Validation and Verification Report

ACR 873 -Mississippi River Islands Forest Conservation Project

July 15, 2024

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1 INTRODUCTION

U. S. Venture, Inc. (U. S. Venture), contracted with Ruby Canyon Environmental, Inc. (RCE) to perform the validation and verification of the ACR 873-Mississippi River Islands Forest Conservation Project (Project) for the reporting period of September 14th, 2022 – July 31st, 2023 and a crediting period of September 14th, 2022 – September 13th, 2042 under the American Carbon Registry (ACR) program. RCE was acquired by TÜV SÜD America, Inc. (TÜV SÜD) in 2023. RCE will be used throughout this report. U. S. Venture acts as the project developer and project proponent for the landowner Trailhead Ventures, LLC. This report is documentation of validation and verification activities that RCE performed for the Project. For the validation, RCE reviewed the project information as described in the GHG Project Plan "ACR 873 Mississippi River Islands Forest Conservation Project" dated July 12, 2024. For the verification, RCE ensured that the GHG assertion was materially correct, that the data provided to RCE was well documented, and that if U. S. Venture made any material errors, that these errors were corrected. RCE worked with Forest Resource Solutions and Technologies (FRST) to complete this validation and verification.

1.1 OBJECTIVES

The objectives of the validation are to evaluate:

- Conformance to the ACR standard and the approved ACR Methodology for Improved Forest Management (Methodology).
- GHG emissions reduction project planning information and documentation in accordance with the applicable ACR-approved methodology, including the project description, physical infrastructure, activities, technologies, and processes of the Project, baseline, eligibility criteria, monitoring and reporting procedures, process information, source identification/counts, operational details, and quality assurance/quality control (QA/QC) procedures.
- Reported GHG baseline, ex ante estimated project emissions and emissions reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

The objectives of the verification are to evaluate:

- The emissions reductions and to ensure that the assertion is materially correct.
- The data provided to RCE can be documented and if errors or omissions are detected, they be corrected.

RCE retains all data and documents for seven years after the end of the project reporting period or for the duration required by ACR, whichever is longer.

1.2 Project Background

The Project is located on approximately 5,594 acres forested acres on islands in the Mississippi River near Illinois, Kentucky, and Missouri. This property is owned by Trailhead Ventures, LLC. The Project ensures long-term sustainable management of the forests.

1.3 Responsible Party

Project Proponent
Trailhead Ventures, LLC
Brian Dolski, Member

Project Developer
U. S. Venture, LLC
Mel Briggs, Director, Energy Services & Compliance

1.4 Validation and Verification Team

Lead Validator and Verifier: Zach Eyler
Biometrician: Andrea Eggleton, FRST
Professional Forester: Christian Eggleton, FRST
Forest Carbon Projects Manager: Tim Facemire, FRST
Team Member: Thomas Christopher, FRST
Internal Reviewer: Bonny Crews

1.5 Validation and Verification Criteria

1.5.1 Validation and Verification Standards, Guidelines, and Tools

- ACR Standard, Version 7.0 (December, 2020)
- ACR Validation and Verification Standard Version 1.1 (May, 2018)
- Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non‐Federal U.S. Forestlands v.2.0, July 2022
- ACR v2.0 IFM Errata and Clarifications, May 2024
- ACR Tool for Risk Analysis and Buffer Determination, v1.0
- ISO 14064-3:2019 “Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions”

1.5.2 Level of Assurance

The verification was conducted to a reasonable level of assurance.

1.5.3 Materiality

The verification was conducted to ACR’s required materiality threshold of +/-5% of the GHG project’s emissions reductions or removal enhancements.

2 VALIDATION AND VERIFICATION PROCESS

As the first step in validation/verification activities, the Lead Validator/Verifier developed a Validation/Verification Plan to be followed throughout the validation and verification. The plan included the following activities:

- RCE completed a COI form for the validation and verification on July 10, 2023 to identify any potential conflict of interest with the Project or Project Developer. The COI form was approved by ACR on July 21, 2023.
- RCE and U. S. Venture held a validation and verification kick-off meeting on August 3, 2023. During the kick-off meeting RCE reviewed the validation-verification objectives and process, reviewed the schedule, and submitted an initial document/date request.
- RCE performed a strategic review and risk assessment of the received data and support documents to understand the scope and areas of potential risk in the GHG emissions reductions.
- RCE developed a risk-based sampling plan based upon the strategic review and risk assessment. The validation/verification plan and sampling plan were used throughout the process and were revised as needed based upon additional risk assessments.
- The validation/verification team conducted the site visit to the Project to verify the inventory quality and forest management practices from August 14-18, 2023. During the site visit the Verification Team performed key personnel interviews, conducted 90% t-test of inventory plots, conducted reconnaissance of the Project area boundary, observed elements of natural forest management, and observed harvest locations (if applicable) during and preceding the reporting period.
    - The site visit was attended by the following verification team personnel:
        - FRST:
            - Thomas Christopher
    - During the site visit, the Verification team met with the following individuals:
        - U. S. Venture
            - Josh Downes (contractor-DJM Ecological Services, Inc.)
            - Curtis Frazier (contractor-DJM Ecological Services, Inc.)
- RCE performed a risk-based desktop review of the submitted validation/verification documents. The desktop review included an assessment of the GHG calculation methods and inputs, source data completeness, data management system and monitoring systems and eligibility documentation.
- RCE conducted interviews and had conversations with Project personnel during the verification. Personnel interviewed include:
    - Alex Haas – U. S. Venture
    - Nick Dolecek– U. S. Venture (contractor-Dolecek Enterprises, Inc.)
- RCE submitted requests for corrective actions, non-material findings, additional documentation, and clarifications as necessary to U. S. Venture throughout the validation/verification.
- RCE's internal reviewer conducted a review of the validation/verification sampling, report, and statement.
- RCE issued a final validation/verification report, verification statement, and List of Findings.
- RCE confirmed that documents were finalized with U. S. Venture on 2/28/2024.

3 VALIDATION AND VERIFICATION FINDINGS

3.1 PROJECT BOUNDARY AND ACTIVITIES

The Project entails improved forest management on approximately 5,594 acres forested acres on islands in the Mississippi River near Illinois, Kentucky, and Missouri. GHG emission reductions for the Project are quantified by comparing actual onsite carbon stocks against modeled baseline onsite carbon stocks and baseline carbon in harvested wood products. The difference in these Project and baseline carbon stocks year over year is the basis for calculating the Project's primary goal of maintaining and enhancing forest GHG pools.

The Project's temporal boundary is the crediting period from September 14th, 2022 – September 13th, 2042.

3.2 GHG SOURCES SINKS, AND RESERVOIRS

Table 1 shows the GHG emission sources included in the project boundary based on the Methodology. RCE confirmed that the GHG Project Plan appropriately identifies the offset project boundary and includes all relevant SSRs.

Table 1. GHG Emissions Sources

Source	GHG	Description
Above-ground biomass	CO_2	Major carbon pool for project activity
Below-ground biomass	CO_2	Major carbon pool for project activity
Harvest wood products	CO_2	Major carbon pool for project activity
Market Effects	CO_2	Reductions in project outputs due to project activity may be compensated by other entities in the marketplace. Those emissions must be included in the quantification of project benefits.

3.3 ELIGIBILITY

3.3.1 ACR Eligibility

RCE confirmed the following ACR eligibility criteria listed in the ACR Standard, Version 7.0 by reviewing the project proponent's GHG Project Plan, Monitoring Report, and calculations as well as other supporting documentation described throughout this report (a full list of documents reviewed is in Appendix A).

- Start Date: The project start date is September 14th, 2022.
- Minimum Project Term: The minimum project term is 40 years.

Crediting Period: The crediting period is 20 years as specified by the Methodology, September 14th, 2022 – September 13th, 2042.

- Real: RCE confirmed that the GHG reductions follow the ACR methodology and are verifiable.

- Emission or Removal Origin: RCE confirmed that Trailhead Ventures owns and has control over or documented effective control over the GHG sources/sinks from which the emissions reductions or removals originate.
- Offset Title: RCE confirmed that all Project lands are owned directly by the Project Proponent (Trailhead Ventures), which holds full legal title.
- Additional: RCE confirmed that the project is additional as described in Section 3.4.
- Regulatory Compliance: RCE confirmed that the Project was in compliance with all applicable regulations.
- Permanent: RCE confirmed that the Project correctly applied the ACR Tool for Risk Analysis and Buffer Determination to account for permanence. A total risk score of 18% was confirmed.
- Net of Leakage: RCE confirmed that the Project correctly accounted for leakage per the Methodology.
- Independently Validated and Verified: RCE is a third-party validation and verification body that the project proponent has contracted to validate and verify the Project.
- Environmental and Community Assessments: RCE reviewed project impacts as described in section 3.6 of this report.

3.3.2 Methodology Eligibility

RCE reviewed the Project against the ACR Methodology eligibility and applicability conditions and confirmed the following:

- The Project is located on non-federally owned private forestland.
- Trailhead Ventures controls the timber rights on the forestland and can legally harvest.
- The Project property and all associated has had no harvest activity, which prevents the need for forest sustainability certification.
- The Project is not on tribal lands.
- The Project is not on public non-federal lands.
- The Project does not use non-native species where adequately stocked native stands were converted for forestry or other land uses after 1997.
- The Project has not drained or flooded wetlands on or after the project start date.
- Trailhead Ventures owns all lands and timber rights on the Project area.
- The Project's stocking levels will increase well above the baseline conditions for the duration of the Project and by the end of the Crediting Period.

3.4 ADDITIONALITY

The Project meets the requirements for the demonstration of additionality specified by the ACR Standard and the Methodology.

3.4.1 Regulatory Surplus Test

RCE confirmed that there are no existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of the start date that requires the Project activity and the associated GHG emissions reductions; thus, the Project passes the regulatory surplus test.

3.4.2 Common Practice Test

The Project area is similar to surrounding private forestland that is regularly harvested as it reaches viable diameter thresholds and has a history of some timber harvesting.

The project's geographic region for timber production extends in all directions. Throughout this private forestland is heavily cut, often through shelterwood, single tree selection and clear-cutting, and is managed to maximize NPV of the asset. Wood products including hardwood, sawtimber and softwood pulpwood are distributed to mills throughout this region and demand is strong and steady.

3.4.3 Implementation Barriers Test

The Project chose to assess the financial barriers test per the ACR Standard and Methodology. RCE confirmed that carbon funding is reasonably expected to incentivize the Project's implementation. Due to the Project being implemented, Trailhead Ventures loses the ability to monetize timber harvests at a rate similar to business-as-usual practices during the life of the Project. U. S. Venture provided a financial assessment comparison of NPV between the baseline scenario with harvesting and the project scenario with a lower amount of harvesting but including revenue from carbon credits. The baseline scenario NPV was significantly greater demonstrating that carbon funding is integral to the project activity.

3.5 Permanence

RCE confirmed that the Project correctly applied the ACR Tool for Risk Analysis and Buffer Determination to account for permanence. A total risk score of 18% was confirmed.

3.6 Environmental and Community Impacts

The GHG Project Plan section F1. includes a summary of the Project activity's net positive environmental and community impacts through sustainable development goals. The Project will provide habitat protection for wildlife, plant species, and trees. The Project will also provide water quality protection and protection from soil erosion & degradation among other benefits. The Project is not expected to cause any negative environmental impacts.

3.7 Local Stakeholder Consultation

No formal stakeholder consultation occurred since the Project is held on private lands.

3.8 Monitoring Plan

The GHG Project Plan includes a Monitoring Plan that identifies all monitored data and parameters. RCE confirmed that the monitoring parameters and approaches conform to the methods required by the Methodology. The plan includes all relevant data parameters and appropriately identifies units of measurements, data sources, methodologies, uncertainty, monitoring frequency and procedures, and QA/QC procedures. After discussions with U. S. Venture and reviews of project documents, RCE determined that the Monitoring Plan accurately reflects how Project data is monitored and recorded and there are no deviations relevant to the Project activity against the requirements of the Methodology. U. S. Venture and Trailhead Ventures implemented the monitoring plan as stated in the GHG Project Plan during Project activities.

3.9 Baseline Scenario

The Project's baseline scenario represents an aggressive harvest regime, targeted to maximize net present value at a 5% discount rate for non-industrial private lands. The baseline scenario applies harvesting across the Project area as allowed by the Methodology to maximize NPV.

The Project's baseline model simulates a range of harvest types and rotation lengths based on legal requirements and simulated growth within each stratum. The objective of modeling was to determine possible timber harvests in the project area over 100-years within the framework of legal and reasonable harvest constraints.

Stands were modeled with multiple potential baseline harvest prescriptions per the GHG plan in order to determine the selected alternative. A prescription of a clearcut on a 40 year rotation was selected as the baseline harvest scenario.

U. S. Venture utilized the USDA's Forest Vegetation Simulator (FVS) Southern variant to model harvests and yields. Growth models were calibrated using site index values calculated from tree core analysis in the project area. RCE reviewed the visual usage of the Site Index curves and confirmed that a reasonable species and site index for the region was assigned on an individual plot basis to appropriately calibrate growth. The process was confirmed to be consistently and systematically applied to each plot.

RCE reviewed the resulting baseline outputs to ensure that they reflected the modeling objectives and the legal additionality requirements. The model grows trees and volumes at a reasonable rate compared to regional averages.

3.10 On-site Inventory Verification Check

In preparation for and during the site visits, the Verification Team reviewed evidence necessary to verify Project inventory estimates.

The Project inventory consists of six forested strata which FRST sampled using a random sampling method.

The current inventory contains 209 permanent, fixed-radius plots. At each plot location, trees were measured in two nested plots: a larger 1/25th acre plot with radius of 23.56 feet, and a smaller 1/100th acre plot with radius of 11.78 feet. The larger plot measured all living and standing dead trees greater than or equal to 5 inches DBH while the smaller, nested plot measured all living and standing dead trees between 1 and 4.9 inches. Additionally, standing dead trees had to meet or exceed a height of 15 feet.

Given this sample design and Project size, the Verification Team was required to achieve a minimum of 15 successful plots within the project to successfully verify inventory stocking levels. The Verification Team successfully verified site data after measuring a total of 20 site plots. The Project passed the t-test during the site visit.

Project Area

During the site visit, the Verification Team conducted boundary-line reconnaissance by visiting Project boundary edge lines and points, plotting edge points with GPS receivers, and determining whether there were discrepancies with the digital Project boundary files provided by U. S. Venture and the physical boundary witnessed on-site. This was done to determine the risk that Project area inaccuracies could contribute to a material misstatement in Project emission reductions. To the extent feasible, the Verification Team confirmed that the Project area boundary was appropriate and accurate.

3.11 Project Data and GHG Emissions Reduction Assertion

RCE reviewed the GHG Project Plan and Project data and calculations to ensure that appropriate equations were used in calculating baseline emissions, project emissions, and net emissions reductions.

3.11.1 Baseline Emissions

RCE and FRST confirmed that the baseline emissions were correctly calculated. Baseline emissions were calculated by reviewing input and output files for every FVS baseline modeling prescription, including forest codes, diameter breaks, merchantability thresholds, rotation lengths, regen/spouting, FVS harvest triggers on individual plots, site indices, treelists, and plotlists modeled over 100 years. The output workbook (ERT_Calculator) was then independently recreated in the data checks confirming proper calculation of assigned plot level outputs allocated to prescription. These values were then compiled into yearly baseline values for live and dead as reflected in the ERT monitoring calculation sheet. A secondary output of this process was the 100-years of modeled harvesting based off Best Management Practices (BMP) constrained acreages which was then run through the prescribed harvested wood product calculations customized for the project region(s). These calculations were made on 40-year time intervals as well as 100-year intervals and they were appropriately incorporated into the ERT monitoring calc sheet. See additional information relevant information in section 3.9.

3.11.2 Project Emissions

RCE and FRST confirmed that the project emissions were correctly calculated. The methods to confirm project emissions follow what is described in section 3.11.1 above.

3.11.3 Emissions Reductions

RCE verified that U. S. Venture calculated emission reductions according to relevant Methodology equations and that the methods are included in the GHG Project Plan.

RCE recalculated emission reductions for the first reporting period according to the equations defined in the Methodology and the GHG Project Plan and found the Project assertion to be free of material misstatement.

RCE and FRST also recalculated and confirmed the uncertainty assessment for the Project. The uncertainty calculation is the compiled square roots of the summed errors of the strata using a 90% confidence interval. RCE and FRST confirmed that the live, dead, and total uncertainty for the reporting period onsite carbon stocks was accurate.

3.12 LEAKAGE ASSESSMENT

RCE and FRST recalculated and confirmed the leakage for the project in accordance with the ACR Validation and Verification Standard version 1.1 section 6.F and 9.H.

4 VALIDATION AND VERIFICATION RESULTS

RCE developed a combined List of Findings for both the validation and verification. The List of Findings noted all corrective action requests (CARs), non-material findings (NMs), additional documentation requests (ADRs), and clarification requests (CRs). U. S. Venture appropriately responded to all items in the List of Findings. The List of Findings is provided as Appendix B.

5 VALIDATION AND VERIFICATION CONCLUSION

RCE conducted a risk-based analysis of the U. S. Venture – MS River Islands Forest Conservation Project GHG assertion including a strategic review of the Project data and evidence. Based upon the processes and procedures and the evidence collected, RCE concludes that the Project emission reductions during the reporting period September 14, 2022 through July 31, 2023 can be considered:

- GHG-related activity: improved forest management of forest land on the Project area
- GHG statement: 9/14/2022 – 7/31/2023
- Criteria
    - In conformance with ACR's Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non‐Federal U.S. Forestlands v.2.0, July 2022 and ISO 14064-3:2019 standards,
    - Without material discrepancy, and
    - Verified to a reasonable level of assurance.

The data and information supporting the GHG statement were historical in nature.

RCE has ensured U. S. Venture's effective use of controls related to the GHG statement. RCE concludes that there is sufficient and appropriate evidence to support U. S. Venture's GHG statement and is issuing an Unmodified Opinion.

RCE confirms that the GHG statement has been prepared:

- Without material discrepancy,
- In accordance with all applicable criteria, and
- Verified to a reasonable level of assurance.

The verified emission reductions are listed in Table 2. While RCE confirmed the emission reduction calculations and the total emission reductions to be correct and within the materiality threshold, the values in Table 2 are summary data only with significant figures rounded for summary purposes in this report.

Table 2. Total ERTs

Vintage	Total Emission Reductions / Removals	Buffer Pool / Reserve Account Contribution	Net Emission Reductions / Removals	Removals Subset (If Applicable)	Emission Reductions Subset (If Applicable)
2022	53,510	9,632	43,878	5,642	47,868
2023	105,038	18,907	86,131	11,074	93,964
Total	**158,548**	**28,539**	**130,009**	**16,716**	**141,832**

Note: Totals might not sum due to rounding.

Lead Validator and Verifier

Zach Eyler

Internal Reviewer

Bonny Crews

APPENDIX A—DOCUMENTS REVIEWED

1. Project Snag Calculator.xlsx series
2. ACR873 Project and Baseline Carbon.xlsx series
3. FVSOut.db series
4. Strata 1 No Harvest_FVSoutput.txt
5. 2022 Selected Alternative Strata 1_FVSoutput.txt
6. 2022 Selected Alternative Strata 2_FVSoutput.txt
7. 2022 Selected Alternative Strata 3_FVSoutput.txt
8. 2022 Selected Alternative Strata 4_FVSoutput.txt
9. 2022 Selected Alternative Strata 5_FVSoutput.txt
10. 2022 Selected Alternative Strata 6_FVSoutput.txt
11. No harvest Strata 2_FVSoutput.txt
12. No harvest Strata 3_FVSoutput.txt
13. No harvest Strata 4_FVSoutput.txt
14. No harvest Strata 5_FVSoutput.txt
15. No harvest Strata 6_FVSoutput.txt
16. Clearcut_selected alternative.xlsx series
17. Baseline Snag Calculator.xlsx series
18. Biomass and CO2 Calculator degrown .xlsx series
19. Biomass and CO2 Calculator grown forward .xlsx series
20. Biomass and CO2 Calculator inventory date.xlsx series
21. True Islands Production Degrown Diameters .accdb series
22. Mississippi River Islands Quality Control Plan.pdf
23. Mississippi River Islands Sampling Protocol_8.5.23.pdf
24. NPV Workbook .xlsx series
25. Site Tree Data 1.31.24.csv
26. Phoenix Paper attestation - MA signed.pdf
27. Paper Products only at Phoenix.pdf
28. Stumpage breakdown.pdf
29. SMZ - I8_25ft _ Wolf_25ft _ Burnham_50ft.gpkg
30. Attestation No Timber Harvest.pdf
31. Mississippi River Islands Project Mapping - FINAL - less SMZs.gpkg
32. Mississippi River Islands Project Mapping - FINAL - less SMZs.xlsx
33. mill capacity.xlsx
34. FW_ ownership\Wolf Island Bar - ownership.pdf
35. Burnham Island - Ownership.pdf
36. Island 8 - ownership.pdf
37. Random Plot Selection Process.docx
38. weekly height growth of cottonwood.pdf
39. CARIT species list.xlsx
40. Old Plot ID reference.xlsx

ja_1985_francis_001_Sugarberry_Hackberry SI assimilated to Water oak curve.pdf
gtr_nc128_Main Curves paper.pdf
ja_1958_briscoe_001.pdf
field plot locations 6.23.23.cpg
field plot locations 6.23.23.dbf
field plot locations 6.23.23.prj
field plot locations 6.23.23.qmd
field plot locations 6.23.23.shp
field plot locations 6.23.23.shx
Mississippi River Islands Project Mapping.cpg
Mississippi River Islands Project Mapping.dbf
Mississippi River Islands Project Mapping.prj
Mississippi River Islands Project Mapping.qmd
Mississippi River Islands Project Mapping.shp
Mississippi River Islands Project Mapping.shx
Forest Management Plan - Burnham - Wolf - Island 8 - signed.pdf
Inventory Sampling.xlsx
QA_QC Paired Test Calculator-ACR873.xlsx
Signed Deeds.pdf
ACR873 Monitoring Report V5.0 RP1.docx series
ACR873 Mississippi River Islands GHG Project Plan .pdf series
ACR873 Monitoring Report RP1 .pdf series
ACR873 Monitoring Report V5.0 RP1 7.12.24 (FE).pdf
ACR873 Mississippi River Islands GHG Project Plan 7.12.2024.pdf

APPENDIX B—LIST OF FINDINGS

Includes Corrective Action Requests (CAR), Non-Material Findings (NMs), Additional Documentation Requests (ADR), and Clarification Requests (CR), as necessary.