

VALIDATION AND VERIFICATION REPORT

American Carbon Registry

ACR507: Bluesource – Pennsylvania Ridges Improved Forest Management Project

Reporting Period:

14 December 2018 to 13 December 2019

Prepared for:

Bluesource

24 August 2020



AMERICAN CARBON REGISTRY

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Executive Summary

This report describes the validation and initial verification services provided for the Pennsylvania Ridges project (“the project”), an Improved Forest Management project located in Clinton and Schuylkill counties in central Pennsylvania, USA, that was conducted by SCS Global Services. The overall goal of the validation engagement was to review impartially and objectively the GHG project plan against the requirements laid out in the ACR Standard and relevant methodology. The overall goal of the verification engagement was to review impartially objectively the claimed GHG emission reductions/removal enhancements for the reporting period from 14 December 2018 to 13 December 2019 against relevant ACR standards and the approved methodology. The validation and verification engagements were carried out through a combination of document review, interviews with relevant personnel and on-site inspections. As part of the validation and verification engagements 16 findings were raised: 7 Non-Conformity Reports and 17 New Information Requests. These findings are described in Appendix A of this report. The project complies with the validation and verification criteria, and SCS holds no restrictions or uncertainties with respect to the compliance of the project with the validation and 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

1.2.1 Validation Objectives

The overall goal of third-party validation was to review impartially and objectively the GHG project plan against the requirements laid out in the ACR Standard and relevant methodology. SCS independently evaluated the project design and planning information, based on supporting documentation and GHG validation best practices.

The objectives of validation were to evaluate

- Conformance to the ACR Standard.
- GHG emissions reduction project planning information and documentation in accordance with the applicable ACR-approved methodology, including the project description, baseline, eligibility criteria, monitoring and reporting procedures, and quality assurance/quality control (QA/QC) procedures.
- Reported GHG baseline, ex ante estimated project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

SCS reviewed any relevant additional documentation provided by the project proponent to confirm the project's eligibility for registration on ACR.

1.2.2 Verification 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 verification were to evaluate

- Reported GHG baseline, project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

SCS reviewed the GHG project plan, 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

1.3.1 Scope of Validation

The validation included examination of all of the following elements of the GHG project plan:

- Project boundary and procedures for establishing the project boundary
- Physical infrastructure, activities, technologies, and processes of the project
- GHGs, sources, and sinks within the project boundary
- Temporal boundary
- Description of and justification for the baseline scenario
- Methodologies, algorithms, and calculations that will be used to generate estimates of emissions and emission reductions/removal enhancements
- Process information, source identification/counts, and operational details
- Data management systems
- QA/QC procedures
- Processes for uncertainty assessments
- Project-specific conformance to ACR eligibility criteria

1.3.2 Scope of Verification

Verification included examination of some or all of the following elements of the GHG project plan:

- Physical infrastructure, activities, technologies, and processes of the GHG project

- GHG SSRs within the project boundary
- Temporal boundary
- Baseline scenarios
- 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 spreadsheets 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, site inspections, 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.

Finally, as a full verification, the verification services included a field visit to the project site and

- Such carbon stock measurements as SCS required to provide a reasonable level of assurance that the GHG assertion is without material discrepancy (per ACR's materiality threshold of $\pm 5\%$).
- Updated assessment of the risk of reversal and an updated buffer contribution.

1.4 Validation and Verification Criteria

The validation and verification criteria were comprised of the following:

- ACR Standard, Version 6.0
- 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")
- ACR Tool for Risk Analysis and Buffer Determination, Version 1.0
- Improved Forest Management V1.3- Errata & Clarification

SCS will perform assessment services to meet the requirements of:

- ACR Validation and Verification Standard, Version 1.1 (May 2018)

- ISO 14064-3:2006, Greenhouse Gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions

1.5 Level of Assurance

The level of assurance was reasonable.

1.6 Treatment of Materiality

For validation purposes, a material misstatement was declared if any of the following circumstances were detected:

- The physical or geographic boundary of the GHG project plan was not reasonably accurate.
- In respect of the project baseline,
 - The procedures for determining baseline emissions were not technically sound.
 - Data representative of the operations and activities had not been used, either from a single year or a multi-year average.
 - The baseline scenario chosen was not one for which verifiable data are available.
- In respect of the quantification methodology,
 - The quantification method for each data type was not clearly defined, and/or the degree of supporting documentation provided was inadequate to support a reasonable level of assurance.
 - Methods were not appropriate for accurately quantifying each data type:
 - Activity data had not been correctly applied from the original documentation.
 - The most accurate activity data readily available had not been used.
 - The quantification methodology did not account for all variations in activity data over the relevant crediting period.
 - Any emission factors used did not meet the requirements of the approved methodology and/or are not appropriate to the activity.
 - Any emission factors used had not been correctly applied from the original documentation to the relevant activity data.
 - The most appropriate factors readily available had not been selected.
 - Where there was a choice among equally defensible emission factors, the principle of conservativeness had not informed the choice of emission factors.
 - Methods were not applied consistently to develop estimates of emission reductions and removal enhancements.
 - The ISO principle of conservativeness was not applied; i.e., the choice of assumptions, calculation methods, parameters, data sources, and emission factors was not more likely to lead to an underestimation than overestimation of net GHG emission reductions and removal enhancements.

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

1.7 Summary Description of the Project

The project is located in north-central Pennsylvania, USA and is aimed at enhancing carbon sequestration and sustainable management of the forest. The project spans two properties, the West Branch Preserve, owned and managed by The Nature Conservancy, the project proponent, and the Hoover property, owned by the Hoover Family, and managed by The Nature Conservancy via a conservation easement. Management decisions focus on natural forest growth and maintenance harvests for essential activities, recreation, wildlife habitat and forest health. The aim of this project is also to ensure long-term continuance of all environmental benefits provided by the preservation and promotion of oak, hickory, hard maple and other hardwood species in the forestland.

2 Assessment Process

2.1 Method and Criteria

The validation and verification services were provided through a combination of document review, interviews with relevant personnel and on-site inspections, 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 1.2 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 validation and verification plan that took the sampling plan into account.

2.2 Document Review

The GHG project plan (PennsylvaniaRidges_GHG Plan_9_24_20; "PP") and monitoring report (PennsylvaniaRidges_MonitoringReport_09_24_20.pdf; "MR") were carefully reviewed for conformance to the validation and 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 Validation and Verification Activities		
Document	File Name	Ref.
Inventory Methodology	PennRidges_CarbonPlot_Methodology_6_9_20.pdf	1

Forest Stewardship Council certificate	The Nature Conservancy FSC CoC cert IN-2018-1.pdf	2
Forest Stewardship Council certificate	TNC FSC FM reassess 18 (1).pdf	3
Ownership documentation	Deed - West Branch Preserve.pdf	4
Ownership documentation	Deed-Hoover.pdf	5
Ownership documentation	Survey - West Branch Preserve.pdf	6
Conservation easement documentation	Hoover-ConservationEasement_(REC. 201700015971 or Bk. 2615, P. 665).pdf	7
Management plan	Management Plan Hoover_CAP 106 Format.pdf	8
Management plan	West_Branch_(Sept 2018).pdf	9
Management plan	West_Branch_Forest_Preserve_Map_(June 2018).pdf	10
Management plan	WestBranch-FMP.pdf	11
Boundary shapefile	PennsylvaniaRidges_Boundary_01_20_19.shp	12
Corner shapefile	Hoover_GPSdCorners_06_05_19.shp	13
Corner shapefile	WestBranch_GPSdCorners_06_06_19.shp	14
Sampling plot shapefile	PennsylvaniaRidges_Plots_03_17_20.shp	15
Harvest feasibility report	Harvest_Feasability_Report.pdf	16
Inventory forester report	Penn Ridges Cover Letter Data Delivery 1 11 2020.pdf	17
FVS output	PennsylvaniaRidges_IndTreeGrow.accdb	18
FVS input	PennsylvaniaRidges_INVENTORY.accdb	19
FVS input	PennsylvaniaRidges_START.accdb	20
FVS output	PennsylvaniaRidges_GROW.accdb	21
FVS output	PennsylvaniaRidges_CC_after20yrs.accdb	22
FVS output	PennsylvaniaRidges_STS75.accdb	23
FVS output	PennsylvaniaRidges_DL.accdb	24
FVS output	PennsylvaniaRidges_SHW.accdb	25
FVS output	PennsylvaniaRidges_CC_2018.accdb	26
FVS output	PennsylvaniaRidges_CC_2023.accdb	27
FVS output	PennsylvaniaRidges_CC_2028.accdb	28
FVS output	PennsylvaniaRidges_CC_2033.accdb	29
FVS output	PennsylvaniaRidges_CC_2038.accdb	30
FVS output	PennsylvaniaRidges_CC_after20yrs.accdb	31
Calculation workbook	PennsylvaniaRidges_Start_RP_CO2_03_30_20.xlsx	32
Calculation workbook	PennsylvaniaRidges_100Yr_Calcs_8_3_20.xlsx	33

Calculation workbook	PennsylvaniaRidges_RP_ERT_HWP_8_3_20.xlsx	34
Calculation workbook	PennsylvaniaRidges_Regeneration_Calcs.xlsx	35
Carbon Development & Marketing Agreement	West Branch_Redacted_v2.pdf	36
Carbon Development & Marketing Agreement	Hoover_Redacted_v2.pdf	37
Annual attestation	Annual-Project-Attestation-signed.pdf	38
Regulatory Compliance Attestation	PennRidges_Regulatory_Compliance.pdf	39
Title attestation	PennRidges_Title_Attestation	40
R file	Parameters.r	41
R file	PennsylvaniaRidges_Parameters.r	42
R file	processFVSoutput.r	43
R input	PennsylvaniaRidges_Inventory.xlsx	44
R input	PennsylvaniaRidges_Inventory_Master.xlsx	45
R input	PennsylvaniaRidges_monthlyGrowthSchedule.xlsx	46
R input	PennsylvaniaRidges_SiteIndex.xlsx	47
R input	PennsylvaniaRidges_TimberPrices.xlsx	48
Plots for FVS	PennsylvaniaRidges_FVS_Plots.xlsx	49
Site visit shapefiles	Features.shp	50
Site visit shapefiles	Roads_Trails.shp	51
Certification	Conservation_Compatible Human or Economic Use_SOP.pdf	52
Certification	RE Penn Ridges FSC Certification.msg	53
Certification	chusop_guidance_1_27_09.docx	54
ACR Guidance	ACR_guidance_08032020.pdf	55
ACR Guidance	ACR_guidance_ActivityShiftingLeakage_08112020.pdf	56
NPV calculation	PennRidges_NPV_Methodology_Change_8_6_20.pdf	57
ACR Guidance	ACR_guidance_TimberGHG_rights_08142020.pdf	58

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 PD and 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 proponent who were interviewed.

Interview Log: Individuals Associated with Project Proponent			
Individual	Affiliation	Role	Date(s) Interviewed
Cakey Worthington	Bluesource	Director of Implementation	Throughout audit
Tim Hipp	Bluesource	Forest Carbon Specialist	Throughout audit
Liz Lott	Bluesource	Director – Forest Carbon Projects	Throughout project
Josh Clark	Bluesource	Director – Forest Carbon Modeling	Throughout audit
Robin Wildermuth	Woodland Management Services, Inc	Forester	14 April 2020 26 May 2020
Mark Hoover	Hoover Property	Landowner and Authorized Signatory, Hoover Family	14 April 2020
Kevin Yoder	The Nature Conservancy	Conservation Forester	14 April 2020 27 May 2020

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 not associated with the project proponent. 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 Conservation and Natural Resources	Schuylkill County Forester	10 April 2020
Elinor Greenaway	Pennsylvania Department of Conservation and Natural Resources	Clinton County Forester	17 April 2020 8 April 2020

2.4 Site Inspections

The objectives of the on-site inspections were as follows:

- Confirm the validity of the statements made in the PP and associated project documentation;
- Confirm the baseline conditions and project conditions.
- Interview project personnel to determine if the Plan correctly identifies project activity and assess project personnel competencies;
- Select samples of data from on-the-ground measurements for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the Project; and

- Perform a risk-based review of the project area to ensure that the Project is in conformance with the eligibility requirements of the validation/verification criteria.

In support of the above objectives, the audit team performed an on-site inspection of the project area on the dates 26 May 2020 through 28 May 2020. The main activities undertaken by the audit team were as follows:

- Performed an in-depth assessment of the conformance of the Project to the assessment criteria
- Interviewed project personnel (see Section 2.3.1 of this report) to gather information regarding the inventory and monitoring procedures and project implementation
- Carried out on-site inspections of the project's measurement and/or monitoring methodologies through the following activities:
 - Toured the project areas, visually observing and taking coordinates at posted boundary signs, old fence lines, and other boundary references.
 - Selected samples of inventory data using simple random selection methods.
 - At each selected sample location, took on the ground measurements
 - Verified the sample by running a paired sample t-test on the independently calculated Mt CO₂e/acre on each plot
- Review of management's commitment to the carbon project.
- Assessment of project during the reporting period to confirm that the project scenario consists of maintaining above baseline carbon stocks through carbon sequestration.

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 validation and 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 validation and/or 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 validation and/or 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, seven NCRs, 17 NIRs and zero 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, ownership documentation (Refs. 4-6), attestations (Refs. 37-39), spatial information (Refs. 12-15, 50-51), modeling files (Refs. 18-31, 41-49), certifications (Refs. 2-3, 52-54) referenced management plans (Ref. 8-11), and calculation workbooks (Refs. 32-35) to check for project-specific conformance to ACR standard and methodology (Refs. 52-56), 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 (Refs. 12, 34).
- 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 (Refs. 32-35).
- Communicate with project personnel and project proponent via interviews, emails, and meetings to gain a better understanding of the project team's methodologies.
- 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.

3 Validation Findings

3.1 Project Boundary and Activities

3.1.1 Project Boundary and Procedures for Establishment

The PP contains a description of the physical boundary of the project, which is located on 3,819 acres of dry oak – mixed hardwood, dry oak – heath, mixed hardwood, and oak-hickory forests in Clinton and Schuylkill counties in Northcentral Pennsylvania. The project area comprises two forested parcels- the West Branch Preserve, owned and managed by The Nature Conservancy and the Hoover Property owned by the Hoover family and under a conservation easement with The Nature Conservancy (Ref. 7). This is the physical and geographic site where project activities occur. The audit team confirmed that the boundaries were well documented throughout both the document review and site visit activities. During the site visit the audit team independently checked the accuracy of spatial information on ownership, as used in delineation of the project area, by visiting a sample of corners or other ownership monuments and comparing actual locations to mapped locations. Likewise, during document review the audit team inspected project shapefiles (Refs. 11-15) to confirm project boundaries are accurately represented as compared to boundaries mapped during the site visit, maps provided in the PP, and available satellite imagery.

3.1.2 Physical Infrastructure, Activities, Technologies and Processes

The audit team reviewed the PP and project documentation (Refs. 2-3, 8-11) which indicate potential infrastructure, activities, and technologies used within the project area. The project activity consists of natural forest management focusing on sustainable growth and non-commercial forest maintenance for essential activities and forest health. The audit team concluded that project activities, infrastructure and technologies will be minimal within the project area due to the lack of commercial harvests.

3.1.3 GHGs, Sources, and Sinks within the Project Boundary

The GHG sources, sinks and/or reservoirs that are applicable to the Project were confirmed. The sources, sinks, and reservoirs of GHG emissions within the project boundary are listed in the table above. This is the case for both the baseline and project scenarios.

3.1.4 Temporal Boundary

The ACR Standard indicates that the project must have a validated/verified Start Date of January 1, 2000 or after. Also, in accordance with Chapter 3 of the ACR Standard, the start date is defined as the date that the Project Proponent entered into a contractual relationship to implement a carbon project. SCS was able to review the PP, MR, and relevant contractual documents (Ref. 36-37) for authenticity and to confirm that each document consummated "a contractual relationship to implement a carbon project." Additional guidance from ACR confirmed that the selected project start date of 14 December 2018 was acceptable (Ref. 55). SCS concluded that the documents provided along with the guidance from ACR indicate the project start date is eligible.

In ACR the minimum project term is 40 years and the eligible crediting period for this type of project is also listed as 40 years. SCS confirmed that the PP included a timeline with a first crediting period of 20

Description	Included / Excluded	Gas	Justification
Above-ground biomass carbon	Included	CO ₂	Major carbon pool subjected to the project activity.
Below-ground biomass carbon	Included	CO ₂	Major carbon pool subjected to the project activity.
Standing dead wood	Included	CO ₂	Major carbon pool in unmanaged stands subjected to the project activity.
Harvested wood product	Included	CO ₂	Major carbon pool subjected to the project activity.
Burning of biomass	Included	CH ₄	Non-CO ₂ gas emitted from biomass burning.

years and a minimum project term of 40 years.

3.2 Description of and Justification for the Baseline Scenario

The methodology defines the baseline scenario as an estimation of the GHG emissions or removals that would have occurred if the Project Proponent did not implement the project. The PP indicates that “The baseline scenario represents an aggressive industrial harvest regime, targeted to maximize net present value at a discount rate of approximately 4.2%, typical of ca. 2019 practices in the project region on private lands. The discount rate is a weighted average of 4% used for the TNC property and 5% used for the Hoover property, based on their ownership types per the ACR methodology (see table below). Baseline practices involve large scale clearcuts and high grading.” Later the PP states “If the Bluesource – Pennsylvania Ridges Improved Forest Management Project was not implemented, the forest management could feasibly resemble that of industrial forestland ownership in the region.”

During the site visit and through interviews with local managers the audit team verified that aggressive industrial timber harvesting is common practice in the region. The audit team also conducted a financial feasibility assessment of the baseline scenario by obtaining regional stumpage rates and tax rates to independently verify NPV. SCS determined that the harvesting rate indicated in the baseline scenario would be feasible.

3.3 Demonstration of Additionality

The audit team reviewed the demonstration of additionality, as set out in the PP, and confirmed that the additionality requirements set out in the ACR Standard have been met. The project uses a three-pronged- approach to demonstrate additionality. A more detailed assessment of the audit team’s findings is provided below.

3.4 Project-Specific Conformance to ACR Eligibility Criteria

The audit team reviewed the demonstration of conformance, as set out in the PP, to each of the relevant eligibility criteria listed in the ACR Standard. The audit team confirmed the full conformance of the project with the relevant eligibility criteria. A more detailed assessment of the audit team’s findings is provided below.

Actions Undertaken to Confirm Conformance to Eligibility Criteria		
Criterion	ACR Requirement	Validation Activities
Start Date, All Projects	Non-AFOLU Projects must be validated within 2 years of the project Start Date. AFOLU Projects must be validated within 3 years of the project Start Date.	Confirmation that this report was issued less than 3 years after 14 December 2018, the start date of the project according to the PP.
Start Date Definition, Non-AFOLU Projects	ACR defines the Start Date for all projects other than AFOLU as the date on which the project began to reduce GHG emissions against its baseline.	Not applicable; this project is an AFOLU project.

Start Date Definition, AR or Wetland Projects	For AR or Wetland restoration/revegetation projects, the Start Date is when the Project Proponent began planting or site preparation.	Not applicable; the project is not an AR or wetland project.
Start Date Definition, IFM Projects	For IFM, the Start Date may be denoted by one of the following: 1. The date that the Project Proponent began to apply the land management regime to increase carbon stocks and/or reduce emissions relative to the baseline. 2. The date that the Project Proponent initiated a forest carbon inventory. 3. The date that the Project Proponent entered into a contractual relationship to implement a carbon project. 4. The date the project was submitted to ACR for listing review. Other dates may be approved by ACR on a case by case basis.	SCS was able to review the PP, MR, and relevant contractual documents (Ref. 36-37) for authenticity and to confirm that each document consummated "a contractual relationship to implement a carbon project." Additional guidance from ACR confirmed that the selected project start date of 14 December 2018 was acceptable (Ref. 55)
Start Date Definition, Avoided Conversion Projects	For Avoided Conversion of non-forest, the Start Date is when the Project Proponent implemented the project action physically and/or legally, such as securing a concession or placing a land conservation agreement on the project land.	Not applicable; the project is not an avoided conversion project.
Start Date Definition, Other Agricultural Land-based Projects	For other Agricultural Land-based projects, the Start Date is the date by which the Project Proponent began the Project Activity on project lands, or the start of the cultivation year during which the Project Activity began.	Not applicable; the project is not an other agriculture land-based project.
Minimum Project Term (AFOLU Projects Only)	Project Proponents of AFOLU projects with a risk of reversal shall commit to a Minimum Project Term of 40 years. The minimum term begins on the Start Date, not the first or last year of crediting. This requirement applies only to AFOLU projects that have had ERTs issued that are associated with GHG removals (sequestration). AFOLU projects that have claimed only avoided emissions are not subject to this requirement.	Review of the PP to confirm that the minimum term is 40 years, as required for AFOLU projects.
Crediting Period	The Crediting Period for non-AFOLU projects shall be 10 years. All AR projects shall have a Crediting Period of 40 years. All IFM projects shall have a Crediting Period of 20 years.	Review of the PP to confirm that the crediting period is 20 years, as required for IFM projects.

	<p>Avoided Conversion projects on both forest and non-forest land with land conservation agreements in place shall have a Crediting Period of 40 years, unless otherwise specified in chosen methodologies.</p> <p>Wetland Restoration/Revegetation projects shall have a Crediting Period of 40 years.</p> <p>The Crediting Periods for agriculture projects that avoid emissions by changing to lower GHG practices and those that include a soil sequestration component will be specified in the applicable methodology.</p>	
Real	<p>GHG reductions and/or removals shall result from an emission mitigation activity that has been conducted in accordance with an approved ACR Methodology and is verifiable.</p> <p>ACR will not credit a projected stream of offsets on an ex-ante basis.</p>	Review of the emission mitigation activity, as described in the PP, to confirm that it conforms to the requirements of the methodology and will be verifiable if implemented as described.
Emission or Removal Origin (Direct Emissions)	The Project Proponent shall own, have control over, or document effective control over the GHG sources/sinks from which the emissions reductions or removals originate. If the Project Proponent does not own or control the GHG sources or sinks, it shall document that effective control exists over the GHG sources and/or sinks from which the reductions/ removals originate.	Reviewed the supporting documentation, as described in the PP, and the ownership documentation provided (Refs 4-6) to confirm that Project Proponent and the participating landowners have control over the GHG sources/sinks from which the emissions reductions or removals originate on their respective properties. Note that additional guidance was provided by ACR indicating that the participating site/owners can also demonstrate control over the GHG sources and sinks on their enrolled acres (Ref. 58). Evidence of land title for each of the owners in the project area was provided and confirmed (Refs.4-6).
Emission or Removal Origin (Indirect Emissions)	<p>For projects reducing or removing non-energy indirect emissions, the following requirement applies:</p> <p>The Project Proponent shall document that no other entity may claim GHG emission reductions or removals from the Project Activity (i.e., that no other entity may make an ownership claim to the emission reductions or removals for which credits are sought).</p>	Not applicable; the project is not reducing or removing non-energy indirect emissions.
Offset Title (All Projects)	The Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration. Title to offsets shall be clear, unique, and uncontested.	Confirmed by reviewing attestation that no offsets exist or were sold prior to registration of the project (Refs. 4-6, 40)

Land Title (AFOLU Projects Only)	<p>For U.S. projects with GHG emissions reductions resulting from terrestrial sequestration, Project Proponents shall provide documentation of clear, unique, and uncontested land title. For international projects, Project Proponents shall provide documentation and/or attestation of land title; ACR may require a legal review by an expert in local law.</p> <p>Land title may be held by a person or entity other than the Project Proponent, provided the Project Proponent can show clear, unique, and uncontested offsets title.</p> <p>AFOLU projects that result only in the crediting of avoided emissions with no risk of reversal may not require demonstration of land title.</p>	Reviewed land title documents (Refs. 4-6) along with an independent review of ownership using the U.S. Geologic Survey Public Areas Database and county assessor records to confirm clear, unique, and uncontested land title by the Project Proponent and participating landowner.
Additional	<p>Every project shall use either an ACR-approved performance standard and pass a regulatory surplus test, or pass a three-pronged test of additionality in which the project must:</p> <ol style="list-style-type: none"> 1. Exceed regulatory/legal requirements; 2. Go beyond common practice; and 3. Overcome at least one of three implementation barriers: institutional, financial, or technical. 	Confirmation that the project meets all relevant additionality requirements (see Section 3.4 below for more details).
Regulatory Compliance	<p>Projects must maintain material regulatory compliance. To do this, a regulatory body/bodies must deem that a project is not out of compliance at any point during a reporting period. Projects deemed to be out of compliance with regulatory requirements are not eligible to earn ERTs during the period of non-compliance. Regulatory compliance violations related to administrative processes (e.g., missed application or reporting deadlines) or for issues unrelated to integrity of the GHG emissions reductions shall be treated on a case-by-case basis and may not disqualify a project from ERT issuance. Project Proponents are required to provide a regulatory compliance attestation to a verification body at each verification. This attestation must disclose all violations or other instances of non-compliance with laws, regulations, or other legally binding mandates directly related to Project Activities.</p>	<p>After performing extensive regulatory compliance checks for the Pennsylvania Ridges project during the reporting periods, the audit team found no indication of any violations regarding regulatory compliance. EPA and ECHO were checked, no violations observed. OSHA records were also checked during the reporting period and no violations observed. There are few regulations that govern forest management in the state. Correspondence area foresters from the Pennsylvania Dep indicates that no violations were observed during the reporting period within the project area. An interview with Kevin Yoder from The Nature Conservancy, conservation easement grantee, on 14 April 2020 confirmed that the management practices were in accordance with the easement regulations. The audit team also reviewed the regulatory compliance attestation submitted (Ref. 39).</p>

Permanence (All AFOLU Projects)	AFOLU Project Proponents shall assess reversal risk using ACR's Tool for Risk Analysis and Buffer Determination, and shall enter into a legally binding Reversal Risk Mitigation Agreement with ACR/Winrock that details the risk mitigation option selected and the requirements for reporting and compensating reversals.	Confirmed a total risk percentage of 18% using the ACR Tool for Risk Analysis and Buffer Determination as required by the ACR methodology.
Permanence (Terrestrial Sequestration, Avoided Conversion Projects)	Proponents of terrestrial sequestration or avoided conversion projects shall mitigate reversal risk by contributing ERTs to the ACR Buffer Pool or using another ACR-approved insurance or risk mitigation mechanism.	Confirmed contribution of ERTs to the ACR Buffer Pool by using the estimated risk percentage of 18%.
Permanence (Geologic Sequestration Projects)	Proponents of geologic sequestration projects shall mitigate reversal risk during the project term by contributing ERTs to the ACR Reserve Account and post-project term by filing a Risk Mitigation Covenant, which prohibits any intentional reversal unless there is advance compensation to ACR, or by using another ACR-approved insurance or risk mitigation mechanism.	Not applicable; the project is not a geologic sequestration project.
Permanence (All Projects)	All projects must adhere to ongoing monitoring, reversal reporting, and compensation requirements as detailed in relevant methodologies and legally binding agreements (e.g., the ACR Reversal Risk Mitigation Agreement).	Confirmed that section D of the PP includes a detailed Monitoring Plan relevant to the methodology.
Net of Leakage	ACR requires Project Proponents to address, account for, and mitigate certain types of leakage, according to the relevant sector requirements and methodology conditions. Project Proponents must deduct leakage that reduces the GHG emissions reduction and/or removal benefit of a project in excess of any applicable threshold specified in the methodology.	Confirmed that a 40% leakage deduction, was applied which is consistent with market-leakage per the methodology. The PP indicates that "There is no activity shifting leakage for the project area. The TNC West Branch property has been certified by the Forest Stewardship Council (FSC). While not yet certified, the Hoover ownership is contained entirely within the project. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%." The audit team verified the FSC certification of the West Branch Preserve via an independent review of the FSC webpage and documentation provided (Refs 2-3). We also confirmed that TNC has an entity-wide management certification that requires sustainable practices all entity owned lands with active timber management programs.

		The audit team confirmed via interview that the Hoover family does not manage/operate any other forest lands outside the bounds of this ACR carbon project area.
Independently Validated	ACR requires third-party validation of the GHG Project Plan by an accredited, ACR-approved VVB once during each Crediting Period and prior to issuance of ERTs.	The PP has been independently validated by SCS, an accredited, ACR-approved validation/verification body.
Independently Verified	Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs and at minimum specified intervals.	The PP has been independently verified by SCS, an accredited, ACR-approved validation/verification body.
Environmental And Community Assessments	<p>ACR requires that all projects develop and disclose an impact assessment to ensure compliance with environmental and community safeguards best practices. Environmental and community impacts should be net positive, and projects must “do no harm” in terms of violating local, national, or international laws or regulations.</p> <p>Project Proponents must identify in the GHG Project Plan community and environmental impacts of their project(s). Projects shall also disclose and describe positive contributions as aligned with applicable sustainable development goals. Projects must describe the safeguard measures in place to avoid, mitigate, or compensate for potential negative impacts, and how such measures will be monitored, managed, and enforced.</p> <p>Project Proponents shall disclose in their Annual Attestations any negative environmental or community impacts or claims thereof and the appropriate mitigation measure.</p>	Confirmed by reviewing the PP, the annual attestation (Ref. 38), and management plans (Refs. 8-11) indicate that the project has no anticipated negative community or environmental impacts.

3.4.1 Regulatory Surplus Test

A regulatory review of the Project was conducted by the audit team. There are no laws, statutes, regulations, court orders, environmental mitigation agreements, permitting conditions, or other legally binding mandates requiring the project activities.

3.4.2 Common Practice Test

The Bluesource – Pennsylvania Ridges Improved Forest Management Project showed that similarities exist with the project and nearby private industrial forestland in the region. During the site visit and through interviews with local managers the audit team verified that aggressive timber harvesting practices involving clear cuts is common practice in the region.

3.4.3 Implementation Barriers Test

The PP indicates that “Carbon funding is reasonably expected to incentivize the project’s implementation. The implementation of the carbon project represents an opportunity cost to lost revenue associated with the potential timber harvesting that could legally and feasibly occur on the property in the lifetime of the carbon project.”

The audit team independently conducted a financial feasibility assessment by using local stumpage prices to verify that the baseline scenario could feasibly occur in the project area in the lifetime of the carbon project if the project was not implemented.

3.5 Processes for Emission Reductions/Removal Enhancements Quantification

3.5.1 Methods, Algorithms, and Calculations To Be Used to Generate Estimates of Emissions and Emission Reductions/Removal Enhancements

The audit team validated the methodologies applied to quantify GHG emissions and emission reductions in the baseline and project scenarios. The objective was to determine whether the methods are clearly defined with supporting documentation, appropriate for accurately quantifying each data parameter, applied consistently, and result in a conservative estimate of GHG emissions reductions and removal enhancements.

Section 4.2 provides further detail on the methods, algorithms, and calculations used to generate and validate emissions reductions estimates.

3.5.2 Process Information, Source Identification/Counts, and Operational Details

The forest inventory serves as the primary source of data and information used to quantify emissions reductions. The PP and inventory methodology (Ref. 1) describe the process including sample size, determination of plot numbers, plot layout, data collected, and measurement techniques. Through site visit and document review (Refs. 1, 13-14), the audit team verified the forest inventory methodologies and application.

The inventory data was then run within the Forest Vegetation Simulator with baseline prescriptions to project the baseline condition and a grow-only scenario to estimate the project condition. The audit team confirmed that the baseline prescriptions were feasible and representative of common practice conditions in the region (see section 3.4.2).

3.5.3 Data Management Systems

SCS verified the data management systems put in place by the project personnel as described in the PP. It states that “backup copies of all electronically stored data are maintained in a separate data center with scheduled archiving to assure data protection. Future revisions to project documents after initial

verification and registration will be clearly identified by saving them as separate files and including the date of revision in any modified documents.”

3.5.4 QA/QC Procedures

Section D of the PP identifies field and desk QA/QC procedures. The field QA/QC procedures include senior forester review of field collected data and remeasurement of any plots that cannot be reconciled. Further the PP states that “At least 5% of the plots are checked by a different forester than cruised the plot, specifically by someone senior to the field crew. This involves full plot measurement to identify any problems with determining in/out trees, species calls, defect measurements, DBH measurements, and height measurements. Any errors noted during the check cruise are used to update the master spreadsheet file. Any consistent height, species, DBH, or defect errors are resolved by talking with the foresters and removing crew members as needed.” These field QA/QC procedures were confirmed on-site and during interviews.

The PP identifies three stages of desk QA/QC procedures including an independent forester review, a technical review, and a senior management review. These include independent checks on the inventory data, model runs, carbon calculations, and document text and formatting.

The QA/QC procedures and the quantification approach employed by the project team conform to the parameters and quantification methods required by the Methodology. SCS determined that the Project Proponent sufficiently documented and quantified each parameter. Section D of the PP also provides in detail a monitoring and data management plan for each parameter throughout the reporting period.

3.5.5 Processes for Uncertainty Assessments

The PP describes how baseline and project uncertainty were calculated. The PP states that uncertainty in the combined carbon stocks in the baseline is quantified using equation 10 of the methodology (Refs. 32-35). The percentage uncertainty in the combined carbon stocks in the project during the reporting period is calculated using equation 18 of the methodology (Refs. 32-35). The total project uncertainty (percentage) during the reporting period is quantified using equation 19 of the methodology (Ref. 32-35). SCS confirmed that the approaches for assessing uncertainty that are identified in the PP are in conformance with the quantification methods required by the Methodology.

Further detail on uncertainty quantification is in sections 4.1.

4 Verification Findings

4.1 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 of -5.30% (Ref. 15) was verified within independent re-quantification. The audit team also calculated the total materiality of the GHG reduction and removal assertion. See below.

4.1.1 Project Uncertainty

The reported total Project Uncertainty (UNC_t) value 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	UNC_t	UNC_t	
2019	6.77%	6.83%	0.06%

Materiality

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

$$\% \text{ Error} = \frac{(45,865 - 46,129)}{46,129} * 100 = \frac{-264}{46,129} * 100 = -0.57\%$$

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

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

- Recalculate the live aboveground, live belowground, and standing dead carbon pools using Jenkins equations and decay class information using the inventory data provided by the client (Refs. 32-34)
- Recalculate tree and plot-level live aboveground and standing dead tree defect (Ref. 32-34)
- Recalculate site index for a random selection of plots using available soil survey data (Ref. 20)
- Use the Forest Vegetation Simulator (FVS) to degrow the raw inventory to the project start date (Ref. 18-19)
- Randomly select a sample of plot(s) and prescription(s) from the baseline scenario. Run the selected sample in FVS and follow methodologies specified in the PP to calculate carbon stocks.

Compare to the client's calculations for the selected plot to derive a correction factor to apply the population baseline for the reporting period and ex-ante (Refs. 20-31, 33).

- Randomly select a sample of plot(s) and the grow prescription from the project scenario. Run the selected sample in FVS and follow methodologies specified in the PP to calculate carbon stocks. Compare to the client's calculations for the selected plot to derive a correction factor to apply the population project for the reporting period and ex-ante (Refs. 20-21)
- Calculate the change in the baseline carbon stock stored in live trees and standing dead trees using equations 1 and 2 of the methodology. Calculate the 20-year average value of carbon remaining stored in wood products 100 years after harvest using equation 3 (Refs. 33-34).
- With the outputs from equations 1, 2 and 3, calculate the long-term average baseline stocking level for the crediting period using equation 5 of the methodology. Use equation 6 to calculate the annual change in the baseline carbon stock (Ref. 33-34).
- Calculate the baseline uncertainty in the combined carbon stocks in the baseline using equation 10 (Refs. 33-34).
- Calculate the change in project carbon stock stored in live trees using equations 11 and 12 (Refs. 33-34).
- Calculate the change in the project carbon stock and GHG emissions during the reporting period using equation 14 (Refs. 33-34).
- Calculate the percentage uncertainty in the combined carbon stocks in the project during the reporting period using equation 18 (Refs. 33-34).
- Calculate the total project uncertainty (percentage) during the reporting period using equation 19 (Refs. 33-34).
- 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 (Refs. 33-34).

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 first reporting period are reported in the MR and ERT workbook (Ref. 34) and are verified by the verification team are as follows:

- 55,933 tCO₂e (Emissions reductions at the end of the current reporting period without risk buffer deductions)
- 45,865 tCO₂e (Emissions reductions at the end of the current reporting period including risk buffer deductions)
- 10,068 t CO₂e Risk buffer contribution
- 37,289 t CO₂e Leakage deduction

Variances or Deviations

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

Uncertainty

See section 3.1.1 above.

4.3 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	<input checked="" type="checkbox"/>
Future Projections	<input checked="" type="checkbox"/>
Actual Historical Records	<input checked="" type="checkbox"/>

4.4 Leakage Assessment

Section E3 of the PP states: “There is no activity shifting leakage for the project area. The TNC West Branch property has been certified by the Forest Stewardship Council (FSC). While not yet certified, the Hoover ownership is contained entirely within the project. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%. “The audit team verified FSC certification of the West Branch Preserve through and independent review of the FSC database and review of documentation provided (Refs. 2-3). The audit team confirmed via interview that the Hoover family does not manage/operate any other forest lands outside the bounds of this ACR carbon project area.

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

4.5 Risk Assessment

The reported value of the total risk score, as determined based on the risk analysis documented in the PP and Monitoring Report, was 18%. 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 site inspections and independent review of documentation, that project is not located on public or tribal lands

B	4%	Confirmation, through site inspections and independent review of documentation, that project is not located on public or tribal lands
C	2%	Confirmation, through site inspections, that the project is not located outside the United States
D	0%	Confirmation, through independent review of documentation, that conservation easement does not cover entire project area
E	2%	Confirmation, through independent review of documentation, that project is located in a low risk fire region
F	4%	Confirmation, through independent review of documentation, that epidemic disease or infestation is not present within project area, or within 30 mile radius of project area
G	0%	Confirmation, through site inspections, 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
	18%	TOTAL

5 Conclusion

The audit team asserts, with no qualifications or limitations, that

- The PP conforms, in full, to the validation criteria.
- 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.

The following provides a summary of the ERT issuance for the current Reporting Period with the Leakage deduction included and the Buffer deductions excluded (Gross ERTs):

Annual Emission Reduction in Metric Tons (tCO ₂ e)				
Reporting Period	Vintage	Start Date	End Date	Gross GHG Emission Reductions (tCO ₂ e)
1	2018	14 December 2018	31 December 2018	2,758
1	2019	1 January 2019	13 December 2019	53,175
TOTAL				55,933

The following provides a summary of the ERT issuance for the current Reporting Period with the Leakage and the Buffer deduction included (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)
1	2018	14 December 2018	31 December 2018	2,262	496
1	2019	1 January 2019	13 December 2019	43,603	9,572
Total				45,865	10,068

Note: final numbers are rounded for simplicity.

Lead Auditor Approval	 Alexa Dugan, 24 September 2020
Internal Reviewer Approval	 Zane Haxtema, 24 September 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 4 May 2020

Standard Reference: American Carbon Registry Standard, Version 6.0

Document Reference: PennRidges_GHG Plan_3_31_20.pdf

Finding: The ACR core principle of completeness states "Include all relevant information to support criteria and procedures."

The GHG plan states "We computed the ratio of post to pre-harvest seedling density for each species and harvest type. We then scaled observed seedling density from the forest inventory (i.e., pre-harvest density) by these ratios to estimate post-harvest density for each harvest type. We used species-specific ratios when available. Otherwise, we used the average softwood or hardwood ratios reported in Nunery & Keeton (2010). These calculations are detailed in PennsylvaniaRidges_Regeneration_Calcs.xlsx."

The audit team requests the calculations workbook "PennsylvaniaRidges_Regeneration_Calcs.xlsx" to confirm seedling densities.

Project Personnel Response: The calculations workbook

"PennsylvaniaRidges_Regeneration_Calcs.xlsx" has been shared for review in the "Calcs & Model" folder.

Auditor Response: The workbook was provided and reviewed by the audit team. This finding is closed.

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

NIR 2 Dated 4 May 2020

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

Document Reference: PennsylvaniaRidges_RP_ERT_HWP_3_31_20.xlsx

Finding: The methodology states "To determine the carbon storage in in-use wood products after 100 years, the first step is to determine what percentage of a Project Area's harvest will end up in each wood product class for each species (where applicable), separated into hardwoods and softwoods." This is then multiplied by the total harvested sawtimber and pulp timber.

Sheet Baseline_HWP_Step_1_2_3 of the workbook PennsylvaniaRidges_RP_ERT_HWP_3_31_20.xlsx indicates that the client calculated a weighted average of the Northern Allegheny Plateau and Allegheny & North Cumberland Mountains supersections. However, for hardwood species, only the Northern Allegheny Plateau supersection was used, and for softwood the Allegheny & North Cumberland Mountains was used, but the weighted average was not. Also, 100% of the softwood sawtimber is going to Alaskan Exports. The audit team request additional information on why these supersections were used in this way.

Project Personnel Response: This was an error in row 16 of the Baseline_HWP_Step_1_2_3 tab. Calculations were adjusted to reference row 23 (weighted average) instead of row 21 (Northern Allegheny Plateau). Also, Alaskan exports were set to equal 0. These errors should all be limited to row 16, and were all adjusted.

Auditor Response: The audit team reviewed the updated workbook and confirmed that the a weighted average over the two supersections is now being used, however, it is not being used correctly. The weighted average (row 23) was used to determine the percentage of CO₂ in the different wood products (hardwood lumber, plywood, etc) in rows 24 through 27. However those percentages are not being used as indicated in the GHG Plan. For instance, the GHG plan states "We re-normalized this distribution into separate distributions for saw timber and pulpwood, allocating harvested saw timber across lumber, plywood, and non-structural panels and harvested pulpwood across oriented strand board, paper, and miscellaneous products. However, the 100-yr wood product storage factors provided by the ACR protocol do not include hardwood plywood. Therefore, we allocated hardwood saw timber between lumber and non-structural panels only."

Instead the weighted average (row 23) is multiplied directly by the outputs of step 2. This results in a large reduction in total CO₂ in HWP from 8,237.5 t CO₂ 3,814 t CO₂. This finding remains open.

Project Personnel Response 2: The HWP calculation have been corrected such that is applying the correct percentage to the product classes, and the total CO₂e for HWP is now equal to 8,237.5.

Auditor Response 2: Audit team confirmed that the HWP calculations have been corrected. This finding is closed.

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

NIR 3 Dated 4 May 2020**Standard Reference:** American Carbon Registry Standard, Version 5.1**Document Reference:** processFVSoutput.r

PennsylvaniaRidges_RP_ERT_HWP_3_31_20.xlsx

PennRidges_GHG Plan_3_31_20.pdf

Finding: The ACR core accounting principle of transparency states that "Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used."

The GHG plan states "To account for damaged trees, we applied average plot-level defects observed in the inventory to the FFE aboveground live carbon stocks." Later in the same section, the GHG plan indicates that calculations for live and dead stocks under the baseline and project scenario "are detailed in processFVSoutput.R." The client submitted this R file for processing the FVS output. It indicates that the live and dead tree defect is calculated $\text{Defect} = \text{weighted.mean}(\text{Defect}, \text{TPA} * \pi * (\text{DBH}/2)^2)$ and is deducted from the live and dead carbon from the FVS reruns. This contradicts the methods indicated in the GHG plan.

The audit team requests additional information for how defect is both calculated and applied to the FVS output for both live and dead trees.

Project Personnel Response: processFVSoutput.R has been updated such that lines 55-76 reflect the description in the GHG plan. This affected the CO2 calculations, which were updated following the code update. The updated processFVSoutput.R file has been uploaded for availability to review.

To accurately reflect implementation of the model in the GHG plan, we changed the first sentence referenced in the finding to this brief description:

"

Defect deductions were applied to both live and dead trees using the following methodology:

- Calculate total basal area (BA) for each tree record: $(\text{tree}/\text{acre}) * (\text{BA}/\text{tree}) = \text{BA}/\text{ac}$
- Calculate live defect for each plot from a BA-weighted average of live trees
- Calculate dead defect for each plot from a BA-weighted average of dead trees
- o For any plots missing any dead tree records, use the average dead defect from all plots with dead tree records

Also added this on the same page:

Plot-level dead tree defect was also deducted (methodology to calculate dead tree defect described in previous paragraph).

Auditor Response: The audit team reviewed the updated R code, GHG plan, and calculations workbook. We confirmed that the calculation and application of decay rates is now correct and consistent with the description in the GHG plan. This finding is closed.

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

NIR 4 Dated 4 May 2020

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

Document Reference: PennsylvaniaRidges_RP_ERT_HWP_3_31_20.xlsx;
PennsylvaniaRidges_MonitoringReport_03_31_20.pdf

Finding: During the review of the ERT workbook and Monitoring Plan, the audit team identified that the ERTs are not being reported by Vintage Year. As we understand it, ACR is now requiring that all Projects report ERTs by Vintage Year and a formal Errata and Clarification will be issued for IFM Methodology version 1.3. Given the above, please revise the reported ERTs to be in accordance with the new requirements.

Project Personnel Response: The "ACR_IFM_ERT_Calcs" workbook has been updated to reflect this new requirement.

Row 44 calculates Buffer credits, and Row 45 subtracts Buffer credits from Tradable balance at time T.

Auditor Response: Confirmed. This finding is closed.

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

NCR 5 Dated 4 May 2020

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

Document Reference: PennsylvaniaRidges_RP_ERT_HWP_3_31_20.xlsx;

Finding: The methodology specifies that equation 5 is used "to calculate the long-term average baseline stocking level for the Crediting period." This equation entails calculating the 20-year average carbon stock in live and dead trees and then adding the 20-year average value of annual carbon remaining stored in wood products 100 years after harvest.

This is calculated in cell H3 of the ACR_IFM_ERT_Calcs sheet in the ERT workbook. However, the 20 year average harvested wood product value is divided by 20 years a second time, thus is not in conformance with the methodology.

Project Personnel Response: Cell H3 has been updated to

"=SUM(D10:W11)/20+Baseline_HWP_Step_4_5!\$B\$38".

The 2nd term of the equation is now not divided by 20, since it is already the average value of harvested wood products.

Auditor Response: Audit team confirmed that the cell was updated correctly. This finding is closed.

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

NIR 6 Dated 4 May 2020**Standard Reference:** American Carbon Registry Standard, Version 6.0**Document Reference:** PennRidges_GHG Plan_3_31_20.pdf**Finding:** The ACR core principle of completeness states "Include all relevant information to support criteria and procedures."

Table A3.1 of the GHG plan indicates that "The project start date of December 14, 2018, coincides with the signing of the Carbon Marketing & Development Agreement between The Nature Conservancy and Bluesource (on November 6, 2018) and the Hoover family and Bluesource (on December 14, 2018). This has been provided separately for verification purposes." The audit team requests that the client provide these documents to the audit team for review.

Project Personnel Response: The corresponding (redacted) CDMA's have been provided in the shared folder for review.**Auditor Response:** Audit team reviewed the provided CDMA. This finding is closed.**Bearing on Material Misstatement or Conformance (M/C/NA):** NA

NIR 7 Dated 4 May 2020**Standard Reference:** American Carbon Registry Standard, Version 6.0**Document Reference:** PennsylvaniaRidges_RP_ERT_HWP_3_31_20.xlsx

PennRidges_GHG Plan_3_31_20.pdf

PennsylvaniaRidges_MonitoringReport_03_31_20.pdf

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

The GHG Plan (e.g. section E.4) and the Monitoring Report (e.g., section IV.2) indicate that the total carbon in the aboveground and belowground live trees is 569,069 tons CO₂e. However the ERT workbook indicates that the total live tree carbon is 569,067 tons CO₂e. Likewise, the GHG plan indicates that the start date total stock (live and dead trees) is 593,606.5 tons CO₂e while the Monitoring Report and the ERT workbook indicate a total stock of 593,604 tons CO₂e. The end of reporting period 1 sum of stocks is indicated as 606,263 tons CO₂e in the ERT workbook, but as 606,265 tons CO₂e in the Monitoring Report. Further the reported carbon values in Section VI.5 of the monitoring report match the values in the ERT workbook, but not the same values reported earlier in the monitoring report.

The audit team requests more information regarding which of the reported values are correct and that the client pay close attention to any inconsistencies between all carbon values reported in the documentation.

Project Personnel Response: 569,069 tons CO₂e is the correct value, which was reported in the Start Calcs workbook. There was a small rounding error in Acreage in the 100-yr calcs file, which affected the value in the "Baseline_Project_40YR_CO₂" tab of the ERT calcs workbook. This discrepancy has been updated, and total carbon in AG and BG live trees is 569,069 in both the workbooks and the documentation.

The discrepancies for start date total stock and reporting period 1 total stock were also rectified by updating the acreage discrepancy.

Auditor Response: All documents have been updated with the correct values. This finding is closed.

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

NIR 8 Dated 4 May 2020**Standard Reference:** American Carbon Registry Standard, Version 6.0**Document Reference:** PennRidges_GHG Plan_3_31_20.pdf

Finding: Section 6.B of the ACR Standard states that the GHG Project Plan shall use the ACR template and include information on "Roles and responsibilities, including contact information of the Project Proponent, other project participants, relevant regulator(s) and/or administrators of any GHG program(s) in which the GHG project is already enrolled, and the entities holding offset title and land title."

The GHG plan indicates that Mike Eckley is the point of contact for The Nature Conservancy, the project proponent. However, the audit team conducted interviews Kevin Yoder of The Nature Conservancy on 14 April 2020 and we were given the impression that Kevin was the point of contact. The audit team requests more information regarding who is the project personnel/point of contact.

Project Personnel Response: Table A3 of the GHG plan has been updated to reflect that Kevin Yoder is the Personnel/point of contact for The Nature Conservancy.

Auditor Response: The audit team confirmed the GHG plan was updated accordingly. This finding is closed.

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

NIR 9 Dated 4 May 2020**Standard Reference:** American Carbon Registry Standard, Version 6.0**Document Reference:** PennRidges_GHG Plan_3_31_20.pdf;

PennsylvaniaRidges_START.accdb;

PennsylvaniaRidges_INVENTORY.accdb

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

The GHG plan states that "We selected the Northeastern (NE) variant of the FVS model, which encompasses Pennsylvania, with model equations calibrated to White Mountain National Forest (location code: 922), the US National Forest located nearest to the project." However, the FVS input files indicate that a location code of 919 was used which corresponds to the Allegheny National Forest. The audit team requests more information as to which location the FVS model was calibrated.

Project Personnel Response: The GHG plan was incorrect, and has been updated. A location code of 919 was used, as reflected in the FVS model.

Auditor Response: The audit team confirmed the GHG plan was updated accordingly. This finding is closed.

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

NIR 10 Dated 4 May 2020**Standard Reference:** American Carbon Registry Standard, Version 6.0**Document Reference:** PennRidges_GHG Plan_3_31_20.pdf**Finding:** The ACR core principle of consistency states "Enable meaningful comparisons in GHG-related information. Use consistent methodologies for meaningful comparisons of emissions over time."

The GHG plan indicates that "We used this growth-adjusted inventory to determine CO2e stocks on the project start date (December 13, 2019). We, similarly, estimated CO2e stocks on the project reporting period end date (December 13, 2019) by 'growing' the inventory forward in time." The same date is used to indicate the start and the end date. Please specify which date is correct.

Project Personnel Response: The Start Date in the GHG plan was incorrect, and has been updated to December 14, 2018 (NOT December 13, 2019).**Auditor Response:** Confirmed. This finding is closed.**Bearing on Material Misstatement or Conformance (M/C/NA):** NA**NIR 11 Dated 5 Jun 2020****Standard Reference:** Improved Forest Management Methodology for Quantifying Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, V1.3**Document Reference:** PennRidges_CarbonPlot_Methodology_4_13_20.pdf**Finding:** Section D3 of the methodology states "Information shall be provided, and recorded in the GHG Plan, to establish that professionally accepted principles of forest inventory and management are implemented. Standard operating procedures (SOPs) and quality control / quality assurance (QA/QC) procedures for forest inventory including field data collection and data management shall be applied."

The Carbon Inventory Methodology states that "For very close trees, measure from the plot enter to the front of the tree at 4.5'. Take a diameter measurement at 4.5' and divide by 2 and convert the inches to feet. Add this to the distance to the front of the tree to determine whether the tree/sapling is in."

The verification team understands this to include SOP's for how and where data is collected for each tree in the inventory. During the field portion of the site visit, the verification team noted that when a tree fell close to the plot boundary, the horizontal distance was taken by placing the measuring tape at the center (pith) of the tree and pulling the tape to plot center. Whereas, the verification team agrees with this method, this is not explained in the project field SOP's. Please update the SOP's to include any and all special measurement methods for trees in the field.

Project Personnel Response: The inventory methodology has been updated.**Auditor Response:** The audit team confirmed that the point of contact has been updated appropriately. This finding is closed.**Bearing on Material Misstatement or Conformance (M/C/NA):** NA

NIR 12 Dated 5 Jun 2020

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

Document Reference: PennRidges_CarbonPlot_Methodology_4_13_20.pdf

Finding: Section D3 of the methodology states "Information shall be provided, and recorded in the GHG Plan, to establish that professionally accepted principles of forest inventory and management are implemented. Standard operating procedures (SOPs) and quality control / quality assurance (QA/QC) procedures for forest inventory including field data collection and data management shall be applied."

The verification team understands this to include SOP's for how and where data is collected for each tree in the inventory. The Carbon Plot Methodology states "A tree is considered within the plot if the center of the tree at DBH is within the radius/border (corrected for slope) of the plot. During the field portion of the site visit, the verification team noted that no SOPs were indicated for correcting for slope. For instance, when determining whether a close call tree was in or out and the tree was uphill on a steep slope, the verification team observed that the inventory team employed a methodology whereby the measuring tape was placed at the tree base and pulled tight overhead to approximate a horizontal distance. While in many cases this approach can be accurate and is efficient, it relies on perception of horizontal distance and may lead to inaccuracies. Please provide more information on SOPs for slope correction.

Project Personnel Response: The inventory methodology has been updated.

Auditor Response: The audit team confirmed that detailed instructions on slope corrections, consistent with a US Forest Service sampling guide, were added to the inventory methodology. This finding is closed.

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

NIR 13 Dated 5 Jun 2020

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

Document Reference: PennRidges_GHG Plan_3_31_20.pdf

Finding: The methodology states "Forest land is defined as land at least 10 percent stocked by trees of any size, or land formerly having such tree cover, and not currently developed for non-forest uses. Land proposed for inclusion in this project area shall meet the stocking requirement, in aggregate, over the entire area."

The GHG Plan indicates that "Non-forested acres were removed from the project to a minimum mapping unit of 2.5 acres." During the field portion of the site visit, the verification team noted a gas line clearing on the western edge of the Hoover parcel project area, west of plot ID 6. Furthermore, the GHG Plan states that "Apart from the forested area, a gas pipeline goes through the West Branch Preserve property," but does not mention this gas pipeline on the Hoover property. The audit team requests additional information regarding why this area was included in the project area while other roads, gas line, and power line clearings were removed from the project area.

Project Personnel Response: The area constituting this gas line corridor does not meet the MMU threshold of 2.5 acres, and so was left in the project. This corridor had an equal opportunity to be sampled via the plot inventory.

Auditor Response: Audit team confirmed that the area of the gas line is small, below 2.5 acre threshold and had a equal opportunity to be sampled. This finding is closed.

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

NIR 14 Dated 5 Jun 2020

Standard Reference: American Carbon Registry Standard, Version 6.0

Document Reference: PennRidges_GHG Plan_3_31_20.pdf

Finding: Section 6.B of the Standard states that the GHG Project Plan shall include "Roles and responsibilities, including contact information of the Project Proponent, other project participants, relevant regulator(s) and/or administrators of any GHG program(s) in which the GHG project is already enrolled, and the entities holding offset title and land title."

The GHG Plan indicates that Mike Eckley is the point of contact for The Nature Conservancy, one of the project proponents for this project. However, during the site visit it became clear that Mike Eckley no longer works for TNC. Instead, Kevin Yoder has been the point of contract for the verification team in both the site visit and interviews regarding land management. The audit team requests that the GHG Plan be updated with the correct point of contacts.

Project Personnel Response: This has been corrected in the GHG Plan.

Auditor Response: The audit team confirmed that the point of contact has been updated appropriately. This finding is closed.

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

NCR 15 Dated 5 Jun 2020**Standard Reference:** American Carbon Registry Standard, Version 6.0**Document Reference:** PennRidges_GHG Plan_3_31_20.pdf

Finding: The ACR standard states that "Project Proponents are required to provide a regulatory compliance attestation to a verification body at each verification. This attestation must disclose all violations or other instances of non-compliance with laws, regulations, or other legally binding mandates directly related to Project Activities." It also states that "The Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration. Title to offsets shall be clear, unique, and uncontested." It also indicates that "Project Proponents shall disclose in their Annual Attestations any negative environmental or community impacts or claims thereof and the appropriate mitigation measure."

The GHG Plan states that "The Bluesource – Pennsylvania Ridges Improved Forest Management project has no anticipated negative community or environmental impacts. Annual attestations confirming this assessment will be provided separately for verification purposes." However no attestations were provided to the audit team.

Project Personnel Response: Attestations have now been provided in the corresponding 'Attestations' folder.

Auditor Response: The audit team confirmed that the required attestations have been provided. This finding is closed.

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

NIR 16 Dated 23 Jun 2020**Standard Reference:** American Carbon Registry Standard, Version 6.0**Document Reference:** PennRidges_GHG Plan_6_9_20.pdf

Finding: Section E.1 of the GHG plan states "Harvested wood products in the baseline We disaggregated the FVS saw timber and pulpwood harvest into softwood and hardwood species. We then applied mill efficiency values for Pennsylvania to the four harvest categories - softwood saw timber, softwood pulp, hardwood saw timber, and hardwood pulp - in order to determine the quantity of harvested CO₂e retained in wood products. We sourced mill efficiency values from the Regional Mill Efficiency Database required by the ACR protocol."

Harvested wood products in the baseline

We disaggregated the FVS saw timber and pulpwood harvest into softwood and hardwood species. We then applied mill efficiency values for Pennsylvania to the four harvest categories - softwood saw timber, softwood pulp, hardwood saw timber, and hardwood pulp - in order to determine the quantity of harvested CO₂e retained in wood products. We sourced mill efficiency values from the Regional Mill Efficiency Database required by the ACR protocol."

This description is duplicative.

Project Personnel Response: The duplicative reference has been removed.

Auditor Response: Confirmed. This finding is closed.

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

NCR 17 Dated 13 Jul 2020

Standard Reference: American Carbon Registry Standard, Version 6.0

Document Reference: PennsylvaniaRidges_GHG Plan_6_23_20.pdf;

PennsylvaniaRidges_MonitoringReport_06_23_20.pdf

Finding: Under the section titled "APPLICABILITY of the ACR Standard, it states "The ACR Standard v6.0 supersedes the ACR Standard v5.1 (May 2018). Any project listed subsequent to August 1, 2019, must follow all requirements of and be validated against the ACR Standard v6.0. New projects listed prior to August 1, 2019, may be validated according to a previous version of the ACR Standard, as applicable at the time of listing. All Projects shall be verified to the version of the ACR Standard against which they were validated through the end of their Crediting Period."

The project was not listed until September 2019, and the initial listing form seems to have been submitted on 12 Aug 2019, so it seems that Version 6.0 is the applicable version of the ACR standard.

Project Personnel Response:

Auditor Response: The client submitted an updated version of the monitoring report (PennsylvaniaRidges_MonitoringReport_07_14_20.pdf) and GHG plan (PennsylvaniaRidges_GHG Plan_7_15_20.pdf) which both indicate that Version 6.0 of the standard was applied. This finding has been closed outside of the cover of the finding workbook.

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

NCR 18 Dated 13 Jul 2020

Standard Reference: American Carbon Registry Standard, Version 6.0

Document Reference: PennsylvaniaRidges_GHG Plan_6_23_20.pdf;

Finding: In relation to finding #17, there have been several updates to the ACR standard between version 5.1 and 6.0. There is a summary of changes from 5.1 to 6.0 at <https://americancarbonregistry.org/carbon-accounting/standards-methodologies/american-carbon-registry-standard/acr-standard-summary-of-changes-v6.pdf>. One change that specifically affects this project is "Rewording of chapter header to read "Environmental and Community Impacts" and addition of requirement to document in the GHG Project Plan positive impacts toward Sustainable Development Goals (SDG)." The current version of the Project Description lists the section F header as "COMMUNITY & ENVIRONMENTAL IMPACTS" and does not document the Sustainable Development Goals.

Project Personnel Response: The TOC looks to be updated in the 7/15/20 version of the GHG Plan.

Auditor Response: An updated version of the GHG Plan has been submitted (PennsylvaniaRidges_GHG Plan_7_15_20.pdf). Section F is now correctly titled Environmental and Community Impacts, and this section contains the required Sustainable Development Goals. However, the title of Section F was not updated in the Table of Contents of the report. This finding remains open.

Project Personnel Response 2: The TOC looks to be updated in the 7/15/20 version of the GHG Plan.

Auditor Response 2: The client is correct, the GHG Plan TOC was updated accordingly. This finding is closed.

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

NCR 19 Dated 23 Jul 2020

Standard Reference: American Carbon Registry Standard, Version 6.0

Document Reference: PennsylvaniaRidges_GHG Plan_7_15_20.pdf

Finding: Section A.3.3 of the ACR Standard states that "For IFM, the Start Date may be denoted by one of the following: 1. The date that the Project Proponent began to apply the land management regime to increase carbon stocks and/or reduce emissions relative to the baseline. 2. The date that the Project Proponent initiated a forest carbon inventory. 3. The date that the Project Proponent entered into a contractual relationship to implement a carbon project. 4. The date the project was submitted to ACR for listing review. Other dates may be approved by ACR on a case by case basis."

Section H1 of the GHG Plan states "The project "Bluesource – Pennsylvania Ridges Improved Forest Management Project" has a project start date of December 14, 2018, the date by which of the contractual signing agreement between the Project Proponents (TNC and the Hoover family) and the Offset Developer (Blue Source LLC) was completed. This start date is appropriate and consistent with the ACR Standard v.6.0." The GHG project plan also states (p. 14) that "The Nature Conservancy is the Project Proponent". Putting these data points together, it does not appear that the date of 14 December 2018 is eligible as the project start date, based on the information presented, as the agreement made effective on 14 December 2018 was between Bluesource and the Hoover family and, per the GHG project plan, the Hoover family is not the project proponent. However, the ACR standard does state that "Other dates may be approved by ACR on a case by case basis." If this start date was approved by the registry, please provide this evidence.

Project Personnel Response: We have received guidance from ACR stating that the later date may be used on the basis of conservatism (delays date of initial crediting). Therefore, the Start Date will remain December 14, 2018. This guidance has been provided.

Auditor Response: The audit team reviewed the ACR approval of this later date as indicated in the document ACR_guidance_08032020.pdf. This finding is closed.

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

NCR 20 Dated 23 Jul 2020

Standard Reference: American Carbon Registry Standard, Version 6.0; Improved Forest Management Methodology for Quantifying Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, V1.3; Errata and Clarifications for ACR IFM Methodology v1.3_7.27.20

Document Reference: PennsylvaniaRidges_GHG Plan_7_15_20.pdf

Finding: Section D.6 of the methodology requires the following:

"There may be no leakage beyond de minimis levels through activity shifting to other lands owned, or under management control, by the timber rights owner. If the project decreases wood product production by >5% relative to the baseline then the Project Proponent and all associated land owners must demonstrate that there is no leakage within their operations – i.e., on other lands they manage/operate outside the bounds of the ACR carbon project.

Such a demonstration must include one of the following:

- Historical records covering all Project Proponent ownership trends in harvest volumes paired with records from the with-project time period showing no deviation from historical trends over most recent 10-year average; or
- Forest management plans prepared ≥24 months prior to the start of the project showing harvest plans on all owned/managed lands paired with records from the with-project time period showing no deviation from management plans; or
- Entity-wide management certification that requires sustainable practices (programs can include FSC, SFI, or ATFS). Management certification must cover all entity owned lands with active timber management programs."

Section E3 of the GHG Plan states "There is no activity shifting leakage for the project area. The TNC West Branch property has been certified by the Forest Stewardship Council (FSC). While not yet certified, the Hoover ownership is contained entirely within the project. Therefore, leakage is limited to market leakage."

The audit team was able to confirm that the West Branch Preserve parcel is under TNC ownership and included in the FSC certification. However the following issues remain: 1) It is not clear that this represents an entitywide management certification active timber management programs have this FSC certification. Please provide evidence that all lands owned by TNC with active timber management are included in their FSC certification; and 2) The Hoover parcel does not have an FSC certification yet, thus this management certification with FSC does not apply to the Hoover parcel and is not a valid demonstration of a lack of activity shifting leakage on this parcel of the project area.

Project Personnel Response: Hoover's forestlands are contained wholly within the project. Per ACR's 7/27/2020 Errata and Clarifications document Section D.6, this "demonstration is not applicable if Project Proponent and associated landowners enroll all of their forested landholdings, owned and under management control, within the ACR carbon project."

The Nature Conservancy maintains FSC group certification on all properties in which the commercially harvest and are under active management. According to Kevin Yoder, "TNC has a "Compatible Human or Economic Use Policy" that requires that all TNC owned properties with active timber harvesting are third-party certified. More specifically the language from that policy states that:

"5. All on-going revenue-generating forest management activities, including ongoing intermittent activities and periodic planned entries into a stand, require:

- a. The utilization of professional forestry expertise in designing projects;
- b. A management plan appropriate to the scale and intensity of activities and duration of ownership. Larger scale, higher risk activities require a plan that includes all of the typical elements associated with a professional forest management plan (e.g., inventory information, harvest planning, silvicultural prescriptions, road plans, monitoring). For small scale, low-risk activities, a stewardship plan may suffice;
- c. Third-party certification under credible systems. A "credible system" is one that meets the criteria and standards designed by the WWF/World Bank Alliance; and
- d. An assessment of unrelated business income tax implications, if any, from the generation of such revenue."

Auditor Response: The audit team reviewed the ACR E&C document. Section D.6 states "This demonstration is not applicable if Project Proponent and associated landowners enroll all of their forested landholdings, owned and under management control, within the ACR carbon project. Such a demonstration must include one or more of the following: • Entity-wide management certification that requires sustainable practices (programs can include FSC, SFI, or ATFS). Management certification must cover all entity owned lands with active timber management programs; • Adherence to an ACR approved long-term forest management plan or program as specified in section A.2; • Forest management plans prepared ≥24 months prior to the start of the project showing harvest plans on all owned/managed lands paired with records from the with-project time period showing no deviation from management plans; or • Historical records covering all Project Proponent ownership trends in harvest volumes paired with records from the with-project time period showing no deviation from historical trends over most recent 10-year average."

As indicated above, the ACR E&C provides a fourth option for demonstrating a lack of activity shifting leakage "Adherence to an ACR approved long-term forest management plan or program as specified in section A.2" Section A.2 as related to forest management plan states "Adhere to a long-term forest management plan or program incorporating all their forested landholdings, prescribing the principals of sustained yield and natural forest management (plan and program criteria subject to ACR approval)."

While the audit team understands that all TNC lands with active timber harvesting are third party certified, it has not been demonstrated that these third party certifications meets the requirements of the methodology which explicitly indicates FSC, SFI, or ATFS. Please provide additional information or evidence of the certifications, the Compatible Human or Economic Use Policy, etc.

This finding remains open.

Project Personnel Response 2:

Auditor Response 2: Communication regarding this finding was conducted outside of this finding workbook. In an email on 11 August 2020, the client indicated "We have consulted ACR on this issue and they agree with us that demonstration of de minimus activity shifting leakage is indeed not applicable to Hoover based on their ownership being entirely incorporated into the carbon project. Please see the attached email exchange, which I have also saved to the shared folder." In an email between the Bluesource project on 11 August 2020, Kurt Krapfl of ACR stated "For aggregated/PDA projects we understand the instance and need for aggregated landowners to utilize multiple leakage mitigation options. So long as all associated landowners enrolled in the project can demonstrate a leakage mitigation mechanism this is acceptable. We expect to update the language within the E&C document such that "enrollment of all forested landholdings, owned and under management control, within the ACR carbon project" will be listed as one of the possible options for the leakage mitigation demonstration, rather than within the paragraph above. The existing language already specifies "Such a demonstration must include one or more of the following:", which accommodates using multiple options for different land owners." Thus the audit team has confirmed that all of the Hoover Family's forest land is contained within the project area and thus a demonstration of activity shifting leakage is not applicable.

With regards to the West Branch Preserve parcel owned and managed by TNC, additional evidence of the third-party certification was provided. We confirmed that all TNC owned lands with active timber management programs are FSC certified. This finding has been closed outside the cover of this findings workbook.

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

NCR 21 Dated 23 Jul 2020

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

Document Reference: PennsylvaniaRidges_GHG Plan_7_15_20.pdf

Finding: Section A4 of the methodology states "The discount rate assumptions for calculating NPV vary by ownership class (see Table 1, Section C1) and include the 6% rate for private industrial timberlands from the earlier IFM methodology. Actual landowner discount rate assumptions are typically not publicized in the scientific literature and companies, individuals, and organizations by and large do not share the values they use. However, approximate discount rates can be indirectly estimated by using forest economic theory and the ageclass structure distribution of different U.S. forest ownership classes." Furthermore, section C1 of the methodology indicates that "Project Proponents shall use the baseline discount rate values in Table 1 for the appropriate ownership class to identify a project-specific NPV-maximizing baseline scenario". In Table 1, an annual discount rate of 6% is required for "Private Industrial", an annual discount rate of 5% is required for "Private Non-Industrial" and an annual discount rate of 4% applied to "non-governmental organization."

The audit team sought ACR guidance on this issue and it was determined that " project proponents shall use the baseline discount rate values in Table 1 for the ownership class that is most appropriate to themselves to identify a project-specific NPV-maximizing baseline scenario. In other words, the "ownership class" that is appropriate to the project proponent is to be used to select the discount rate from Table 1." The registry also indicated that "The Non-governmental organization has non-profit tax status with a conservation/natural resources-related mission." The Nature Conservancy is a non-governmental organization which has a non-profit tax status with a conservation/natural resources related mission, thus the 6% discount rate for private industrial timberlands that was utilized in the baseline modeling would not apply to TNC according to the requirements of the methodology.

Project Personnel Response: We have updated the discount rate to be 4.2% based on the proportional distribution of acres to each ownership class. The GHG Plan now details how this discount rate was calculated.

Auditor Response: The audit team confirmed that the discount rate was updated to 4.2% in the GHG Plan and all calculations workbooks. We also reviewed the ACR email correspondence which indicated that a weighted average of the discount rates was valid for this aggregated project. This finding is closed.

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

NIR 22 Dated 23 Jul 2020

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

Document Reference: PennsylvaniaRidges_GHG Plan_7_15_20.pdf

Finding: The methodology requires that "The baseline management scenario shall be based on silvicultural prescriptions recommended by published state or federal agencies to perpetuate existing onsite timber producing species while fully utilizing available growing space." Section B5 of the GHG plan indicates that "Baseline practices involve large scale clearcuts and high grading." Section C2 of the GHG Plan later states that "Throughout the geographic region, the industrial forestland type is heavily cut, often through clear-cutting and high-grading, and is managed to maximize NPV of the forestland investment."

The audit teams confirmed that "high grading" or other intensive management practices that are not consistent with maximizing long-term timber productivity are common in the region. However, these practices cannot be modeled under the baseline scenario unless it can be shown that they are "recommended by published state or federal agencies to perpetuate existing onsite timber producing species while fully utilizing available growing space."

Later on Page 36 of the GHG project plan it states the following: "The ACR protocol defines the baseline as the mix of harvest prescriptions that maximizes the net present value (NPV) of timber revenues over a 100-year period. We determined this mix by projecting 100-year timber revenues across a range of common harvest practices in the region (Table E1.e). We consulted with Robin Wildermuth, a local forester, to identify these harvest practices". The audit team requests additional evidence that the identified "harvest practices" including diameter limit, clearcutting, etc are "recommended by published state or federal agencies to perpetuate existing onsite timber producing species while fully utilizing available growing space"

Project Personnel Response: We have removed the diameter limit prescriptions from the baseline silvicultural prescriptions and reoptimized the 100 year calcs. All files have been updated accordingly, and references to the Diameter Limit prescriptions have been removed. All other silvicultural prescriptions are routinely used in the state and will perpetuate existing onsite timber producing species while fully utilizing available growing space.

Auditor Response: The audit team reviewed the updated GHG Plan and applied silvicultural prescriptions and confirmed that the Diameter Limit prescriptions have been removed. This finding is closed.

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

NIR 23 Dated 23 Jul 2020

Standard Reference: American Carbon Registry Standard, Version 6.0; Improved Forest Management Methodology for Quantifying Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, V1.3

Document Reference: PennsylvaniaRidges_GHG Plan_7_15_20.pdf; Hoover-ConservationEasement_(REC. 201700015971 or Bk. 2615, P. 665).pdf; Management Plan Hoover_CAP 106 Format.pdf

Finding: Chapter 3, table 2 of the ACR Standard states that "For projects reducing or removing direct emissions, the following requirement applies: The Project Proponent shall own, have control over, or document effective control over the GHG sources/sinks from which the emissions reductions or removals originate. If the Project Proponent does not own or control the GHG sources or sinks, it shall document that effective control exists over the GHG sources and/or sinks from which the reductions/ removals originate."

Furthermore, section A2 of the IFM methodology states "Project proponent must demonstrate its ownership or control of timber rights at the project start date."

The GHG project plan states (p. 14) that "The Nature Conservancy is the Project Proponent". It also states in section B2 that "TNC and the Hoover family control the timber rights on the forestland and can legally harvest (Deeds and Contracts shared separately for verification)." While the deeds provided indicate that Hoover family has control over the timber rights, they do not convey that the project proponent, TNC has control over these rights. Furthermore, the conservation easement documentation provided does not indicate that TNC has control over the timber rights or the GHG sources of sinks. Additionally a management plan for the Hoover property was provided but it does not indicate any control of the timber of GHG rights by the project proponent. Please provide additional evidence demonstrating that the project proponent controls the timber rights at the start date and has control over the GHG sources and sinks.

Project Personnel Response: We have received guidance from ACR stating the project proponent of an aggregated project need not hold rights to the timber or GHG sources or sinks over or in junction with any other participant in the project.

Auditor Response: The audit team has reviewed the guidance from ACR (ACR_guidance_032020.pdf and ACR_guidance_TimberGHG_rights_08142020.pdf) and confirmed that the project proponent of an aggregated project like the Pennsylvania Ridges IFM need not hold rights to the timber of GHG sources with participants in the project. Rather, the participating sites/owners could also provide this demonstration, so long as all acres enrolled are covered. It was demonstrated that the entire Hoover parcel is enrolled in the project and it is fully owned by the Hoover family, the participating owner. This finding is closed.

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

NIR 24 Dated 23 Jul 2020

Standard Reference: American Carbon Registry Standard, Version 6.0; Improved Forest Management Methodology for Quantifying Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, V1.3;

Document Reference: PennsylvaniaRidges_GHG
Plan_7_15_20.pdf;PennsylvaniaRidges_100Yr_Calcs_6_3_20.xlsx

Finding: Section A.4.2 of the ACR Standard states that " All forest management practices that are modeled in the baseline must be demonstrably legally and financially feasible."

The data in the "Baseline" tab of the baseline model indicates that about 51% of the project area (about 2,000 ac) is allocated to be clearcut in 2018. It is not clear that it is financially feasible to lay out timber sales over such a large area over such a small period of time, even though there are no legal constraints that would prohibit it. Please demonstrate that this amount of timber harvesting would be financially feasible.

Project Personnel Response: Updating the discount rate decreased the 2018 clearcut acres to about 47% of the project area, or 1,700 acres. In FVS the harvests are modeled over 5 year periods, so only about 350 acres would be clearcut per year in this first period. There are plenty of loggers and mills in the area that could handle this level of harvesting, and the baseline harvesting in the first 5 year period would generate about \$1 million per year in revenue, so these harvests would be both legal and financially feasible.

Auditor Response: The audit team reviewed and verified the updated discount rate and the FVS files that indicate the harvests are modeled over 5 years. The PennsylvaniaRidges_100Yr_Calc_8_3_20.xlsx workbook, sheet HarvestSchedules indicates that 1,777 acres are treated with the clearcut 2018 treatment, which is allocated over 5 years as 355 acres per year. However, the HarvestRevenues sheet also aggregates the harvest revenues for certain years rather than spreading them out as the average per year. Overall, the harvests may generate closer to \$245,000 a year. The audit team agrees that this is both legal and financially feasible. This finding is closed.

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