorption tower to the injection wells. Upon arrival at the injection site, the CO_2 charged water is continuously monitored for CO_2 concentration, temperature, pressure and flow. These values are reported by Carbfix (the CO_2 storage partner) to Climeworks for use in their CORC calculations.

2.4. Injection and Storage

The CO_2-charged water is injected via two injection wells (CHI-01 and CHI-02) into a basaltic geological reservoir at a depth of at least 350m to ensure that there is sufficient pressure to keep the CO_2 dissolved in the water. Upon injection, the higher density of the CO_2-laden water relative to the reservoir water leads to it sinking, preventing upward migration of the CO_2 as would typically occur if it was injected as a free phase (i.e. not dissolved). Permanent storage of the CO_2 is provided through subsurface (in-situ) mineralization reactions in the basaltic rock. The CO_2-charged water is acidic (with a pH of between 3 and 5) which leads to the dissolution and release of calcium, magnesium and iron from minerals contained within the storage reservoir rock, which bind with the dissolved CO_2 to form stable carbonate minerals such as calcite ($CaCO_3$), magnesite ($MgCO_3$) and siderite ($FeCO_3$). It has been demonstrated that after two years, all the CO_2 will have mineralized, ensuring long term storage [3], with field trials showing that this process can occur within months of injection. The injection well and storage formation is managed by Carbfix, Climeworks' dedicated storage partner, and follows all local laws and regulations, and the EU CCS directive. During injection, pressure, temperature, and flow for both the gaseous CO_2 stream and the injected water are recorded continuously as part of Carbfix normal operations. The reservoir monitoring well (CHM-01) and groundwater monitoring wells located downstream of the injection well are used in combination with reservoir models to track the fate of CO_2 and verify that storage is

occurring as described. Figure 5 depicts the injection, permanent storage process and Carbfix operations. Carbfix assumes full responsibility for injection, monitoring, and long-term liability of the injection and storage site.

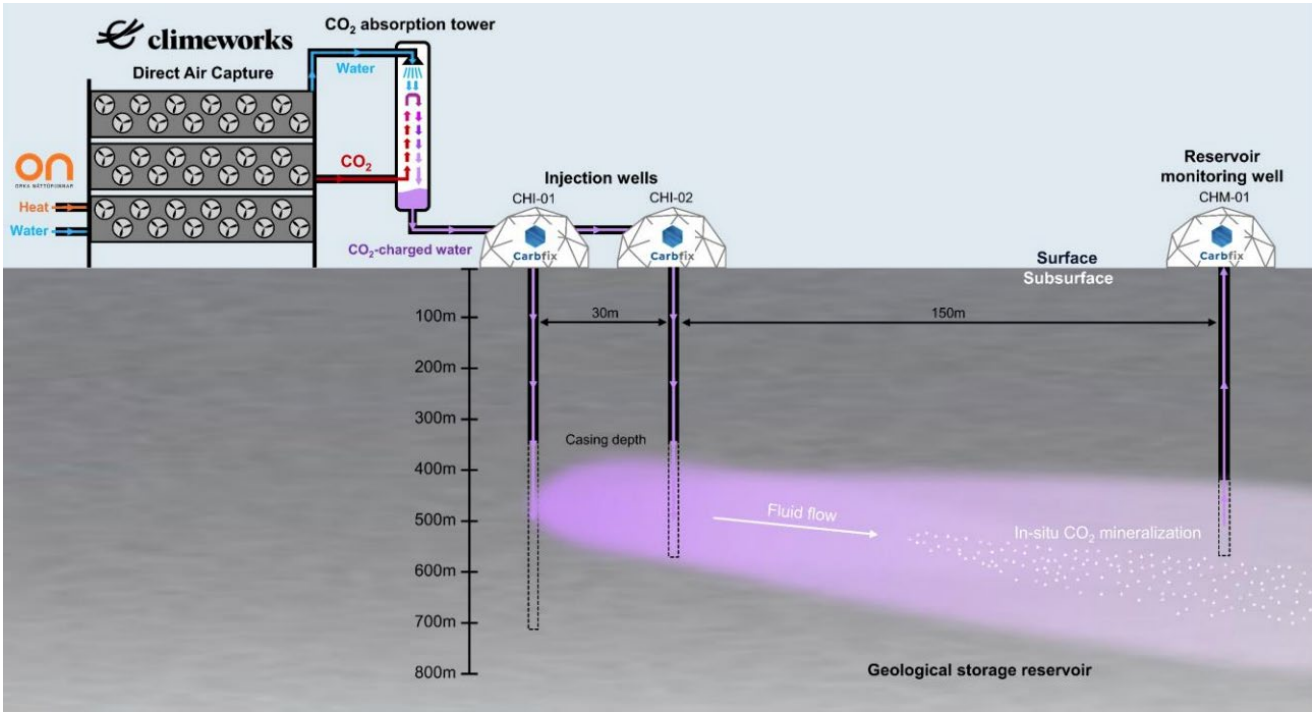

Figure 5: Diagram depicting CO_2 Mammoth DAC process and Carbfix injection and monitoring process. Permanent storage mineral trapping mechanism is also displayed.

2.5. Inputs and Outputs

A summary of process inputs and outputs associated with Mammoth's operations are included in Table 2.

Table 2: Verified DAC Production Inputs & Outputs

Input / Output	Item	Verified Amount Over Monitoring Period[1]	Notes (Specifications, source, etc.)
INPUTS			
Electrical Energy	DAC, compression, water treatment, CO_2 dissolution, misc. site usage	[Redacted]	100% provided by ONPower Geothermal power facility. Market leakage determined to be 0.
Thermal Energy	DAC, misc. site usage	[Redacted]	100% provided by ONPower Geothermal power facility. Market leakage determined to be 0.
Water	Dissolution process, freshwater usage during ONPower energy generation	[Redacted]	Water is fully provided by ONPower, and CO_2 is dissolved in water before the CO_2 -rich water is delivered to Carbfix. In the case of Mammoth,

			Carbfix doesn't add any additional water.
DAC Units & Infrastructure	DAC containers, liquefaction, filtration, compression, storage, misc. site usage	-	Mammoth facility lifetime is expected to be until at least 2039. Embodied emissions amortization starting 2029
DAC Sorbent	Sorbent consumed during monitoring period	[Redacted]	Spent sorbent
Maintenance and Repairs	Consumables used during associated maintenance for DAC units and Mammoth infrastructure	-	Internally tracked and compared to designated number of emissions within the total grey emissions to be amortized.
Natural Carbon of water	Natural carbon content of water used for Dissolution of CO_2	[Redacted]	Calculated based on DIC test results conducted by external lab.
OUTPUTS			
Captured CO_2	Gross CO_2 captured during DAC process	[Redacted]	Total CO_2 captured during DAC measured by Climeworks
Stored CO_2	Gross CO_2 injected into geological storage	128.630 tonnes	Total CO_2 injected, measured by Carbfix and reported to Climeworks
CO_2 released/ reversal	Total amount of CO2 released during injection and storage	0.029 tonnes	Total CO_2 released during intentional pumping of water from monitoring well and unintentionally released.
Operational Emissions	Emissions released during Climeworks and Carbfix operations	41.715 tonnes	Total operational emissions related to heat, electricity, sorbent and water usage.
** Calculated based on Total CO_2 injected (128.630 tonnes) minus natural Carbon contents of water used during dissolution of captured CO_2 (REDACTED). Discrepancy between Captured CO_2 (REDACTED) and Total CO_2 stored is within the margin of error for the instrumentation being used.*			

2.6. Changes since last Output Audit

Since the last Output Audit conducted in December 2025, Climeworks has confirmed that the Mammoth facility has not undergone any major project changes.

3. Audit Summary

3.1. Audit Approach

A planned series of audit activities were conducted by 350Solutions to independently validate and verify production and output data, and CORC claims for the reporting period. The audit was conducted following the specifications of Puro General Rules (Version 4) and Geologically Stored Carbon Methodology (Edition 2024, v2). Specific audit activities conducted are summarized in Table 3. Auditor qualifications are attached as Appendix 3.

Table 3: Audit Activities

Date(s)	Verification Activity	Verification Tasks	Documents Reviewed
December 31st, 2025	Introductory Document Review and information exchange	- Review of LCA and supporting documentation - Review of Puro CORC calculations - Review of product properties - Review of product end use	- CDR Report Mammoth.pdf - Mammoth LCA Model 2025-10-31.xlsm - Puro CORC Report Mammoth - 2025-31-10 – v2.xlsm - Ambient CO2 sensors 19.11.2025.pdf - CO01++ABS01-BFA204 Verification 11.11.2025.pdf - CO01++ABS01-BFA230 Verification 7.10.2025.pdf - CO01++ABS01-BFA242 Verification 3.12.2025.pdf
December 31st, 2025 – January 12th, 2026	Data Review	- Review of LCA and supporting documentation - Review of Puro CORC calculations - Review of raw material sources and sustainability - Review of system inputs and outputs - Review evidence of product output - Review of product properties - Review of product end use - Review of equipment and calibrations - Reviewed previous Output Audit Reports - Reviewed original production facility audit documentation	- MPU01++HI01-BFA201 Verification 22.08.2025.pdf - MPU01++HI01-BTA201A 10.11.2025.pdf - MPU01++HI01-BTA201B 10.11.2025.pdf - MPU01++HI01-BTA201C 10.11.2025.pdf - MPU01++HI01-BTA598A 10.11.2025.pdf - MPU01++HI01-BTA598B 10.11.2025.pdf - MPU01++HI01-BTA598C 10.11.2025.pdf - WaterTemperature-CHI01 09.09.2025.pdf - WaterTemperature-CHI02 09.09.2025.pdf - Community_Engagement_Iceland_Sep2025_Update.docx - Leakage Determination.xlsx - Mammoth risk register.xlsx - Mammoth Uncertainty calculation - 2025-10-31.xlsx - Monitoring Plan V2 - 2025-10-31.xlsx - 2025-09 Mammoth Monthly Monitoring Report.pdf - 2025-09 Mammoth Monthly Monitoring Report.xlsx - 2025-10 Mammoth Monthly Monitoring Report.pdf - 2025-10 Mammoth Monthly Monitoring Report.xlsx - Carbfix monthly detailed summary - for uncertainty - calculation.xlsx - M2025-0092_Climeworks_Mammoth_Sept2025.pdf - M2025-0106_Climeworks_Mammoth_Oct2025.pdf -2025_09_CW Mammoth Cold water absorp.pdf - 2025_09_CW Mammoth cold water.pdf - 2025_09_CW Mammoth Electricity.pdf - 2025_09_CW Mammoth Geothermal.pdf - 2025_10_CW Mammoth Cold water absorp Oct 25.pdf - 2025_10_CW Mammoth Cold water Oct 25.pdf - 2025_10_CW Mammoth Electricity Oct 25.pdf - 2025_10_CW Mammoth Geothermal Oct 25.pdf - KARBON~2.PDF - KARBON~3.PDF -KARBON~4.PDF - Karbone & Climeworks AG Confirm #2.pdf - Sept Oct Mammoth sorbent emissions explanation.xlsx - Climeworks update on SDG goals progress - Sep 2025.pptx

			- Audit Document Index - GSC - 2025-10-31_R1.xlsx - Contact information to auditor.xlsx - Disclosure since last audit Mammoth 2025-10-31.xlsx
January 12th, 2026 – January 28th, 2026	Report Writing	- Compose Audit Report - Internal quality control - External review	- Puro CORC Report Mammoth – 2025-31-10 – v2.xlsx - CDR Report Mammoth.pdf

3.2. Verified Output & CORCs

Table 4 includes the specific CORCs claimed by Climeworks for its Mammoth facility during the reporting period, as well as the level verified by 350Solutions during the data review.

Table 4: Verified CORCs for the Mammoth Facility

Performance Metric Name / Description	Revised Value	Verified Value[1]	Data Source	Reporting Period
Net CO_2 Stored[2]	124.044 tonnes	124.044 tonnes	- Puro CORC Report Mammoth – 2025-31-10 – v2.xlsm	September 1st, 2025 – October 31st, 2025
CO_2 Emissions	41.715 tonnes	41.715 tonnes		
CO_2 Releases/ Reversals	0.029 tonnes	0.029 tonnes		
Total CORCs	82.300	82.300		

[1] Verified values are based on verification of final production records for the reporting period.
[2] Gross CO_2 stored less DIC content in process water

4. Audit Findings

4.1. Summary of Audit Findings

350Solutions has reviewed and audited the documentation of the technology, the instrumentation, the procedures, performance and collected data and has found that the data presented in the Puro Audit Package and during the site visit and follow up:

☒ ***Meets the requirements of the Puro General Rules V4 and* Geologically Stored Carbon Methodology (Edition 2024, v2)**

☐ ***Meets the requirements of the Puro General Rules V4 and* Geologically Stored Carbon Methodology (Edition 2024, v2) *with minor modifications***

☐ ***Does Not Meet the requirements of the Puro General Rules V4 and* Geologically Stored Carbon Methodology (Edition 2024, v2)**

350Solutions utilized a reasonable level of assurance in performance of the output audit. A summary of findings associated with primary requirements of the *Puro General Rules* and *Geologically Stored Carbon Methodology* and any identified issues with the audit are summarized below.

Table 5: Audit Findings

Puro GSC Method. Section Ref.	Audit Verification Topic	Final Findings
3.2	Eligibility of the CO_2 Stream	Acceptable. The project demonstrated that captured CO_2 is fully eligible under Puro v4 requirements. DAC-derived CO_2 was verified as atmospheric through operational capture records, with no evidence of fossil-origin inputs.
2.2 & 3	Production Facility Definition & Eligibility	Acceptable. System components for capture, transport, and storage were clearly defined and aligned with the activity boundary criteria. All included infrastructure exists solely for CO_2 removal purposes as required.
3.4	Baseline Scenario Demonstration	Acceptable. The project provided a defensible baseline consistent with Puro v4 guidance. No alternative activity would result in greater geological carbon stock, and no fossil sources are involved.
3.5	Additionality Requirements	Acceptable. Documentation shows the CO_2 removal activity is not legally required and depends on carbon finance to operate at scale. No evidence of regulatory mandates or double-benefit conditions was observed.
3.6	Prevention of Double Counting	Acceptable. Contractual attestations confirm sole ownership of the carbon removal attribute and prohibit claims by any party in the capture, logistics, or storage chain. No marketing or corporate GHG accounting conflicts were identified.
3.3	Requirements for the CO_2 Removal Supplier	Acceptable. The Supplier demonstrated legal registration, metering capability, end-to-end contractual control of CO_2, and provided all required agreements with capture, logistics, and storage operators ensuring audit access.
3.2.8–3.2.12	Legal Framework, Permits & Regulatory Compliance	Acceptable. The storage site operates under a regulatory framework equivalent to Class VI/CCS Directive requirements. All relevant permits for capture, transport, and injection were reviewed and found to be valid and compliant.
3.2.6–3.2.7	Storage Reservoir Eligibility & Site Characterization	Acceptable. Geological characterization confirms the reservoir meets Puro's criteria for permanent storage, including caprock integrity and confinement. No evidence of incompatibility or sub-surface risks was identified.
3.2.6 & 7.5	Injection Operations & Conditions for Geological Storage	Acceptable. Injection parameters, well integrity records, and operational data confirm the site operates within required pressure and temperature limits. CO_2 is injected under conditions suitable for long-term containment.
7	Monitoring Requirements	Acceptable. A comprehensive monitoring plan is in place covering capture, transport, and storage phases. Instrument calibration records and plume monitoring procedures satisfy Puro v4 monitoring expectations.

6	Leakage Assessment, Mitigation & Quantification	Acceptable. The project evaluated all potential leakage pathways and provided mitigation measures. No ecological, market-based, or activity-shifting leakage risks were identified that would materially affect net-negativity.
7.6 & 8.2	Reversals, Release & Corrective Actions	Acceptable. The project maintains appropriate contingency and corrective action procedures for well failure, unexpected releases, or operational reversals. No conditions suggesting elevated reversal risk were observed.
3.8 & 3.9	Environmental and Social Safeguards	Acceptable. The project demonstrated that its activities cause no net harm and comply with relevant environmental and social safeguards, and community-level protections.
4	Quantification of CO_2 Removal (CORC Output)	Acceptable. Quantification follows Puro v4 methodology using complete datasets The calculations reviewed were internally consistent, traceable, and conservatively applied.
5	Life Cycle Assessment Requirements	Acceptable. The project submitted an LCA prepared according to ISO/WRI/PAS2050 principles. All emissions within the activity boundary were included and independently verified prior to audit review. RECs were also correctly used/applied according to the revised rule 5.2.19
4.8	Uncertainty Assessment	Acceptable. Measurement uncertainties were identified and managed using lower-bound conservative values as required. Calibration documentation for flow meters and measurement systems was complete and current.
8	Risk and Uncertainty Management	Acceptable. Operational, geological, and logistical risks were appropriately assessed. The project has reasonable controls to ensure permanence, and no unmitigated high-risk factors were identified.
3.3.6 & 7	Data Availability, Documentation & Auditability	Acceptable. All required documentation—including operational records, data logs, calibration certificates, and contracts—was provided in full. Data trails were coherent, auditable, and sufficient for verification.

Additional details regarding audit activities, documents reviewed, and observations during the audit process are summarized in Appendix 1.

4.2 Critical Findings and Exceptions

Assessment of the output audit package and associated CORC report identified several initial findings (Appendix 1). All findings have been addressed and closed. No critical findings or exceptions were documented during this output audit.

4.3 Forward Action Requests and Recommendations

A full list of Output Audit findings is provided in Appendix 1. Section 4.3 outlines the forward action requests (FARs) and recommendations for this reporting period, supporting improvements in future operations and CORC calculations while enabling monitoring of any emerging issues in subsequent Output Audits. A summary of open FARs and opportunities for improvement is presented below for reference in future verifications.

Table 6: FARs and Recommendations

ID No	Type	Finding / Issue	Conclusion / Resolution
1	FAR (prior)	Modelling results for GHG assessment in reservoir	An assessment of the storage reservoir is being conducted by Carbfix in 2026. The results for this are to be made available during the Output Audit directly after the completion of this assessment to confirm the storage reservoir is behaving as predicted. This is expected to be completed sometime during 2026.
2	FAR (prior)	Permit update March 2026 (Carbfix)	The results from the permit update are also to be made available once they have been completed in March 2026 to ensure that Carbfix are still eligible for injection of CO_2 into the storage reservoir.
3	FAR (prior)	During the assessment of stakeholder engagement practices, the Verifier sought clarification on how interested or affected stakeholders—beyond existing business clients—can contact Climeworks to raise concerns, submit queries, or communicate with the company. While Climeworks demonstrated well-structured communication pathways for contracted business customers (dedicated account owners, regular business reviews, and priority escalation), a clear and accessible mechanism for new stakeholders or impacted community members was not evident. Under Puro General Rules 6.4.5, CO_2 Removal Suppliers must: • Maintain “accessible and transparent communication channels for all interested and affected stakeholders,” • Provide “clear instructions for submitting concerns or complaints,” and	Climeworks is required to establish a dedicated communication channel through which any interested or affected stakeholder can contact the company directly, including: • Clear instructions for submitting questions, concerns, or complaints; • Publicly accessible and visible information (e.g., on company website and/or signage at facility entrances); • A designated point of contact or monitored address; • Documentation of procedures for receiving, recording, and responding to stakeholder input. Evidence of implementation should be submitted for review as part of the next viable verification cycle. This is expected to be mid 2026.

		• Ensure "stakeholder contact points are visible, publicly available, and easy to identify." Climeworks currently relies on (a) Icelandic authorities' formal complaint mechanisms and (b) a general website contact form. However, neither is sufficiently visible nor clearly framed as the designated channel for submitting concerns regarding Climeworks' CO_2 removal activities. Additionally, the information is not displayed at facility entrances or publicly signposted in a way that satisfies Puro's expectation for accessible communication pathways.	
4	Recommendation (prior)	Maintenance and repairs tracker which documents all consumables and materials that have been used during normal maintenance and repair operations	Currently, Climeworks track these items internally and compare the calculated emissions to a designated amount of the grey emissions to be amortized in the future.

5. Revision History

Version	Date Issued	Noted Changes
Draft v1.0	January 26th, 2026	Initial Draft
Draft v1.1	January 27th, 2026	Post internal quality assurance review, minor edits
Final v1.2	January 28th, 2026	Edits following review by Puro and Climeworks

6. Auditor Signatures

Auditor Information		
VVB	**Auditor**	**350Solutions Project ID No.**
350Solutions, Inc.	Guy Hardwick (Lead Verifier)	PU2601.02
350Solutions, Inc.	Bill Chatterton (Quality Assurance)	

Guy Hardwick Digitally signed by Guy Hardwick
Date: 2026.01.29 18:30:26 Z

Signed: Guy Hardwick (Lead Verifier)

Bill Chatterton Digitally signed by Bill Chatterton
Date: 2026.01.29 18:30:40 Z

Signed: Bill Chatterton (Quality Assurance)

6.1. Validation and Verification Body Details

350Solutions Inc. declares that we are an impartial verifying body, free from any conflicts of interest, capable, and qualified to complete this verification for the current operational period according to the Puro Standard and applicable methodologies.

350Solutions is an accredited inspection & verification body by ANAB under ISO 17020:2012 for completion of ISO 14034:2016 Technology Verifications and was the first accredited entity in North America for ISO 14034:2016. 350Solutions is based out of Raleigh, North Carolina, USA. 350Solutions Technical Lead for the Climeworks project Output Audit is Guy Hardwick. Quality assurance was provided by Bill Chatterton. Complete qualifications are attached as Appendix 3.

Our opinion is provided with a reasonable level of assurance for Climeworks' activities at the Mammoth project.

Notice: 350Solutions, Inc. declares that we are an impartial auditor, free from any conflicts of interest, capable, and qualified to complete this audit according to the Puro Standard and related Validation and Verification Body Requirements. Verifications and audits conducted by 350Solutions are based on an evaluation of technology performance and CO_2 removal claims via site visit observations and review of data submitted by the audited company. Audits are completed in accordance with rules and methodologies specified by Puro and utilizing the appropriate quality assurance procedures established under the 350Solutions accredited ISO 17020/14034 Quality Management Program, noting that this verification is not a fully compliant ISO 14034:2016 verification. 350Solutions makes no expressed or implied warranties as to the performance of the technology and does not certify that a technology will always operate at the levels verified, nor that it meets all state, local, or federal legal requirements.

7. References

[1] Puro.Earth, Puro.Earth General Rules version 4.0, 2024, Website: https://puro.earth/document-library?tab=methodologies

[2] Puro.Earth, Puro.Earth Geologically Stored Carbon version 2, 2024, Website: https://puro.earth/document-library?tab=methodologies

[3] Matter et al., Rapid carbon mineralization for permanent disposal of anthropogenic carbon dioxide emissions, 2016, Website: https://www.science.org/doi/10.1126/science.aad8132

Appendix 1: Log of Findings

All material clarifications, misstatements, and omissions have been resolved.

ID	Type	Finding/Issue	Required Action	Supplier Response	350 Response	2nd Supplier Response	Conclusion/Resolution
1	FAR (prior)	An assessment of the storage reservoir is being conducted by Carbfix in 2026. The results for this are to be made available during the next Output Audit to confirm the storage reservoir is behaving as predicted.	Provide results of assessment once conducted by Carbfix.	Action expected in 2026.	Confirmed		FAR remains in place until assessment is completed and findings are reported as part of future output audit data package.
2	FAR (prior)	The results from the permit update are also to be made available once they have been completed in March 2026 to ensure that Carbfix are still eligible for injection of CO2 into the storage reservoir.	Provide permit update documentation once available after March 2026.	Action expected in 2026	Confirmed		FAR remains in place until permit update is complete and associated documentation is reported as part of future output audit data package.
3	FAR (prior)	Climeworks is required to establish a dedicated communication channel through which any interested or affected stakeholder can contact the company directly, including: • Clear instructions for submitting questions, concerns, or complaints; • Publicly accessible and visible information (e.g., on company website and/or signage at facility entrances); • A designated point of contact or monitored address; • Documentation of procedures for receiving, recording, and responding to stakeholder input.	Climeworks shall provide an estimation for when this work is likely to be completed.	We're exploring best options (digital vs physical channels). We target mid 2026 for completion. Documentation will be prepared after decision taken on implementation plan	Confirmed		FAR remains in place until Climeworks review and implement the necessary changes.
4	Recommendation (prior)	Maintenance and repairs tracker which documents all consumables and materials that have been used during normal maintenance and repair operations	Create maintenance and repairs tracker document	No action taken yet	Confirmed		Recommendation remains in place.
5	Clarification	Water DIC for September is reported by lab as IE062 = [Redacted] and IE061 = [Redacted]. Reported values are IE062 = [Redacted] and IE061 = [Redacted]. Is there a reason for this discrepancy?	Please review and provide clarification as to why there seems to be this discrepancy.	Thanks for noticing this. It has likely been typed incorrectly. A new Production and CORC report have been submitted reflecting the corrected dissolved CO2 values	Action taken and updates made to the CORC report and the associated documentation		Action item addressed appropriately

Appendix 2: Site Pictures

Figure A: CO_2 and H_2S sensors used by Climeworks staff as part of their HSE equipment

Figure B: Carbfix CO_2 charged water Injection well housing, one of two.

Appendix 3: Verifier Qualifications

Supporting documentation, including verifier resumes, and verifier or corporate accreditations are also included in this appendix.

Verifier Qualifications	Criteria Met?	Evidence / Notes *(note how the criteria was met, specific documents - resume/CV, publications, certifications, etc.).*
Verifier has relevant technical knowledge of the type of technology being evaluated and carbon removal processes in general		
A) Does Verifier have:		
1. An in-depth technical knowledge of the technology type under verification;	☑	350Solutions is accredited to ISO/IEC 17020:2012 and ISO 14034 Environmental Technology Verification (ETV) as a Type A (third party) Inspection Body (ANAB Certificate Number: AI-2618). The technical scope of 350's accreditation includes verification of performance and environmental impact as it relates to design, materials, equipment, installation and operations of technologies in the categories of Energy, Clean Production and Process, and Air Pollution Monitoring and Abatement. As documented in 350Solutions' ETV Standard Operating Procedure (ETV QPM 350-223-03), and Quality Systems Procedures for verifier qualifications (QSP-350-005-02), 350Solutions conforms to the requirements of ISO 17020 Annex A with respect to verifier qualifications and procedures. These procedures and quality management programs are generally relevant to verification under the Isometric Standard. Note that verifications completed for Isometric are not equivalent to ISO 14034 verifications. 350 staff have participated in the evaluation and verification of novel technologies that sequester carbon via various methods, including biomass conversion to liquids, solids, and other products which are then permanantly stored in ways such as land application or geologic storage, conversion of captured CO_2 into building materials and co-products, and the production of chemicals, fuels, and products via biomass pyrolysis and gasification. 350 also served as lead verifier for the Carbon XPrize competition and contributed to the development of procedures and processes for verification of relevant calculations, modeling, and statistical methods in order to assess team results and calculations of performance metrics and uncertainty. 350 has demonstrated knowledge of data quality and data validation approaches and execution in supporting verification of performance claims and results.
2. Knowledge of specific risk areas associated with performance of such technologies (i.e. common failure points, performance issues, barriers to scaleup);	☑	
3. Knowledge of the environmental implications related to the use of the technology from a life cycle perspective, such as impact of the technology on lifecycle CO_2 emissions and carbon removal;	☑	
4. Knowledge of relevant applicable test methods and standards for evaluating performance or impact of the technology;	☑	
5. Knowledge of relevant calculation, modeling, and statistical methods in order to assess test results and calculations of performance metrics and uncertainty, as applicable;	☑	
6. Knowledge of data quality and data validation approaches, including QA/QC procedures, for example.	☑	
Verifier is a credible independent 3rd party		
B) Is Verifier:		
1. third-party body independent of the team registered for the Isometric Registry	☑	350Solutions is accredited to ISO/IEC 17020:2012 and ISO 14034 ETV as a Type A (third party) Inspection Body. As documented in 350Solutions ETV Policy Manual (ETV QPM 350-200-03), 350Solutions conforms to the requirements of ISO 17020 Annex A with respect to impartiality for Type A inspections, pursuant to ISO 14034 activities.
2. Not directly involved in the design, manufacture or construction, marketing, installation, use or maintenance of the specific technologies submitted to Isometric for verification, or represent the parties engaged in those activities.	☑	
3. Not part of a legal entity that is engaged in design, manufacture, supply, installation, purchase, ownership, use or maintenance of the items inspected.	☑	

Guy Ingram-Hardwick
Carbon Removal Verification Engineer, 350Solutions

EDUCATION:
MEng Materials Science and Engineering, Loughborough University, UK - 2022

EXPERIENCE SUMMARY:
Guy Ingram-Hardwick is a Carbon Removal Verification Engineer, with experience in materials engineering, process engineering, MRV protocol development, experimental design and life cycle analysis (LCA). At 350 Solutions, Guy's efforts center on validation and verification of varied carbon removal pathways, including biochar, biomass storage, and DAC+S. Guy has led the verification of a biochar CDR supplier registered with Puro.Earth and supported verifications of bio-oil and biomass geologic storage pathways as well as DAC technology assessments. Guy began his experience in carbon removal working to develop an LCA model for Brilliant Planet, a marine based carbon removal company growing, processing and burying microalgae for carbon sequestration. Once completing the LCA model, Guy managed the third-party verification and co-authored the MRV methodology for Brilliant Planet before managing its adoption with carbon market registries and developing relevant documentation required for carbon removal verification and crediting.

Guy also studied degradation mechanisms for biodegradable polymers which was the focus of his Master's thesis. His work during the Master's thesis and at Brilliant Planet provided experience in experimental design and execution, including conducting field trials for developing novel technologies. This included leading design and execution of demonstration and testing of processing and storage of the microalgae, displaying the long-term permanence of the carbon removal system. Prior to his experience at Brilliant Planet, Guy worked as a process engineer at Pirelli's rubber compound manufacturing plant in Burton-on-Trent with a focus on data analytics for driving continuous improvement, as well as developing familiarity with industrial manufacturing operations and data, quality assurance, and international standards.

RESEARCH AND PROFESSIONAL EXPERIENCE:
January 2025 – Present: Carbon Removal Verification Engineer, 350Solutions
Verify carbon dioxide removal technologies on behalf of registries and private companies ensuring high quality and meaningful climate impact.

Jul 2022 – Dec 2025: LCA and MRV Associate, Brilliant Planet
Quantified the carbon removal efficiency of the Brilliant Planet system across a variety of engineering designs using LCA. Developed the proprietary MRV methodology and PDD as well as setting up a novel experimental design to display the permanence of the stored carbon.

July 2019 – September 2020: Process engineer, Pirelli
Completed data analytics to drive continuous improvement for increasing efficiency, safety and rubber compound quality.

Bill Chatterton
Senior Verification Scientist, 350Solutions

EDUCATION:
B.S. Environmental Science, SUNY at Plattsburgh, 1982
A.A.S. Environmental Technology, Paul Smith College, 1979
Certified Measurement and Verification Professional (CMVP), 2019

EXPERIENCE SUMMARY:
Mr. Chatterton has over 30 years of experience in management of energy and environmental technology development and demonstration projects and programs, as well as multimedia environmental engineering efforts. The majority of his recent work has focused on the evaluation of innovative carbon capture, utilization, and removal technologies. Mr. Chatterton has supported the development and management of large technology evaluation programs in the advanced energy, transportation, and climate change areas.

RESEARCH AND PROFESSIONAL EXPERIENCE:
2019-Present Sr Verification Scientist – 350Solutions, Inc.
Owns and operates a small cleantech engineering consulting business focused on the independent evaluation of new cleantech innovations and their impact on the environment and carbon emissions. Provides engineering consulting, testing and evaluation, techno-economic assessment, and other support to companies developing, using, or investing in new clean technology innovations. Manages administrative, business development, and project activities for 350Solutions.

2010-2019: Program Manager - Energy and Environment, Southern Research
Managed scientific and technical staff performing research, development, and evaluation of innovative clean energy technologies. Projects range from $25,000 to $6million in size, and are funded by the US Department of Energy, Department of Defense, and commercial partners. Technical focus areas are conversion of biomass to fuels and chemicals, carbon capture and utilization, energy efficient building technologies and renewable energy generation.

2000-2009 Sr. Project Leader, Environmental Engineer, Southern Research

PROJECT EXPERIENCE:
Mr. Chatterton has executed several independent technology performance verifications of emerging carbon, energy and transportation technologies for 350Solutions and previously at Southern Research Institute. Mr. Chatterton has completed clean technology evaluations for the Department of Defense, state energy agencies, commercial clients, investors, and technology developers, involving evaluation of commercial feasibility, economic and environmental impacts, and technology performance. Mr. Chatterton served as a Lead Verifier for the NRG COSIA Carbon XPrize – a $20M prize competition for technologies that capture and beneficially utilize CO_2. Mr. Chatterton is also a Certified Measurement and Verification Professional, issued in 2019.