

VERIFICATION REPORT

American Carbon Registry

ACR386: Bluesource – Hudson Farm Improved Forest Management Project

Reporting Period:
30 June 2018 to 29 June 2019

Prepared for:

Bluesource LLC

06 April 2020



AMERICAN CARBON REGISTRY



ISO 14065 Greenhouse Gas
Validation and Verification Body
#0821

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Project Title	Bluesource – Hudson Farm Improved Forest Management Project
Client	Bluesource LLC
Project Location	New Jersey
Reporting Period	30 June 2018 to 29 June 2019
Prepared by	SCS Global Services (SCS)
Date of Issue	06 April 2020
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Summary

SCS Global Services (SCS) has performed the verification of the Bluesource – Hudson Farm Improved Forest Management Project (“the Project”) developed by Blue Source, for IAT Reinsurance Co, LTD (“the Project Proponent”). This assessment covers the Project’s greenhouse gas emission reductions reported to the American Carbon Registry (the Registry or ACR) for the reporting period 30 June 2018 to 29 June 2019. This report presents the verification process, the findings raised during the assessment, and the conclusion reached by SCS.

This verification was undertaken to evaluate the representations provided in the Monitoring Report and assess whether the compiled data conforms to the assessment criteria. The evaluation was undertaken using the ACR Standard, Version 5.1 (July 2018), 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 (April 2018), and the ACR Validation and Verification Standard, Version 1.1 (May 2018).

In the course of this assessment the SCS verifiers developed findings which included New Information Requests (NIRs), Non-Conformity Reports (NCRs) and Observations (OBSs). During this verification 3 findings were issued: 1 NCR, 1 NIR and 1 OBS. These findings are described in Appendix C. All NCRs and NIRs have been adequately responded to, resulting in their closure. OBSs are potential non-conformances that have been memorialized for future verifications.

SCS verified the adequacy of the information provided in the Monitoring Report and supporting documents, confirming that the documents meets the requirements of the assessment criteria. On the basis of the information made available to SCS and the analyses completed, SCS was able to reach a positive opinion, with a reasonable level of assurance, that the claimed emission reductions and removals presented by Bluesource LLC meets the requirements of ACR. Thus, SCS has verified 52,600 metric tonnes of CO₂e reductions and removals from the Bluesource – Hudson Farm Improved Forest Management Project for the reporting period of 30 June 2018 to 29 June 2019.

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1 Introduction

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 is currently accredited to ISO 14065 for GHG Validation and Verification by the American National Standards Institute (ANSI) and offers carbon offset project validation and verification under the Verified Carbon Standard (VCS) and the American Carbon Registry (ACR). SCS also offers carbon offset verification under the Climate Action Reserve (CAR) and the Climate, Community and Biodiversity (CCB) standards.

This document reports on verification activities for the Bluesource – Hudson Farm Improved Forest Management Project. Activities were focused on the evaluation of the Monitoring Report against the requirements of the ACR Standard, the ACR Validation and Verification Standard, and the ACR Methodology, “IFM Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands” (referred to collectively as the ACR Requirements). This report presents the findings of the assessment and provides a description of the steps involved in the verification process.

1.1 Project Description

The Project improves forest management on Hudson Farm Club forests, with forest management practices representing an improvement in the carbon storage and conservation value compared to higher return management regimes of industrial private lands in the region, which are characterized by shorter, even-aged rotations. The project is located in Sussex County New Jersey on 3,174 acres of mixed hardwoods, oak-hickory, northern conifer, and northern hardwood forests. The project describes the project activities as having a focus on sustainable, natural forest growth and maintenance harvests for essential activities and forest health. In addition, the project ensures long-term sustainable management of the forests, which could otherwise undergo commercial timber harvesting.

1.2 Audit Team

The SCS audit team consisted of the following individuals:

Lead Verifier: James Cwiklik, SCS Global Services, Verification Forester

Mr. Cwiklik holds a Masters of Forestry from Michigan Technological University. He completed his undergraduate work at the University of Pittsburgh, receiving a B.A. in Environmental Studies, with a minor in Religious Studies and a certificate in Geographic Information Systems. Previously he has been a Lead Consulting Forester with Davey Tree’s Resource Division supervising a team of foresters for Pacific Gas and Electric’s (PG&E) Community Pipeline Safety Initiative (CPSI) project. Mr. Cwiklik is a certified Arborist and has contributed to the efforts of eradicating the Asian long horned beetle in southwestern

Ohio as an Inventory Arborist and Quality Control Specialist. He has also worked with the Michigan Department of Natural Resources as a Forest Technician Crew Leader to lead forest inventories across northern Michigan with an emphasis on the spread of emerald ash borer and beech bark disease. Since joining SCS in February 2018, he has conducted multiple site visits under different standards to assist with data collection, analysis, and field training.

Verifier: Alexa Dugan, SCS Global Services, Verification Forester

Ms. Dugan holds a Master's in Geography from the University of Wyoming where she researched historical wildfire dynamics across the South Rim of Grand Canyon National Park. As a Graduate Research Assistant, she served as both a field and laboratory supervisor, overseeing the sampling, processing, and crossdating of tree cores and fire scar evidence. She completed her B.S. in Geography with minors in GIS, Spanish, and International Studies at Pennsylvania State University. Prior to joining SCS, Ms. Dugan worked for the U.S. Forest Service as a GIS Data Specialist and later a Natural Resource Specialist. At the Forest Service, she led the development of forest carbon assessments across the National Forest System and modeled forest sector climate change mitigation scenarios for several state partners. Ms. Dugan has also developed and delivered technical workshops for academic and governmental associates abroad in topics including GIS, Python programming, and forest inventory techniques. Early in her career, she worked as a Forest Inventory and Analysis Technician in Colorado. Ms. Dugan is based in Philadelphia, Pennsylvania.

Independent Reviewer: Zane Haxtema, SCS Global Services, Manager

Mr. Haxtema holds a M.S. in Forest Resources from Oregon State University (Corvallis, Oregon, USA) and a B.S. from The Evergreen State College (Olympia, Washington, USA). A well-rounded forestry professional, Mr. Haxtema held a wide variety of positions in forest research and management before coming to SCS, ranging from work on logging and tree planting crews to experience as a wildland firefighter and research assistant. A specialist in natural resource inventory, Mr. Haxtema holds significant expertise in sampling design, inventory management and growth modeling. Mr. Haxtema is well versed in a wide variety of methodological approaches for carbon accounting, having served as a lead auditor on a wide variety of projects under the Climate Action Reserve, the Verified Carbon Standard and the Climate, Community and Biodiversity Standards.

2 Assessment Details

2.1 Assessment Objectives

The objectives of verification are to evaluate:

- Reported GHG baseline, 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 baseline emissions and emission reductions/removal enhancements since the last verification

2.2 Scope and Criteria

The scope of this assessment will be defined as the following:

- The Project and its baseline scenarios:
 - Confirm that no changes have occurred since the previous verification
- The project boundaries:
 - Confirm that no changes have occurred since the previous verification
- Assessment of the management systems, data handling and estimation methods used in calculating and reporting emissions data;
- Assessment of and issuance of an opinion on issues of leakage and additionality;
- Assessment of data accuracy and any assumptions made in the manipulation of that data;
- Validation that the organization is operating according to the methodology approved by ACR;
- Determine whether the project could reasonably be expected to achieve the claimed GHG reduction/removals;
- Assessment of completeness of the inventory;
- Verification of emissions reductions and removals reported;
- Verification that a measurement and monitoring system is in place that is capable of delivering high quality carbon stock data;
- Verification that the organization is operating according to the methodology approved by the ACR;
- Verification that the carbon stocks reported are real; and
- Conclusions developed on the declared tonnage for registration in ACR.
- The GHG sources, sinks and/or reservoirs that are applicable to the Project:
 - Baseline: Standing Live, Below Ground Live, Harvested Wood Products
 - Project: Standing Live, Below Ground Live, Harvested Wood Products
- The reporting period: 30 June 2018 to 29 June 2019

SCS conducted the verification assessment of the project and project documentation against the following criteria:

- American Carbon Registry Standard, Version 5.1
- ACR Approved Methodology: 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

As an ANSI-accredited verification body, SCS conducted the verification to the requirements of:

- ACR Validation and Verification Standard, Version 1.1
- ISO 14064-3: 2006, Greenhouse Gases – Part 3: Specification with guidance for the validation and verification of GHG assertions

2.3 Level of Assurance and Materiality

SCS performed the assessment activities to a **reasonable level** of assurance in accordance with the assessment criteria. Reasonable assurance is attained by examining a sufficient amount of information, through document review, and interviews with personnel involved in the execution of the Project. SCS applied a materiality threshold of **±5%**; meaning, the reported emissions were free of material misstatements, omissions, and errors achieving a minimum level of at least 95% accuracy, in accordance with ACR's materiality threshold.

3 Verification Process

3.1 Method and Criteria

SCS performed the verification through a combination of document reviews, and interviews with relevant personnel, as discussed in Section 3.3 through 3.6 of this report. At all times SCS assessed the Project's conformance to the criteria described in Section 2.2 of this report. As discussed in Section 3.6, the audit team issued findings to ensure that the project fully conformed to all requirements. Verification activities included the following:

3.2 Assessment Summary

The desk verification process consisted of the following:

1. **Project status updated on the ACR Registry:**

The Bluesource – Hudson Farm Improved Forest Management Project is listed on the Registry website. The status was updated to 'Verifier approved' on 8 November 2019 for the second reporting period (RP2). Bluesource LLC selected SCS as their verification body.

2. **Conflict of Interest Review.**

The conflict of interest assessment was conducted by SCS to identify any potential conflicts for the audit team and the COI form was submitted to ACR. No conflicts were identified and a determination of low potential for conflict of interest was received from ACR on November 6, 2019 (revised December 4, 2019) prior to the commencement of verification activities.

3. **Appointment of Audit Team**

This verification was performed by James Cwiklik, SCS Lead Verifier, Alexa Dugan, Verifier, and reviewed by Zane Haxtema, SCS Internal Reviewer. James Cwiklik and Zane Haxtema are lead verifiers approved by SCS.

4. **Project Kick-Off Meeting**

A kick-off meeting was conducted between the verification team along with Cakey Worthington of Bluesource LLC on 2 December 2019. The purpose of the kick-off meeting was to review the

timeline of audit; confirm verification criteria; determine any changes in the site, sources, GHG management systems or personnel; and to begin gathering information.

5. **Desk Review**

SCS received and reviewed the Monitoring Report and supporting documentation. A risk assessment was conducted to identify key factors that impact the reported emission reductions and removals. A Verification Plan was designed to review all project elements in areas of high risk of inaccuracy or non-conformance.

6. **Site Visit**

No site visit is required as this is a desk review.

During the kick off call, the Project Developer confirmed there were no changes to the GHG Management system, data collection and handling or procedures since the previous site visit.

Quantitative Review

An 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.

7. **Findings**

Throughout the verification, there is an iterative exchange between SCS and Bluesource to gather additional information for review and examination. This exchange includes the issuance of Findings—New Information Requests (NIR), Non-Conformity Reports (NCR) and Observations (OBS) — by SCS. The Project Proponent must respond to NIRs and NCRs in order for SCS to render a verification opinion. At this time all Findings have been appropriately addressed by Bluesource and subsequently closed by SCS. See section 3.5 for more information.

8. **Draft Report and Statement**

This step in the verification process includes a final review of the submitted data, completion of the Verification Report, and drafting of the Verification Statement. A draft Verification Report and Statement are completed based on the results of the verification assessment.

9. **Technical Review**

The draft report was presented to an SCS lead verifier, independent of the verification, who determined the Verification Statement to be justified given the evidence presented. The Verification Report and Verification Statement were then presented to Bluesource LLC for review and comment.

10. **Final Report and Opinion**

Once Bluesource LLC approved these documents, SCS uploaded them to the Registry website for administrative review by ACR. Given a positive review, ACR will register the emissions reductions for the project and issue carbon tonnes for a reporting period of 30 June 2018 to 29 June 2019.

11. Exit meeting with client:

The exit meeting entails a review of the assessment process, summary of the verification findings, and to initiate scheduling for the next verification period.

3.3 Document Review

SCS conducted a document review to inform the planning process prior to verification activities. SCS carefully reviewed the Monitoring Report for conformance to the assessment criteria. A list of other documentation reviewed by the audit team is provided in Appendix B.

The verification process is a risk-based assessment aimed at identifying key factors that impact the reported emission reductions and removals. As a result of the document review and correspondence with project personnel, an audit plan and a sampling plan were developed for this engagement. SCS assessed the GHG Project Plan with actual project conditions, reviewed the baseline and project scenarios, assessed the eligibility, additionality, GHG emission reduction assertion and the underlying monitoring data to determine if either contained material or immaterial misstatements. The results of these reviews are discussed in greater detail below.

3.4 Interviews

Interviews constituted an important component of the audit process to help the audit team better understand the dynamics of the Project, the activities implemented in the Project, and how the reductions were real and accurate. The audit team interviewed the following personnel associated with the project proponent and any implementing partners. The phrase “Throughout audit” under “Date Interviewed” indicates that the individual in question was interviewed on multiple occasions throughout the audit process.

Individual	Affiliation	Date Interviewed
Cakey Worthington	Bluesource LLC.	Throughout the audit
Ian Hash	Bluesource LLC.	Throughout the audit

3.5 Site Inspections

No site visit is required as this is a desk review.

3.6 Resolution of Any Material Discrepancy

The Project Proponent and audit team resolved any potential or actual material discrepancies identified during the assessment process through the issuance of findings. SCS characterizes the types of findings it issued as follows:

Non-Conformity Report (NCR): An NCR signified a material 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 positive 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 positive statement.

Observation (OBS): An OBS indicated an area that should be monitored or ideally, improved upon. OBSs were considered to be an indication of something that could become a non-conformity if not given proper attention, and were sometimes issued in the case that a non-material discrepancy was identified. OBSs were considered to be closed upon issuance.

All NCRs and NIRs issued by the audit team during the assessment process have been closed. Appendix C lists all findings issued during the verification process.

4 Verification Findings

4.1 Project Design

4.1.1 Project Proponent

As indicated within the ACR GHG Project Plan Eligibility Screening form, the Project Proponent is the IAT Reinsurance Co, LTD. The Plan indicates that the ACR account holder is Bluesource LLC, which SCS confirmed by reviewing the ACR website.

4.1.2 Project Title

The GHG Plan notes the Project title as *“Bluesource – Hudson Farm Improved Forest Management Project”* which was confirmed on the ACR website.

4.1.3 Project Type

The Monitoring Report notes the Project type as Improved Forest Management. The Project follows the approved ACR methodology: 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, as stated in the GHG Project Plan.

4.1.4 Location

The project area is located in Sussex County, New Jersey. The project encompasses several parcels of northern hardwoods/oak-hickory forest totaling approximately 3,200 acres.

Description	Included / Excluded	Gas	Justification
Above-ground biomass carbon	Included		Major carbon pool subjected to the project activity.
Below-ground biomass carbon	Included		Major carbon pool subjected to the project activity.
Standing dead wood	Included		Major carbon pool in unmanaged stands subjected to the project activity.
Harvested wood product	Included		Major carbon pool subjected to the project activity

4.1.5 Project Summary and Action

SCS confirmed the Monitoring Report included a brief summary of the Project including the Project action.

4.1.6 Ex-Ante Offset Projection

The project personnel provided ex-ante estimations of the baseline emissions avoided per each vintage of emission reductions, which SCS verified in its evaluation of data and calculations. See Section 4.3 below.

4.1.7 Scope

The Project is a(n) Improved Forest Management project, as defined by ACR, within the Land Use Change and Forestry sector as defined by the methodology: 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 Project complies fully with the criteria as set out in Section A.1 of the methodology.

4.1.8 Parties

As this was previously validated and verified during the initial full verification, this was not assessed.

4.1.9 Project Boundary

The project is located in Sussex County, New Jersey.

The sources, sinks, and reservoirs of GHG emissions within the project boundary are listed in the table below. This is the case for both the baseline and Project scenarios.

4.2 Project Applicability & Eligibility

The ACR methodology provides a series of requirements for scope and applicability in Section A.2, in addition to the latest ACR program eligibility requirements as found in the ACR Standard. SCS confirmed that the GHG Project Plan indicates how each applicability condition is met including supplemental requirements stipulated by ACR during the first validation and verification for the reporting period of 30 June 2017 through 29 June 2018.

Applicability Conditions

SCS assessed the Monitoring Report against the requirements of the ACR documents listed in Section 2.2 of this report. Validation under ACR occurs once per crediting period and includes an in-depth assessment of the GHG Project Plan and supporting documentation to determine whether the Project is in conformance with ACR Requirements. Verification occurs once per reporting period, in this case for the reporting period of 30 June 2018 through 29 June 2019. The following sections describe the elements of the Monitoring Report that were examined.

4.2.1 Project Start Date

In accordance with Chapter 3 of the ACR Standard, the start date is defined as the date at which the project began to reduce GHG emissions against its baseline. As this project was previously verified and validated, the project Start Date was not assessed.

4.2.2 Minimum Project Term

There is no minimum term requirement for projects that reduce GHG emissions from project activities. Nonetheless, SCS confirmed the project personnel provided a timeline with a project term of 40 years, with annual monitoring, reporting and verification in the GHG Plan.

4.2.3 Crediting and Reporting Period

In ACR, the eligible crediting period for this type of project is listed as 20 years. SCS has confirmed the crediting period of 20 years, 30 June 2017 to 29 June 2037, was indicated in section H2 of the GHG Project Plan. SCS has concluded that the reporting period verified in this report is within the applicable crediting period of the Project.

4.2.4 Offset Title

Forestlands included in the project are owned directly by the Project Proponent, the IAT Reinsurance Co, LTD, which holds full legal titles and thus have long term control of the land. Titles and contracts were available for review by the verifier.

As this project has been previously validated and verified, a review of the offset title was not required.

4.2.5 Additionality

The audit team assessed the GHG Project Plan and supporting evidence to determine whether the Project sufficiently passed the approved performance standard, as defined in the applicable methodology, and a regulatory additionality test. The audit team determined that the Project's additionality was demonstrated in accordance with the requirements of the ACR Standard and ACR methodology. The specific evidence provided by the Project Proponent and the verification activities that the audit team performed are described in the sections below.

Regulatory Surplus

Based on its review, SCS determined that the Project Proponent provided clear evidence in the GHG Project Plan that the GHG reduction activity is not required by any applicable and enforced federal, state, or local laws, regulations, ordinances, consent decrees, or other legal arrangements besides as noted above.

Performance Standard

Not applicable.

4.2.6 Regulatory Compliance

Projects must maintain material regulatory compliance. In order to maintain material regulatory compliance, a project must complete all regulatory requirements at required intervals. During the desk review activities, SCS was able to confirm to a reasonable level of assurance that the Project is in compliance with local, state, and federal regulations and had no material regulatory non-conformance events. SCS reviewed the EPA Enforcement and Compliance Online History database and found no violations in respect to Clean Air Act or RCRA compliance. In addition, SCS reviewed the Occupational Safety and Health Administration Website and confirmed no issues of non-compliance or violation. Based on this review, SCS concludes the Project met the Regulatory Compliance requirements.

In addition, SCS reviewed the Attestation of Regulatory Compliance submitted by the Project Proponent, dated 2 July 2019 ("Annual-Project-Attestation_2019_signed.pdf"), affirming the Project's compliance status throughout the reporting period.

4.2.7 Permanence

Section B8 of the GHG Project Plan asserts that the total risk percentage is 18% based on a risk assessment using the ACR Tool for Risk Analysis and Buffer Determination as required by the ACR methodology. SCS confirmed the above via independent re-quantification of the risk value.

4.2.8 Leakage

Section E3 of the GHG Plan states: “All actively harvesting forestlands in the project area have been certified by Tree Farm. To prevent activity-shifting leakage, IAT Reinsurance will not conduct harvests on other lands under its ownership that would offset the harvest reductions attributable to the project. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%.”

SCS confirmed the above via confirmation of Tree Farm certificates and Tree Farm inspection records for the project area.

4.2.9 Independently Validated and Verified

SCS Global Services is a third-party validation and verification body approved by ACR and therefore meets this requirement.

4.2.10 Community and Environmental Impacts

SCS confirmed that the GHG Project Plan included an assessment of the potential community and environmental impacts due to the Project. There are no negative impacts identified and therefore no mitigation plan is necessary. The audit team agrees with the assertion by project personnel that any community or environmental impacts associated with this Project would be net positive due to the focused project boundary and reduction of emissions.

4.3 Evaluation of Data and Calculations

4.3.1 Quantification of Project Emissions

The project activity is improved forest management, with the project proponent’s forest management practices representing a significant improvement in the carbon storage and conservation value than higher return, more aggressive management regimes of industrial private lands in the region, which are characterized by shorter, even-aged rotations with a large degree of commercial high grading. Management decisions of the forest focus on sustainable, natural forest growth and maintenance harvests for essential activities and forest health. The project ensures long-term sustainable management of the forests, which could otherwise undergo significant commercial timber harvesting.

4.3.2 Quantification of Emissions Reductions

Emission reductions are calculated using the following equations.

$$\Delta C_{P,TREE,t} = (C_{P,TREE,t} - C_{P,TREE,t-1}) \quad (11)$$

Where:

t: Time in years.

$\Delta C_{P,TREE,t}$: Change in the project carbon stock stored in above and below ground live trees

(in metric tons CO₂) for year t.

$C_{P,Tree,t}$: Project value of carbon stored in above and below ground live trees at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$\Delta C_{P,DEAD,t} = (C_{P,DEAD,t} - C_{P,DEAD,t-1}) \quad (12)$$

Where:

t: Time in years.

$\Delta C_{P,DEAD,t}$: Change in the Project carbon stock stored in dead wood (in metric tons CO₂) for year t.

$C_{P,DEAD,t}$: Project value of carbon stored in dead wood at the beginning of the year t (in metric tons CO₂) and t-1 signifies the value in the prior year.

$$GHG_{P,t} = BS_{P,t} * ER_{CH_4} * \frac{16}{44} * GWP_{CH_4} \quad (13)$$

Where:

t: Time in years.

$GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year (t).

$BS_{P,t}$: Carbon stock (in metric tons CO₂) in logging slash burned in the project in year t.

ER_{CH_4} : Methane (CH₄) emission ratio (ratio of CO₂ as CH₄ to CO₂ burned). If local data on combustion efficiency is not available or if combustion efficiency cannot be estimated from fuel information, use IPCC default value¹⁷ of 0.012

16/44: Molar mass ratio of CH₄ to CO₂.

GWP_{CH_4} : 100-year global warming potential (in CO₂ per CH₄) for CH₄ (IPCC SAR-100 value of 21 per the Fourth Assessment Report)

$$\Delta C_{P,t} = \Delta C_{P,TREE,t} + \Delta C_{P,DEAD,t} + C_{P,HWP} - GHG_{P,t} \quad (14)$$

Where:

t: Time in years.

$\Delta C_{P,t}$: Change in the project carbon stock and GHG emissions (in metric tons CO₂e) for year t.

$\Delta C_{P,Tree,t}$: Change in the project carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.

$\Delta C_{P,DEAD,t}$: Change in the project carbon stock stored in dead wood (in metric tons CO₂) for year t.

$C_{P,HWP}$: Carbon remaining stored in wood products 100 years after harvest (in metric tons CO₂) for the project in year t.

$GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year (t).

$$UNC_{P,t} = \frac{\sqrt{(C_{P,TREE,1} * \epsilon_{P,TREE})^2 + (C_{P,DEAD,1} * \epsilon_{P,DEAD})^2 + (C_{P,HWP,t} * \epsilon_{P,TREE})^2 + (GHG_{P,t} * \epsilon_{P,TREE})^2}}{C_{P,TREE,1} + C_{P,DEAD,1} + C_{P,HWP,t} + GHG_{P,t}} \quad (18)$$

Where:

- $UNC_{P,t}$: Percentage uncertainty in the combined carbon stocks in the project in year t.
- $C_{P,TREE,t}$: Carbon stock in the project stored in above and below ground live trees (in metric tons CO₂) in year t. $\Delta C_{BSL,Tree,t}$: Change in the baseline carbon stock stored in above and below ground live trees (in metric tons CO₂) for year t.
- $C_{P,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.
- $C_{P,HWP,t}$: Annual carbon (in metric tons CO₂) remaining stored in wood products in the project 100 years after harvest in year t.
- $GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year t.
- $\epsilon_{P,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.
- $\epsilon_{P,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

$$UNC_t = \frac{\sqrt{(\Delta C_{BSL,t} * UNC_{BSL})^2 + (\Delta C_{P,t} * UNC_{P,t})^2}}{\Delta C_{BSL,t} + \Delta C_{P,t}} \quad (19)$$

Where:

- UNC_t : Total project uncertainty in year t, in %.
- $\Delta C_{BSL,t}$: Change in the baseline carbon stock and GHG emissions (in metric tons CO₂) for year t.
- UNC_{BSL} : Percentage uncertainty in the combined carbon stocks in the baseline.
- $C_{P,DEAD,t}$: Carbon stock in the baseline stored in dead wood (in metric tons CO₂) in year t.
- $C_{P,HWP,t}$: Annual carbon (in metric tons CO₂) remaining stored in wood products in the project 100 years after harvest in year t.
- $GHG_{P,t}$: Greenhouse gas emission (in metric tons CO₂e) resulting from the implementation of the project in year t.
- $\epsilon_{P,TREE}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in above and below ground live trees (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.
- $\epsilon_{P,DEAD}$: Percentage uncertainty expressed as 90% confidence interval percentage of the mean of the carbon stock in dead wood (in metric tons CO₂) for the last remeasurement of the inventory prior to year t.

If calculated UNC in equation (19) is <10%, then UNC shall be considered 0% in equation (20).

$$C_{ACR,t} = (\Delta C_{P,t} - \Delta C_{BSL,t}) * (1 - LK) * (1 - UNC_t) * (1 - BUF) \quad (20)$$

Where:

- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.
- $\Delta C_{P,t}$: Change in the project carbon stock and GHG emissions (in metric tons CO₂e) for year t.
- $\Delta C_{BSL,t}$: Change in the baseline carbon stock (in metric tons CO₂) for year t.
- LK: Leakage discount.
- BUF: The non-permanence buffer deduction. BUF will be set to zero if an ACR approved insurance product is used.
- UNC_t : Total Project Uncertainty, (in %) for year t. UNC_t will be set to zero if the project meets ACR's precision requirement of within $\pm 10\%$ of the mean with 90% confidence. If the project does not meet this precision target, UNC_t should be the half-width of the confidence interval of calculated net GHG emission reductions.

Any negative project stock change ($C_{ACR,t}$) values from time t will carry over to the following year through a balance of negative emission reduction tons ($C_{NEG,t}$) which is calculated using equation 21.

$$C_{NEG,t} = C_{NEG,t-x} + C_{ACR,t} \quad (21)$$

Where:

- $C_{NEG,t}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.
- $C_{NEG,t-x}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at the last valid verification report x years ago (time t-x).
- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.

If the value of $C_{NEG,t}$ is less than zero in any year prior to the end of the Crediting Period, ERT values are calculated using equation 22, otherwise equation 23 is used.

$$ERT_t = 0 \quad (22)$$

$$ERT_t = C_{NEG,t-x} + C_{ACR,t} \quad (23)$$

Where:

- ERT_t : Emission Reduction Tons issued with vintage year t.
- $C_{NEG,t-x}$: Negative balance of annual net greenhouse gas emission reductions (in metric tons CO₂e) at the last valid verification report x years ago (time t-x).
- $C_{ACR,t}$: Annual net greenhouse gas emission reductions (in metric tons CO₂e) at time t.

All of the data used for the project calculations above was made available to the audit team, and SCS confirmed the numbers by review of:

- HudsonFarm_GHG_Plan_2_8_19.pdf
- HudsonFarm_11_13_19.pdf
- HudsonFarm_RP2_CO2_11_13_19.xlsx
- HudsonFarm_RP_ERT_HW_1_28_20.xlsx
- HudsonFarm_100Yr_Calcs_1_27_20.xlsx
- HudsonFarm_RP2_HarvestedPlotCheck.xlsx
- HudsonFarm_Boundary_7_20_18.shp
- HudsonFarm_Plots_7_20_18.shp
- 2017-19_fsi_lisand-derrick.shp
- 2017-19_gwwa_lisand-derrick.shp
- 2018-19_FSI.shp
- 2017-19_fsi_westby.shp
- 2017-19_mst_cardia.shp
- timber_GWW.xlsx
- timber_in_FSI_area2018.xlsx
- timber2018fromtsi.xlsx
- timber2018_from_TSI.xlsx
- timber.xlsx

SCS concludes that the Monitoring Report and GHG Project Plan sufficiently assessed the emission reductions and calculated them accurately and correctly.

4.3.3 Monitoring Plan

The monitoring parameters and the quantification approach employed by the Project Proponent in the baseline and project scenarios conform to the parameters and quantification methods required by the Methodology. SCS determined that the project team sufficiently documented and quantified each parameter. Bluesource monitored each parameter throughout the reporting period, and the resulting data was subsequently provided to the audit team.

Parameter	A ₁
Units	Acres
Description	Area of IFM Project
Methodology	Strata area figures adjusted based on stocking levels and species distribution projected in modeling and verified through inventory updates
Equation #(s)	
Source of Data	GIS shape file derived from GPS coordinates
Measurement	
Parameter	T
Units	yr

Description	Number of years between monitoring time t and t1 ($T = t_2 - t_1$)
Methodology	
Equation #(s)	
Source of Data	Monitoring Reports
Measurement	Subtraction
Parameter	Diameter at breast height of tree
Units	Inches (to 1/10 th an inch)
Description	Tree diameter measure 4.5 feet above ground
Methodology	Measured with Loggers Tape or calipers
Equation #(s)	
Source of Data	Field measurement
Parameter	H
Units	Feet
Description	Height of tree
Methodology	Measured with clinometer or hypsometer
Equation #(s)	
Source of Data	Field measurement
Measurement	
Parameter	Decay Class
Units	
Description	Qualitative degree of decomposition
Methodology Section	Qualitative assessment of dead tree into 1 of 4 decay classes based on class descriptions
Equation #(s)	
Source of Data	Field measurement
Measurement	
Parameter	Tree Live/Dead Status
Units	
Description	Live or Dead
Methodology	Measured per the Hudson Farm Carbon Plot Methodology
Equation #(s)	
Source of Data	Field measurement
Measurement	
Parameter	Defect
Units	
Description	Qualitative percent of missing biomass
Methodology Section	Qualitative assessment of tree assessed by thirds for the % missing biomass from each third. Post-inventory weighting conducted for each third of tree (Bottom 65%, Middle 25%, Top 10%)
Equation #(s)	

Source of Data	Field measurement
Measurement	
Parameter	Species Composition
Units	%
Description	Spp composition as a percentage of basal area
Methodology	Derived from the basal area calculations in the inventory data.
Equation #(s)	
Source of Data	Calculation of project emissions.
Measurement	
Parameter	Harvest Wood Products
Units	Metrics tons CO ₂
Description	Carbon remaining in stored wood products 100 years after harvest for the project in year t.
Methodology Section	Wood volumes harvested will be monitored using Gracie and Harrigan's internal recordation system.
Equation #(s)	
Source of Data	Field measurement
Measurement	
Parameter	Forest Carbon
Units	Metrics tons of CO ₂
Description	Carbon stores in above and below ground live trees at the beginning of the year t
Methodology	Consistent with Hudson Farm Carbon Plot Methodology.docx
Equation #(s)	
Source of Data	Calculation of project emissions.
Measurement	

4.3.4 Verification Body Data checks

The audit team assessed the Project Proponent's emission reduction calculation inputs and procedures to convert the raw inventory data into emission reduction estimates. This review included a detailed look at the Project's data aggregation and processing procedures, recordkeeping and data storage, and the quality control and assurance procedures. Additionally, the audit team conducted interviews with relevant personnel involved in these activities.

4.3.5 Parameters Monitored

SCS devoted a portion of the verification assessment to the review of the manner and by which net GHG reductions and removals were quantified. This assessment included a review of project assumptions, raw data inputs and accuracy of calculations. The formulas and raw data inputs used to determine emission reduction calculations as described in the methodology and the calculation spreadsheets were first reviewed for compliance. The main parameters were verified via independent re-quantification and are

listed in sections 4.3.1 and 4.3.3 of this report. In some cases, a random sample was selected as all of the data could not be examined during verification services.

Emission Reductions

The audit team verified that the Project Proponent 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:

- 52,600 tCO₂e (Emissions reductions at the end of the current reporting period without risk buffer deductions)
- 43,132 tCO₂e (Emissions reductions at the end of the current reporting period including risk buffer deductions)
- 9,468 t CO₂e Risk buffer contribution
- 35,067 t CO₂e Leakage deduction

Variances or Deviations

For this reporting period, there were no variances or deviations

Uncertainty

The project uncertainty of 6.5% was verified within "ACR_BS_HF_RP2_ProjectRecalc_V1-0_011720.xlsx", "HudsonFarm_RP_ERT_HW_1_28_20 .xlsx", and "HudsonFarm_RP2_CO2_11_13_19" via independent re-quantification (see table below).

4.3.6 Project Uncertainty

The reported total Project Uncertainty (UNC_t) value of -7.25% was independently re-quantified by SCS and no issues were found (See table below). The audit team found this difference reasonable and immaterial.

	SCS Values	Client Values	Difference
Year	UNC _t	UNC _t	
2019	-7.29%	-7.25%	0.03%

Materiality

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

$$\% \text{ Error} = \frac{(43,132 - 43,187)}{43,187} * 100 = \frac{-55}{43,187} * 100 = -0.1262\%$$

5 Verification Conclusion

The audit team affirms with a reasonable level of assurance that the Bluesource – Hudson Farm Improved Forest Management Project has been designed and, for the duration of the reporting period 30 June 2018 to 29 June 2019, implemented in accordance with the verification criteria, as set out in the documents referenced in Section 2.2 above.

On the basis of the information made available 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 30 June 2018 to 29 June 2019 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 ₂ e	Project Emissions tCO ₂ e	Net GHG Emission Reductions tCO ₂ e
30 June 2018 to 29 June 2019	-78,928	8,740	43,132

The following provides a summary of the ERT issuance for the current Reporting Period with the Leakage and the Buffer deductions included:

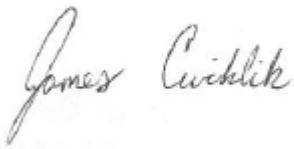

Annual Emission Reduction in Metric Tons (tCO ₂ e)				
Reporting Period	Vintage	Start Date	End Date	Net GHG Emission Reductions (tCO ₂ e)
2	2018	30 June 2018	31 December 2018	21,876
2	2019	1 January 2019	29 June 2019	21,256

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

Annual Emission Reduction in Metric Tons (tCO ₂ e)

Reporting Period	Vintage	Start Date	End Date	Net GHG Emission Reductions (tCO ₂ e)	Quantity of Buffer Credits (tCO ₂ e)
2	2018	30 June 2018	31 December 2018	26,678	4,802
2	2019	1 January 2019	29 June 2019	25,922	4,666

Note: final numbers are rounded for simplicity.

Lead Verifier's Approval	 06 April 2020
Technical Reviewer's Approval	 06 April 2020

Appendix A: SCS Certification Mark

Congratulations on receiving a positive verification for the Blue Source – Hudson Farm Improved Forest Management Project. Your project is now eligible to use the SCS Kingfisher Certification Mark B for Carbon Offset Project Verification, as represented on the cover page of this verification report. The SCS Kingfisher Certification Mark increases the recognition of your achievements with your verification carbon offset project.

Please refer to the *SCS Kingfisher Certification Mark Labeling and Language Guide: Mark B* provided to you by the GHG Verification Program staff for more information about your Mark and usage. Should you have any additional questions regarding your Mark, use, messaging, or other marketing opportunities, please contact the GHG Verification Team or SCS Marketing Staff at NRmarcom@scsglobalservices.com.

Appendix B: List of Documents Reviewed During Audit Proceedings

RP2 Documents

- HudsonFarm_GHG_Plan_2_8_19.pdf
- HudsonFarm_11_13_19.pdf
- EG Anderson (across street)2 TF Cert 2014.pdf
- EG Anderson (across street)pg1 TF Cert 2014.pdf
- EG Anderson (Derricks) TF Cert 2018.pdf
- EG Anderson TF Cert 2014.pdf
- IAT Reinsurance (Hudson Farm) TF Cert 2014.pdf
- IAT Reinsurance (Westby) TF Cert 2014.pdfFSP Cardia Company.pdf
- FSP with addendum EG Anderson Inc (across street).pdf
- FSP with addendum EG Anderson Inc (Dericks).pdf
- FSP with addendum EG Anderson Inc (Lisand).pdf
- FSP with addendum IAT Reinsurance Syndicate (Hudson Farm).pdf
- FSP with addendum IAT Reinsurance Syndicate (Westby).pdf
- Hudson Farms Wildlife Management Plan 2.0_draft.pdf
- IMG_1178.jpg
- IMG_1179.jpg
- IMG_1180.jpg
- IMG_1181.jpg

RP2 Workbooks

- HudsonFarm_RP2_CO2_11_13_19.xlsx
- HudsonFarm_RP_ERT_HW_1_28_20.xlsx
- HudsonFarm_RP_ERT_HW_1_22_19.xlsx
- HudsonFarm_RP_ERT_HW_11_13_19.xlsx
- HudsonFarm_100Yr_Calcs_1_27_20.xlsx
- HudsonFarm_100Yr_Calcs_1_22_20.xlsx
- HudsonFarm_100Yr_Calcs_2_6_18.xlsx
- HudsonFarm_RP2_HarvestedPlotCheck.xlsx
- timber_GWW.xlsx
- timber_in_FSI_area2018.xlsx
- timber2018fromtsi.xlsx
- timber2018_from_TSI.xlsx

- timber.xlsx

GIS Data

- HudsonFarm_Boundary_7_20_18.shp
- HudsonFarm_Plots_7_20_18.shp
- 2017-19_fsi_lisand-derrick.shp
- 2017-19_gwwa_lisand-derrick.shp
- 2018-19_FSI.shp
- 2017-19_fsi_westby.shp
- 2017-19_mst_cardia.shp
- Cardia Co TF Cert 2018.pdf

In some cases, multiple version of a document or dataset were submitted during the verification. All versions of the above documents were reviewed.

Appendix C: List of Findings

Please see Section 3.6 above for a description of the findings issuance process and the categories of findings issued. It should be noted that all language under “Client Response” is a verbatim transcription of responses

OBS 1 Dated 17 Jan 2020

Standard Reference: ACR Standard 5.1, Appendix A. 3

Document Reference: HudsonFarm_GHG_Plan_2_8_19_v6.docx

Finding: This observational finding is related to a few non-forested areas noted within the project area. The ACR Standard states that for U.S. projects the definition of forest is “Land with at least 10% cover (or equivalent stocking) by live trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. To qualify, the area must be at least 1 acre in size”.

Referencing section A4 of the GHG Plan, “Non-forested acres were removed from the project to a minimum mapping unit of 2.5 acres.” This observational finding relates to the difference in the minimum mapping unit used and the qualifications for a forest per the definition above. It is feasible that a non-forested area larger than 1 acre and less than 2.5 acres may be missed in the future. Additional monitoring of disturbances or other project activities are recommended to avoid missing non-forested areas in the future.

Project Personnel Response: This observation and recommendation has been acknowledged, thank you.

Auditor Response: Upon issuance of this observation, this finding has been closed.

Bearing on Material Misstatement or Conformance (M/C/NA): NA

NCR 2 Dated 17 Jan 2020**Standard Reference:** ACR Standard 5.1**Document Reference:** HudsonFarm_RP2_ERT_HW_11_13_19.xlsx

Finding: The ACR Standard states that "The Project Proponent shall reduce, as far as is practical, uncertainties related to the quantification of GHG emission reductions or removal enhancements." In cell B36, worksheet "Baseline_Project_40Yr_CO2" the audit team found that the cell references the total live CO2e for 2062, rather than 2057. The origin of this error can be found in the "Project" tab in the "HudsonFarm_100Yr_Calcs_2_6_18.xlsx." For example, in workbook HudsonFarm_100Yr_Calcs_2_6_18.xlsx, sheet Project, the 2057 live tree CO2 per acre (cell SH15) is calculated by multiplying the area allocated (cell A15) by the 2062 live tree carbon (cell BX15). This results in an inaccurate assertion for year 2057. Likewise, the live tree CO2e per acre for 2062 (column SI) and 2067 (Column SJ) are not calculated using the correct cells. As a result, the calculation of project GHG emission reductions is inaccurate for those years and is not in conformance with the standard.

Project Personnel Response: In Workbook "Hudson_Farm_100Yr_Calcs_1_22_20.xlsx" sheet "Project" Cells SH13:SH697, SI13:SI697, and SJ13:SH697 have been updated to use the Above Ground Live CO2 value for the correct year in corresponding cells in Columns BT13:BT:697, BX13:BX697, and CB13:CB697 respectively.

Cell B36 in Sheet "Baseline_Project_40Yr_CO2" has in effect updated to the correct value.

Auditor Response: Upon issuance of this finding, the workbook "Hudson_Farm_100Yr_calcs_1_22_20.xlsx" was checked. However, in column SH of sheet "Project", only cells SH13:SH15 were updated as the client indicated. Thus, cells SH36:SH697 in sheet "Project" and cell B36 in sheet "Baseline_Project_40Yr_CO2" still contains the incorrect values.

Project Personnel Response 2: In Workbook "Hudson_Farm_100Yr_Calcs_1_27_20.xlsx" sheet "Project" Column SH has been corrected so that the formulas in cells SH13:SH697 now reference cells BT13:BT697 respectively. Cell B36 in Sheet "Baseline_Project_40Yr_CO2" has in effect updated to the correct value.

Auditor Response 2: Upon issuance of this finding, audit team reviewed the updated workbooks and confirmed that the formulas and values have been updated correctly. This finding has been closed.

Bearing on Material Misstatement or Conformance (M/C/NA): C

NIR 3 Dated 17 Jan 2020

Standard Reference: Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands v 1.3

Document Reference: HudsonFarm_RP2_ERT_HW_11_13_19.xlsx
HudsonFarm_GHG_Plan_2_8_19_v6.docx

Finding: For determining the amount of carbon in harvested wood, section C3 of the Methodology states that "If a volume measurement is used, multiply the cubic foot volume by the appropriate green specific gravity by species from table 5-3a of the USFS Wood Handbook. This results in pounds of biomass with zero moisture content. If a particular species is not listed in the Wood Handbook, it shall be at the verifier's discretion to approve a substitute species." The project's GHG plan states that the client "converted dead wood volume as well as harvested wood volume to biomass using species-level specific gravities (US Forest Service Wood Handbook (Table 5-3a), Miles and Smith (2009))." However, in the SpecGrav worksheet of the "HudsonFarm_RP2_ERT_HW_11_13_19.xlsx" it lists 0.6 as the specific gravity (SG) for Hickory spp., but does not provide a source for this value. After looking at the Wood Handbook and Miles and Smith 2009, the audit team noted that the SG for "hickory spp" was not listed in either of these documents. The REF_SPECIES worksheet (from FIA) lists 0.62 as the SG for Hickory spp. Please provide more information about why 0.6 was selected as the SG.

Project Personnel Response: The specific gravity value for Hickory spp. in the SpecGrav worksheet of "HudsonFarm_RP2_ERT_HW_1_22_20" has been updated to a value of 0.62, and the source of this value has been updated reference the REF_Species_SG worksheet.

Auditor Response: Upon issuance of this finding, the specific gravity value for Hickory spp. Has been updated. This finding has been closed.

Bearing on Material Misstatement or Conformance (M/C/NA): NA