

AFOGNAK FOREST CARBON PROJECT VCS VERIFICATION REPORT



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Summary:

Environmental Services, Inc., (ESI) was contracted by Camco International Group, Inc., on 14 June 2018 to conduct the monitoring period VCS verification (01 January 2018 – 31 December 2018) of the Afognak Forest Carbon Project [Original Validated Project Description (PD) dated 17 May 2012, 10-year baseline re-validation Project Description dated 26 November 2018]. The Afognak Forest Carbon Project follows the framework of Improved Forest Management (IFM) and achieves net GHG emission reductions and removals through the avoidance of emissions due to logging in the baseline scenario.

The verification objective included an assessment of compliance with VCS Version 3 and all associated updates, the selected methodology (VM0012), and the validated Project Description [Original Validated PD dated 17 May 2012]. ESI (herein referred to as the Validation/Verification Body – VVB/Verification Team) assessed the Greenhouse Gas (GHG) emission removals for the monitoring period/verification period verification (01 January 2018 – 31 December 2018) through Agriculture, Forestry and Other Land Use (AFOLU) criteria. The project activities are categorized as; Improved Forest Management (IFM) - Logged Forest to Protected Forest (LtPF) activities.

The scope of the verification following Section 4.3.4 of ISO 14064-3:2006 included the GHG project implementation; physical infrastructure, activities, technologies and processes of the GHG project; GHG sources, sinks and/or reservoirs; types of GHGs; and time periods covered. The Afognak Forest Carbon Project follows the framework of project activities listed above.

The criteria followed the verification guidance documents provided by VCS located at <http://v-c-s.org/program-documents>. Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document as of March 2019.

A summary of all findings (3 total) are included in Appendix B. All findings were satisfied to a reasonable level of assurance and there are no restrictions of uncertainty.

After review of all project information, procedures, calculations, and supporting documentation, ESI confirms that the monitoring as reported in the Afognak Forest Carbon Project Monitoring Report (v1.1 dated 06 March 2019) and conducted by the project proponent, are accurate and consistent with all aforementioned VCS Version 3, the original and 10-year baseline validated PD(s), and the selected methodology (VM0012).

ESI confirms all verification activities, including objectives, scope and criteria, level of assurance, validated Project Description implementation, and project monitoring report adherence to VCS Version 3 (and all associated updates), as documented in this report are complete. ESI concludes without any qualifications or limiting conditions that Afognak Forest Carbon Project Monitoring Report (v1.1 dated 06 March 2019) meets the requirements of VCS Version 3 (and all associated updates) for the verification period/reporting period (01 January 2018 – 31 December 2018).

The total GHG emission reductions generated by the project in this monitoring period amount to 40,389 tCO₂e for the monitoring year 2018. The GHG assertion provided by Camco International Group, Inc. and verified by ESI has resulted in 35,623 credits eligible for issuance as VCUs for the verification period/reporting period (01 January 2018 – 31 December 2018). The project has applied a 10% buffer withholding of 4,038 tCO₂ equivalents based on the non-permanence risk assessment tool.

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1 INTRODUCTION

1.1 Objective

For this project, the verification objective was to ensure implementation of project activities and project compliance with the VCS Program Guide, VCS Standard, AFOLU Requirements, selected methodologies, and the validated VCS Project Description (PD). ESI assessed the GHG emission removals for the AFOLU project, specifically Improved Forest Management (IFM) - Logged Forest to Protected Forest (LtPF) activities.

1.2 Scope and Criteria

The scope of the verification ¹ included the GHG project and baseline scenarios; physical infrastructure, activities, technologies and processes of the GHG project; GHG sources, sinks and/or reservoirs; types of GHGs; and time periods covered. The geographic verification scope is defined by the project boundary, the carbon reservoir types, management activities, contract periods and related. The scope of the project was outlined by the Project Proponent within the Project Description dated 17 May 2012 and is re-defined as follows for the GHG project:

Baseline Scenario	Commercial timber harvesting
Activities/Technologies/Processes	Afognak Forest Carbon Project will conserve the project area forests for the duration of the project and in perpetuity. This will retain the carbon contained in the current forest biomass, sequester additional carbon in the retained forests, and avoid emissions from logging and transportation in the baseline scenario.
Sources/Sinks/Reservoirs	Above ground biomass Below ground biomass (live and dead) Dead wood Wood products Combustion of fossil fuels by vehicles/equipment
GHG Type	CO ₂
Time Period (state date, crediting period, verification period)	Start Date: 01 January 2006 Monitoring Period: 01 January 2018 – 31 December 2018
Project Boundary	The project covers an area of 3,326.5 hectares (8,219.7 acres) and is publicly owned. The project consists of five adjacent/proximal parcels of land on the North coast (Perenosa Bay/Delphin Bay area) of Afognak Island, Alaska.

¹ Section 4.3.4 of ISO 14064-3:2006

The criteria followed the verification guidance documents provided by VCS located at <http://v-c-s.org/program-documents> and CCBA located at www.climate-standards.org. Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document. These documents include the following:

- *VCS Program Guide (v3.7, 21 June 2017)*
- *VCS Standard (v3.7, 21 June 2017)*
- *Agriculture, Forestry and Other Land Use (AFOLU) Requirements (v3.6, 21 June 2017)*
- *VCS Program Definitions (v3.7, 21 June 2017)*
- *AFOLU Non-Permanence Risk Tool (v3.3, 19 October 2016)*
- *Program Validation and Verification Manual (v3.2, 19 October 2016)*
- *VM0012 (v1.2, 23 July 2013) – project years 2016-2018*
- *Validated Project Description (17 May 2012)*

1.3 Level of Assurance

The level of assurance was used to determine the depth of detail that the Verifier placed in the Verification and Sampling Plan to determine if there are any errors, omissions, or misrepresentations (ISO 14064-3:2006). ESI assessed the project's implementation of general principles, data collection and processing, sampling descriptions, documentation, ex post calculations, etc., to provide reasonable assurance to meet the Project Level requirements of the VCS Program. Based on the verification findings, a final evaluation statement reasonably assures that the project GHG representations are materially accurate. The evidence used to achieve a reasonable level of assurance is specified in subsequent sections of this report.

1.4 Summary Description of the Project

The project is located on Afognak Island, state of Alaska, USA and seeks to avoid emissions due to intensive logging in the baseline scenario.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification assessed the Project's compliance with VCS Version 3 and all associated updates, the selected methodology (VM0012, v1.2), and the validated Project Description (PD). ESI assessed the Greenhouse Gas (GHG) emission removals for the monitoring period/verification period (01 January 2018 – 31 December 2018) through Agriculture, Forestry and Other Land Use (AFOLU) criteria, specifically Improved Forest Management (IFM) - Logged Forest to Protected Forest (LtPF) activities.

The non-permanence risk analysis was assessed for this verification. Further, following Section 2.1.2 of the VCS Validation & Verification Manual, V3.2, the objectives of the verification exercise were to evaluate the monitoring report and assess:

- The extent to which methods and procedures, including monitoring procedures, have been implemented in accordance with the validated project description. This includes ensuring conformance with the monitoring plan.
- The extent to which GHG Emission Reductions or Removals reported in the monitoring report are materially accurate.

The criteria followed the verification guidance documents provided by VCS. Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document. Please also see Section 1.2 of this report.

In the verification process, there is a risk that potential errors, omissions, and misrepresentations will be found; therefore, a risk-based approach was used to guide the collection of appropriate and sufficient evidence to support a reasonable level of assurance. A risk-based approach means that the verification team focused on items that might result in a material misstatement of the reported GHG assertion.

A project specific Verification and Sampling Plan was developed to guide the verification auditing process to ensure efficiency and effectiveness. The purpose of the Verification and Sampling Plan was to present a risk assessment for determining the nature and extent of verification procedures necessary to ensure the risk of auditing error was reduced to a reasonable level. The Verification & Sampling Plan methodology was derived from all items in our verification process stated above. Specifically, the sampling plan utilized the VCS guidance documents and ISO 14064-3. Any modifications applied to the Verification and Sampling plan were made based upon the conditions observed for monitoring to detect the processes with highest risk of material discrepancy. A detailed field plan was developed to guide the verification site visit and is embedded within the Verification & Sampling Plan.

For the field sampling effort, direct measurement, observations, interviews and review of the monitoring period emission reductions in the key areas were determined to be the greatest risk, followed by ground-truthing and review of project activities. Field sampling and techniques were based on the project parameters/scope and best professional judgment of the VVB to meet a reasonable level of assurance as directed by the professional judgment of the Lead Verifier. For this verification, the sample size for the desktop and field verification was a minimum of 10% (2 plots). Please see Section 2.4 of this report for details on the site inspection.

Stratification and disturbance (windthrow) were assessed using imagery as close to the reporting period as possible. Extensive review of all remote sensing data was undertaken of the project area to aid the verification team in establishing a reasonable level of assurance confirming no areas of ex post disturbance for the quantification of project emissions. The desktop verification component included a full review of all project documentation and calculations received from the Project Proponent as described throughout this report.

2.2 Document Review

A detailed review of all project documentation was conducted to ensure consistency with, and identify any deviation from, VCS Program requirements, the methodology (VM0012 project years 2016-2018: v1.2), and the originally validated PD. Initial review focused on the validated PD and Monitoring Report (MR) relative to the field conditions observed and interviews with project management staff. Project details, implementation status, data and parameters, and quantification of GHG emission reductions and removals were thoroughly examined. Key supporting documents were also reviewed. These included monitoring data (i.e., remote sensing/Geographic Information System (GIS) data), Standard Operating Procedures (SOPs), financial analyses, property boundaries, maps and aerial images, monitoring data, biomass and carbon calculation spreadsheets, interview/survey results, and responses to Non-conformance Requests (NCRs) and Clarification Requests (CLs).

The VCS AFOLU Non-Permanence Risk Tool was used by the Project Proponent to assess overall project risk. The VVB reviewed the Non-Permanence Risk Report provided with the verification supporting documentation and confirmed that the project adheres to the requirements set out in the VCS AFOLU Non-Permanence Risk Tool. Each risk factor was thoroughly assessed for conformance. Any identified NCR and/or CL findings related to the AFOLU Non-Permanence Risk Tool/Report are presented in Appendix B. The final score was calculated to be 10%.

For a listing of all documents received from the client for this verification, please see Appendix A.

2.3 Interviews

Interviews were performed during the verification site inspection and as part of the overall verification process which was additional to that provided in project documentation, monitoring report and any supporting documents. The verification team met with individuals with various roles in the project. This included a series of interviews with staff that play various supporting roles. Onsite interviews and informal discussions were conducted with technical consultants, project staff, and inventory crew members. The following is a list of the main interviewees:

Individual	Affiliation	Role
Charles Purshouse	Camco International Group	Vice President – Renewables & Environmental Markets
Brad Seely	3GreenTree Ecosystem Services Ltd.	Modeler

2.4 Site Inspections

The verification site inspection followed the VVB's prepared Verification and Sampling Plan process and was conducted on 25-27 August 2018 by the Verification Team. The site inspection was performed in conjunction with the previous monitoring period verification (01 January 2015 – 31 December 2017). The verification site visit was a required tool to help the VVB reach reasonable assurance for verification of monitoring period reported elements. It also allowed the VVB to; understand application of the methodology on-site, confirm the implementation of project activities, and to identify possible sources of error to focus desktop verification efforts.

The objectives of the on-site inspections performed were to:

- Conduct a risk-based review of the project area and project activities to check that the project adhered to the requirements of the VCS rules and the methodology during the monitoring period
- Select data samples from ground measurements for verification purposes in order to achieve a reasonable level of assurance and meet the materiality requirements of the project following Section 5.1.3 of the VCS Standard
- Check that monitoring was conducted in accordance with the requirements of the validated monitoring plan, the VM0012 methodology and VCS rules

For this verification, the sample size for the desktop and field verification was a minimum of 10% (2 plots). Three plots were visited, and tree data collected: 13, 33, and 124. Of those plots, two were inventoried for coarse wood debris transects. A total of 7 plots were visited by the verification team while on-site, the 4 additional plots were walked through and ocularly examined. In addition, field review of these plots occurred in which the following aspects of the project were assessed:

- Current project conditions, including reported tree species, reported current density, reported growth characteristics (diameter, or similar), reported biomass volume (above-and/or below-ground), implementation of management plan/monitoring (historical and contemporary), and related
- Lying dead transect assessment
- Visual inspection of adjacent plots
- Direct field measurement of tree density (number and species) and growth characteristics was performed, with a detailed review of field measurement methodologies

For this verification period the proponents have conducted a re-inventory, therefore specific elements were evaluated on-site. The following are specific monitoring elements following VM0012 that were examined while on-site:

9.3.2 Monitoring Annual Spatial Inventory Changes

- a. Natural disturbance events > 4ha (i.e. fires, pest & disease outbreaks, slides and other disturbances;
- b. Planned project activities (i.e. harvests, road construction, reforestation, etc.); and
- c. Unplanned man-made disturbances (for example, non-de minimis illegal or unplanned harvests).

9.3.4 Stratification for Field Plot Sampling

- Checked stratification, updates for monitoring purposes or adjustments for modeling
- AU 101- represents the existing naturally originated, mature spruce stands. AU 201- represents naturally regenerating spruce stands following clearcut harvesting in 1999

9.3.5 Field Plot Sampling Framework

- Plot type, number of plots, precision, sample size, layout, measurement methods and accuracy

9.3.6 Quality Assurance/Quality Control (QA/QC) Methods

(1) collecting reliable field measurements;

(2) verifying laboratory procedures;

(3) verifying data entry; and

(4) data archiving

9.3.7 Leakage Monitoring

- Confirm market leakage assessment rates are appropriate and in line with the region

For field sampling the verification team followed Standard Operating Procedures (SOPs) set forth by the project and compared field results to project values following the verification site visit to confirm accuracy in measurements.

2.5 Resolution of Findings

During the verification process, there was a risk that potential errors, omissions, and misrepresentations would be found. The actions taken when errors, omissions, and misrepresentations were found included: notifying the client of the issue(s) identified and expanding our review to the extent that satisfied the Lead Verifier's professional judgment.

The process of resolution of findings involved one formal round of assessment by the VVB. Findings were resolved during the verification by the Project Proponent implementing corrective actions such as amending the Monitoring Report and calculations, as well as providing written responses. This resulted in project documentation that was in conformance with the requirements of the VCS Standard for GHG projects.

Findings were characterized in the following manner:

Non-Conformity Reports (NCRs) were issued as a response to material discrepancies in a part of the project and generally fell into one category:

- Non-conformity to a VCS guiding document listed in Sections 1.2 and 2.2 above
- Consistency among project documentation or calculations was lacking

- Mathematical formulae were incorrect
- Additional information was required by the VVB to confirm reasonable assurance for compliance

Clarifications (CL) were issued when language within a project document needed extra clarification to avoid ambiguity.

Opportunities for Improvement (OFI) were issued to the Project Proponents when an opportunity for improvement was identified.

During the verification, three (3) essential VCS findings were identified. Detailed summaries of each VCS finding, including the issue raised, responses, and final conclusions, are provided in Appendix B VCS NCRS/CLS/OFIs. All NCRs/CLs were satisfactorily addressed.

2.5.1 Forward Action Requests

This section is not applicable as no forward action requests are raised for this verification.

2.6 Eligibility for Validation Activities

ESI is an accredited validation/verification body recognized by the VCS Program. Validation activities were not undertaken as part of this reporting/monitoring period verification.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The verification team is not aware of project involvement in other forms of environmental credits from its activities. The project has not been registered, and is not seeking registration, under any other GHG programs. The *Afognak Forest Carbon Project* currently only seeks carbon credits under the VCS program. This was confirmed through a risk-based internet review.

3.2 Methodology Deviations

Methodology deviations were previously verified and approved (please see verification reports listed on the VCS Project Database: https://www.vcsprojectdatabase.org/#/project_details/872). No new methodology deviations not in common with previous reporting periods were applied to this reporting period. At the previous reporting period a methodology deviation was approved related to re-measurement timing of monitoring plots. This deviation was found to be permissible as it pertains to criteria and procedures relating to monitoring or measurement set out in the methodology v1.2, Section 9.3.8, "Permanent sample plots must be re-measured at intervals of ≤ 5 years." All impacted elements of the methodology pertain exclusively to monitoring of GHG emission reductions/removals. The deviation does not negatively impact the conservativeness of the quantification of GHG emission reductions/removals. The verification team agreed with the justification provided in the monitoring report (previous reporting period 2015 – 2017) that re-inventory costs and inaccessibility and reasonable expectations of slow growth rates. The verification team remains in agreement with the overall conclusion of the re-measurement timing methodology deviation.

3.3 Project Description Deviations

Two PD deviations were carried forward from previous verification periods. At this verification, in common with the previous periods, the project has applied a PD deviation related to using the LST model over a 30-year period with annual time steps instead of a 100-year time period with 5-year time steps as described in the original PD. This PD deviation is described appropriately within the MR and the verification team approves this PD deviation.

- The deviation only pertains to the criteria and procedures relating to monitoring or measurement set out in the original validated PD
- The deviation has no impact on applicability, no applicability conditions in the methodology require reporting baseline and project emissions/removals on a five-year time scale

- The deviation has no impact on additionality as this component is unrelated to additionality
- The deviation has no impact on the baseline scenario appropriateness as it does not impact the baseline scenario only the baseline emissions quantification

For these reasons the verification team can conclude that this PD deviation is valid.

A second PD Deviation, in common with the previous verification, was approved regarding methods for computing market leakage. As a result of the 10-year baseline re-validation the baseline scenario was re-visited and therefore methods to determine market leakage. The originally validated PD specifies using the CAR tool of which the formula was updated. The proponents instead elected to apply the VCS AFOLU Requirements v3.6 market leakage default factor of 20%. Please see AFOLU Requirements Section 4.6.14 for review of the default factor chosen.

- The deviation only pertains to the criteria and procedures relating to monitoring or measurement set out in the original validated PD
- The deviation has no impact on applicability, VM0012 explicitly allows for use of Option 1 - VCS Default Market Leakage Discount Factors
- The deviation has no impact on additionality as this component is unrelated to additionality
- The deviation has no impact on the baseline scenario appropriateness as it does not impact the baseline scenario only market leakage quantification

For these reasons the verification team can conclude that the PD deviation remain valid.

3.4 Grouped Project

Not applicable as the project is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activities and Monitoring Plan, as described in the validated PD, have been fully initiated. There are no remaining issues from the original or 10-year baseline re-validation. At this reporting/monitoring period verification, many activities were implemented, but the VVB confirmed that activities reported in Section 2.1 of the Monitoring Report are correct. Monitoring activities through remote sensing and AK conservation easement upkeep was confirmed.

No material discrepancies were noted between the actual monitoring system, the monitoring plan set forth in the project description and the applied methodology. Monitoring activities were demonstrated to follow Section 3.3 – Monitoring Plan of the Monitoring Report for this monitoring period. Further, the verification team confirmed that Section 2.1 of the monitoring report provided an accurate description of the implementation of the project.

The procedures outlined to estimate carbon stocks in specific pools within the project area, and the uncertainty of the estimates, have been implemented correctly. Minor errors in calculation of net GHG reduction estimates were discovered but fixed before verification conclusion. The errors resulted in adjustments to crediting and were confirmed to be below the VCS materiality threshold for a project less than 300,000 tCO₂e. The reporting errors were fixed in the final version of the Monitoring Report. Market leakage was calculated correctly after the new method was confirmed suitable for the project years 2016 – 2017. Carbon stocks for pools by project activity were estimated in accordance with the methodology VM0012.

No new methodology deviation relating to monitoring and/or measurement of GHG emission reductions or removals were applied by the project developer/identified by ESI during this monitoring period verification, please see Section 3.2 of this report. The GHG emission reductions generated by the project have not become included in an emissions trading program other than the VCS program and it has not received or sought any other form of environmental credit as confirmed through a risk-based review by the verification team.

At the previous verification the project re-assessed its baseline scenario following the VCS AFOLU requirements Section 3.1.10 to “reassess the baseline every 10 years and have this validated at the same time as the subsequent verification.” As the start date of the project is the 01 January 2006 the previous baseline was applied for emission reductions generated through 31 December 2015. Please see the verification report for further details of the baseline renewal.

Sustainable development contributions are not applicable to this project.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

ESI conducted an intensive review of all input data, parameters, formulae, calculations, conversions, statistics and resulting uncertainties and output data to ensure consistency with the VCS Standard, the validated PD, and VM0012. Data with associated conversion factors, formulas, and calculations were provided by the project proponent in spreadsheet format to ensure all formulae were accessible for review. The Verification Team recalculated subsets of the analyses to confirm correctness and assess if data transposition errors occurred to achieve a reasonable level of assurance and to meet the materiality requirements of the project, as required by Section 5.1.3 of the VCS Standard. The project proponent also provided answers to questions on calculations to ensure the verification team understood the approach and could confirm its consistency with VM0012 and the PD.

An overview of select data and parameters monitored, along with verification team findings, are included in the table below:

Data Unit / Parameter	Accuracy of GHG emission reductions and removals	Whether methods and formulae set out in the PD have been followed	Appropriateness of default values
$\Delta\text{CBSL}, \text{P}, \text{t}$	Verification team confirmed that Equation 2 was computed correctly by recalculating and checking input values. The value was traced to the quantification of annual change in carbon stocks in all pools in the baseline across the project activity area and, ultimately net GHG emission reductions during the monitoring period.	This parameter was reviewed and re-calculated using methods set forth in the methodology and the PD and confirmed followed.	Not applicable.
$\Delta\text{CBSL}, \text{LB}, \text{t}$	Confirmed at validation.	This parameter was reviewed and re-calculated using methods set forth in the methodology and the PD and confirmed followed. Annual outputs from LST model confirmed against 5-year outputs approved at validation.	Not applicable.
CF	Confirmed at validation.	Confirmed that value of 0.5 was correctly taken from PD Table 4.	Not applicable. Confirmed at validation
BRESIDUAL, t	Verification team confirmed that Equation 22 was computed correctly by recalculating and checking input values.	The calculation approach as presented in Appendix 2 of the PD was confirmed correctly implemented.	Not applicable.
MLFy	Verification team confirmed that the market leakage factor was determined correctly following Option 1 – VCS Default Market Leakage Discount Factors and Equation 56a.	A PD deviation was presented and approved for this element, please see Section 3.3 of this report.	Not applicable.

$\Delta\text{C}_{\text{PERMHWP1,t}}$	Verification team confirmed that the calculation of harvested carbon was correct following Section 8.1.7 of methodology. It was also confirmed that the derivative parameter values were calculated correctly.	The calculation approach as presented in Appendix 2 of the PD was confirmed correctly implemented.	Not applicable.
ABSL_i	Areas were confirmed at validation. Verification team ensured that calculations remain unchanged.	Values from the PD were correctly matched for this period.	Not applicable.

The methods and formulae set out in the PD for calculating baseline emissions, project emissions and leakage were followed. A PD deviation not in common with previous verification periods was noted during this project verification, as described in Section 3.3 above.

The total end of the 01 January 2018 to 31 December 2018 reporting/monitoring period carbon stocks in all pools (i.e., above-ground biomass, below-ground biomass, dead wood, and wood products) resulting from carbon stock changes were correctly quantified as 40,389 tCO₂e.

Uncertainty was assessed as required. The verification team recalculated the statistics independently to confirm the accuracy of the reported precision and confirmed that a 1.8% uncertainty risk discount factor was required. Field data collection utilized appropriate principles of forestry data collection, including appropriate tools and methods. Collected data was handled appropriately, including a structured process for QA/QC. Analysis of collected data used appropriate formulae, conversions, and parameters supported by scientific literature. Where ranges of parameters or other types of formulaic uncertainty exist, appropriately conservative values were used in data analysis.

In conclusion, the quantification methods for GHG emission reductions and removals have been performed correctly and in accordance with the validated PD and VM0012.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

During this verification assessment, the evidence provided by the Project Proponent was more than sufficient in both quantity and quality to support the determination of GHG emission removals reported by the project. Throughout the verification, the Project Proponent demonstrated a commitment toward conservativeness and took all measures appropriate to ensure the reliability of evidence provided.

The threshold for materiality with respect to the aggregate of errors, omissions and misrepresentations relative to the total reported GHG emission reductions and/or removals was met for this project as defined in the Verification Sampling Plan. Materiality is a concept that errors, omissions and misrepresentations could affect the GHG reduction assertion and influence the intended users (ISO 14064-3:2006). As defined by VCS Version 3, the materiality was 5% for this project.

The evidence provided to determine emission reductions reported in the monitoring report included values, notations, units and sources. This evidence has been cross-checked with supplied emission reduction calculation spreadsheets and a GIS dataset. The procedure for data recording, transfer and final transposition was also verified and found to be in compliance with the monitoring plan outlined in the PD. The verification team was able to confirm through cross-checks that adequate monitoring mechanisms are in place where the required parameters need to be monitored.

Interviews conducted (oral evidence) are outlined in Section 2.3 above, and the final documents received from the Project Proponent supporting the determination of GHG removals can be viewed in Appendix A.

4.4 Non-Permanence Risk Analysis

The VCS AFOLU Non-Permanence Risk Tool (19 October 2016, v3.3) was used by the Project Proponent to assess overall project risk. The verification team reviewed the Non-Permanence Risk Report provided with the verification supporting documentation and confirmed the Project adheres to the requirements set out in the VCS AFOLU Non-Permanence Risk Tool. Each risk factor was thoroughly assessed for conformance. Any identified NCR and/or CL findings related to the VCS AFOLU Non-Permanence Risk Tool/Report are presented in Appendix B. The final score was calculated to be 1%. As such, the minimum 10% is utilized. A brief review of each factor is found in the table below:

Risk Factor	Rationale & Quality	Conclusion
Internal Risks		
Project Management	A) The project does not involve operational reforestation, and reforestation within the baseline (and relating to previous management) are based on natural regeneration from on-site native tree sources. A score of 0 was applied for this	A risk rating of -2 is appropriate given the rationale provided, and all statements made are substantiated.

	item. This is appropriate, which is supported by site visit observations. B) No history of illegal activities exists in the region. C) The management team has significant experience conducting forest carbon projects and possesses the skills necessary to successfully undertake all project activities. D) The verification team is reasonably assured that the management team maintains a presence in the country and may be on site within a day of travel.	
Financial Viability	The verification team reviewed the support documentation provided by the Project Proponent and found all calculations and assertions correct. The initial verification confirmed the securing of funding needed to cover the total cash out before the project reaches break even. As cumulative cash flow is still positive the original score remains valid. Breakeven project cash flow breakeven point is less than 4 years from the current risk assessment. Thus, the current monitoring year financial analysis indicates that sufficient funding has been received from previous VCU vintages to cover breakeven costs.	A risk rating of 0 is appropriate given the rationale provided, and all statements made are substantiated.
Opportunity Cost	NPV of the timber harvesting in the baseline scenario is likely between 20% more to 20% less than the returns from carbon in the project scenario, and calculations performed were confirmed correct. The project is protected by a legally binding easement, committing the land owner to continue management practices that protect the credited carbon stocks over the length of the project crediting period. The Rocky Mountain Elk Foundation is the Project Proponent and is a non-profit organization. A mitigation score of -2 was applied.	A risk rating of -10 is appropriate given the rationale provided.
Project Longevity	The project has a legal agreement or requirement to continue the management practice, this criterion is met.	A risk rating of 0 is appropriate given the rationale provided.
Total Internal Risks		0
External Risks		

Land Tenure	The risk report appropriately states, "The risk report states: "The carbon proof of right and right of use are held by ALC and RMEF, while the surface rights are owned by the State of Alaska under a Federal Conservation Easement." Score appropriate.	A risk rating of 0 is appropriate given the rationale provided.
Community Engagement	As no households are located within the project area, this criterion is not applicable. The risk report states that no communities are within 20km of the project. This was confirmed to a reasonable level of assurance through Google Earth imagery review.	A risk rating of 0 is appropriate given the rationale provided.
Political Risk	The average World Governance Indices (WGI) score for the United States, based on the WGI's six governance categories, for 2012-2017 = 1.25.	A risk rating of 0 is appropriate given the rationale provided.
Total External Risks		0
Natural Risks		
Natural Risk	Fire: The risk report states that the risk of fire is major once every 100 years or more. The verification team accessed the "Fire History Map at the Alaska Interagency Coordination Center" and noted that only one fire has been recorded on Afognak since 1939. Thus, the verification team is reasonably assured that a score of 0 for this item is appropriate, given the advanced age of trees on the project area. No mitigation was applied. Pest and Disease: The risk report states that the risk of pest and disease is major every 50-100 years. The ratings are appropriate, given the stand composition (mostly one species), age, and the fact that pest outbreaks are not common in Alaska due to the colder weather (supported by literature). The verification team is reasonably assured that the risk score of 1 is appropriate. No mitigation was applied. Extreme Weather: Changes in Weather Patterns: The risk report states that the risk of extreme weather is insignificant every 50 to 100 years. This is supported by the advanced stand age and site visit observations. The risk score of 0 is appropriate. No mitigation was applied. Geological Risk: The risk report states that	A risk rating of 1 is appropriate given the rationale provided, and all statements made are substantiated.

	the risk of geological events is minor every 100 years or more. The support given relies heavily on the 1964 earthquake and the 1912 Novarupta volcanic eruption. While these two events are massive (the earthquake was the second largest recorded in history, and the volcano was the largest eruption of the 20th century), the average stand age in the project is near 150 years. Thus, the risk factors chosen are appropriate. A score of 0 was appropriately applied.	
Total Natural Risks		1
Overall Risk Rating = 1%²		

5 SAFEGUARDS

5.1 No Net Harm

Project is a remote conservation-based project that seeks to retain a fully functional natural ecosystem, there are no material negative environmental impacts from the project. The verification notes that there are potentially some lost economic and employment opportunities for certain regional service providers by eliminating the logging in the baseline scenario, however for the local previous landowners any related impact is mitigated by alternate investment strategies. The verification team witnessed value-based timber extraction activities near the project area and noted that when this resource is exhausted, or market conditions change any expected negative impacts will be ameliorated with the presence of the project.

5.2 Local Stakeholder Consultation

Local stakeholder consultation occurred prior to project area acquisition. No on-going stakeholder discussions are needed for this project as the United States Federal Government – Bureau of Land Management holds the conservation easements for the property preventing activities of concern.

6 VERIFICATION CONCLUSION

After review of all project information, procedures, calculations, and supporting documentation, ESI confirms that the monitoring as reported in the Afognak Forest Carbon Project Monitoring Report (v1.1 dated 06 March 2019) and conducted by the project proponent, are accurate and consistent with all aforementioned VCS Version 3, the original and 10-year baseline validated PD(s), and the selected methodology (VM0012).

² The project has taken 10% as the Non-Permanence Risk Rating, the lowest allowable following the VCS AFOLU Non-Permanence Risk Report v3.3.

ESI confirms all verification activities, including objectives, scope and criteria, level of assurance, validated Project Description implementation, and project monitoring report adherence to VCS Version 3 (and all associated updates), as documented in this report are complete. ESI concludes without any qualifications or limiting conditions that Afognak Forest Carbon Project Monitoring Report (v1.1 dated 06 March 2019) meets the requirements of VCS Version 3 (and all associated updates) for the verification period/reporting period (01 January 2018 – 31 December 2018).

The total GHG emission reductions generated by the project in this monitoring period amount to 40,389 tCO₂e for the monitoring year 2018. The GHG assertion provided by Camco International Group, Inc. and verified by ESI has resulted in 35,623 credits eligible for issuance as VCUs for the verification period/reporting period (01 January 2018 – 31 December 2018). The project has applied a 10% buffer withholding of 4,038 tCO₂ equivalents based on the non-permanence risk assessment tool.

Verification period: From 01 January 2018 to 31 December 2018

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emission s or removals (tCO ₂ e)	Project emission s or removals (tCO ₂ e)	Leakage emissio ns (tCO ₂ e)	Net GHG emission reduction s or removals (tCO ₂ e) ³	Uncertai nty Risk Discount (tCO ₂ e)	Buffer Allocatio n (tCO ₂ e)	VCUs eligible for issuance
2018	30,886	9,503	0 ⁴	40,389	727	4,038	35,623
Total	30,886	9,503	0	40,389	727	4,038	35,623

³ Section 8.5.1 of VM0012: "The annual net carbon emissions reductions is the actual net GHG removals by sinks from the project scenario minus the net GHG removals by sinks from the baseline scenario".

⁴ The market leakage factor has been set to 0 after year 2017 since no harvest occurs in the baseline after this point.

APPENDIX A – DOCUMENTS RECEIVED/REVIEWED

Documents received 12 February 2019

- 2018 Verification Auditor documents
 - __MACOSX
 - Submitted Documents
 - Afognak PDD v3.1
 - ._Afognak VCS Project Description Document - 2018 v3.0d.docx
 - ._Afognak VCS Project Description Document - 2018 v3.0d.pdf
 - Supporting Reference Documents
 - ._Afognak Use Permitting Email - Nov 19, 2018.docx
 - Submitted Documents
 - Afognak PDD v3.1
 - Afognak VCS Project Description Document - 2018 v3.0d.docx
 - Afognak VCS Project Description Document - 2018 v3.0d.pdf
 - Monitoring Report V1.0
 - Afognak 2018 Monitoring Report v1.docx
 - Afognak 2018 Monitoring Report v1.pdf
 - Afognak Carbon Model v3.8- Monitoring 2019.xlsx
 - Afognak LST Jan, 2019.xlsx
 - Afognak plot data & UF Sep 2018 v1.1.xlsx
 - Risk Reports V1.0
 - Afognak - VCS Non-Permanence Risk Report 2018 MR v1.0.doc
 - Afognak - VCS Non-Permanence Risk Report 2018 MR v1.0.pdf
 - Afognak - VCS Risk Report Calculation Toolv3.1 2018 MR v1.0.xlsm
 - Supporting Reference Documents
 - Afognak - US WGI Governance Index 2013-2017 Data.xlsx
 - Afognak Financial Modelling_v1.xlsx
 - Afognak Use Permitting Email - Nov 19, 2018.docx
 - CE-BLM, Waterfall, 2005-12-19.pdf
 - Conformed Quitclaim Deeds_ALC to RMEF_04-22-2016.pdf
 - DeedOfPartialRelease_Executed_CIG+ALC+PMEF+APX_4-07-16 VCS_.pdf
 - Federal CE_9-28-2000.pdf
 - NIR2013-9_DNRRecordersDB (1).docx
 - NIR2013-9_DNRRecordersDB.docx
 - Wood density of Canadian Tree species Gonzalez 1990.pdf

Documents received 06 March 2019

- 025_0_Afognak_2018ver_Findings_Rd1_Response.xlsx
- Afognak 2018 Monitoring Report v1.1 track_changes.docx
- Afognak 2018 Monitoring Report v1.1.docx
- Afognak 2018 Monitoring Report v1.1.pdf
- Afognak Carbon Model v3.9- Monitoring 2019.xlsx

APPENDIX B – NCRS/CL/OFIS

Item Number	1
VCS AFOLU Requirements 21 June 2017, v3.6 (Section)	4.7 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS
VCS AFOLU Requirements 21 June 2017, v3.6 (Description)	* Where the net change in carbon stocks is not a whole number, round the calculated VCU and buffer credit volumes down to the nearest whole number. Where the net change in carbon stocks is a whole number, round the calculated buffer volume up, and the VCU volume down, to the nearest whole number.
Applicability to the Project (Y or N/A)	Y
Requirement Met (Y, N, Pending)	Y
Evidence Used to Assess (Location in PD, MR or Supporting Documents)	Monitoring calc worksheet; MR Section 4.4.2
ESI Findings (27 February 2019)	The VVB noted in review of the final estimated buffer and VCU calculations and reporting that this decimal guidance was not followed. The "Ann. Summary Tables & Figs" tab of Afognak Carbon Model v3.8-Monitoring 2019.xlsx contains final VCU calculations in the "Annual Saleable VCU's" field. In this field, it was noted that the VCU calculations were generated from rounded buffer volume. It is the understanding of the verifiers that both the VCUs and buffer volumes are to be computed utilizing unrounded numbers, and then be rounded after calculation.
Round 1 NCR/CL/OFI	CL: Please ensure that the VCU calculations utilize unrounded values before rounding the final calculated numbers.
Round 1 Response from Project Proponent (06 March 2019)	The error in the "Ann. Summary Tables & Figs" tab of Afognak Carbon Model v3.8-Monitoring 2019.xlsx has been fixed starting at row 21 column BK and down from there. The calculation of VCUs uses the unrounded buffer number now. The corrected VCUs has been entered into Table 11 of the MR.
ESI Findings - Round 2 (11 March 2019)	The verification team re-reviewed the revised calculation worksheet and confirmed values are rounded properly. The item is addressed.

Item Number	2
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VCS Methodology VM0012 Version 1.2, Sectoral Scope 14 Improved Forest Management in Temperate and Boreal Forests (LtPF) (Section)	8.5.2 Calculating Verified Carbon Units (VCU's) for the Project
VCS Methodology VM0012 Version 1.2, Sectoral Scope 14 Improved Forest Management in Temperate and Boreal Forests (LtPF) (Description)	The number of VCU's the project available for issuance and sale in year, y (VCU _y ; t CO ₂ e yr ⁻¹), is calculated as: $VCU_y = ER_y \cdot (1 - ER_y, ERR) - Bry$
Applicability to the Project (Y or N/A)	Y
Requirement Met (Y, N, Pending)	Y
Evidence Used to Assess (Location in PD, MR or Supporting Documents)	Afognak Carbon Model Workbook;
ESI Findings (27 February 2019)	The verification team reviewed the monitoring calculation worksheet and noted that this was done appropriately. The verification team noted that Table 11 of the MR lists an incorrect Uncertainty Risk Discount. The verification team noted that Table 10 of the MR lists an incorrect "Net GHG emission reductions or removals" value of 32,311 mTCO₂e. The verification team could not locate the calculation of this value.
Round 1 NCR/CL/OFI	CL: Please ensure that the Uncertainty Risk Discount in Table 11 of the MR is correctly reported. CL: Please ensure that "Net GHG emission reductions or removals" is reported correctly in Table 10 of the MR.
Round 1 Response from Project Proponent (06 March 2019)	Both the Uncertainty Risk Discount and the Net GHG emission reductions or removals values in Table 11 and Table 10, respectively, have been changed to the correct values shown in the Afognak Carbon Model v3.9.xlsx file. These were missed when we were updating the tables in the MR from a previous version.
ESI Findings - Round 2 (11 March 2019)	The verification team confirmed that Table 10 and 11 in the revised MR are now reporting correct values. The item is addressed.

Item Number	3
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VCS Methodology VM0012 Version 1.2, Sectoral Scope 14 Improved Forest Management in Temperate and Boreal Forests (LtPF) (Section)	9.3.2 Monitoring Annual Spatial Inventory Changes
VCS Methodology VM0012 Version 1.2, Sectoral Scope 14 Improved Forest Management in Temperate and Boreal Forests (LtPF) (Description)	Project proponents will undertake and document annual monitoring to identify and update spatial changes in the forest inventory data (i.e. changes in forest polygons due to planned or unplanned project activities and natural disturbances which change the classification of spatial areas within the project boundary).
Applicability to the Project (Y or N/A)	Y
Requirement Met (Y, N, Pending)	Y
Evidence Used to Assess (Location in PD, MR or Supporting Documents)	MR Section 3.3.1
ESI Findings (27 February 2019)	The verification team performed a visual inspection of the project area using high resolution imagery for the previous monitoring period ending in 31 December 2017. The verification team at that time independently confirmed no disturbance or unplanned activities occurred using imagery supplied by the proponents. The results of the 2018 monitoring effort are described in the MR in Section 3.3.1 but it is not clear whether all monitoring has been implemented for the current period including aerial or imagery-based sensor data collection. The site visit occurred during the current monitoring period and coincided with an opportunity to aerially view disturbance or inventory changes in addition to ground level observations from traversing portions of the project area starting at 01 January 2018. However, natural events occurred during the monitoring period (30 Nov. 2018 Anchorage earthquake) potentially resulting in inventory changes.
Round 1 NCR/CL/OFI	CL: Please clarify if any monitoring activities related to inventory change differed or are lacking from the previous monitoring period including remotely sensed based monitoring. Please also clarify whether natural events, such as the 30 Nov. 2018 Anchorage earthquake, have been considered in monitoring for the 2018 period.
Round 1 Response from Project Proponent (06 March 2019)	Section 3.3.1 has been updated to provide additional detail with respect to monitoring activities that occurred during the 2018 verification period. This includes the addition of a new subsection 'Monitoring Activity During the 2018 Verification Period'. A description the Nov 2018 Anchorage earthquake has also been added.
ESI Findings - Round 2 (11 March 2019)	The verification team confirmed that additional language has been added to the MR Section 3.3.1 to better clarify monitoring results for this period. The item is addressed.