Forest Project Verification Protocol

Version 3.0

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Checklists

1 Introduction

The Forest Project Verification Protocol (FVP) of the Climate Action Reserve (Reserve) provides guidance to Reserve-approved verification bodies for verifying greenhouse gas (GHG) emission reductions associated with a planned set of activities to remove, reduce or prevent CO_2 emissions in the atmosphere by conserving and/or increasing forest carbon stocks in accordance with the Reserve's Forest Project Protocol (FPP).

The FVP supplements the Reserve's Verification Program Manual found on the Reserve website at http://www.climateactionreserve.org/how-it-works/program/program-manual/. The Verification Program Manual provides verification bodies with the general requirements for a standardized approach for independent and rigorous verification of GHG emission reductions and removals, the verification process, the requirements for conducting verification, conflict of interest and confidentiality provisions, the core verification activities, content of the verification report, and dispute resolution processes. In addition, the Verification Program Manual explains the basic verification principles of ISO 14064-3:2006 which must be adhered to by the verification body.

The purpose of verification is to provide an independent review of data and information used to produce a GHG project report. It aims to ensure that a participant's reported emission reductions are real, permanent, surplus, and verifiable. The intended audience of the FVP is approved verification bodies. However, forest owners will also find it useful to review this document to develop a better understanding of the verification activities associated with reporting GHG reductions to the Reserve.

Forest project verification bodies must read and be familiar with the following International Organization for Standardization (ISO) and Reserve documents and reporting tools:

1. Forest Project Protocol (FPP)
2. Forest Project Verification Protocol (FVP)
3. Reserve Verification Program Manual
4. Reserve software
5. ISO 14064-3:2006 Principles and Requirements for Verifying GHG Inventories and Projects

Only Reserve-recognized forest project verification bodies are eligible to verify forest project reports. Approved verification bodies under the California Climate Action Registry's General Verification Protocol are not automatically permitted to verify forest project reports. To become a recognized forest project verifier, verification bodies must become accredited under ISO 14065. Information on the accreditation process can be found on the Reserve website at http://www.climateactionreserve.org/how-it-works/verification/how-to-become-a-verifier/.

2 Standard of Verification

The Reserve's standard of verification for forest projects is the Forest Project Protocol (FPP). To verify a land owner's initial Forest Project Design Document and annual monitoring reports, verification bodies apply the verification guidance in the Reserve's Verification Program Manual and this document to the standards described in the FPP.

The FPP provides eligibility rules, methods to quantify net GHG reductions and removals, project monitoring procedures, and project reporting requirements. The FPP:

- Defines the forest project
- Defines the project eligibility rules
- Delineates the project boundary
- Provides methods for quantifying net GHG reductions and removals
- Provides mechanisms to ensure permanence of GHG reductions and removals
- Identifies procedures for project monitoring
- Describes project reporting parameters

Specifically, this verification protocol supports the verification of GHG reduction projects associated with the three forest project types defined in the FPP which include Reforestation Projects, Improved Forest Management Projects, and Avoided Conversion Projects. All three project types include planned activities which result in conserving and/or increasing forest carbon stocks. This Forest Project Verification Protocol specifically describes the core verification activities in context of the three forest project types and provides the criteria required for a verification body to provide a reasonable level of assurance that the GHG removals or reductions made in the project reports are materially correct.

Verification bodies will use the criteria in this protocol to determine if there exists reasonable assurance that the data submitted on behalf of the forest owner to the Reserve addresses each requirement in the Forest Project Protocol. Project reporting is deemed accurate and correct if the forest owner is in compliance with the Forest Project Protocol.

Further information about the Reserve's principles of verification, levels of assurance, and materiality thresholds can be found in the Reserve's Verification Program Manual at http://www.climateactionreserve.org/how-it-works/program/program-manual/.

3 Emission Sources, Sinks, and Reservoirs

For all verification activities, verification bodies review a project's reported sources, sinks, and reservoirs to ensure that all are identified properly and confirm their completeness. The required sources, sinks, and reservoirs should be included in the quantification of GHG for estimating carbon stocks in the initial baseline determination, modeling, and annual reporting and monitoring.

Table 5.1, Table 5.2, and Table 5.3 in Section 5 of the FPP provide comprehensive lists of all carbon resources, sinks, and reservoirs that must be included in the primary and secondary GHG reporting for the three forest project types.

4 Verification Timeline

All projects must go through verification within 30 months of being submitted to the Reserve.

The initial verification for forest projects must include a site visit. The initial site verification is critical to ensure that the project is eligible to be registered and that the project's baseline is correctly estimated. In addition, the verification body must assess and ensure the accuracy of all of the initial submittal requirements in the Forest Project Design Document.

The Reserve requires that an approved third-party verification body review and assess all annual reported data and information. The annual Verification Report, List of Findings, and Verification Opinion must be submitted within 30 months from the end of the time period for

which project activities were verified. After a project is registered, verification site visits must occur at least once every six years. Between site visits, an approved third-party verification body must conduct a desk review of annual monitoring reports. The Reserve will issue Climate Reserve Tonnes (CRTs) for quantified GHG reductions and removals that have been verified through either annual site visits or annual desk reviews.

Up to 60 months of reductions or removals can be verified and credited through annual verification. The first Verification Opinion and Report for these projects may cover multiple years, back to the project's start date. Therefore, the forest owner does not gain the ability to verify more reduction tonnes by delaying verification.

All GHG reductions and removals quantified over the course of a project are considered reversed if a forest owner, or subsequent landowner, chooses not to undergo verification. The reversal must be compensated by retiring CRTs as described in Section 7.3 of the FPP.

5 Project Verification Activities

Verification activities for forest projects will be specific to the category of verification involved. These categories include initial verification for registration on the Reserve, periodic verification involving a site visit, and annual verification involving a desk review. Both initial verification and ongoing verification include review of the criteria for Natural Forest Management, inventory of onsite carbon stocks, carbon in harvested wood products, and reversal risk ratings. The following sections contain guidance for all of these verification activities.

5.1 Initial Verification

Initial verification includes verification that the forest project has met the FPP criteria for eligibility, project area definition, modeling baseline onsite carbon stocks, calculating baseline carbon in harvested wood products and completing other items for the project submission. All of these initial verification activities are covered in Checklists 5.1 A through 5.1 L which follow.

5.1.1 Eligibility

Verification bodies are required to affirm the project's eligibility according to the rules in the FPP. Checklists 5.1 A, 5.1 B, and 5.1 C provide the criteria for reasonable assurance regarding eligibility for the three different project types and include references to the FPP where requirements are further specified. These checklists are used by the verification body only at the project's initiation.

Checklist 5.1 A: REFORESTATION PROJECTS – ELIGIBILITY

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Project Definition	1.a Evidence exists of canopy cover < 10% for 10 years, or 1.b Evidence of significant disturbance provided.			
	1.c Project has demonstrated no consideration of commercial activities.			
	1.d Project has not been demonstrated to use broadcast fertilization.			

2. Legal Requirement Test	2. Proof that a signed Regulatory Attestation form is on file with the Reserve. In addition to reviewing this form, the verification body must conduct a cursory review of site documentation, permits, and any regulatory inspection notifications (violations, notices, etc.) to guarantee that all non-compliance events were immaterial and that the project meets all the relevant eligibility criteria.	**§3.1.1.1**		
3. Performance Requirement Test	3.a Reforestation Project that meets 1.a, or 3.b Meets 1.b and shows that the forest project corresponds to an "eligible" scenario in Appendix E of the FPP, or 3.c Shows that the project occurs on a type of land for which the forest owner has not historically engaged in or allowed timber harvesting.	**§3.1.2.1, Appendix E**		
4. Start Date	4. Evidence that the reported start date reflects the action of planting of trees, or site preparation for the planting of trees, whichever was or will be first.	**§3.2**		
5. Project Implementation Agreement	5. Proof that a Project Implementation Agreement (PIA) between the forest owner and the Reserve has been signed and recorded in the county of interest.	**§3.5**		
6. Attestation of Title	6. Proof that a signed standard Attestation of Title is on file at the Reserve. In addition to reviewing this form, the verification body must conduct a review to confirm ownership and the claim to reductions/removals that occur.	**§3.7**		
7. Project Location	7.a The project is in the United States of America			
	The project is: 7.b On private land, or can, 7.c if non-federal public lands, provide documentation showing approval by the government agency or agencies responsible, or 7.d if federal public lands, provide documentation that eligibility is approved through a federal legislative or regulatory/rulemaking process, or 7.e if Tribal land, provide documentation that demonstrates that the land within the project area is owned by a tribe or private entities.			
8. Sustainable Harvesting Practices	The project demonstrates that 8.a commercial harvesting is neither planned nor ongoing within the project boundaries, or 8.b at the time commercial harvesting is either planned or ongoing within project boundaries, the forest owner meets sustainable harvest practices, as described in §3.9.1.	**§3.9.1**		
9. Natural Forest Management Practices	9. See Checklist 5.4 of this verification protocol for specific criteria for reasonable assurance.	**§3.9.2**		

Checklist 5.1 B: IMPROVED FOREST MANAGEMENT PROJECTS – ELIGIBILITY

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Project Definition	1.a Evidence is provided indicating the canopy cover exceeds 10%.			
	1.b Project cannot be demonstrated to have used broadcast fertilization.			
2. Legal Requirement Test	2. Proof that a signed Regulatory Attestation form is on file with the Reserve. In addition to reviewing this form, the verification body must conduct a cursory review of site documentation, permits, and any regulatory inspection notifications (violations, notices, etc.) to guarantee that all non-compliance events were immaterial and that the project meets all the relevant eligibility criteria.	**§3.1.1.2**		
3. Start Date	3. Evidence has been provided as to the date that reflects the action of initiating forest management activities that increase sequestration and/or decrease emissions relative to the baseline.	**§3.2**		
4. Project Implementation Agreement	4. Proof that a Project Implementation Agreement (PIA) between the forest owner and the Reserve has been signed and recorded in the county of interest.	**§3.5**		
5. Attestation of Title	5. Proof that a signed standard Attestation of Title is on file at the Reserve. In addition to reviewing this form, the verification body must conduct a review to confirm ownership and the claim to reductions/removals that occur.	**§3.7**		
6. Project Location	6.a Project is located in the United States of America.			
7. Sustainable Harvesting Practices	The project demonstrates that 7.a commercial harvesting is neither planned nor ongoing within the project boundaries, or 7.b at the time commercial harvesting is either planned or ongoing within project boundaries, the forest owner meets sustainable harvest practices, as described in § 3.9.1 .	**§3.9.1**		
8. Natural Forest Management Practices	8. See Checklist 5.4 of this verification protocol for specific criteria for reasonable assurance.	**§3.9.2**		

Checklist 5.1 C: AVOIDED CONVERSION PROJECTS – ELIGIBILITY

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1.Project Definition	1.a Provide proof that the project is/was on private land prior to project initiation.			
	1.b Provide proof that a qualified conservation easement was recorded, or the land was transferred to public ownership.			

	1.c Provide Demonstration that conversion out of forest is significant risk (See Table 5.1 H of this verification protocol for further guidance).			
	1.d Project cannot be demonstrated to have used broadcast fertilization			
2. Legal Requirement Test	2.a Proof that a signed Regulatory Attestation form is on file with the Reserve. In addition to reviewing this form, the verification body must conduct a cursory review of site documentation, permits, and any regulatory inspection notifications (violations, notices, etc.) to guarantee that all non-compliance events were immaterial and that the project meets all the relevant eligibility criteria.			
	2.b Documentation has been provided that demonstrates that the type of land use conversion anticipated by the project is legally permissible, documentation must fall into at least one of the 3 categories specified in §3.1.1.3.			
3. Performance Requirement Test	3. Provide copy of real estate appraisal for the project area per requirements in §3.1.2.3.	**§3.1.2.3**		
4. Start Date	4. Evidence has been provided as to the date that reflects the action of committing the project area to continued forest management and protection through recording a qualified conservation easement or transferring the project area to public ownership.	**§3.2, §3.6**		
5. Project Implementation Agreement	5. Proof that a Project Implementation Agreement (PIA) between the forest owner and the Reserve has been signed and recorded in the county of interest.	**§3.5**		
6. Attestation of Title	6. Proof that a signed standard Attestation of Title is on file at the Reserve. In addition to reviewing this form, the verification body must conduct a review to confirm ownership and the claim to reductions/removals that occur.	**§3.7**		
7. Project Location	7.a The project is located in the United States of America.			
	7.b The project is implemented on private land, unless the land is transferred to public ownership as part of the project.			
8. Sustainable Harvesting Practices	The project demonstrates that: 8.a commercial harvesting is neither planned nor ongoing within the project boundaries, or 8.b at the time commercial harvesting is either planned or ongoing within project boundaries, the forest owner meets sustainable harvest practices, as described in §3.9.1.	**§3.9.1**		
9. Natural Forest Management Practices	9. See Checklist 5.4 of this verification protocol for specific criteria for reasonable assurance.	**§3.9.2**		

5.1.2 Project Area Definition

Verification bodies are required to review the geographic boundaries defining the project area and their compliance with the requirements outlined in the FPP as listed in Checklist 5.1 D. This checklist is verified only at the project's initiation.

Checklist 5.1 D: PROJECT AREA DEFINITION				
Project Type	**Verification Criteria**	**As specified in § of FPP**	**Criteria Met**	**Criteria Not Met**
1. All	1.a Proof that a description and maps of the geographic boundaries defining the project area are on file at the Reserve.	§4, Appendix A		
	1.b Proof that the project area boundaries don't exceed assessment area boundaries by more than 10% of the project area.	§4, Appendix F		
2. Avoided Conversion	2. The project area has been defined following the guidance in §3.1.2.3 and §4 for the appropriate conversion type.	§3.1.2.3, §4		

5.1.3 Modeling Baseline Onsite Carbon Stocks

Verification bodies are required to confirm that the forest owner has developed a baseline characterization for onsite carbon stocks according to the requirements of the FPP as listed in the following three tables by project type. These checklists are verified only at the project's initiation.

Checklist 5.1 E: REFORESTATION PROJECTS – MODELING BASELINE ONSITE CARBON STOCKS				
Verification Criteria		**As specified in § of FPP**	**Criteria Met**	**Criteria Not Met**
1. Qualitative Characterization	1.a clear qualitative characterization of baseline conditions has been submitted to the Reserve in the project description.	§6.1.1		
2. Inventory of Onsite Carbon Stocks	2.a An inventory has been conducted of the project's carbon pools per Checklist 5.5, or 2.b The inventory of required and optional pools has been deferred until the second site visit verification.	§6.1.1, Appendix A,		
3. Baseline Carbon Stock Modeling	3.a A computer simulation has been conducted that models the carbon stocks per Checklist 5.6, or 3.b The computer simulation has been deferred until the project's second site visit verification.	§6, §6.1.1, Appendix B		

Checklist 5.1 F: IMPROVED FOREST MANAGEMENT PROJECTS – PRIVATE LANDS – MODELING BASELINE ONSITE CARBON STOCKS				
Verification Criteria		**As specified in § of FPP**	**Criteria Met**	**Criteria Not Met**
1. Inventory of On-Site Carbon	1. An inventory has been conducted of the project's carbon pools per Checklist 5.5.	§6.2.1, Appendix A		

Stocks				
2. Compare Initial Live Tree Carbon Stock Inventory with Common Practice	2.a The baseline analysis utilized the correct common practice carbon stocks for the project's assessment area.	§6.2.1, Appendix F		
	2.b The forest owner has determined if initial live-tree carbon stocks are above or below common practice.	§6.2.1. Appendix A		
3. Baseline Carbon Stock Modeling	3. A 100-year forest management simulation of standing live carbon stocks has been conducted per the criteria described in Checklist 5.6.	§6, §6.2.1, Appendix B		

Checklist 5.1 G: IMPROVED FOREST MANAGEMENT PROJECTS – PUBLIC LANDS – MODELING BASELINE ONSITE CARBON STOCKS

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Initial Forest Carbon Stock Inventory	1. An inventory has been conducted of the project's carbon pools per Checklist 5.5.	§6.2.2, Appendix A		
2. Baseline Carbon Stock Modeling	2. A 100-year forest management simulation of standing live carbon stocks has been conducted per the criteria described in Checklist 5.6.	§6, §6.2.2, Appendix B		

Checklist 5.1 H: AVOIDED CONVERSION PROJECTS – MODELING BASELINE ONSITE CARBON STOCKS

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Initial Forest Carbon Stock Inventory	1. An inventory has been conducted of the project's carbon pools per Checklist 5.5.	§6.3.1, Appendix A		
2. Baseline Carbon Stock Modeling	2.a An alternative highest-value land use for the project area has been clearly specified as identified by the required appraisal.			
	2.b The rate of conversion and removal of onsite forest carbon stocks has been estimated.			
	2.c A 100-year forest management simulation of standing live carbon stocks has been conducted per the criteria described in Checklist 5.6.			

3. Discount for the Uncertainty of Conversion Probability	3. A discount has been applied each year to the project's quantified GHG reductions.	§3.1.2.3, §6.3.1		

5.1.4 Calculating Baseline Carbon in Harvested Wood Products

Verification bodies are required to confirm that the forest owner has developed a baseline characterization for onsite carbon stocks according to the requirements of the FPP as listed in the following three tables by project type.

Checklist 5.1 I: REFORESTATION PROJECTS – BASELINE CARBON IN HARVESTED WOOD PRODUCTS

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Baseline Harvest Volume	1. If harvesting of the pre-existing trees would be expected to occur in the baseline, the *average* volume of harvesting in each year of the baseline over 100 years has been determined per Checklist 5.7.	§6.1.2, Appendix B, Appendix C		
2. Long-Term Storage in Wood Products	2. The average amount of carbon expected to be transferred to wood products each year and stored over the long-term (100 years) has been calculated per Checklist 5.7.	§6.1.2, Appendix C		

Checklist 5.1 J: IMPROVED FOREST MANAGEMENT PROJECTS – BASELINE CARBON IN HARVESTED WOOD PRODUCTS

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Baseline Harvest Volume	1. The *average* volume of harvesting in each year of the baseline over 100 years has been derived from the growth and harvesting regime used to develop the baseline for onsite carbon stocks per Checklist 5.7.	§6.2.1, §6.2.2, §6.2.3, Appendix B, Appendix C		
2. Long-Term Storage in Wood Products	2. The average amount of carbon expected to be transferred to wood products each year and stored over the long-term (100 years) has been calculated per Checklist 5.7.	§6.2.3, Appendix C		

Checklist 5.1 K: AVOIDED CONVERSION PROJECTS – BASELINE CARBON IN HARVESTED WOOD PRODUCTS				
Verification Criteria		**As specified in § of FPP**	**Criteria Met**	**Criteria Not Met**
1. Baseline Harvest Volume	1. The volume of harvesting in each year of the baseline over 100 years has been determined per Checklist 5.7.	§6.3.1, §6.3.2, Appendix B, Appendix C,		
2. Long-Term Storage in Wood Products	2. The proportion of harvested wood that would be delivered to mills in each year has been determined and the amount of carbon expected to be transferred to wood products each year and stored over the long-term (100 years), has been calculated per Checklist 5.7.	§6.3.2, Appendix C		

5.1.5 Other Requirements at Project Submission

In addition to the verification of eligibility, project area definition, modeling of baseline onsite carbon stocks, and the baseline carbon in harvested wood products, the verification body must confirm that other requirements for submittal have been completed. Checklist 5.1 L includes requirements for a description of the forest project activities and calculation of the project's initial reversal risk rating which will complete the Forest Project Design Document:

Checklist 5.1 L: OTHER REQUIREMENTS FOR PROJECT SUBMISSION				
Verification Criteria		**As specified in § of FPP**	**Criteria Met**	**Criteria Not Met**
1. Description of Forest Project Activities	1. A description of the management activities that will lead to increased carbon stocks in the project area, compared to the baseline.	§9.1		
2. Initial Reversal Risk Rating	2. Calculation of the project's initial reversal risk rating per Checklist 5.8.	Appendix D		

5.2 Site Verification

Periodic site verification involves the review of the inventory estimates, risk of reversal ratings, and compliance with natural forest management criteria. A site verification is required at the project's initiation. After a project is registered, verification site visits must occur at least once every six years, with the exception of Reforestation Projects which are eligible to defer the second site verification indefinitely. If the second verification site visit is deferred, the Reserve will only issue CRTs once a second verification site visit is completed. The Reforestation Project must then undergo verification site visits on a six year cycle. In years when the project is not subject to a site visit, annual monitoring reports must be submitted to a verification body for desk review (see Section 5.3 of this verification protocol).

Verification site visits are also required anytime the forest owner would like to establish new confidence deductions and/or reversal risk ratings outside of the normal six year cycle.

A verification site visit involves a review of inventory methodologies and adherence to Natural Forest Management criteria. After initial verification, subsequent site visits must assess and ensure accuracy in measurement and monitoring techniques and onsite record keeping practices.

Checklist 5.2: SITE VERIFICATION

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Natural Forest Management Eligibility Status	1. Natural Forest Management eligibility met through Checklist 5.4.	§3.9.2		
2. Estimates of Actual Onsite Carbon Stocks	2.a Inventory verified through Checklist 5.5, or 2.b Can be deferred until the second site verification for Reforestation Projects.	§6.1.3, §6.2.4, §6.3.3, Appendix A, Appendix B		
3. Estimates of Harvested Wood Products	3. Harvested wood products accuracy met through Checklist 5.7.	§6.1.4, §6.2.5, §6.3.4, Appendix C		
4. Calculation of Project's Baseline*	3. Check the accuracy of the calculations of the baseline using Checklist 5.6.	§6		
4. Calculation of Project's "Primary Effect"	4. Check the accuracy of the calculations of "Primary Effect" including the use of the baseline and actual onsite carbon stocks and carbon in harvested wood products.	§6		
5. Quantifying the Project's Secondary Effects**	5.a Check calculations for quantifying secondary effects, or 5.b Can be deferred until the second site verification for Reforestation Projects.	§5.2, §6.1.5, §6.2.6, §6.3.5		
6. Updating Reversal Risk Rating	6. Project's risk rating meets the projects risk profile using Checklist 5.8.	Appendix D		

*Verified only at first site verification.

**Verified only at first site verification for reforestation and avoided conversion projects. Secondary effects are calculated as an annual effect for Improved Forest Management Projects and verified with Annual Monitoring.

5.3 Annual Monitoring and Verification

Project verification activities will consist of an annual desk review in addition to the periodic site visits. During a desk review, the verification body will review the data in the annual monitoring reports to check data calculations and information for reasonability, accuracy, and completeness. The forest owner shall submit a spreadsheet provided by the Reserve that identifies the required reporting fields for verification review. This is a review of the submitted reports and should involve less than one day of work unless significant changes or fluctuations are reported.

Checklist 5.3: ANNUAL MONITORING AND VERIFICATION

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Change in Forest Owner or Landholdings	1. If forest owner has acquired additional forestlands outside of the project area, the newly acquired land must incorporate the newly acquired land in their demonstration of sustainable long-term harvesting practices within 5 years of the acquisition.	§3.9.1		
2. Estimates of Actual Onsite Carbon Stocks	2.a. Changes in reported carbon stocks from previous years are within expected bounds resulting from reported harvest, growth, and disturbance effects.	§6.1.3, §6.2.4, §6.3.3, Appendix A, Appendix B		
3. Check for Decrease in Standing Live Carbon Pool	3. Determine if there has been a decrease in the project's standing live carbon pool over any ten-year consecutive period not accounted for by allowable exceptions; review actions taken in compliance with FPP.	§3.9.3		
4. Check for Reversals	4. Determine if a reversal has occurred and been properly compensated for per the requirements of the FPP.	§7.3		
5. Actual Carbon in Harvested Wood Products	5. Determine if mill efficiency and decay rates are accurate for the assessment area.	§6.1.4, §6.2.5, §6.3.4, Appendix C		
6. Quantifying the Project's Secondary Effects	6. Check calculations for quantifying secondary effects.	§5..2, §6.1.5, §6.2.6, §6.3.5		
7. Calculating total net GHG reductions and removals	7. Check calculations for annual total net GHG reductions and removals.	§6		
8. Reversal Risk Rating	8. Reversal risk rating should be the same used since the previous site verification.	Appendix D		

5.4 Natural Forest Management

All forest projects must promote and maintain a diversity of native species and utilize management practices that promote and maintain native forests comprised of multiple ages and mixed native species at multiple landscape scales ("Natural Forest Management"). The verification body must evaluate the project against the Natural Forest Management criteria described in Section 3.9.2 with reference to Appendix F of the FPP at a forest project's first site verification and at all subsequent site verifications. Forest project carbon stock inventories (requirements for which are contained in Appendix A of the FPP) should be used as the basis of these assessments where applicable. Forest projects that do not initially meet Natural Forest Management criteria but can demonstrate progress towards meeting these criteria within the required timetables are eligible to register and maintain that registration with the Reserve.

Checklist 5.4: NATURAL FOREST MANAGEMENT PRACTICES

Verification Criteria		Criteria Met by Achieving Goal	Criteria Met by Demonstrating Progress Over Previous Site Verification (if Applicable)	Criteria Not Met
1. Native Species	1. Completed inventory demonstrates that project consists of at least 95% native species. Must demonstrate continuous progress toward goal and criterion must be met within 50 years.			
2. Composition of Native Species	2.a Reforestation Projects: Documentation on planted mixture of species meets composition of native species goals. Project must show continuous progress and criteria must be met within 50 years. 2.b Improved Forest Management and Avoided Conversion Projects: Completed inventory demonstrates standing live carbon meets composition of native species goal. Project is not eligible, unless it is demonstrated that management activities will enable this goal to be achieved over the project life.			
3. Sustainability of Timber Resource	3.a Documentation showing that the forest, including entity lands outside project area, is currently under one of the following: 1. Third party certification under the Forest Stewardship Council or Sustainable Forestry Initiative/ Tree Farm System, or 2. A renewable long-term management plan sanctioned and monitored by a state or federal agency, or 3. For entities of 1000 acres or less, restricted to uneven-aged silvicultural practices and canopy retention averaging > 40% across the forest, as measured on any 20 acres within the entity area. Condition shall be met at all times during project and is assessed at each verification audit.			

	3.b Completed inventory demonstrates the project maintains, or makes progress toward maintaining, no more than 40 percent of their forested acres in ages less than 20 years. Project must show continuous progress and this criterion must be met within 25 years.			
4. Structural Elements (Lying and Standing Dead Wood)	4. Completed inventory work demonstrates that lying and standing dead wood is retained in sufficient quantities and for sufficient duration depending on whether portions of the project area have undergone salvage harvesting.			

5.5 Estimates of Inventory of Onsite Carbon Stocks

Verification bodies are required to verify the initial inventory estimates of each of the onsite carbon stocks submitted in the forest project report. This initial inventory of carbon stocks is used to determine an estimate of the project baseline and becomes the basis for quantifying project benefits.

For Reforestation Projects, the inventory methodology and implementation of the inventory can be deferred for carbon pools that are not affected by site preparation until the project is verified for the purpose of registering reductions. For those carbon pools affected by site preparation, a 'good faith' estimate (an estimate not required to meet the minimum confidence requirement) based on a minimum of 20 plots (installed by the forest owner) for the purposes of measuring the affected pool shall be used. The baseline estimate must be updated (corrected) with all required carbon pools at the time the project is verified for reductions.

All reports that reference carbon stocks must be submitted by the forest owner with the oversight of a Professional Forester. If the project is located in a jurisdiction without a Professional Forester law or regulation, then Certified Forester credentials managed by the Society of American Foresters (see http://www.certifiedforester.org) are required so that professional standards and project quality are maintained.

Checklist 5.5: ESTIMATES OF INVENTORY OF ONSITE CARBON STOCKS

Verification Criteria

1. Verification Criteria for Reviewing Inventory Methodologies and Implementation

The approach to verifying forest inventories focuses on inventory methodology review and correct implementation of the methodology. The verification body will determine the level of intensity for verification review which will determine the number and location of verification plots.

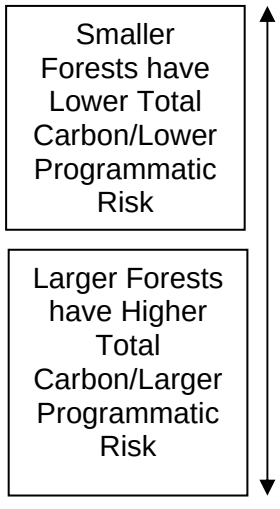
First, the verification body will review and determine if the forest owner has provided a strong or weak demonstration for each criterion in Table 1.

Table 1: Verification Criteria

Item	Verification Criteria	Strong Demonstration	Weak Demonstration
1	Plot locations are established is such a way that the verification body can acquire independent data from within measurement area and compare with forest owner inventory reports.	1	2
2	Inventory methodology document exists. Document is clear and forest owner can demonstrate implementation.	1	2
3	Forest vegetation is stratified (either before or post sampling) or forest owner can demonstrate a methodology that enables the verification body to compare inventory statistics to defined areas (polygons).	1	2
4	Updating process clearly defined in inventory methodology document and forest owner demonstrates adherence to methodology. Inventory, through update processes, is current.	1	2
5	Field observations or aerial photos/other remote sensing comparison to inventory reports demonstrate high correlation.	1	2

The level of verification review or intensity is based on the systematic (inherent in all projects) and individual project risk of inaccuracy in the inventory. Table 2 identifies a varying intensity of review based on the size of the land ownership. Small landowners have a lower systematic risk than larger landowners due to the relative proportion of CRTs represented by the individual landowner.

Table 2: Landowner Size Verification Multiplier



Landowner Acres	Verification Multiplier
<2500	.5
2,500 - 4,999	1
5,000 - 7,499	1.5
7,500 - 9.999	2
10,000 - 12,499	2.5
12,500 - 14,999	3
15,000 - 17,499	3.5
17,500 - 19,999	4
20,000 - 22,499	4.5
22,500 – 24,499	6
>=25,000	6.5

The multiplier is used to determine the level of verification field review, or Verification Field Intensity by multiplying the values for each item in Table 1 with each other and with the value from Table 2. Table 3 provides an example of applying this method to determine the Verification Field Intensity for a forest owner with 6000 acres with demonstrated criteria as stated in the table.

Table 3: Calculating the Verification Field Intensity for a forest owner with 6000 acres

Verification Multiplier	Item 1	Item 2	Item 3	Item 4	Item 5	Verification Field Intensity
(from Table 2)	(from Table 1)					
2	1	2	1	1	2	8

Once the Verification Field Intensity level has been calculated, field verification shall consist of the installation of a default set of 4 plots *multiplied* by the Verification Field Intensity. In the example in Table 3, the verification body would install a total of (4 x 8) or 32 plots. A minimum of one set of 4 plots is required to perform the analysis.

The verification body shall allocate the verification plot sets based on the guidance in Table 4. Each plot set is installed by the verification body, or a consultant hired by the verification body, for an identified area and compared to the forest owner's reported inventory for the same area. The comparison is analyzed using a paired T-test at the 80% confidence interval to determine if the inventory is within the same population as the inventory submitted by the forest owner.

Table 4: Allocation of Plot Sets

Verification Field Intensity	<3			3 - 10			>10		
Stocking Level with Project Area	Highest 33%	Middle 33%	Lowest 33%	Highest 33%	Middle 33%	Lowest 33%	Highest 33%	Middle 33%	Lowest 33%
Plot Set Allocation	100%	0%	0%	60%	40%	0%	60%	30%	10%

A plot set will either support or raise concerns about the accuracy of the forest owner's inventory. A forest owner receiving an 80% score or better has demonstrated that their inventory is sound. Forest owners that do not meet this standard can choose to have additional plot sets analyzed and added to all previous plots sets, or determine that their inventory requires additional effort prior to pursuing further verification activities, with the understanding that the forest owner will bear the expense of additional effort. The verification body can also apply their discretion to add more plots in the event the forest owner does not meet the score.

Inventory Methodology and Implementation		**Criteria Met**	**Criteria Not Met**
2. Other Verified Required and Optional Pools	6. Verification body shall assess for reasonable assurance that sampling methodologies for other reported pools adhere to the minimum required sampling criteria in Table A.2 of Appendix A, acceptable practices in forestry and have been implemented correctly.		
3. Inventory Update Processes	7. Inventory document must describe methodology for updating inventory data resulting from growth, harvest, and disturbances, Methodology must adhere to acceptable practices of forestry.*		
4. Inventory Update	8.a Harvest/Disturbance updates in inventory management system must be implemented per the Inventory Document and be representative of the harvest or disturbance.		

Processes	8.b Growth must be accounted for using an approved growth model or using a stand table projection, as described in Appendix B.		
5. Biomass Equations and Calculations	9. Verification body shall provide a 'verification plot' to project developer consisting of all tree species in project area with varying heights and diameters existing within the project area. The plot need not represent reality. ***The representative carbon tonnes per acre shall be computed using the Project Developer's calculation tools and replicate the pre-determined output computed by the verification body.*** Verification body to investigate and confirm that all conversions and expansions are accurate.		
*A forest biometrician employed by the state in which the project is located, or a consulting forest biometrician may be consulted in the event of a dispute between verification body and forest owner. The written opinion of the forest biometrician, submitted to the Reserve as part of the verification report, shall be considered the authoritative word.			

5.6 Baseline Modeling

Computer models are used to project a project's initial inventory stocks into the future under a set of assumptions described in the Forest Project Protocol. The assumptions include forest growth and harvest, as influenced by legal and financial constraints and guidelines for determining the extent of harvest operations under business as usual conditions.

Verification bodies are required to verify the baseline estimate for the project at the initial site verification for Improved Forest Management Projects and Avoided Conversion Projects. Reforestation baselines can be verified at the second site verification.

The baseline modeling incorporates the initial inventory estimates and projects a baseline that will be used for the life of the project. Project carbon stocks are compared to the baseline estimate to determine the project's net reductions and removals.

All reports that reference carbon stocks must be submitted by the forest owner with the oversight of a Professional Forester. If the project is located in a jurisdiction without a Professional Forester law or regulation, then Certified Forester credentials managed by the Society of American Foresters (see http://www.certifiedforester.org) are required so that professional standards and project quality are maintained.

Checklist 5.6: BASELINE MODELING

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Document	1. A modeling document exists that contains the all the elements within this checklist.			
2. Qualitative Characterization (Reforestation and Avoided Conversion only)	2. A qualitative characterization has been included in the modeling document and in the project submissions that documents the general assumptions of the project's baseline. The qualitative assessment must address the vegetative conditions and activities that would have occurred.	§6.1, §6.3		
	3a. The model used is an approved model.	Appendix B.1		
	3b. The forest owner has provided a description of the rationale for any model calibrations or an explanation of why calibrations were not incorporated.			

	3c. The forest owner has provided a description of the site indexes used for each species and an explanation of the source of the site index values used.			
4.Legal Constraints	4. A list of legal constraints is provided that includes a description of the type and effect of the constraint on the ability to harvest trees and the area constrained for each constraint.	§3.1.1, §6.1.1,6.2.1, §6.3.1		
5. Financial Constraints	5. A qualitative description is provided indicating that the harvesting activity modeled in the baseline is a financially viable activity.	§3.1.2, §6.1.1,6.2.1, §6.3.1, Appendix E		
6. Silviculture Guidelines	6. The silviculture guidelines incorporated in the model demonstrate all legal constraints are applied in the model. The silviculture guidelines must include a: 1. A description of the trees retained by species groups 2. The level of retention 3. Harvest frequency 4. Regeneration assumptions	Appendix B		
7. Modeling Guidelines	7.a Reforestation. Modeling is based on the qualitative characterization of the baseline and conducted per §6.1. 7.b Improved Forest Management. Modeling is conducted per §6.2. 7.c Avoided Conversion. Modeling is conducted per §6.3.	§6.1, §6.2, §6.3		
8. Modeling Outputs	8.a The forest owner has provided reports that display periodic harvest, inventory, and growth estimates for the entire project area presented as total carbon tonnes and carbon tonnes per acre. Verification body must make a determination that the estimates are within the range of expected growth patterns for the project area.	Appendix B		
*A forest biometrician employed by the State in which the project is located, or a consulting forest biometrician may be consulted in the event of a dispute between verification body and forest owner. The written opinion of the forest biometrician, submitted to the Reserve as part of the verification report, shall be considered the authoritative word.				

5.7 Verifying Estimates of Carbon in Harvested Wood Products

Verification bodies are required to verify the estimates of carbon that are likely to remain stored in wood products over a 100-year period submitted in the Forest Project Design Document and the annual monitoring reports. The initial inventory of carbon in wood products is used to determine an estimate of the project baseline and becomes the basis for quantifying project benefits. Accounting for wood product carbon must be applied only to actual or baseline volumes of wood harvested from within the project area. Trees harvested outside of the project area are not part of the forest project and must be excluded from any calculations.

Checklist 5.7: ESTIMATES OF CARBON IN HARVESTED WOOD PRODUCTS

Verification Criteria		As specified in § of FPP	Criteria Met	Criteria Not Met
1. Carbon in Harvested	1.a Amount of wood harvested that will be delivered to mills has been estimated and reported.			

Wood Delivered to Mills	1.b The appropriate wood density factor has been applied and/or water weight subtracted to result in pounds of biomass with zero moisture content.			
	1.c Total dry weights for all harvested wood have been calculated.			
	1.d Total carbon weight has been computed.			
	1.e The total has been converted to metric tonnes of carbon. This value is used in the next step, accounting for mill efficiencies.			
2. Account for Mill Efficiencies	2. The correct mill efficiency factors have been used to calculate total carbon transferred into wood products.	**Appendix C.2**		
3. Model Used	3.a The percentages of harvest by wood product class has been determined correctly with verified reports from the mill(s) where the project area's logs are sold; or by looking up default wood product classes for the project's assessment area; or if not available from either of these sources, by classifying all wood products as "miscellaneous."			
	3.b The average amount of carbon stored in in-use wood products over 100 years has been calculated using the worksheets in Appendix C.			
4.Legal Constraints	4.a Wood product carbon in landfills has been estimated and reported.			
	4.b Carbon in landfills has not been included in the wood products accounting for purposes of quantifying GHG reductions and removals.			
5. Total average carbon storage in wood products over 100 years	5. Total average carbon storage in wood products over 100 years for a given harvest volume has been calculated and reported.	**Appendix C.5**		

5.8 Verifying Calculations of Reversal Risk Ratings and Contributions to the Buffer Pool

Forest owners must derive an initial reversal risk rating for their forest project using the worksheets in Appendix D of the FPP. The worksheets are designed to identify and quantify the specific types of risks that may lead to a reversal, based on project-specific factors. The risk rating must be recalculated in every year the project undergoes a verification site visit.

Each time the Reserve issues CRTs for verified GHG reductions and removals achieved by a forest project, a certain percentage of those CRTs must be contributed to the buffer pool (see Section 7.2.2 of the FPP). The size of the contribution to the buffer pool will depend on the forest project's risk rating for reversals. Any adjustments to the risk ratings will not affect prior contributions to the buffer pool.

Checklist 5.8: CALCULATION OF REVERSAL RISK RATING AND CONTRIBUTION TO BUFFER POOL			
Risk Element/Requirement		**Criteria Met (Correct Risk Factor Applied)**	**Criteria Not Met (Incorrect Risk Factor Applied)**
1. Financial Risk	1. Use of a Qualified Conservation Easement or Qualified Deed Restriction, occurrence on public lands, or use of a PIA alone.		
2. Management Risk	2.a. Management Risk I – Illegal removals of forest biomass.		
	2.b. Management Risk II – Conversion of project area to alternative land uses.		
	2.c. Management Risk III – Over-harvesting.		
3. Social Risk	3. Social Risk.		
4. Natural Disturbance Risk	4.a. Natural Disturbance Risk I – Wildfire		
	4.b. Natural Disturbance Risk II – Disease or insect outbreak.		
	4.c. Natural Disturbance Risk III – Other episodic catastrophic events.		
5. Completing the Risk Rating Analysis	5. Reversal risk rating calculated correctly using the formula in Appendix D.5.		
6. Contribution to Buffer Pool	6. Appropriate contributions made to the Reserve buffer pool based on the risk reversal rating for the project.		

6 Completing the Verification Process

After completing the core project verification activities for reductions and removals from a forest project, the verification body must do the following to complete the verification process:

1. Complete a Verification Report to be delivered to the forest owner (public document).
2. Complete a detailed List of Findings containing both immaterial and material findings (if any), and deliver it to the forest owner (private document).
3. Prepare a concise Verification Opinion detailing the vintage and the number of reductions and removals verified, and deliver it to the project developer (public document).
4. Conduct an exit meeting with the forest owner to discuss the Verification Report, List of Findings, and Verification Opinion and determine if material misstatements (if any) can be corrected. If so, the verification body and project developer should schedule a second set of verification activities after the project developer has revised the project submission.
5. If a reasonable level of assurance opinion is successfully obtained, upload electronic copies of the Verification Report, List of Findings, Verification Opinion, and Verification Activity Log into the Reserve.
6. Return important records and documents to the forest owner for retention.

The recommended content for the Verification Report, List of findings and Verification Opinion can be found in the Reserve's Verification Program Manual on the Reserve website at http://www.climateactionreserve.org/how-it-works/program/program-manual/. The Verification Program Manual also provides further guidance on quality assurance, negative verification opinions, use of an optional Project Verification Activity Log, goals for exit meetings, dispute resolution, and record keeping.