VERIFICATION REPORT

American Carbon Registry

ACR375: Bluesource – Hawk Mountain Improved Forest Management Project

Reporting Period:
17 March 2019 to 16 March 2020

Prepared for:

Bluesource LLC

6 July 2020

AMERICAN CARBON REGISTRY

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Executive Summary

This report describes the verification services provided for the Bluesource – Hawk Mountain project ("the project"), an Improved Forest Management (IFM) project located in eastern Pennsylvania, USA, that was conducted by SCS Global Services. The overall goal of the verification engagement was to review impartially and objectively the claimed GHG emission reductions/removal enhancements for the reporting period from 17 March 2019 to 16 March 2020 against relevant ACR standards and the approved methodology. The verification engagement was carried out through a combination of document review and interviews with relevant personnel. As part of the verification engagement 2 findings were raised: 0 Non-Conformity Reports, 2 New Information Request and 0 Observations. These findings are described in Appendix A of this report. The project complies with the verification criteria, and SCS holds no restrictions or uncertainties with respect to the compliance of the project with the verification criteria.

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1 Introduction

1.1 About SCS Global Services

SCS Global Services (SCS) is a global leader in third-party certification, auditing, testing services, and standards. Established as an independent third-party certification firm in 1984, our goal is to recognize the highest levels of performance in environmental protection and social responsibility in the private and public sectors, and to stimulate continuous improvement in sustainable development. In 2012, Scientific Certification Systems, Inc. began doing business as SCS Global Services, communicating its global position with offices and representatives in over 20 countries.

SCS' Greenhouse Gas (GHG) Verification Program has been verifying carbon offsets since 2008 and to date has verified over 250 million tonnes of CO2e, providing GHG verification services to a wide array of industries including manufacturing, transportation, municipalities, and non-profit organizations. The GHG Verification Program draws upon SCS's established expertise to serve the global carbon market.

1.2 Objectives

The overall goal of third-party verification was to review impartially and objectively the claimed GHG emission reductions/removal enhancements against relevant ACR standards and the approved methodology. SCS independently evaluated the GHG assertion, based on supporting evidence and GHG verification best practice. The objectives of the verification were to evaluate:

- Reported project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).
- Any significant changes to the project procedures or criteria since the last verification.
- Any significant changes in the GHG project's emission reductions/removal enhancements since the last verification.

SCS reviewed the monitoring report, GHG assertion, and any additional relevant documentation provided by the client to determine

- That the reported emissions reductions and/or removal enhancements are real.
- Degree of confidence in and completeness of the GHG assertion.
- That project implementation was consistent with the GHG project plan.
- Eligibility for registration on ACR.
- Sources and magnitude of potential errors, omissions, and misrepresentations, including the
    - Inherent risk of material misstatement.
    - Risk that the existing controls of the GHG project would not have prevented or detected a material misstatement.

1.3 Scope

Verification included examination of some or all of the following elements of the monitoring report:

- Physical infrastructure, activities, technologies, and processes of the GHG project
- GHG SSRs within the project boundary
- Temporal boundary
- Methods and calculations used to generate estimates of emissions and emission reductions/removal enhancements
- Original underlying data and documentation as relevant and required to evaluate the GHG assertion
- Process information, source identification/counts, and operational details
- Data management systems
- Roles and responsibilities of project participants or client staff
- QA/QC procedures and results
- Processes for and results from uncertainty assessments
- Project-specific conformance to ACR eligibility criteria

SCS examined the reported data, quantification methodologies, calculation spread-sheets or databases, source data, project data management systems, data quality controls in place, measurement and monitoring systems, and records pertaining to emissions quantification. Calculation and error checks, interviews with project participants, an iterative risk assessment, sampling plan, and audit checklist were performed to the extent necessary for SCS to develop an understanding of how data are collected, handled, and stored for a specific project.

1.4 Verification Criteria

The verification criteria were comprised of the following:

- ACR Standard, Version 5.0
- Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3 (“the methodology”)

1.5 Level of Assurance

The level of assurance was reasonable.

1.6 Treatment of Materiality

For verification purposes, it was required that discrepancies between the emission reductions/removal enhancements claimed by the project team and estimated by SCS to be immaterial, i.e. be less than ACR's materiality threshold of ±5%, as calculated according to the equation in the ACR Standard.

1.7 Summary Description of the Project

The project is located across Berks and Schuylkill counties in eastern Pennsylvania and is aimed at ensuring the long-term conservation and sustainable management of the forest, promoting healthy wildlife habitat, and preventing future compromise of the forest carbon stocks on the forestlands owned by the Hawk Mountain Sanctuary Associations, the project proponent. The project is in partnership with The Nature Conservancy and a conservation easement has been put in place to ensure its permanence.

2 Assessment Process

2.1 Method and Criteria

The verification services were provided through a combination of document review and interviews with relevant personnel, as discussed in Sections 2.2 through 2.4 of this report. At all times, an assessment was made for conformance to the criteria described in Section 1.4 of this report. As discussed in Section 2.5 of this report, findings were issued to ensure conformance to all requirements.

The audit team created a sampling plan following a proprietary sampling plan template developed by SCS. The audit team identified areas of "residual risk"—those areas where there existed risk of a material misstatement (see Section 1.6 above) that was not prevented or detected by the controls of the project. Sampling and data testing activities were planned to address areas of residual risk. The audit team then created a verification plan that took the sampling plan into account.

2.2 Document Review

The monitoring report (version 2.0 dated 6 May 2020; "MR") was carefully reviewed for conformance to the verification criteria. The following provides a list of additional documentation, provided by project personnel in support of the aforementioned documents, that was reviewed by the audit team.

Documentation Reviewed During the Course of Verification Activities		
Document	**File Name**	**Ref.**
Attestation	acr-terms-of-use-june-2015_corporate signature Signed by HMS.pdf	1
Attestation	Annual-Project-Attestation_2020 Signed by HMS.pdf	2
Attestation	Hawk_Regulatory_Compliance_Attestation_2020 Signed by HMS.pdf	3
Calculations workbook	HawkMountain_RP_ERT_HWP_03_30_2020.xlsx	4

GHG Project Plan	HawkMountain_GHG_Plan_11_06_18.pdf	5
Inventory plots shapefile	HawkMountainPlots_5_3_18.shp	6
Project area shapefile	HMS_Boundary_5_1_18.shp	7

2.3 Interviews

2.3.1 Interviews of Project Personnel

The process used in interviewing project personnel was a process wherein the audit team elicited information from project personnel regarding (1) the work products provided to the audit team in support of the MR; (2) actions undertaken to ensure conformance with various requirements and (3) implementation status of the project activities. The following provides a list of personnel associated with the project who were interviewed.

Interview Log: Individuals Associated with Project Team			
Individual	**Affiliation**	**Role**	**Date(s) Interviewed**
Cakey Worthington	Bluesource	Director of Implementation	Throughout audit
Megan McKinley	Bluesource	Analyst – Forest carbon projects	Throughout audit

2.3.2 Interviews of Other Individuals

The process used in interviewing individuals other than project personnel was a process wherein the audit team made inquiries to confirm the validity of the information provided to the audit team. The following personnel are not associated with the project team. The following provides a list of individuals not associated with the project proponent who were interviewed.

Interview Log: Individuals Not Associated with Project Proponent			
Individual	**Affiliation**	**Role**	**Date(s) Interviewed**
Steven Ziegler	Pennsylvania Department of Forests, Parks and Recreation	Schuylkill COunty Forester	10 April 2020

2.4 Site Inspections

No on-site inspections were conducted as part of the verification services.

2.5 Resolution of Findings

Any potential or actual discrepancies identified during the audit process were resolved through the issuance of findings. The types of findings typically issued by SCS during this type of verification engagement are characterized as follows:

- Non-Conformity Report (NCR): An NCR signified a discrepancy with respect to a specific requirement. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a verification statement.
- New Information Request (NIR): An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. Receipt of an NIR did not necessarily indicate that the project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a verification statement.
- Observation (OBS): An OBS indicates an area where immaterial discrepancies exist between the observations, data testing results or professional judgment of the audit team and the information reported or utilized (or the methods used to acquire such information) within the GHG assertion. A root cause analysis and corrective action plan are not required, but highly recommended. Observations are considered by the audit team to be closed upon issuance, and a response to this type of finding is not necessary.

As part of the audit process, 0 NCRs, 2 NIR and 0 OBS were issued. All findings issued by the audit team during the audit process have been closed. All findings issued during the audit process, and the impetus for the closure of each such finding, are described in Appendix A of this report.

2.6 Techniques and Processes Used to Test the GHG Information and GHG Assertion

The audit team applied various techniques and processes to test the GHG information and the GHG assertion over the course of the audit, listed below:

- Review of project documentation including the MR, attestations (Refs. 1-3) spatial information (Ref. 6-7), and calculation workbook (Ref. 4) to check for project-specific conformance to ACR standard and methodology, appropriateness of methodologies and tools applied, accuracy of GHG information and assertion.
- Assessment of any disturbances or forest management activities that took place in the project area during the reporting period.
- Review of project scenarios.
- Review of the sources, sinks and reservoirs of GHG emissions within the project boundary (Ref. 4).
- Assessment of eligibility, additionality, GHG emission reduction assertion and underlying monitoring data to determine if either contained material or immaterial misstatements.
- Assessment of the emission reduction calculation inputs and procedures was performed to review the quantitative analyses undertaken by Bluesource to convert the raw inventory data into emission reduction estimates during the reporting period. This included a re-calculation of

project emissions, ERTs, and uncertainty using inventory data as described below in section 3.1 and 3.2 (Ref. 4).

- Communicate with project personnel and other individuals via interviews, emails, and meetings to gain a better understanding of the project team's methodologies and activities in the project area.
- Examine the data management and quality control processes and its controls for sources of potential errors and omissions.
- Review of project documentation including risk assessment and regulatory compliance (Ref. 3).

3 Verification Findings

3.1 Results of Quantitative Uncertainty Assessment

SCS devoted a portion of the verification assessment to the review of the manner and propriety by which the project personnel quantified uncertainty associated with the individual GHGs in the project, in addition to the uncertainty of the calculation of GHG emission reductions and removals. The project uncertainty was verified within independent re-quantification. The audit team also calculated the total materiality of the GHG reduction and removal assertion. See below.

3.1.1 Project Uncertainty

The reported total Project Uncertainty (UNC_t) was independently re-quantified by SCS using equation 19 in the methodology. No issues were found (see table below). The audit team found this difference reasonable and immaterial.

	SCS Values	Client Values	Difference
Year	**UNCt**	**UNCt**	
2020	7.77%	7.89%	0.12%

Materiality

$$\%\ Error = \frac{(Project\ Emission\ Reduction\ Assertion - Verifier\ Emission\ Reduction\ Recalculation)}{Verifier\ Emission\ Reduction\ Recalculation} * 100$$

$$\%\ Error = \frac{(37{,}402 - 37{,}424)}{37{,}424} * 100 = \frac{-22}{37{,}424} * 100 = -0.06\%$$

3.2 Analysis of the Quantification Methodologies and Applicable Data Sets and Sources

The audit team re-quantified project emissions, emissions reductions, and project uncertainty from the raw inventory data provided by the client. This process entailed verifying that the methods detailed in the MR were applied as indicated. The team confirmed the emissions reduction by conducting the following analysis:

- Re-model in the Forest Vegetation Simulator (FVS) the project scenario for a sample plot(s) and prescription to estimate the live tree and dead tree carbon annual (Ref. 4).
- Recalculate the live above ground, live below ground, and standing dead carbon pools by adding the annual carbon increment (per acre) to the previous reporting period stocks and expanding by the project area (Ref. 4).
- Calculate the change in project carbon stock stored in above and below ground live trees using equation 11 in the methodology (Ref. 4).
- Calculate the change in project carbon stock stored in above ground dead trees using equation 12 in the methodology.
- Calculate any greenhouse gas emission resulting from the implementation of the project in the reporting period using equation 13 in the methodology (Ref. 4).
- Calculate the change in the project carbon stock and GHG emissions during the reporting period using equation 14 in the methodology.
- Calculate the percentage uncertainty in the combined carbon stocks in the project during the reporting period using equation 18 in the methodology.
- Calculate the total project uncertainty (percentage) during the reporting period using equation 19 in the methodology.
- Calculate the net greenhouse gas emission reductions (in metric tons CO2e) during the reporting period and during each annual vintage using equation 20 in the methodology.

Emission Reductions

The audit team verified that the project personnel used the appropriate emissions factors and GWP's to calculate total emission reductions, which is adherent to the ACR Methodology. The team recalculated the final emission reductions and confirmed that they are without material discrepancy.

The ERT's associated with the second reporting period are reported in the ERT workbook and are verified by the verification team are as follows:

- 46,175 tCO2e (Emissions reductions at the end of the current reporting period without risk buffer deductions)
- 37,402 tCO2e (Emissions reductions at the end of the current reporting period including risk buffer deductions)
- 8,773 t CO2e Risk buffer contribution
- 30,783 t CO2e Leakage deduction

Variances or Deviations

For this reporting period, there were no variances or deviations.

Uncertainty

See section 3.1.1 above.

3.3 Basis of Data and Information Supporting the GHG Assertion

The following table indicates whether the data and information supporting the GHG assertion were based on assumptions and industry defaults, future projections, and/or actual historical records.

Assumptions and Industry Defaults	☒
Future Projections	☐
Actual Historical Records	☒

3.4 Leakage Assessment

Section VI.3 of the MR states: "Quantification of leakage is limited to market leakage, as no activity-shifting leakage is allowed by the methodology beyond de minimis levels. All forestlands owned by Hawk Mountain Sanctuary Association are FSC certified and included in the carbon project, therefore there is no activity-shifting leakage."

SCS confirmed that the applicable market leakage factor of 0.4 was applied.

3.5 Risk Assessment

The reported value of the total risk score, as determined based on the risk analysis documented in the MR was 19%. The audit team performed a complete review of the risk assessment against the requirements of the ACR Tool for Risk Analysis and Buffer Determination. The audit team concludes that the assignment of risk scores is appropriate and in conformance to the ACR Tool for Risk Analysis and Buffer Determination. A more detailed review of the audit team's conclusions may be found below.

Actions Undertaken to Evaluate Whether the Risk Assessment Has Been Conducted Correctly		
Risk Category	**Value Selected**	**Verification Activities**

A	4%	Confirmation, through independent review of documentation, that project is not located on public or tribal lands
B	4%	Confirmation, through independent review of documentation, that project is not located on public or tribal lands
C	2%	Confirmation, through independent review of documentation, that the project is not located outside the United States
D	-3%	Confirmation, through independent review of documentation, that there is regular onsite monitoring of activities related to carbon-specific conservation activities
E	2%	Confirmation, through independent review of documentation, that project is located in low fire risk region.
F	8%	Confirmation, through independent review of documentation, that epidemic disease or infestation is present within the project areas, or within a 30 mile radius of the project area.
G	0%	Confirmation, through independent review of documentation, that project is not a wetland project or a forest project where more than 60% of the project area is not a forested wetland.
H	2%	Confirmation that default value has been applied in the risk assessment calculation.

4 Conclusion

The audit team asserts, with no qualifications or limitations, that the quantification of GHG emission reductions and/or removal enhancements, as reported in the MR, conforms to the verification criteria and is without material discrepancy.

On the basis of the information made available to SCS and the analyses completed during the verification, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the emission reductions represented by the Project Proponent during the monitoring period of 17 March 2019 to 16 March 2020 are free from material misstatement and in conformance with the assessment criteria.

The following provides a summary of the verification results:

Reporting Period	Baseline Emissions tCO_2e	Project Emissions tCO_2e	Net GHG Emission Reductions tCO_2e
17 March 2019 to 16 March 2020	**-72,180**	4,779	**37,402**

The following provides a summary of the ERT issuance for the current Reporting Period with the Buffer excluded:

Annual Emission Reduction in Metric Tons (tCO_2e)				
Reporting Period	**Vintage**	**Start Date**	**End Date**	**Net GHG Emission Reductions (tCO_2e)**
3	2019	17 March 2019	31 December 2019	36,687
3	2020	1 January 2020	16 March 2020	9,488
			Total	46,175

The following provides a summary of the ERT issuance for the current Reporting Period with the Buffer deduction included (Buffer credits shown separately):

Annual Emission Reduction in Metric Tons (tCO_2e)					
Reporting Period	**Vintage**	**Start Date**	**End Date**	**Net GHG Emission Reductions (tCO_2e)**	**Quantity of Buffer Credits (tCO_2e)**
3	2019	17 March 2019	31 December 2019	29,717	6,970
3	2020	1 January 2020	16 March 2020	7,685	1,803
			Total	37,402	8,773

Note: final numbers are rounded for simplicity.

Lead Auditor Approval	 Alexa Dugan, 6 July 2020
Internal Reviewer Approval	 Michael Hoe, 6 July 2020

Appendix A: List of Findings

Please see Section 2.5 above for a description of the findings issuance process and the categories of findings issued. It should be noted that all language under "Project Personnel Response" is a verbatim transcription of responses provided to the findings by project personnel.

NIR 1 Dated 16 Apr 2020
Standard Reference: ACR Standard v5.0

Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands V1.3
Document Reference: HawkMountain_RP_ERT_HWP_03_30_2020.xlsx

Hawk_RP3_MonitoringReport_03_30_2020.pdf
Finding: The ACR core GHG Accounting principle of transparency states that "Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used." Likewise the IFM methodology states that "Biomass for each tree is calculated from its merchantable volume using a component ratio method."

The monitoring report states that "2. For each live tree (ascribed a unique identifier), annual diameter growth was derived assuming linear growth during the 10-year projection interval (i.e. for dbh, annual growth calculated as dbh at end of 10-year interval minus dbh at beginning of 10-year interval, reported in the FVS Treelist output, divided by 10). 3. For each live tree, diameter data from the April 2017 inventory were grown referencing the annual rates derived in step 2 above, adding three years of annual growth (i.e. three growing seasons) from the Mar 2017 measurement value. 4. Carbon stocks were recalculated using the grown data."

The audit team requests tree-level carbon stock calculations for RP3 in order to verify that the tree diameters were grown forward and carbon stocks werecalculated according to the methods outlined in the monitoring report and those required by the methodology.
Project Personnel Response: The montioring report Section VI.2. has been updated to reflect RP3 calculation methods of the project emissions. Biomass was calculated for each tree from its merchantable volume using a component ratio method at the project start date. The incremental growth rate (5-year cycle) was developed from individual tree biomass and applied across the entire project area for RP3, abiding by the IFM methodology.
Auditor Response: The audit team confirmed that the updated methodology in section VI.2 of the Monitoring Report accurately reflects the approach that the client applied to calculate live and dead tree carbon stocks during the third reporting period. This finding is closed.
Bearing on Material Misstatement or Conformance (M/C/NA): NA

NIR 2 Dated 6 May 2020
Standard Reference: ACR Standard v5.0
Document Reference: Hawk_RP3_MonitoringReport_04_23_2020.pdf

HawkMountain_RP_ERT_HWP_03_30_2020.xlsx
Finding: The ACR core GHG Accounting principle of consistency states "Enable meaningful comparisons in GHG-related information. Use consistent methodologies for meaningful comparisons of emissions
over time."

Section VI.2 of the Monitoring Report "Modeled results for above- and belowground (live) tree biomass for the 16 May 2018 verification date are presented in the table below." A value of 159.2 tCO2e is then reported in the table. This value is not consistent with the values reported in the ERT workbook, nor is the date (month and year) reflective of the current or previous reporting periods.The audit team requests additional information regarding the origin of this value and the date reported.
Project Personnel Response: Section VI.2. of the monitoring report has been updated to reflect the value used in the HawkMountain_RP_ERT_HWP_03_03_2020.xlsx for the March 2018 verification date. The value of 159.2 tCO2e was erroneously reported in RP1 within Section VI.2. of the monitoring report and has been carried forward throughout the following reporting years. However, the reported Net GHG Emission Reductions/Removals to follow in Section VI.5., which were used to determine credit issuance in RP1, are based on the true value of 158.9 tCO2e for the March 2018 verification. The value of 159.2 tCO2e was from an outdated workbook. The date of May 16, 2018 verification is reflective of the site visit date for the first reporting period. Since it is inconsistant with the dates used in the rest of the Hawk_RP3_MonitoringReport that refer to the actual reporting period verification and not the site visit verification, the date has been changed to March 2018.
Auditor Response: The audit team confirmed that the Monitoring Report has been correctly updated. This finding is closed.
Bearing on Material Misstatement or Conformance (M/C/NA): NA