

VALPARAISO PROJECT – A TROPICAL FOREST CONSERVATION PROJECT IN ACRE, BRAZIL VALIDATION REPORT



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Summary:

Environmental Services, Inc., (ESI) was contracted by CarbonCo, LLC, on 16 April 2013 to conduct the validation of *The Valparaíso Project: A Tropical Forest Conservation Project in Acre, Brazil*. The Valparaíso Project follows the framework of Reducing Emissions from Deforestation and Degradation (REDD) and is achieving Greenhouse Gas (GHG) emission reductions as well as tropical forest protection and conservation through payments for ecosystem services. This project is being developed in conjunction with the Climate, Community and Biodiversity Standard (CCBS). Proposed project activities are designed to address deforestation pressures in the region through community involvement and support from the sharing of carbon related revenue.

The validation process employed by ESI utilized an internal guiding framework and specifically incorporated VCS documents and ISO 14064-3 to develop and implement a Validation & Sampling Plan. The validation team assessed the Valparaíso Project's compliance under the Verified Carbon Standard (VCS) Version 3 (and all associated updates), the selected methodology, and the Project Description. The Valparaíso project was found to be appropriately eligible under Project Scope 14 for "Agriculture, Forestry, and other Land Use" (AFOLU), the project category "Reduction Emission from Deforestation and Degradation" (REDD), and activity type "Avoided Unplanned Deforestation and Degradation" (AUDD).

The scope of the validation included the GHG project implementation status; physical infrastructure, activities, technologies as well as processes of the Valparaíso Project; GHG sources, sinks and/or reservoirs; types of GHG's; and time periods covered. The geographic validation scope was defined by the project boundaries, the carbon reservoir types, management activities, growth and yield models, the inventory program, and contract periods.

The validation criteria followed the guidance documents provided by VCS and included the following: VCS Standard (08 October 2013, v3.4), VCS Program Guide (08 October 2013, v3.5), Program Definitions (08 October 2013, v3.5), AFOLU Requirements (08 October 2013, v3.4), AFOLU Non-Permanence Risk Tool (4 October 2012, v3.2), and the VCS Methodology VM0007: "REDD Methodology Modules (REDD-MF)" v1.4 (03 May 2013) and its associated modules and tools.

A summary of all findings is included in Appendix B. There are no restrictions of uncertainty.

ESI here confirms all validation activities including objectives, scope and criteria, level of assurance, monitoring and project documentation adhere to VCS Version 3 and all associated updates as documented in this report are complete. ESI concludes without any qualifications or limiting conditions

that the Valparaíso Project Description dated 9 July 2014 (v1.4) meets the requirements of VCS Version 3 and all associated updates.

The GHG assertion provided by CarbonCo and validated by ESI will result in the expected GHG emissions reduction or removal of 1,538,533 tCO₂ equivalents by the project during the 10 year initial reporting period (2012 - 2021). This value is gross of the estimated 10% (212,361 tCO₂ equivalents) buffer withholding based on the non-permanence risk assessment tool and accounting for leakage (372,716 tCO₂ equivalents).

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1 INTRODUCTION

1.1 Objective

CarbonCo LLC (Project Proponent) commissioned Environmental Services, Inc. (ESI) (Validator) to conduct the validation of emissions reductions from unplanned frontier deforestation for the Valparaíso Project registered under the Verified Carbon Standard (VCS). The project category is Reducing Emissions from Deforestation and Degradation (REDD), specifically “VM0007 REDD Methodology Modules”, and framework for activities related to Avoided Unplanned Deforestation (AUDD) within project scope 14: Agriculture, Forest and other Land Use (AFOLU) Requirements for the crediting period 19 March 2011 to 18 March 2041. The validation objective of the Valparaíso Project included an assessment of compliance with the VCS Program Guide, VCS Standard, AFOLU Requirements, and the likelihood that implementation of the planned GHG project will result in the GHG emissions reductions/removal as stated by the Project proponent (ISO 14064-3:2006).

1.2 Scope and Criteria

The scope of a validation generally includes the GHG project and baseline scenarios; physical infrastructure, activities, technologies and processes of the GHG project; GHG sources, sinks and/or reservoirs; types of GHG's; and time periods covered. The geographic validation scope is defined by the project boundary, the carbon reservoir types, management activities, growth and yield models, inventory program, and contract periods. The scope of The Valparaíso Project was outlined by the Project Proponent within the Project Description and is re-defined as follows for the GHG emissions reduction/removals project:

Baseline Scenario	Continued unplanned frontier deforestation from logging, subsistence agriculture and cattle ranching.
Activities/Technologies/Processes	VM0007 Monitoring and modeling forest resources, providing alternative sustainable economic activities for local communities, agricultural training classes, improving local healthcare.
Sources/Sinks/Reservoirs	Above ground live tree and non-tree biomass. Below ground live tree and non-tree dead wood.
GHG Type	CO ₂
Time Period (start date, crediting period, etc.)	Project Start: 19 March 2011
Project Boundary	This project is located in the state of Acre, Brazil, alongside the Valparaíso River, 28,096 ha (69,397.1 acres).
GHG credits expected to be eligible for issuance as VCUs for the initial 10 year baseline crediting period	1,538,533 tCO ₂ e

1.3 Level of Assurance

The assessment was conducted to provide *reasonable assurance* that conformance against the validation criteria was within the validation scope. Based on the validation findings, a final evaluation statement reasonably assures that the project GHG representations are materially accurate. Findings were determined by assessment of the project's implementation and monitoring aspects for errors, omissions, or misrepresentations (ISO 14064-3:2006).

1.4 Summary Description of the Project

The Valparaíso Tropical Forest Conservation Project was initiated by CarbonCo LLC to protect and conserve tropical forest in the state of Acre, Brazil by providing payments for ecosystem services. Economic incentives for preservation of the tropical forest are created by payments related to the sale of carbon credits generated by the project and issued by the Verified Carbon Standard (VCS). The project is also being developed and registered under the Climate, Community, and Biodiversity Standard (CCBS) for community development and biodiversity preservation.

The Brazilian state of Acre has historically had low deforestation rates until the recent paving of two primary roads near the project area. The previously inaccessible areas of forest in the project region are quickly opening opportunities for agents of deforestation, small subsistence farmers, to reach consumer markets farther away. The small scale farmers are able to clear forests over a period of months and subsequently plant crops or convert the land to pasture. Involving local officials and community members, the project aims to lessen deforestation pressures by implementing a series of community enrichment activities. The sustainable revenue stream from carbon credit sales will support local community development, provincial government infrastructure, and project area protection. Community involvement is enhanced through employment in the project area, agricultural extension services, and assistance to communities for obtaining land tenure.

2 VALIDATION PROCESS

2.1 Method and Criteria

A project specific Validation and Sampling Plan was developed to guide the validation auditing process to ensure efficiency and effectiveness. The purpose of the Validation and Sampling Plan is to present a risk assessment for determining the nature and extent of validation procedures necessary to ensure the risk of auditing error is reduced to a reasonable level.

According to the ISO14064-3, the validation criteria are the “policy, procedure or requirement used as a reference against which evidence is compared”. Therefore, validation of the selected methodology (VM0007, v1.0) and reported project results were measured for compliance against the following criteria:

- VCS Program Guide (v3.5, 08 October 2013)
- VCS Standard (v3.4, 08 October 2013)
- VCS Program Definitions (v3.5, 08 October 2013)

- VCS Agriculture, Forestry and Other Land Use (AFOLU) Requirements (v3.4, 08 October 2013)
- VCS AFOLU Non-Permanence Risk Tool (04 October 2012, v3.2)

The validation process was derived from all items in the validation criteria stated above. Field sampling and techniques were based on the project parameters, scope, and best professional judgment of the validation team in order to meet a reasonable level of assurance. A risk-based approach was used for the field sampling effort to select key areas for review of carbon losses by direct measurement, observation, followed by ground assessment of leakage issues and review of project activities. The desktop validation component included a full review of all project documentation/calculations received from the Project Proponent, including the VCS Project Description Document.

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 methodological modules, and the Project Description (PD) document. The process of validation involved 2 formal rounds of assessment by the validation team and resulted in a PD which was in conformance with VCS Rules. Desk review included an examination of the project details, data and parameters, and quantification of GHG emission reductions and removals. Documents reviewed included data used to set the baseline, carbon rights contracts, economic analysis, maps and aerial images, biomass and carbon calculation spread sheets. Modifications to the Validation and Sampling plan were made based upon the conditions observed in order to detect the processes with highest risk of material discrepancy.

2.3 Interviews

The objective of the interview process was to solicit important information from personnel related to the project and relevant to the validation process. Onsite interviews and informal discussions were conducted with project staff, members and leaders of the local communities, and Acre state government representatives. The interviews were performed by the validation team on-site in conjunction with the adjacent Valparaíso Project across the Valparaíso River. The following is a list of the main interviewees:

Name	Information Discussed
Ilderlei Souza Rodrigues Cordeiro	This individual owns the land adjacent to Valparaíso for the Russas project and wishes to see both properties bring the best return while providing for the communities. He said he had three options: cattle farming, agriculture or INCRA settlement. None of these options gave him the returns on his investment, while also providing for a healthy forest and a healthy community. He hopes to start the land title transfer process in the next 6 months. Says the municipality supports this process. Land transfers will be based on the amount of area that they

	already have cleared, and this will be between 50 and 100 ha.
Manoel Lopes	Born on the land and wants to do something that is best for the forest and the community. The area used to be used for rubber and when that crashed, there were people who stayed behind to live off the land.
Francisca Nascimento	She is the environmental minister for Cruzeiro Do Sul and thinks the project will benefit the communities and environment. The State of Acre supports the project as well as the Municipality of CdS. They especially support the private aspect of the project because the government understands they cannot do it all. There is no law prohibiting what they are doing on the project. The Municipality is taking a more active role in the monitoring and enforcement of the local environmental laws. IMAC did the previous environmental monitoring in the area and are grateful that the private owner and the project are willing to also perform this monitoring.
Jose Delmar	He is the vice Mayor of the Municipality of CdS. They support the project because it helps both the community and the environment. They especially like the social equality. Supports the land title transfer process.
Romario Tavares	Municipal representative. Supports the project and hopes that it will succeed.
Marmude, Maria and Glaouco Dene de Carvalho	Husband, wife and son who are the project area managers collectively working for both Valparaíso and Russas projects. They were already making money in the community by hiring out their boat, but were hired by the project because they are very well known and are centrally located in the community. They are very well liked in the area. They used to do agriculture but now they only grow what they need. They are very supportive of the project. They indicated they need a health system and education in the community. They spend a lot of time explaining the project to the communities. They are finding it hard for people to understand the concept. Mostly they see primary forest being removed, but they want to help people make a living on just the land they have already deforested. If not for the project, deforestation would continue.
Cleito Santos De Olivera	This person lives in the leakage belt. He thinks the project is a good idea. It would not work where he is, but he is happy that he can participate with the educational courses. He practices agriculture. Says he does not deforest too much because it is so much work. Most deforestation is near the roads and rivers. He has taken part in some of the classes.
Fatima and Maria	These are two women who live in the project area. They heard about the project from Ilderlei. They like the idea and hope that the project will succeed. They feel that education and health are the most important benefits to the project. The women have had a chance to add their perspective to the project and they feel that their voice is being heard. Fatima will hold Ilderlei to his word. She seemed like a no nonsense person.

Community meeting: Antonia Eder Da Silva Carvalho, Maria De patima Denis De Carvalho Sara, Maria Francisca Basilo Barroso, Maria Jose Da Silva De Olivera, Benjamin Denis De Carvalho, Mauricio Nunes Ferreira, Marcelo Melo De Carvalho, Jose Nilson Souza Beterra, Antonia Gomez Maciel, Getulio Nascimento Da Silva, Francisco Sovea Silva, Raimundo Nonato Souza, Jose Maria Nascimento Da Silva, Jose Coongalves Da Silva, Genival Silva De Olivera, Francisco Dos Santos Silva, Jose Custoria Belerra Da Silva, Maria Edna Da Silva, Eliana Fernandes De Negrero, Sebastiao Braga, Gelson Do Carmo Batista, Jose Ribarmar	The community members were asked several questions relating to the reality of the project, what type of benefits they may get from the project, if they are slowing down their deforestation, if they are happy with the project, with what information they have been given, and what type of activities they take part in. It was clear that they feel the project is going to be a huge benefit to their lives and that they have had a chance to voice their opinions, that they are willing to make sacrifices in exchange for the project benefits and that they are all looking to Ilderlei for holding up his word. They are worried that the project benefits will not come in as fast as they need them to and that they really like the courses that were taught. Everyone indicated that they heard about the project from word of mouth and from Ilderlei. They all seem to understand the project. They said that they don't want to be left behind and forgotten about. They all indicated that their involvement was voluntary.
Alderlene Lima Souza	She is an owner of land in the leakage belt. She thinks the project is a great idea, but cannot participate because her land is all already deforested and is running cattle. Her husband died recently so she is not actively managing her land and has others doing it. She has her own land title and heard about the project from Ilderlei because she is a neighbor. Ilderlei made sure some of the other neighbors knew about the project.

2.4 Site Inspections

The validation site inspection followed the prepared Validation and Sampling Plan process and was conducted on 18-31 August 2013. A ground inspection of the project area was conducted during the site visit and members of the validation team visited several targeted areas within and surrounding the project area. Communities were visited along the river and adjacent to the project area to gain a sense of the risks associated with the community benefits from the project.

During the field review of the project, the following aspects of the project were assessed:

General

- Project boundaries
- Pre-project conditions, as evidenced by condition of adjacent or nearby non-project areas, by evidence of site-preparation activities, and related

- Baseline scenario and supporting assumptions and evidence
- Eligibility criteria and supporting assumptions and evidence
- Current project conditions, including reported tree species, expected current density, reported growth characteristics (diameter, or similar), reported biomass volume (above- and/or below-ground), management plan/monitoring (historical and contemporary), and related
- An evaluation of project boundaries using GPS and project proponent's KML or GPX files provided.
- An assessment of the performance of the project activities and operations through visual inspection and through interviews with the project proponent's staff.
- Re-measurement of selected 5 forest inventory sampling clusters (discussed below) which were part of the carbon stock inventory.
- ESI verified that operational, data collection procedures and monitoring methods were implemented in accordance with the SOP's as they are written.
- Assessment of the information flows for collection, collation and reporting of the baseline monitoring parameters.
- Confirmation that the quality control and quality assurance procedures are in place.
- An assessment of additionality in the project area through visual assessment and interviews with project proponents, community members and staff.
- Review of the Non Permanence Risk Report and all related elements, including interviews to confirm the evidence provided in the PRA.

Leakage

- Visit the leakage belt, specifically hot spot areas of recent deforestation and confirmation of data collection methods in conformance with the stated SOP's for leakage monitoring
- Review and observation of high risk areas for leakage
- Review of leakage area monitoring, selection of leakage areas, justification for areas selected (on site visit)
- Activities for minimizing deforestation- what is planned, what is in process, what is being implemented

Management/Community

- Meet and interview project management team
- Review dispute and resolution process- reporting
- Review benefit mechanism and funds allocation system- interview those involved
- Governance structure review and interviews with officials involved

- Interviews with community members, representatives of local administrative municipality, and other stakeholders regarding knowledge of the project, expectations and concerns (see interview list from sampling plan)
- Review Public Meeting notes and summaries
- Community training activities

During the field visit, re-measurement was performed on 5 forest inventory sampling clusters. The clusters selected were: **Cluster 102, 201, 301, 401, and 503** and include samples from each stratum and to ensure a representative cross-section of the properties was assessed.

Cluster plots were sampled in the field using the same inventory methods as submitted to the validator with the project materials. The intention was to have the field crews who conducted the inventories originally resample the clusters so the validation team could confirm Standard Operating Procedures (SOPs) were followed. The results of the cluster plot data collected by ESI were compared to the project proponent's reported carbon per hectare estimate. Reasonable assurance was determined from the examination of means for those plots re-measured.

2.5 Resolution of Findings

The process of validation involved 2 formal rounds of evaluation by the validation team and resulted in a PD which was in conformance to VCS rules. Findings related to corrective action, clarification requests or other findings were resolved during communication between the validation team and the project proponent. More specifically, where noted by the validation team, project proponents implemented corrective actions by amending and providing written clarification responses. Types of findings were characterized in the following manner:

Non-Conformance Reports (NCRs) were issued as a response to material discrepancies in a part of the PD/calculations and generally fell into one of the following categories:

- Non-conformance to VCS guiding documents listed in Section 2.1
- Internal consistency among sections was lacking
- Mathematical formulae in sections were incorrect
- Additional information was required by the validation team in order to confirm reasonable assurance for compliance

Clarifications (CL) were issued when language within a section 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 course of the validation, 112 NCRs and CLs were identified. All NCRs/CLs were satisfactorily addressed. The NCRs/CLs provided necessary clarity to ensure the project was in compliance with the requirements of the VCS for GHG projects and the selected

methodology. Detailed summaries of each finding, including the issue raised, responses and final conclusions are provided in Appendix B.

2.6 Forward Action Requests

No forward action requests were raised during the validation process.

3 VALIDATION FINDINGS

3.1 Project Details

The goal of the Valparaíso Project is to help protect and conserve tropical forest from deforestation by providing payments for ecosystem services. It is appropriately eligible under; Project Scope 14 for “Agriculture, Forestry, and other Land Use” (AFOLU), the project category “Reduction Emission from Deforestation and Degradation” (REDD) and activity type “Avoided Unplanned Deforestation and Degradation” (AUDD). Payments associated with emissions removal/reduction credits are properly used for project activities intended to reduce deforestation in and around the project area. The Valparaíso project is developed and registered under the Verified Carbon Standard (VCS) and Climate, Community and Biodiversity Standard (CCBS).

Three project proponents are involved in the Valparaíso Project including CarbonCo, LLC (“CarbonCo”), Freitas International Group, LLC (“Carbon Securities”), and Manoel Batista Lopes, ME. CarbonCo, the wholly-owned subsidiary of Carbonfund.org, is responsible for project finance and managing project development. Carbon Securities is a liaison between CarbonCo and Manoel Batista Lopes, ME and provides logistical support during site visits. Manoel Batista Lopes, ME is the land owner and sole proprietor of the Acre based organization which is primarily responsible for project activity implementation. Based upon professional judgement, it is reasonable to assume that the project proponents are capable and collaborate effectively to conduct the project activities and oversee project activity implementation.

The Valparaíso Project commencement of the REDD project crediting period began on March 19, 2011 and will run through March 18, 2041. The project crediting period length is in compliance with VCS rules which specify temporal boundaries for REDD projects between 20 and 100 years. Project scale is appropriately selected as “Project” at estimated average annual emissions reductions of 153,853 tCO₂e per year per VCS Standard Section 3.9.1. The project location of avoided deforestation is in Acre, Brazil and is appropriately forested at project start date and 10 years prior per VCS Rules. Conditions prior to project start date are well described in the PD including climate, vegetation, soils, rivers, local history, and local communities’ description.

The project description for Valparaíso is appropriately accompanied by documentary evidence establishing rights of use per the VCS Standard Section 3.11.1 and VCS Program Definitions. The validation team confirmed that all project proponents have maintained compliance with relevant laws, statutes, and regulatory frameworks. The Valparaíso Project was confirmed to abide by the Brazilian constitution, specifically the Brazil Forest Code Law No. 4771, dated September 15, 1965 and the latest revision under Law No. 12.651 dated May 25, 2012. At the Acre State level, the project abides by Acre Forestry Law No. 1.426 dated December 27, 2001

and the State System of Incentive for Environmental Services Law No. 2.308 dated October 22, 2010. Brazilian labor laws were confirmed to have been appropriately met.

The certification of full rights document was provided by project proponents and correctly identifies Manoel Batista Lopes, ME as the owner of the property per VCS Standard Section 3.11.1. The property boundary has been properly georeferenced and provided to the validation team. The validation team confirmed that no other emissions trading programs, GHG programs, or environmental credits are applicable for the Valparaíso project per VCS Standard Sections 3.11.3 - 3.11.9. Leakage management is appropriately handled in conformance with the VCS LK-ASU module to account for activity shifting leakage as a result of local and immigrant deforestation agents.

The validation team concludes that the description of the Valparaíso Project within Section 1 of the PD is accurate, complete and describes the true nature of the project.

3.2 Application of Methodology

3.2.1 Title and Reference

The Valparaíso project was properly developed under the VCS REDD Methodology, entitled, "VM0007: REDD Methodology Modules (REDD-MF)". The methodology applied, and associated tools were valid at the time of validation per VCS Rules. Modules applicable to the Valparaíso Project and properly invoked are listed below.

BL-UP, "VMD0007 Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation," Version 3.2

CP-AB, "VMD0001 Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools," Version 1.0

CP-D, "VMD0002 Estimation of carbon stocks in the dead-wood pool," Version 1.0

E-BB, "VMD0013, Estimation of greenhouse gas emissions from biomass burning," Version 1.0

LK-ASU, "VMD0010 Estimation of emissions from activity shifting for avoided unplanned deforestation," Version 1.0

M-MON, "VMD0015 Methods for monitoring of greenhouse gas emissions and removals," Version 2.1

REDD-MF, "REDD Methodology Module: REDD Methodology Framework," Version 1.4

T-ADD, "VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities," Version 3.0

T-BAR, "Tool for AFOLU non-permanence risk analysis and buffer determination," Version 3.2

T-SIG, CDM tool "Tool for testing significance of GHG emissions in A/R CDM project activities," Version 1.0

X –STR, "VMD0016 Methods for stratification of the project area," Version 1.0

X-UNC, "VMD0017 Estimation of uncertainty for REDD project activities," Version 2.0

3.2.2 Applicability

Compliance under the modular applied methodology was evaluated for each applicability condition and the steps taken to assess are provided below.

Table. Applicability condition compliance

Applicability Conditions	Validation Team Findings/Compliance Evaluation
REDD-MF, REDD Methodology Framework Version 1.4	
Land in the project area has been qualified as forest at least 10 years before the project start date.	The project area was confirmed forest cover in the 10 years prior to project start date using a spatial dataset provided by project proponents to the validation team.
The project area can include forested wetlands (such as bottomland forests, floodplain forests, mangrove forests) as long as they do not grow on peat. Peat shall be defined as organic soils with at least 65% organic matter and a minimum thickness of 50 cm ³ . If the project area includes a forested wetlands growing on peat (e.g. peat swamp forests), this methodology is not applicable.	Project proponents established using regional soil surveys that no organic or peatland type soils exist in the project area. Validation team found that some areas in the project area may satisfy the definition of wetlands as defined by VCS Program Definitions v3.5. However, the soil organic carbon (SOC) pool was conservatively excluded and therefore the project is not subject to AFOLU WRC requirements.
Project proponents must be able to show control over the project area and ownership of carbon rights for the project area at the time of validation.	Validation team concluded that project proponents adequately demonstrate control over the project area per VCS Standard Section 3.11.1. The certification of full rights document was provided by the project proponents and correctly identifies Manoel Batista Lopes, ME as the owner of the property. The Tri-Party agreement between Manoel Batista Lopes, ME to CarbonCo and Carbon Securities is a legally binding contract within the United States and documents the transfer of a portion of the carbon rights.
Baseline deforestation and baseline forest degradation in the project area fall within one or more of the following categories: Unplanned deforestation (VCS category AUDD); Planned deforestation (VCS category APD); Degradation through extraction of wood for fuel (fuelwood and charcoal production) (VCS category AUDD).	Project proponents asserted that the small scale farmers without legal rights are the baseline agents of deforestation and clear the land for settlements, ranching and cropland. These agents of deforestation are from nearby communities and in some cases immigrants looking for land to convert for agricultural uses. After the field visit, validation team concluded that project proponents have sufficiently demonstrated the baseline deforestation and forest degradation agents fall within the unplanned category.
Baselines shall be renewed every 10 years from the project start date.	Validation team confirms that project proponents will renew the baseline in March 2021.
All land areas registered under the CDM or under any other carbon trading scheme (both voluntary and	The validation team confirmed that no other emissions trading programs, GHG programs, or environmental credits are applicable for the Valparaíso project per VCS

compliance-orientated) must be transparently reported and excluded from the project area. The exclusion of land in the project area from any other carbon trading scheme shall be monitored over time and reported in the monitoring reports.	Standard Sections 3.11.3 - 3.11.9.
If land is not being converted to an alternative use but will be allowed to naturally regrow (i.e. temporarily unstocked), this framework shall not be used.	The validation team confirms the project proponent's assertion that forest clearing in the baseline is followed by agricultural uses, thus preventing forest regrowth.
Leakage avoidance activities shall not include: Agricultural lands that are flooded to increase production (e.g. paddy rice); Intensifying livestock production through use of "feed-lots" and/or manure lagoons.	The validation team confirms the project proponent's assertion that leakage avoidance activities do not include flooding agricultural land, creating feed-lots, or manure lagoons.
BL-UP, "VMD0007 Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation," Version 3.2	
Baseline agents of deforestation shall: (i) clear the land for settlements, crop production (agriculturalist) or ranching, where such clearing for crop production or ranching does not amount to large scale industrial agriculture activities; (ii) have no documented and uncontested legal right to deforest the land for these purposes; and (iii) are either resident in the reference region or immigrants. Under any other condition this framework shall not be used.	Project proponents asserted that the small scale farmers without legal rights are the baseline agents of deforestation and clear the land for settlements, ranching and cropland. These agents of deforestation are from nearby communities and in some cases immigrants looking for land to convert for agricultural uses. Through our site visits and interviews with the agents and local government officials the validation team concludes that project proponents have sufficiently demonstrated that this applicability is met.
Where, pre-project, unsustainable fuelwood collection is occurring within the project boundaries modules BL-DFW and LK-DFW shall be used to determine potential leakage.	Project proponents have asserted that fuelwood collection that does occur is sustainable. Evidence provided by project proponents indicates that average fuelwood collected is less than the annual growth in above-ground biomass. The validation team confirmed this assertion is reasonable from the PRA survey conducted March 30 – April 1, 2013 and from communication with local forester Igor Agapejev de Andrade.
M-MON, "VMD0015 Methods for monitoring of greenhouse gas emissions and removals," Version 2.1	
Emissions from logging may be omitted if it can be demonstrated the emissions are de minimis using T-SIG.	Since no commercial harvest occurs in the baseline or project case no logging emissions are emitted and this tool is not applicable.
If emissions from logging are not omitted as de minimis, logging may only take place within forest	Not applicable

management areas that possess and maintain a Forest Stewardship Council (FSC) certificate for the years when the selective logging occurs.	
Logging operations may only conduct selective logging that maintains a land cover that meets the definition of forest within the project boundary.	Not applicable
All trees cut for timber extraction during logging operations must have a DBH greater than 30 cm.	Not applicable
During logging operations, only the bole/log of the felled tree may be removed. The top/crown of the tree must remain within the forested area.	Not applicable
The logging practices cannot include the piling and/or burning of logging slash	Not applicable

The validation team found that the Valparaíso Project appropriately selected and applied tools and modules for the Avoided Deforestation VCS REDD Methodology. The eligible activity “Avoided Unplanned Deforestation and Degradation” (AUDD) was selected because forestland in the baseline is expected to be converted to non-forest without legal permission. Modules and tools were assessed individually for project compliance and all criteria evaluated systematically in a checklist format.

Table. Methodology module and tool appropriateness

Module/Tool	Validation Team Findings
BL-UP, “VMD0007 Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation”	Validation team concludes that this mandatory module is appropriate because it allows for estimates of carbon stock changes and GHG emissions for all projects in the unplanned deforestation category.
CP-AB, “VMD0001 Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools”	Validation team concludes that this mandatory module was appropriately selected because it estimates ex-ante and ex-post carbon stock change in above- and belowground tree and non-tree woody biomass for baseline and project cases.
CP-D, “VMD0002 Estimation of carbon stocks in the dead-wood pool”	Validation team concludes that this module was appropriately selected because it estimates dead wood carbon stocks in baseline and project cases. Since the carbon pool is greater in the baseline than the project scenario, this module is mandatory.
E-BB, “VMD0013, Estimation of greenhouse gas emissions from	Validation team concludes that this module was appropriately selected because it estimates GHG emissions from biomass burning. For this project, CH4

biomass burning”	and N2O emissions are conservatively excluded in the baseline, but are included in the with-project case where fires occur.
LK-ASU, “VMD0010 Estimation of emissions from activity shifting for avoided unplanned deforestation”	Validation team concludes that this mandatory module was appropriately selected for estimating emissions related to displacement of unplanned deforestation.
M-MON, “VMD0015 Methods for monitoring of greenhouse gas emissions and removals”	Validation team concludes that this mandatory module was appropriately selected because it provides methods for monitoring ex post emissions as a result of project implementation.
REDD-MF, “REDD Methodology Module: REDD Methodology Framework”	Validation team concludes that this mandatory module was appropriately selected because it provides the generic functionality of a modular REDD methodology.
T-ADD, “VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities”	Validation team concludes that this mandatory tool was appropriately selected because it accounts for additionality in VCS AFOLU projects.
T-BAR, “Tool for AFOLU non-permanence risk analysis and buffer determination”	Validation team concludes that this mandatory tool was appropriately selected because it allows for a buffer withholding based on project overall risk classification.
T-SIG, CDM tool “Tool for testing significance of GHG emissions in A/R CDM project activities”	This tool is invoked from M-MON where emissions from logging are omitted if demonstrated as de minimis. Since no commercial harvest occurs in the baseline or project case no logging emissions are emitted and this tool is not applicable.
X –STR, “VMD0016 Methods for stratification of the project area”	Validation team concludes that this mandatory module was appropriately selected to improve accuracy and precision estimates of carbon stocks by stratifying the project area.
X-UNC, “VMD0017 Estimation of uncertainty for REDD project activities”	Validation team concludes that this mandatory module was appropriately selected to estimate uncertainty in the estimation of emissions for REDD project activities.

3.2.3 Project Boundary

The VCS Standard requires that projects describe the project boundary and identify and select appropriate carbon pools; i.e. sources, sinks, and reservoirs relevant to the baseline. Procedures to quantify emissions are included for each of these pools and sources by demonstrating significance in using the appropriate VCS modules and tools. The project addresses the establishment of spatial, temporal, and gaseous boundaries to meet VCS AFOLU Requirements

for the REDD project category under the AUDD project scenario. The validation team found that mandatory and optional pools in this project are appropriate for unplanned conversion of forest.

The spatial boundaries for the Valparaiso Project were assessed for conformance to VCS rules and found to be sufficiently detailed, appropriate, and adequate as well as in compliance with the REDD-MF Methodological Module. Similarly, temporal boundaries were reviewed within the context of VCS rules and found to be detailed and correct.

During the validation process, it was discovered that there is disagreement in the temporal definition between the spatially modelled historical reference period as defined in module BL-UP and module REDD-MF. BL-UP allowed for an additional 3 years to be added to the historical reference period for an improved, spatially explicit deforestation risk model. As a result of email communications with VCS, project proponents adjusted the historical reference period to be in compliance with module REDD-MF which resulted in a historical reference period of 12 year length prior to project start date.

Significant pools, sinks, and reservoirs accounted for are in compliance with AFOLU Requirements section 4.3 and are appropriately justified for the project. The following tables present a brief review of all considered carbon pools, and the validation assessment findings:

Source	Gas	Project Justification	Validation Findings
Biomass burning	CO ₂	CO ₂ is a major source that is already considered for carbon stock changes and is therefore not included. CH ₄ and N ₂ O emissions are conservatively excluded in the baseline, they are included in the with-project case where fires occur.	AFOLU Requirements section 4.3.3.2 allows for REDD project emissions due to burning of herbaceous vegetation and section 4.3.5 allows for distinguishing CH ₄ and N ₂ O emissions due to biomass burning. CO ₂ source is appropriately excluded because it has already been accounted for.
	CH ₄		
	N ₂ O		
Fossil Fuel Combustion	CO ₂	Emissions from fossil fuel combustion in the baseline and project case are minimal and therefore not included for all gases. As per methodology module E-FCC "Fossil fuel combustion in all situations is an optional emission source."	Validation team concludes that fossil fuel combustion is minimal in all scenarios as this is an AUDD project and per AFOLU Requirements section 4.3.3.3.
	CH ₄		

	N ₂ O		
Use of fertilizers	CO ₂	All gases are not included. No increase in fertilizer use is contemplated in the project case as part of leakage mitigation or any other activity	This is consistent with AFOLU Requirements section 4.3.3 where fertilizer use is not included as part of any anticipated project activities.
	CH ₄		
	N ₂ O		

Pool	Included	Project Justification	Validation Findings
Above-ground	Yes	Mandatory to include. Tree biomass only is included, which is the most significant pool. Non-tree woody biomass (e.g. shrubs) is less in the baseline (pasture and cropland) than the project case (forest) and is conservatively excluded.	Validation team concludes this is consistent with Table 2 of AFOLU Requirements section 4.3.1. This pool is appropriately required because of the likelihood of residual biomass cleared by agents of deforestation. The module CP-AB "VMD0001 Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools" was appropriately selected to account for above-ground biomass.
Below-ground	Yes	Included and treated together with above-ground biomass for completeness to include whole tree (above-ground and below-ground) biomass.	Validation team concludes this is consistent with Table 2 of AFOLU Requirements section 4.3.1. This pool is appropriately required when decay from below-ground biomass is considered. The module CP-AB "VMD0001 Estimation of carbon stocks in the above- and belowground biomass in live tree and non-

			tree pools” was appropriately selected to account for below-ground biomass.
Dead wood	Yes	This pool was included as it can represent a significant component of forest biomass.	Validation team concludes this is consistent with Table 2 of AFOLU Requirements section 4.3.1. This pool is appropriately required as project proponents have demonstrated that dead wood is collected by local communities per Applicability Conditions in Module BL-UP. The module CP-D “VMD0002 Estimation of carbon stocks in the dead-wood pool” was appropriately selected to account for dead wood.
Harvested Wood Products	No	Excluded as no commercial harvesting for wood products takes place in the baseline (as part of the forest conversion process) or with project scenarios.	Validation team agrees with project proponents that this pool is to be excluded because no commercial harvesting will occur under baseline or project scenarios per AFOLU Requirements Section 4.3.
Litter	No	Conservatively omitted, as allowed by methodology.	Validation team accepts that this pool is to be excluded per AFOLU Requirements Section 4.3.
Soil Organic Carbon	No	Conservatively omitted, as allowed by methodology.	Validation team agrees with project proponents that this pool is to be excluded per AFOLU Requirements Section 4.3.

3.2.4 Baseline Scenario

The procedures for determination of the baseline scenario in the Valparaíso Project were applied using the VCS T-ADD tool, “VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities”. Project proponents properly selected applicable sub-steps 1a and 1b, “Identify credible alternative land use scenarios to the proposed VCS AFOLU project activity” and “Consistency of credible land use scenarios

with enforced mandatory applicable laws and regulations”, respectively. Other sub-steps contained within the T-ADD tool deemed not applicable by project proponents and confirmed by the validation team. Project proponents correctly identified two alternative land use scenarios from the outcome of sub-step 1a:

1. Continuation of pre-project land use with unabated threat of illegal deforestation.
2. Project activities on the land within the project boundary performed without being registered as a VCS AFOLU project.

The assumption by project proponents that deforestation will continue unabated in the project area is substantiated by evidence of local land use change patterns. Deforestation pressures from small scale farmers in the immediate project vicinity strengthen the likelihood of conversion of tropical forest to pasture in the baseline scenario. Furthermore, deforestation cannot be prevented by local government due to insufficient enforcement as evidenced by a letter from the President of the Acre [State] Lawyers Association to project proponents.

Project proponents also correctly establish the outcome of sub-step 1b as the two land use scenarios are in compliance with applicable laws and regulatory requirements. The systematic noncompliance among private property laws in Acre state is represented above in sub-step 1a #1.

Overall, the procedures for identifying the baseline scenario have been correctly followed and the identified scenario is reasonable. The validation team concludes that procedures for determining the baseline are appropriate, adequate, and in compliance with VCS rules and AFOLU Requirements for REDD project activities applicable to this project.

3.2.5 *Additionality*

The procedures for determination of additionality in the Valparaiso Project were applied using the VCS T-ADD tool, “VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities”. Project proponents performed Simple Cost and Common Practices analyses for demonstration of no financial benefit and credibility check, respectively. The validation team confirmed that no other revenues are produced for this VCS AFOLU project and therefore the simple cost analysis was appropriately selected. Due to the lack of financial benefits other than the VCS related income, project proponents correctly proceeded to perform a common practice analysis.

The common practice analysis indicated that social programs are largely unavailable to individuals in the project area and insufficient to prevent small scale farmers from deforestation. Project proponents provided additional detail to the validation team to demonstrate that there is currently a lack of programs similar to those offered by the project. The evidence provided by project proponents and accurate application of the VCS T-ADD tool is deemed sufficient by the validation team for the project to be additional.

3.2.6 Quantification of GHG Emission Reductions and Removals

Procedures for quantifying the baseline emissions from unplanned deforestation were conducted in accordance with the BL-UP module using the simple historic approach. The validation team performed an intensive quantification review of all input data, parameters, formulas, calculations, conversions, statistics and resulting uncertainties and output data to ensure consistency with the VCS documentation, methodology modules, and the PD. Further, the validation team reproduced calculations for selected samples to ensure accuracy of the results. Conversion factors, formulas, and calculations were provided by project proponents in spreadsheet format to ensure all formulas were accessible for review. Members of the validation team recalculated subsets of the analysis to confirm correctness. Project proponents also provided a step-by-step overview of select calculations to ensure the validation team understood the approach and could confirm its consistency with the methodologies and PD. Where applicable, references for analysis methods or default values were checked against relevant scientific literature for best practice.

Representative sampling

A finding identified by the validation team was the discovery that inventory sample points were taken outside the population of interest or project area boundary. Project proponents performed the field inventory sampling for the Valparaíso project in conjunction with an abutting project area to the east known as Russas because the original intention was a single unified project. The Russas Project is undergoing a separate validation, verification and crediting process by CarbonCo.

When the combined project areas are viewed as a single population of interest, the traditional assumptions of inventory sample design hold true such as stratification and plot distribution. For the Valparaíso Project, stratification occurred based on a vegetation map provided by the Brazilian state of Acre. As such, sample plots were distributed across stratum based on variability of vegetation and area of the strata. The comprehensive validation team review ensured that although the inventory did not capture the population of interest as determined by the original combined sample design, the inventory sample plots are indeed reasonably representative. This review was performed on a subset of inventory data to prove that the sample plots are in large part distributed according to a stratified random pattern and uncertainty in carbon stock estimates was addressed through sample plot distribution across all strata.

Project proponents further elaborated on this issue during the validation process and offered additional reasons for why stratification occurred at the Acre state vegetation level instead of the project area. The forest inventory was initiated prior to confirmation of project boundaries and was performed according to biomass stocks of forest strata exclusive to the project area. Project proponents highlighted the need to representatively sample all strata contained in the project area and that monitoring plots will be located exclusively within the project area. Further, monitoring plots will be randomly allocated to representatively sample the original strata and are anticipated to be similar to the original inventory because of a slightly smaller sample population.

The methodology does not specifically address this element of sample design and therefore it is not considered a deviation. Further, a review of VCS rules by the validation team revealed there

is nothing in VCS rules that explicitly prevent the sampling procedures as undertaken by project proponents for the Valparaíso Project. For these reasons, conservativeness of the inventory approach is addressed through the overall validation review. The validation team concludes that review of all inventory data, inventory sampling procedures, and analysis methods indicates that the sampling approach is reasonably conservative and acceptable.

Baseline emissions

The Valparaíso Project has appropriately included baseline emissions calculations in the PD per the VCS Standard Section 3.18.2. Data and parameters selected for spatial and temporal boundaries were found to be properly selected and calculated accurately from verifiable sources. The validation team checked all processes for estimation of the annual areas of unplanned deforestation and confirmed the accuracy of remote sensing analysis. Spatial modeling related to location and quantification of threats of unplanned deforestation was checked for accuracy and development of risk maps was confirmed correct. Individual calculations for project area stratification applied using module X-STR to improve carbon stock estimates was checked and confirmed accurate.

An error was discovered in methodology guidance between modules BL-UP and CP-AB, where BL-UP module states "Each forest stratum will be represented by a carbon stock estimated within 2 years before the project start date, for simplicity referred to here as stocks at $t=0$ (see CP-AB) and the CP-AB module states "Measurements of initial stocks employed in the baseline must take place within ± 5 years of the project start date, for simplicity referred to here as stocks at $t=0$." VCS guidance on the matter (through email date 19 February 2014) allowed for the validation team to make a professional judgement call because it is an error in the methodology and the intention was ± 5 years of the project start date as stated in CP-AB. As the Valparaíso Project inventory was performed in 2013, each forest stratum was not represented by a carbon stock estimated within 2 years before the project start date. In conclusion, the validation team has decided to allow the project proponent to use inventory data from 2013 as this is in agreement with the requirement for module CP-AB.

During validation, project proponents switched methods for estimating post-deforestation carbon stocks (Cpost) to the first option which allows for a simple approach using the highest long-term carbon stock value. This change occurred because project proponents recognized that the "likely post-deforestation land uses" include agriculture and pasture, not secondary forest as agricultural land is seldom left fallow for regrowth to occur. The revised estimates for Cpost using the simple approach were reviewed by the validation team and deemed acceptable and calculations correct. It seems reasonable that local farmers would limit fallow periods and therefore limit post-deforestation land use to only pasture and agriculture. Biomass values are confirmed from a reputable source Salimon et al¹.

Project emissions

¹ Salimon et al. 2011. Estimating state-wide biomass carbon stocks for a REDD plan in Acre, Brazil. *Forest Ecology and Management* 262: 555-560.

The Valparaiso Project has appropriately included project emissions calculations in the PD per the VCS Standard Section 3.18.2. The ex-ante project emissions were confirmed for adherence to module M-MON and checked as accurate. A conservative projection of project effectiveness was appropriately selected at 80%. Data and parameters for calculating ex-ante emissions under the project scenario and with project case were individually confirmed to be correct for project area and leakage belt boundaries.

Leakage

Leakage emissions from unplanned deforestation displacement were appropriately determined from the module LK-ASU. Parameters and values used to calculate the annual ex-ante GHG emissions in the leakage were individually checked for correctness and found to be accurate. The validation team found that the leakage factor used to estimate displacement from the project area to the leakage belt was reasonable.

Net GHG emissions reductions or removals

Overall net GHG emissions reductions or removals were carefully scrutinized for correctness according to module REDD-MF step 4. The estimate of GHG credits eligible for issuance as VCUs accounted for the proper parameters and resulted in a correct estimate of total emissions reductions.

Uncertainty

Uncertainty associated with the calculations of emissions was evaluated appropriately using the X-UNC module under VCS methodology VM0007. Parameters factored into uncertainty calculations were assessed and the final buffer allocation was found to be correctly set at 9.7%. For example, the parameter for uncertainty in the baseline rate is set at zero because the long term average baseline rate of deforestation is utilized according to module BL-UP.

The project description contained sufficient information for the validation team to assess the accuracy of quantified GHG emission reductions and removals. Relevant assumptions made by project proponents are listed and include the appropriate references and sources. The validation team deemed data and parameters to be reasonable within the context of the project (see below). As part of the validation process, the validation team was able to successfully reproduce all GHG emission calculations and conclude that information supplied in the project description is sufficiently transparent.

Data and Parameters available at validation:

Data Unit / Parameter	Validation Findings
$\Delta C_{BSL,PA,unplanned}$	This data/parameter was appropriately included because it pertains to net CO ₂ emissions in the baseline from unplanned deforestation in the project area. This value is relevant at the time of validation because it sets baseline carbon stock changes at the start of the baseline period.

$\Delta C_{BSL,LK,unplanned}$	This data/parameter was appropriately included because it pertains to net CO ₂ emissions in the baseline from unplanned deforestation in the leakage belt. This value is relevant at the time of validation because it sets baseline carbon stock changes at the start of the baseline period.
CF	This data/parameter was appropriately included because it pertains to the carbon fraction of biomass. This default value was appropriately chosen per 2006 IPCC guidelines.
C_{OLB}	This data/parameter was appropriately included because it pertains to the area-weighted average aboveground tree carbon stock for forests available for unplanned deforestation outside the Leakage Belt. This default value was appropriately chosen from the Amazonia 2010 FRA. This parameter represents a methodology deviation described in the appropriate section of this report.
$f_j(X,Y)$	This data/parameter was appropriately included because it pertains to the allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees. The Brown 1997 equation was properly chosen from the validated methodology for the calculation of baseline and project emissions.
Root Biomass Density	This data/parameter was appropriately included because it pertains to the allometric equation for predicting root biomass density as a function of aboveground biomass density. The choice of the Cairns et al. 1997 equation was considered adequate by the validation team as it is a widely referenced method and suitable for the calculation of baseline and project emissions.

During the course of the validation assessment it was discovered that in formulating the boundary for the reference region of deforestation (RRD), project proponents failed to meet the criteria for transportation factors pursuant to BL-UP section 1.1.1.1 part c. Specifically the boundary comparisons for roads and navigable river density were not within ($\pm 20\%$) for the RRD. Further, 1km buffers were not accounted for in the road density and settlement density transportation factor requirement.

In order to meet the road density requirement, project proponents utilized an expected future highway to be developed which would cross the project area and leakage belt. Project proponents stated "Knowledge of expected future roads are based on a conversation Ilderlei Souza Rodrigues Cordeiro had with the Department of Transportation on the location of a proposed road linking Cruzeiro do Sul to Porto Walther. While the location of the road is not known, it will almost definitely cross the project area and leakage belt should the road be built east of the Jurua River."

The methodology stated "roads that exist historically in the RRD must be directly comparable to those that are expected to exist within the project area during the project term" and this interpreted by project proponents to allow the comparing of roads expected in the future within the project area and leakage belt. This assertion was agreed to by the validation team after communication with VCS for confirmation of the intent of the methodology. Further, without including expected roads in the determination of the RRD boundary, it would be impossible to meet the road density requirement of ($\pm 20\%$) for the RRD at the start of the historical reference period as for the project area and leakage belt.

In order to meet the transportation factors required by BL-UP section 1.1.1.1, project proponents during Round 2 of the validation assessment adjusted the project area, leakage belt and RRD boundaries. This resulted in an enlargement of the project area and leakage belt, subsequently the adjusted boundaries and all factor comparisons were re-reviewed for compliance to the methodology. Project proponents added a parcel to the east of the previous project area which underwent the same inventory procedures. Spatial modeling for projection the location of deforestation in the reference region (RRL) was not affected by the boundary revisions. The validation team strategically closely re-reviewed all components of the project affected by the boundary revisions including, but not limited to; spatial files, deforestation in the project area/leakage belt/RRD and stratification. All adjusted carbon accounting, emissions, baseline carbon stocks, project scenario carbon stocks, re-calculated parameters and net GHG emission reductions and removals were also evaluated and computations found to be correct. Where deemed necessary (i.e. spatial boundaries), calculations were duplicated to ensure a correct result.

In summary, project proponents correctly calculated all GHG emissions reductions and removals for baseline emissions, project emissions, leakage and net GHG emission reductions and removals.

3.2.7 Methodology Deviations

Project proponents applied methodology deviations and were assessed by the validation team as follows:

Deviation	Validation findings
Trees in the Cecropia genus will not be included as part of the forest inventory per CP-AB requirement that "all the trees above some minimum DBH in the sample plots" be measured.	Validation team confirmed that Cecropia genus was conservatively omitted from analysis and this is permitted per VCS Standard Section 3.5.1 which states that deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan. Cecropia sp. generally does not grow in a consistent tree form to allow conventional volume estimates using allometric methods. Most species, within the genus, contain hollow portions within the stems making volume measurement difficult.

	Further, there are relatively few <i>Cecropia</i> sp. across the project area. The omission of <i>Cecropia</i> is conservative and does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals.
While sampling lying dead wood using the line intersect method: - Two 92-meter transect lines were used rather than two 50-meter transect lines; - The sampling lines did not bisect each sample plot, but rather ran from one plot center to the next; and - The sampling lines were oriented to the north and east, and no randomization in the bearing of the first line was employed	Validation team confirmed that project proponents measured lying deadwood using two 92-meter transects and all dead wood greater than or equal to 10cm diameter was measured at the point of intersection. This measurement method differs from the requirements on module CP-D where Step 1 of Part 2: Lying Dead Wood states "Two 50-meter lines (164 ft) are established bisecting each sample plot and the diameters of the lying dead wood (≥ 10 cm diameter ≥ 3.9 inches+) intersecting the lines are measured. The first line is oriented along a random bearing, the second line is oriented perpendicular to the first." The PP established two 92-meter transect lines, greater in length, to capture a larger and more representative sample of lying dead wood. These sample lines were permitted not to intersect a given sample plot center, but instead run from one plot to another. This method still ensures a random, but systematic sample of lying dead wood along a transect. The PP followed the same minimum diameter rule as the requirement, where lying dead wood greater than or equal to 10cm which fell on the transect line was sampled. The first sample line was not at a randomized bearing but rather the two sample lines were oriented at the north and east. The validator believes that consistent line bearings among sample lines is still in line with good forest sampling practice as no sampling bias is introduced. Field going personnel of varying forest measurement experience are better able to replicate sample line measurements which are consistent in bearing. Further, the bearing of sample lines follows the perpendicular rule stated in CP-D. These deviations from the criteria and

	procedures related to measurement are appropriate given the good forest measurement practices employed, consistency in sampling practices, and conservativeness in larger sample sizes of lying dead wood. Further, the deviations are permissible per VCS Standard Section 3.5.1 given that the issue is a monitoring/measurement deviation and its application does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals.
Instead of using a root to shoot ratio to estimate belowground biomass as per the CP-AB module, belowground biomass was estimated using an allometric equation developed by Cairns et al.	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using the Cairns² approach is a conservative allometric method to estimate belowground biomass. The Cairns et al. 1997 equation predicts root biomass density as a function of the aboveground biomass density and it was chosen to replace the root to shoot parameter R. The Cairns et al. 1997 equation was confirmed by the validation team to be a widely referenced method during a related literature search. The project proponent (PP) demonstrated the conservativeness of the root to shoot parameter (R) substitution in a separate analysis where the default root to shoot ratios were compared to the Cairns root to shoot ratio. The Cairns et al. method employs an average root to shoot ratio of 0.2286 versus the value of 0.24 (Table 4.4 IPCC GL AFOLU Tropical Forest >125 t.ha⁻¹). This alternative method for determining below ground biomass is acceptable as it is more conservative and accurate. Further, this method for determining below-ground biomass is a parameter available at validation and therefore a justifiable deviation.
The forest inventory has deviated from the criteria for selection (i.e., the equation is based on a datasets comprising at least 30 trees, with	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a paraboloid is a

² Cairns, M. A., S. Brown, E. H. Helmer, and G. A. Baumgardner. 1997. Root biomass allocation in the world's upland forests. *Oecologia* 111, 1-11.

an r^2 that is ≥ 0.8) and validation of the allometric equation related to palm biomass, however the equation used is likely to result in a conservative estimate of palm biomass for the following reasons: • Volume is calculated as the volume a paraboloid rather than the volume of a cylinder; • Only stem biomass is estimated, thus conservatively excluding other aboveground biomass; and • A conservative measure of basal diameter (i.e., dbh) was used.	conservative alternative to applying a traditional allometric to represent palm trees. Further, this method for determining above-ground biomass is a parameter available at validation and therefore a justifiable deviation.
Dead wood collected for density determination was opportunistically sampled from within the project area. The forest inventory collected a total of 13,17,13 samples for the sound, intermediate, and rotten classes, respectively. While the minimum number of samples, twenty, as stated in the CP-D module of the methodology was not collected for each class, the sample was still sufficient for a robust estimate of the mean as indicated by the low coefficient of variations for each of the classes (i.e., less than 20% for each class).	The validation team initially found that the number of samples does not equal the minimum number of samples required for the determination of densities required by the methodology. This deviation was inserted by project proponents to address the monitoring/measurement of the dead wood densities. The project proponent (PP) has chosen to employ the method of project-specific determination of dead wood density rather than a source of data from the literature for parameter <i>DDWdc</i>. Communication with the project proponent confirmed the nature of the dead wood density “opportunistic samples”. The samples were not collected from forest inventory plot locations but rather throughout the project area and were representative of the relative species composition and abundance as observed in the project area. Through assurances from the project proponent, the scale and representation of the samples is the representative of the forest strata and species composition determined from the inventory. Samples were collected to the widest extent possible given the difficulty in identifying the species of lying dead wood. Further, the samples were collected independently of the forest inventory plots due to the inherent challenge of storage and

	transport to the laboratory for analysis. Additionally, the conservative nature of the results from the field samples was supported by a demonstration where the PP compared wood density values of the field samples and literature derived wood density values that illustrated the sampled values are conservatively lower. CP-D states that mean value and 90% confidence interval are to be computed for each density class and “If the 90% confidence interval is equal to or less than 10% of the mean, the mean density value is applied in project calculations.” The PP provided a demonstration that the mean dead wood density value can be applied at the 90% confidence interval and validators duplicated this analysis and achieved the same result. Despite the minimum number of samples, a meaningful statistical inference can still be made. At the 90% confidence interval, mean density values of 7%, 5%, and 8% were achieved for rotten, intermediate, and sound respectively. Furthermore, an examination of the coefficient of variations and other relevant statistics justify the homogeneity of the samples collected. Validation team concludes this deviation is acceptable per VCS Standard Section 3.5.1 as it is a parameter available at validation and does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals.
The similarities of the project boundaries were assessed using population density rather than settlement density.	Settlement location data within Acre state is insufficient and therefore population density was used as a surrogate for settlement density to assess similarities in the project boundaries. The validation team interprets the intent of settlement density to capture the relative density of residents within the project boundaries. During the validation process, the PP stated that the Acre state level settlement density data is out-of-date (last updated 2006) and/or insufficient within the project boundaries.

	A demonstration was provided of the Acre state settlement data where it was illustrated that densely populated areas contain sufficient data but data was non-existent in many rural areas. Further, new settlements since 2006 are not evident but occur as confirmed by field visits. This is a permissible deviation because population density is also able to reflect land conversion pressure. Additionally it is a parameter available at validation and does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals.
The parameter TOTFOR has not been "limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock" as mentioned in the methodology.	TOTFOR was derived from the source: FAO publication Global Forest Resources Assessment 2010, Brazil Country Report³. As a result, the PROPLB parameter is smaller and produces a more conservative estimate as more leakage outside the leakage belt is accounted for. The validation team believes the monitored TOTFOR parameter is eligible as a methodology deviation because the alternative measurement method is more accurate and conservative. The validation team and the PP interpreted the comment noted for the monitored TOTFOR parameter "Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock" to be a mandatory requirement. The total available national forest area was derived from the Brazil FRA and it would largely be infeasible to determine an exact size of all forested areas within 5km of roads and suitable for conversion to agriculture/livestock. A total available national forest area available from the Brazil FRA is inherently more accurate and also conservative in the overall accounting of leakage outside the leakage belt. Additionally it is a parameter available at validation and does not negatively impact the

³ FAO. 2009. Global Forest Resources Assessment 2010, Brazil Country Report. Forestry Department, Food and Agriculture Organization of the United Nations, Rome

	conservativeness of the quantification of GHG emission reductions or removals.
The parameter COLB has not been "limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock" as mentioned in the methodology.	During the course of the validation project proponents adjusted this parameter from the FAO value for the Amazon basin to the country-specific Brazil value. ESI believes the COLB parameter is eligible as a methodology deviation because it pertains to the conservativeness of a measurement method. The COLB value has been set to a value which is not limited to areas suitable for agriculture or livestock ranching. During validation the PP adjusted the COLB aboveground carbon stock value to a country specific value which is larger than the FAO default value for the Amazon basin. This new COLB value represents a wide range of areas which may include areas unsuitable for agriculture or ranching. The larger COLB stocking value represents a more conservative approach as there is a larger proportional difference in carbon stocks between areas of forest available for unplanned deforestation inside and outside the leakage belt. This change to a larger value was deemed more conservative and it also resulted in a larger proportional difference in carbon stocks between areas of forest available for unplanned deforestation inside and outside the LB. While this change in the COLB represents a methodology deviation, the validation team believes it is appropriate given the desire to achieve a higher level of conservativeness. Additionally, it is a parameter available at validation and does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals.
The AVFOR parameter used in leakage estimation was stratified using information and data derived from official (government) publications, peer-reviewed published sources, or other verifiable sources. Stratification is not limited to the delineation of different strata where contiguous areas of at least 100 ha differ in stocks by ≥20%.	The validation team found that AVFOR was stratified by Amazon biomes, source: FAO publication Global Forest Resources Assessment 2010, Brazil Country Report. The requirement in LK-ASU states (Step 4, Definition of the Leakage Belt Boundary), "AVFOR <i>shall</i> be separated into different strata where contiguous areas of at least 100 ha differ

	in stocks by $\geq 20\%$." The project was stratified into contiguous natural forest biomes according to the FAO data that are larger than 100 ha and differ in in stocks by $\geq 20\%$, thus it meets the above quoted mandatory requirement. No divergences from the FAO document were identified during validation. Since the AVFOR parameter is directly related to the TOTFOR parameter which contains a permissible methodology deviation, the validation team agreed with the PP it be mentioned along with the TOTFOR as a methodology deviation. However, the validation team concludes that the actual measurement method for AVFOR does not constitute a methodology deviation because this measurement was performed correctly.
Parameter $U_{P,SS,i,pool\#}$ will be monitored at least once every 10 years, on re-measurement of forest carbon stocks. While module X-UNC requires that monitoring of this parameter occur every ≤ 5 years, this requirement is inconsistent with the VM0007 pools modules, which specify that stock estimates (from which uncertainty is calculated) are assumed valid for 10 years. Therefore, a deviation to module X-UNC is applied to permit parameter $U_{P,SS,i,pool\#}$ to be monitored every ≤ 10 years, putting it into alignment with modules CP-AB and CP-D.	Validation team confirmed that project proponents are correct in that no other module requires forest measurements to occur in intervals less than 10 years. Since this project also includes remote sensing and is clearly planning to update the baseline carbon stocks at 10 year intervals with inventory sample points, then this deviation is considered to be an acceptable approach by the validation team. The validation team cannot find any other instance where updates to the inventory plots are required in less than 10 year increments, thus there would be no new inventory plots to use for the update of the sampling error, as suggested by this monitoring frequency requirement. Validation team concludes this deviation is acceptable.

In conclusion, the validation team has confirmed that all methodology deviations applied to the project are valid per VCS rules.

3.2.8 Monitoring Plan

Components of the monitoring plan were evaluated by the validation team for suitability and eligibility. Findings for individual data and parameters are presented:

Data and Parameters monitored:

Data Unit / Parameter	Validation Findings
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$\Delta C_{P,Def,i,t}$	This data/parameter was appropriately included because it pertains to net carbon stock change as a result of deforestation in the project case in the project area in stratum i at time t . Project proponents have calculated net carbon stock change in the with-project case differently than the requirement because it is difficult to spatially define stratum being deforested ex-ante. Further, project proponents do not expect all the deforestation to occur in this scenario due to implementation of the project activities. As a result, project proponents calculated net carbon stock change in the with-project ex-ante case. The validation team accepts this approach as the estimate is ex-ante and does not affect the baseline or ex-post emission estimates. This parameter will be evaluated again at monitoring for compliance to the requirement.
$\Delta C_{P,DefLB,i,t}$	This data/parameter was appropriately included because it pertains to net carbon stock change as a result of deforestation in the project case in the leakage belt in stratum i at time t . This value was found to be not relevant at time of validation.
$\Delta C_{P,DistPA,i,t}$	This data/parameter was appropriately included because it pertains to net carbon stock change as a result of natural disturbance in the project case in the project area in stratum i at time t . Ex ante $\Delta C_{P,DistPA,i,t} = 0$ (value applied was 0).
$A_{DefPA,u,i,t}$	This data/parameter was appropriately included because it pertains to the area of recorded deforestation in the project area stratum i converted to land use u at time t . Ex ante $A_{DefPA,u,i,t}$ is derived assuming a project effectiveness of 80% (i.e., 20% of baseline deforestation occurs in the project case). This value was found to be not relevant at time of validation and will be monitored for each verification event.
$A_{DefLB,u,i,t}$	This data/parameter was appropriately included because it pertains to the area of recorded deforestation in the leakage belt stratum i converted to land use u at time t . This is a validation review and this value will be updated for each monitoring event. The validation team has reviewed this issue and concluded that deforestation pressures are being addressed in the project area from project activities. However, the likelihood of deforestation in the LB is that of displacement from the project area or 15%.
$A_{DistPA,q,i,t}$	This data/parameter was appropriately included because it pertains to area impacted by natural disturbance in post-natural disturbance stratum q in stratum i , at time t . This value was found to be not relevant at time of validation and will be monitored for each verification event. Ex-post Net carbon stock change as a

	result of natural disturbance
$C_{BSL,i}$	This data/parameter was appropriately included because it pertains to the carbon stock in all pools in the baseline case in stratum i and is estimated from the forest carbon inventory. This value was found to be calculated accurately according to project boundaries and appropriate pools.
$\Delta C_{pools,Def,u,i,t}$	This data/parameter was appropriately included because it pertains to the carbon stock in all pools in post-deforestation land use u in stratum i . This value was found to be calculated accurately by strata in a spreadsheet (Valparaiso Project 2014.04.11.xls).
$A_{DegW,i,t}$	This data/parameter was appropriately included because it pertains to the area potentially impacted by degradation processes in stratum i . This area was properly determined from community survey results. This value was found to be not relevant at time of validation.
$C_{DegW,i,t}$	This data/parameter was appropriately included because it pertains to net carbon stock changes as a result of degradation in stratum i in the project area at time t . This value was found to be 0 as the PRA did not indicate degradation.
AP_i	This data/parameter was appropriately included because it pertains to the total area of degradation sample plots in stratum i . This value was found to be appropriately calculated as 3% of $A_{DegW,i,t}$ as a parameter for monitoring illegal degradation.
$\Delta C_{P,DegW,i,t}$	This data/parameter was appropriately included because it pertains to the net carbon stock changes as a result of degradation in stratum i in the project area at time t . This value was found to be Ex ante $\Delta C_{P,DegW,i,t} = 0$ (value applied was 0).
$PROP_{IMM}$	This data/parameter was appropriately included because it estimates proportion of baseline deforestation caused by immigrating population. This value was found to be estimated accurately from community surveys around the project area.
$PROP_{RES}$	This data/parameter was appropriately included because it estimates the proportion of baseline deforestation caused by population that has been resident for ≥ 5 years. This proportion was found to be estimated accurately from community surveys around the project area.

TOTFOR	This data/parameter was appropriately included because it gives the total available national forest area. This value was found to be derived from the 2010 Amazonia FRA and was confirmed correct. This parameter represents a methodology deviation described in the appropriate section of this report.
PROTFOR	This data/parameter was appropriately included because it gives the total area of fully protected forests nationally. The value applied was 0. The value was conservatively given as zero and deemed appropriate.
MANFOR	This data/parameter was appropriately included because it gives the total area of forests under active management nationally. The value was conservatively given as zero and deemed appropriate.
ARRL,forest,t	This data/parameter was appropriately included because it gives the remaining area of forest in RRL at time t . This value was found to be not relevant at time of validation and will be updated prior to each verification event.
Aburn,q,i,t.	This data/parameter was appropriately included because it pertains to the area burnt in post-natural disturbance stratum q in stratum i , at time t . This value was found to be not relevant at time of validation.
dbh	This data/parameter was appropriately included because it gives the tree diameter at breast height. DBH values were measured and assessed ex ante (at validation). This value was found to be not relevant at time of validation.
dbasal	This data/parameter was appropriately included because it gives the basal diameter. Basal diameter values were measured and assessed ex ante (at validation). This value was found to be not relevant at time of validation.
H	This data/parameter was appropriately included because it gives the height of a tree. This value was found to be not relevant at time of validation.
Dn	This data/parameter was appropriately included because it gives diameter of piece n of dead wood along a transect. This value was found to be not relevant at time of validation.
N	This data/parameter was appropriately included because it gives the total number of wood pieces intersecting a transect. This value was found to be not relevant at time of validation.

L	This data/parameter was appropriately included because it gives the length of a transect. This value was found to be not relevant at time of validation.
$U_{P,SS,i,pool\#}$	This data/parameter was appropriately included because it calculates the percentage uncertainty (expressed as 95% confidence interval as a percentage of the mean where appropriate) for carbon stocks and greenhouse gas sources in the with-project case (1,2...n represent different carbon pools and/or GHG sources). This data/parameter represents a deviation noted in Section 3.2.7 of this report and will be reviewed at time of verification.
$EBSL_{SS,i,pool\#}$	This data/parameter was appropriately included because it accounts for carbon stock or GHG sources (e.g. trees, dead wood, soil organic carbon, emission from fertilizer addition, emission from biomass burning etc.) in the baseline case.
$UBSL_{SS,i,pool\#}$	This data/parameter was appropriately included because it accounts for percentage uncertainty (expressed as 95% confidence interval as a percentage of the mean where appropriate) for carbon stocks and greenhouse gas sources in the baseline case (1,2...n represent different carbon pools and/or GHG sources).
$EBSL_{SS,i}$	This data/parameter was appropriately included because it calculates the sum of combined carbon stocks and GHG sources in stratum i multiplied by the area of stratum i (A_i) in the baseline case.
$UBSL_{SS,i}$	This data/parameter was appropriately included because it determines the percentage uncertainty in the combined carbon stocks and greenhouse gas sources in stratum i in the baseline case.
$B_{i,t}$	This data/parameter was appropriately included because it calculates the average aboveground biomass stock before burning stratum i,time t. Emissions from biomass burning in project boundaries appropriately reference weighted average stocks.
AGB	This data/parameter was appropriately included because it calculates the aboveground biomass density.
Asp	This data/parameter was appropriately included because it determines the area of sample plots in ha.

Hsdw	This data/parameter was appropriately included because it determines the height of standing dead trees in m.
DDWdc	This data/parameter was appropriately included because it calculates the mean wood density of dead wood according to density class (dc) – sound (1),intermediate (2), and rotten (3); t d.m. m-3.
CP,Dist,q,i	This data/parameter was appropriately included because it determines carbon stock in all pools in post-natural disturbance <i>q</i> in baseline stratum <i>i</i> .
Ai	This data/parameter was appropriately included because it defines the total area of stratum <i>i</i> . This parameter changed as a result of adjustments made to the project area, leakage belt and RRD (outlined in section 3.2.6 above). Stratum areas were re-reviewed and found to be correct.

The Valparaiso Project was checked by the validation team for adherence to the M-MON module under VCS methodology VM0007 and found to be in compliance. Project proponents have provided sufficient evidence that monitoring components including; deforestation, illegal degradation, natural disturbance, and ex-post project emissions within project boundaries are established and procedures for monitoring efforts in place.

3.3 Non-Permanence Risk Analysis

The Valparaiso Project utilized a non-permanence risk analysis tool, “T-BAR”, to assess risk according to internal risk, external risk, natural risk, and mitigation measures for minimizing risk. At all levels, the validation team evaluated the rationale, appropriateness, and justifications of risk ratings chosen by project proponents. As this is a validation and not verification the risk analysis was assessed for appropriateness and to provide additional context for the validation review of the project. A buffer is only applied at verification when this risk analysis will be reassessed, the actual scores are not summarised here. Steps taken to assess risk rationale are presented for each risk factor:

Risk Factor	Validation Findings
<u>Internal Risk</u>	
Project management	Encroachment concerns are addressed through use of on-going forest patrols and the management team does not include individuals with skills necessary to undertake all project activities. Aside from the aforementioned increased risks, project proponents have substantial experience in the global forest carbon thus also lowering overall internal risk.

Financial viability	Project proponents have provided the validation team appropriate documentation to prove project financial breakeven within 4 years. While sales of GHG credits are dependent on stability in the VER market, evidence of sufficient financial resources is demonstrated by a letter from the CFO and a bank statement. Items presented to the validation team by project proponents give reasonable assurance that the risk rating for financial viability is appropriately set at 0.
Opportunity cost	NPV analysis was not required for the Valparaíso Project as baseline activities are subsistence-driven. As such, the risk rating from NPV was appropriately selected as high because the net community benefits have not been demonstrated yet.
Project longevity	Project proponents supplied legal contractual agreements (Tri-party) to address enforceability of carbon stock protection for the Acre State in Brazil. The agreement, as noted in the Addendum, ensures the project area will remain as forest for at least a 60 year period. Further, the Tri-party agreement severely limits management implementation that might interfere with project activities. The agreement was reviewed by the validation team and confirmed to allow for unobstructed project activities for a 60 year period.
<u>External Risk</u>	
Land tenure and resource access/impacts	The certification of full rights document was provided by the project proponents and page 19 correctly identifies Manoel Batista Lopes, ME as the owner. The property was properly geo-referenced and any boundary disputes have been resolved.
Community engagement	Validation team confirmed that 100% of the local communities have been consulted and are involved in the project, thus a default risk value of zero is applicable
Political risk	The validation team deemed the political risk was appropriately rated at zero for an average governance score, participation in the Governors' Climate and Forest Taskforce, and completion of at least one CDM Afforestation/Reforestation project.
<u>Natural Risk</u>	
Fire	The risk rating given for fire was justified by scientific research which suggested that most fires in the project region are anthropogenic and natural fire incidence is low. The validation team agrees with this assessment as being conservative given a higher

	fire return interval is used to generate the risk rating.
Pest and disease	The validation team agrees that the forests of the project area have a high species diversity and therefore resistant to catastrophic disturbance caused by insect pests or forests diseases.
Extreme weather	Project proponents appropriately base this risk rating off of the likelihood of wind disturbance which could have an effect on carbon stocks.
Geologic risk	Local geology (i.e. volcanos, fault lines) are not active in the project area and the risk rating was appropriately given as zero.

In summary, project proponents have accounted for risk factors in a reasonable manner and have reached an overall risk rating that encompasses all risks of non-permanence. As required, risk will be reassessed and given risk scores at each verification period.

3.4 Environmental Impact

The environmental implications from the Valparaíso project closely align with the REDD programme which seeks to achieve net environmental benefits by conserving forest and preventing degradation. A variety of ecosystem service benefits are bolstered by this effort and are outlined in detail in the Climate, Community, and Biodiversity Alliance (CCB) Standards which the Valparaíso project has achieved validation for. ESI's assessment of the biodiversity aspects of CCB confirmed that the project will substantially improve the environmental status of the project area over the baseline scenario.

3.5 Comments by Stakeholders

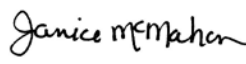
As part of the Climate, Community, and Biodiversity objectives of the project, project proponents involved a variety of stakeholder groups in a series of meetings. The outcome of these meetings built a framework for project development and eventual implementation of the stated project goals. Project proponents have further indicated a commitment to continue communication with the project area landowner and community stakeholders to further the goals of the project. As described in section "2.3 Interviews" above the validation team held numerous interviews with a broad range of the stakeholders and confirmed the assertions made within the PD relating to stakeholders.

4 VALIDATION CONCLUSION

Environmental Services Inc. completed the validation assessment of "The Valparaíso Project, A Tropical Forest Conservation Project in Acre, Brazil". The validation team confirms that all activities adhere to the criteria established for this assessment and are documented and complete. ESI approved changes to the Project Description and concludes without any qualifications or limiting conditions that the Valparaíso Project, developed under VCS methodology VM0007, meets the requirements of the: VCS Program Guide v3.5, VCS Standard

v3.4, VCS Program Definitions v3.5, VCS AFLOU Requirements v3.4, and the VCS AFOLU Non-Permanence Risk Tool v3.2. The Valparaiso Project, as prepared by CarbonCo LLC, is likely to achieve an estimated GHG emission reduction or removal of 1,538,533 tCO₂ equivalents by the project during the 10 year initial reporting period (2012 - 2021). This value is gross of the estimated 10% (212,361 tCO₂ equivalents) buffer withholding based on the non-permanence risk assessment tool and accounting for leakage (372,716 tCO₂ equivalents).

Submittal Information

Report Submitted to:	Verified Carbon Standard Association 1730 Rhode Island Ave. NW, Suite 803, Washington, D.C. 20036 CarbonCo, LLC 3 Bethesda Metro Center, Suite 700 Bethesda, Maryland 20814
Report Submitted by:	Environmental Services, Inc. -Corporate Office 7220 Financial Way, Suite 100 Jacksonville, Florida 32257
ESI Lead Validator Name and Signature	 Shawn McMahon Lead Validator
ESI Division Regional Technical Manager Name and Signature	 Janice McMahon Vice President and Forestry, Carbon and GHG Division Regional Technical Manager
Date:	23 September 2014

SMM/JPM/rmb/VO13024.00 Validation Report-final-v6.doc

K: PF 09/23/14f

APPENDIX A – DOCUMENTS RECEIVED/REVIEWED

Documents received 11 July 2013

- Valparaiso Project Final Draft CCBS PDD - English (7-8-13).pdf

Documents received 17 July 2013

- Valparaiso Project Final Draft VCS PD (7-17-2013).pdf
- Valparaiso Project Final Draft CCBS PDD - English (7-16-13).pdf
- Valparaiso Project Final Draft CCBS PDD - Portuguese (7-16-13).pdf

Documents received 13 August 2013

- Russas Valparaiso Project Archive
 - o 01 Project Document
 - Russas Project 2013.07.15.xls
 - Russas Project Final Draft VCS PD (7-17-2013).doc
 - Russas Project Final Draft VCS PD (7-17-2013).pdf
 - Valparaiso Project 2013.07.16.xls
 - Valparaiso Project Final Draft VCS PD (7-17-2013).doc
 - Valparaiso Project Final Draft VCS PD (7-17-2013).pdf
 - o 02 Forest Inventory
 - Salimon et al 2011.pdf
 - Brown 1997 Estimating Biomass and Biomass Change of Tropical Forests
FAO.pdf
 - Russas Valparaiso Forest Inventory 2013.06.29.doc
 - RusVal_Data_2013.06.24a.xls
 - RusVal_EqVal 2013.06.24a.xls
 - o 03 Literature Sources
 - Salimon et al 2011.pdf
 - FAO 2010 FRA Brasil.pdf
 - o 04 Project Proponents Contracts
 - Russas Tri-Party, Fully Signed and Certified (English).pdf
 - Valparaiso Tri-Party Agreement (English), Fully Signed and Certif.pdf
 - o 05 Community Contracts
 - Russas Atas, March 2011 to May 2013.pdf
 - Valparaiso Atas, March 2011 to May 2013.pdf
 - o 07 Laws
 - Procedimentos de Segurança em Campo (TECMAN).pdf
 - Employee Handbook 2010 April.pdf
 - o 08 Letter of Approval
 - OAB-AC - Ofício Declaraç_o.pdf
 - OAB AC translation.doc
 - o 10 Participatory Rural Appraisal
 - PRA Results March 2013.xls
 - o 13 VCS CDM Documents
 - Methodology

- VMD0017 X_UNC v2.0.pdf
- VM0007 REDD-MF Version 1.4.pdf
- VMD0001 CP-AB Live biomass.pdf
- VMD0002 CP-D Dead wood.pdf
- VMD0007 BL-UP v3.2.pdf
- VMD0010 LK-ASU Unplanned leakage.pdf
- VMD0013 E-BB Biomass burning.pdf
- VMD0015 M-MON, v2.1.pdf
- VMD0016 X-STR Stratification.pdf
- VCSVCS Standard, v3.3.pdf
 - AFOLU Non-Permanence Risk Tool, v3.2.pdf
 - AFOLU Requirements v3.3_0.pdf
- o 14 Maps and GIS
 - Inventory Plots
 - RUSVAL_inventoryCompleted2013.06.24.shx
 - RUSVAL_inventoryCompleted2013.06.24.dbf
 - RUSVAL_inventoryCompleted2013.06.24.prj
 - RUSVAL_inventoryCompleted2013.06.24.sbn
 - RUSVAL_inventoryCompleted2013.06.24.sbx
 - RUSVAL_inventoryCompleted2013.06.24.shp
 - RUSVAL_inventoryCompleted2013.06.24.shp.xml
 - Geographical Boundaries
 - RussasShapefiles
 - ValparaisoShapeFiles
 - GPS_out
 - ValStrataLB.kmz
 - GPX file"
 - Rus_Strata.kmz
 - Rus_Strata__SA_Lambert_Confml_Conic.kml
 - RussasLB.kmz
 - RussasPA.kmz
 - RussasProperty.kmz
 - RusStrataLB.kmz
 - ValparaisoLB.kmz
 - ValparaisoPA.kmz
 - ValparaisoProperty.kmz
 - ValStrata.kmz
- o 15 Risk Assessment
 - Pro Forma for Russas and Valparaiso Project (7-22-13).xls
 - Cochrane and Laurance 2002 Fire as a large-scale edge effect in Amazon.pdf
 - Cochrane et al. 1999 Positive Feedbacks in the Fire Dynamic of Tropical Forest.pdf
 - Espírito_Santo et al. 2010 Storm intensity and forest disturbances in the Amazon.pdf
- o 16 Miscellaneous

- Russas Sustainable Fuelwood Analysis 2013.07.15.xls
- Valparaíso Sustainable Fuelwood Analysis 2013.07.15.xls

Documents received 20 August 2013

- Certificados
 - o Certificado 01 - Cultivo da Banana.pptx
 - o Certificado 02 - Cultivo do Milho.pptx
 - o Certificado 03 - Cultivo da Macaxeira.pptx
 - o Certificado 04 - Cultivo da Graviola.pptx
- Listas de presenças digitalizadas dos cursos
 - o Lista de presença digitalizada - Foz do Valparaíso
 - o Lista de presença digitalizada - Lua Clara
 - o Lista de Presença digitalizada - Terra Firme
 - o Lista de presença digitalizada - Três Bocas
- Materia Jurua Oline Valparaíso e Russas
 - o Texto Jornal.docx
 - o Comunidade Foz do Valpaíso.JPG
 - o Comunidade Lua Clara.JPG
 - o Comunidade Terra Firme.JPG
 - o Comunidade Três Bocas.JPG
- Materiais audiovisuais utilizados nos Cursos
 - o Folder.docx
 - o Cultura da Banana
 - o Cultura da Graviola
 - o Cultura da Macaxeira
 - o Cultura do Maracuja
 - o Cultura do Milho
 - o Produção de Mudas
 - o Roçado Sustentavel com uso de leguminosa - Mucuna preta
 - o Banner.pptx
- Registro fotografico dos cursos
 - o Fotos Foz do Valparaíso

Documents received 14 November 2013

- CFO Letter of Support for Purus, Russas and Valparaíso Projects.pdf
- Public Comment Period Announcements
 - o Tribuna do Juruá Public Comment Period for Russas-Valparaíso Projects (Print).pdf
 - o Brian McFarland's Promotion of Public Comment Period.pdf
 - o CF's Newsletter for Purus, Russas and Valparaíso Projects' CCBS Public Comment Period.pdf
 - o Tribuna do Juruá Public Comment Period for Russas-Valparaíso Projects (Online).pdf
- Revised CCBS PDDs - 11-14-13
 - o Valparaíso Project CCBS PDD - English, Revised - 11-11-13.pdf
 - o NCR Checklist Russas_round1_draft2, Brian's Responses.docx
 - o NCR Checklist Valparaíso_round1, Brian's Responses.docx
 - o Russas Project CCBS PDD - English, Revised - 11-11-13.pdf

- Addendum to Russas Tri-Party Agreement, Fully Signed.pdf
- Addendum to Valparaiso Tri-Party Agreement, Fully Signed.pdf
- BNS for Russas and Valparaiso.xlsx
- CarbonCoCarbonNeutralSignedVERPADecember 302012.pdf
- CarbonCo's Bank Statement.pdf

Documents received 14 November 2013

- Valparaiso Project CCBS PDD - English, Revised - 11-11-13.pdf
- NCR Checklist Valparaiso_round1, Brian's Responses.docx

Documents received 15 January 2014

- Valparaiso Project's Memorial Descritivo (Translated).pdf
- Valparaiso Project CCBS PDD - English, Revised - 1-15-14.pdf
- Valparaiso Project's Certidao de Inteiro Teor (Original).pdf
- Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf
- Valparaiso Project's Memorial Descritivo (Original).pdf

Documents received 29 January 2014

- Valparaiso Project CCBS PDD, Final (English) 1-29-14.pdf

Documents received 21 February 2014

- Russas Project CCBS PDD, Final (Portuguese) 2-19-14.pdf
- Russas Project CCBS PDD, Final (English) 1-29-14.pdf

Documents received 24 February 2014

- Additional
 - o Ac_Vegetation
 - Ac_Vegetation.shx
 - Ac_Vegetation.dbf
 - Ac_Vegetation.prj
 - Ac_Vegetation.sbn
 - Ac_Vegetation.sbx
 - Ac_Vegetation.shp
 - Ac_Vegetation.shp.xml
 - o Baseline
 - LB
 - RussasLBBaseline_022014.shx
 - RussasLBBaseline_022014.dbf
 - RussasLBBaseline_022014.prj
 - RussasLBBaseline_022014.sbn
 - RussasLBBaseline_022014.sbx
 - RussasLBBaseline_022014.shp
 - RussasLBBaseline_022014.shp.xml
 - PA
 - RussasPABaseline_022014.shx
 - RussasPABaseline_022014.dbf

- RussasPABaseline_022014.prj
- RussasPABaseline_022014.sbn
- RussasPABaseline_022014.sbx
- RussasPABaseline_022014.shp
- RussasPABaseline_022014.shp.xml
- RRL
 - rank_rrl_220.tif.vat.dbf
 - rank_rrl_220.dbf
 - rank_rrl_220.prj
 - rank_rrl_220.sbn
 - rank_rrl_220.sbx
 - rank_rrl_220.shp
 - rank_rrl_220.shp.xml
 - rank_rrl_220.shx
 - rank_rrl_220.tfw
 - rank_rrl_220.tif
 - rank_rrl_220.tif.aux.xml
 - rank_rrl_220.tif.ovr
- o Elevation
 - AC_strm_utm_bin500m.tif.vat.dbf
 - AC_strm_utm_bin500m.tfw
 - AC_strm_utm_bin500m.tif
 - AC_strm_utm_bin500m.tif.aux.xml
 - AC_strm_utm_bin500m.tif.ovr
- o Navigable Rivers
 - RRD1_NavRivers.shx
 - nav_rivers.dbf
 - nav_rivers.prj
 - nav_rivers.sbn
 - nav_rivers.sbx
 - nav_rivers.shp
 - nav_rivers.shp.xml
 - nav_rivers.shx
 - PA_NavRivers.dbf
 - PA_NavRivers.prj
 - PA_NavRivers.sbn
 - PA_NavRivers.sbx
 - PA_NavRivers.shp
 - PA_NavRivers.shp.xml
 - PA_NavRivers.shx
 - RRD1_NavRivers.dbf
 - RRD1_NavRivers.prj
 - RRD1_NavRivers.sbn
 - RRD1_NavRivers.sbx
 - RRD1_NavRivers.shp
 - RRD1_NavRivers.shp.xml
- o Revised 2012 Deforestation Dataset
 - Desmate_Acre_1988_2012_Revised.shx

- Desmate_Acre_1988_2012_Revised.dbf
- Desmate_Acre_1988_2012_Revised.prj
- Desmate_Acre_1988_2012_Revised.sbn
- Desmate_Acre_1988_2012_Revised.sbx
- Desmate_Acre_1988_2012_Revised.shp
- Desmate_Acre_1988_2012_Revised.shp.xml
- o Roads_2014.02.20
 - RRD_roads20140220.shx
 - Ac_Roads.dbf
 - Ac_Roads.prj
 - Ac_Roads.sbn
 - Ac_Roads.sbx
 - Ac_Roads.shp
 - Ac_Roads.shp.xml
 - Ac_Roads.shx
 - RRD_roads20140220.dbf
 - RRD_roads20140220.prj
 - RRD_roads20140220.sbn
 - RRD_roads20140220.sbx
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- o AcrePrecipitationMap_2014.02.20.jpg
- o BoundaryComparison_2014.04.09.xlsx
- o Cairns Root to Shoot 2014.02.06.xlsx
- o CP-D Lying Dead changes 2014 02 19.docx
- o ElevationMap_2014.02.20.jpg
- o METODOLOGIA DESMATAMENTO DO ACRE 2011.doc
- o METODOLOGIA DO ACRE 2011 (English).docx
- o Post Deforestation Stocks 2014.02.14.xls
- o RRL_AmtDeFor 2014.02.18.xlsx
- o Valparaiso Sustainable Fuelwood Analysis 2014.04.09.xls
- o ValparaisoSettlements_2014.04.11.pdf

Documents received 16 April 2014

- Valparaiso Project 2014.04.11 clean version.doc

Documents received 29 April 2014

- Valparaiso and Leakage Belt PRAs.pdf

Documents received 01 May 2014

- RusVal_Data_2014.02.19.xls

Documents received 26 June 2014

- Valparaiso Project 2014.06.25.doc
- CarbonCo_Valparaiso_Responses_20140625 (2).xlsx
- CarbonCo_Valparaiso_Responses_20140625.xlsx
- Russas Valparaiso Forest Inventory 2014.06.25.doc
- additional
 - o RRL_AmtDeFor 2014.06.23.xlsx
 - o boundary comparison
 - BoundaryComparison_2014.06.25.xlsx
 - Elevation
 - Val2014_RRD_elevation.shx
 - AC_strm_utm_bin500m.tfw
 - AC_strm_utm_bin500m.tif
 - AC_strm_utm_bin500m.tif.aux.xml
 - AC_strm_utm_bin500m.tif.ovr
 - AC_strm_utm_bin500m.tif.vat.dbf
 - Val2014_RRD_elevation.dbf
 - Val2014_RRD_elevation.prj
 - Val2014_RRD_elevation.sbn
 - Val2014_RRD_elevation.sbx
 - Val2014_RRD_elevation.shp

- Val2014_RRD_elevation.shp.xml
- Navigable Rivers
 - ValRRD_NavRivers0620b.shx
 - nav_rivers1.dbf
 - nav_rivers1.prj
 - nav_rivers1.sbn
 - nav_rivers1.sbx
 - nav_rivers1.shp
 - nav_rivers1.shp.xml
 - nav_rivers1.shx
 - ValLB_NavRivers0623.dbf
 - ValLB_NavRivers0623.prj
 - ValLB_NavRivers0623.sbn
 - ValLB_NavRivers0623.sbx
 - ValLB_NavRivers0623.shp
 - ValLB_NavRivers0623.shp.xml
 - ValLB_NavRivers0623.shx
 - ValPA_NavRivers0619.dbf
 - ValPA_NavRivers0619.prj
 - ValPA_NavRivers0619.sbn
 - ValPA_NavRivers0619.sbx
 - ValPA_NavRivers0619.shp
 - ValPA_NavRivers0619.shp.xml
 - ValPA_NavRivers0619.shx
 - ValRRD_NavRivers0620b.dbf
 - ValRRD_NavRivers0620b.prj
 - ValRRD_NavRivers0620b.sbn
 - ValRRD_NavRivers0620b.sbx
 - ValRRD_NavRivers0620b.shp
 - ValRRD_NavRivers0620b.shp.xml
- Roads
 - ValRRD_Roads0620b.shx
 - Ac_Roads.dbf
 - Ac_Roads.prj
 - Ac_Roads.sbn
 - Ac_Roads.sbx
 - Ac_Roads.shp
 - Ac_Roads.shp.xml
 - Ac_Roads.shx
 - Built_Roads.dbf
 - Built_Roads.prj
 - Built_Roads.sbn
 - Built_Roads.sbx
 - Built_Roads.shp
 - Built_Roads.shp.xml
 - Built_Roads.shx
 - ValLB_Roads0623.dbf
 - ValLB_Roads0623.prj
 - ValLB_Roads0623.sbn
 - ValLB_Roads0623.sbx
 - ValLB_Roads0623.shp
 - ValLB_Roads0623.shp.xml
 - ValLB_Roads0623.shx

- ValPA_Roads0620b.dbf
- ValPA_Roads0620b.prj
- ValPA_Roads0620b.sbn
- ValPA_Roads0620b.sbx
- ValPA_Roads0620b.shp
- ValPA_Roads0620b.shp.xml
- ValPA_Roads0620b.shx
- ValRRD_Roads0620b.dbf
- ValRRD_Roads0620b.prj
- ValRRD_Roads0620b.sbn
- ValRRD_Roads0620b.sbx
- ValRRD_Roads0620b.shp
- ValRRD_Roads0620b.shp.xml
- Settlements
 - ValRRD_Settlements_0619b.shx
 - Ac_Municipalities_boundaries.dbf
 - Ac_Municipalities_boundaries.prj
 - Ac_Municipalities_boundaries.sbn
 - Ac_Municipalities_boundaries.sbx
 - Ac_Municipalities_boundaries.shp
 - Ac_Municipalities_boundaries.shp.xml
 - Ac_Municipalities_boundaries.shx
 - ValLB_Settlements_0623.dbf
 - ValLB_Settlements_0623.prj
 - ValLB_Settlements_0623.sbn
 - ValLB_Settlements_0623.sbx
 - ValLB_Settlements_0623.shp
 - ValLB_Settlements_0623.shp.xml
 - ValLB_Settlements_0623.shx
 - ValPA_Settlements_0619.dbf
 - ValPA_Settlements_0619.prj
 - ValPA_Settlements_0619.sbn
 - ValPA_Settlements_0619.sbx
 - ValPA_Settlements_0619.shp
 - ValPA_Settlements_0619.shp.xml
 - ValPA_Settlements_0619.shx
 - ValRRD_Settlements_0619b.dbf
 - ValRRD_Settlements_0619b.prj
 - ValRRD_Settlements_0619b.sbn
 - ValRRD_Settlements_0619b.sbx
 - ValRRD_Settlements_0619b.shp
 - ValRRD_Settlements_0619b.shp.xml
- SlopeClass
 - ValPA_SlopeClass_619.shx
 - SlopeClass.dbf
 - SlopeClass.prj
 - SlopeClass.sbn
 - SlopeClass.sbx
 - SlopeClass.shp
 - SlopeClass.shp.xml
 - SlopeClass.shx
 - Val2014_RRD_slope.dbf
 - Val2014_RRD_slope.prj

- Val2014_RRD_slope.sbn
- Val2014_RRD_slope.sbx
- Val2014_RRD_slope.shp
- Val2014_RRD_slope.shp.xml
- Val2014_RRD_slope.shx
- ValLB_SlopeClass_623.dbf
- ValLB_SlopeClass_623.prj
- ValLB_SlopeClass_623.sbn
- ValLB_SlopeClass_623.sbx
- ValLB_SlopeClass_623.shp
- ValLB_SlopeClass_623.shp.xml
- ValLB_SlopeClass_623.shx
- ValPA_SlopeClass_619.dbf
- ValPA_SlopeClass_619.prj
- ValPA_SlopeClass_619.sbn
- ValPA_SlopeClass_619.sbx
- ValPA_SlopeClass_619.shp
- ValPA_SlopeClass_619.shp.xml
- Soils
 - ValRRD_SoilClass_619.shx
 - Ac_Soil.dbf
 - Ac_Soil.prj
 - Ac_Soil.sbn
 - Ac_Soil.sbx
 - Ac_Soil.shp
 - Ac_Soil.shp.xml
 - Ac_Soil.shx
 - ValLB_SoilClass_623.dbf
 - ValLB_SoilClass_623.prj
 - ValLB_SoilClass_623.sbn
 - ValLB_SoilClass_623.sbx
 - ValLB_SoilClass_623.shp
 - ValLB_SoilClass_623.shp.xml
 - ValLB_SoilClass_623.shx
 - ValPA_SoilClass_619.dbf
 - ValPA_SoilClass_619.prj
 - ValPA_SoilClass_619.sbn
 - ValPA_SoilClass_619.sbx
 - ValPA_SoilClass_619.shp
 - ValPA_SoilClass_619.shp.xml
 - ValPA_SoilClass_619.shx
 - ValRRD_SoilClass_619.dbf
 - ValRRD_SoilClass_619.prj
 - ValRRD_SoilClass_619.sbn
 - ValRRD_SoilClass_619.sbx
 - ValRRD_SoilClass_619.shp
 - ValRRD_SoilClass_619.shp.xml
- VegClass
 - ValPA_VegClass_619.shx
 - Ac_VegetationBroad.dbf
 - Ac_VegetationBroad.prj
 - Ac_VegetationBroad.sbn
 - Ac_VegetationBroad.sbx

- Ac_VegetationBroad.shp
- Ac_VegetationBroad.shp.xml
- Ac_VegetationBroad.shx
- Val2014_RRD_vegclass.dbf
- Val2014_RRD_vegclass.prj
- Val2014_RRD_vegclass.sbn
- Val2014_RRD_vegclass.sbx
- Val2014_RRD_vegclass.shp
- Val2014_RRD_vegclass.shp.xml
- Val2014_RRD_vegclass.shx
- ValLB_VegClass_623.dbf
- ValLB_VegClass_623.prj
- ValLB_VegClass_623.sbn
- ValLB_VegClass_623.sbx
- ValLB_VegClass_623.shp
- ValLB_VegClass_623.shp.xml
- ValLB_VegClass_623.shx
- ValPA_VegClass_619.dbf
- ValPA_VegClass_619.prj
- ValPA_VegClass_619.sbn
- ValPA_VegClass_619.sbx
- ValPA_VegClass_619.shp
- ValPA_VegClass_619.shp.xml
- o GIS Files
 - RRD_Rate
 - RRD_defor1999-2010.shx
 - RRD_defor1999-2010.dbf
 - RRD_defor1999-2010.prj
 - RRD_defor1999-2010.sbn
 - RRD_defor1999-2010.sbx
 - RRD_defor1999-2010.shp
 - RRD_defor1999-2010.shp.xml
 - Baseline
 - ValRRL_baseline2014.06.25.shx
 - ValLB_baseline2014.06.25.dbf
 - ValLB_baseline2014.06.25.prj
 - ValLB_baseline2014.06.25.sbn
 - ValLB_baseline2014.06.25.sbx
 - ValLB_baseline2014.06.25.shp
 - ValLB_baseline2014.06.25.shp.xml
 - ValLB_baseline2014.06.25.shx
 - ValPA_baseline2014.06.25.dbf
 - ValPA_baseline2014.06.25.prj
 - ValPA_baseline2014.06.25.sbn
 - ValPA_baseline2014.06.25.sbx
 - ValPA_baseline2014.06.25.shp
 - ValPA_baseline2014.06.25.shp.xml
 - ValPA_baseline2014.06.25.shx
 - ValRRL_baseline2014.06.25.dbf
 - ValRRL_baseline2014.06.25.prj
 - ValRRL_baseline2014.06.25.sbn
 - ValRRL_baseline2014.06.25.sbx
 - ValRRL_baseline2014.06.25.shp

- ValRRL_baseline2014.06.25.shp.xml
- Project Boundaries
 - Strata
 - o ValStrataLB_2014.06.23.shx
 - o ValStrata_2014.06.23.dbf
 - o ValStrata_2014.06.23.prj
 - o ValStrata_2014.06.23.sbn
 - o ValStrata_2014.06.23.sbx
 - o ValStrata_2014.06.23.shp
 - o ValStrata_2014.06.23.shp.xml
 - o ValStrata_2014.06.23.shx
 - o ValStrataLB_2014.06.23.dbf
 - o ValStrataLB_2014.06.23.prj
 - o ValStrataLB_2014.06.23.sbn
 - o ValStrataLB_2014.06.23.sbx
 - o ValStrataLB_2014.06.23.shp
 - o ValStrataLB_2014.06.23.shp.xml
 - RusVAL_RRL_2014.02.07.dbf
 - RusVAL_RRL_2014.02.07.kmz
 - RusVAL_RRL_2014.02.07.prj
 - RusVAL_RRL_2014.02.07.sbn
 - RusVAL_RRL_2014.02.07.sbx
 - RusVAL_RRL_2014.02.07.shp
 - RusVAL_RRL_2014.02.07.shx
 - ValparaisoLB_2014.06.23.dbf
 - ValparaisoLB_2014.06.23.prj
 - ValparaisoLB_2014.06.23.sbn
 - ValparaisoLB_2014.06.23.sbx
 - ValparaisoLB_2014.06.23.shp
 - ValparaisoLB_2014.06.23.shp.xml
 - ValparaisoLB_2014.06.23.shx
 - ValparaisoPA_2014.06.19.dbf
 - ValparaisoPA_2014.06.19.prj
 - ValparaisoPA_2014.06.19.sbn
 - ValparaisoPA_2014.06.19.sbx
 - ValparaisoPA_2014.06.19.shp
 - ValparaisoPA_2014.06.19.shp.xml
 - ValparaisoPA_2014.06.19.shx
 - ValparaisoRRD_2014.06.19b.dbf
 - ValparaisoRRD_2014.06.19b.prj
 - ValparaisoRRD_2014.06.19b.sbn
 - ValparaisoRRD_2014.06.19b.sbx
 - ValparaisoRRD_2014.06.19b.shp
 - ValparaisoRRD_2014.06.19b.shp.xml
 - ValparaisoRRD_2014.06.19b.shx
- o Congalton 2005 Accuracy Assessment of Digital Remotely Sensed Data.pdf

Documents received 27 June 2014

- ValRRD_SoilClass_627.shx
- BoundaryComparison_2014.06.27.xlsx
- ValparaisoMREF_2014.06.27.xls
- ValRRD_SoilClass_627.dbf
- ValRRD_SoilClass_627.prj

- ValRRD_SoilClass_627.sbn
- ValRRD_SoilClass_627.sbx
- ValRRD_SoilClass_627.shp
- ValRRD_SoilClass_627.shp.xml

Documents received 30 June 2014

- Valparaiso Project 2014.06.30.xls
- Valparaiso Project 2014.06.30.doc

Documents received 09 July 2014

- CarbonCo_Valparaiso_VCS_3.3_VM0007_Final Val NCR's_Round3 Responses 2014.07.09.xlsx
- Russas Valparaiso Forest Inventory 2014.06.25 FINAL.doc
- Valparaiso Project 2014.07.09 FINAL.doc
- Valparaiso Project 2014.07.09 track changes.doc
- Valparaiso Project 2014.07.09.xls

Documents received 17 July 2014

- Valparaiso Project's Non-Permanence Risk Report.pdf

Documents received 23 July 2014

- Valparaiso Project Description 2014.07.09.FINAL.pdf
- Valparaiso Project's Non-Permanence Risk Report.pdf

APPENDIX B – NCRS/CL/OFIS

Item Number	1
VCS Standard 3.3 Requirements (04 October 2012)	3.11.1 The project description shall be accompanied by documentary evidence establishing conclusively one or more of the following rights of use (see VCS document Program Definitions for definition of right of use) accorded to the project proponent(s): 1) A right of use arising or granted under statute, regulation or decree by a competent authority. 2) A right of use arising under law. 3) A right of use arising by virtue of a statutory, property or contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals (where such right includes the right of use of such reductions or removals and the project proponent has not been divested of such right of use). 4) A right of use arising by virtue of a statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions and/or removals (where such right includes the right of use of such reductions or removals and the project proponent has not been divested of such right of use). 5) An enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals which vests the right of use in the project proponent. 6) An enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions or removals which vests the right of use in the project proponent. 7) A right of use arising from the implementation² or enforcement of laws, statutes or regulatory frameworks that require activities be undertaken or incentivize activities that generate GHG emission reductions or removals.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 1.12
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The Certidao de Inteiro Teor (or certification of full rights) referenced in section 1.12 of the PD could not be found in the project database provided (folder "06 Title Documentation" was empty)
Round 1 NCR /CL / OFI (23 October 2013)	Pending item in the "Risk Assessment" tab.
Round 1 Response from Project Proponent (11 April 2014)	

ESI Findings Round (29 April 2014)	- 2	The certificate of land registry (Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf) and descriptive survey results (Valparaiso Project's Memorial Descritivo (Translated).pdf) have been provided by the project proponents and page 1 of Valparaiso Project's Memorial Descritivo (Translated).pdf correctly identifies Manoel Batista Lopes, ME (dated 16 January 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. The legal contractual agreements (Tri-party) supplied by project proponents establishes Right of Use for all three project proponents. Finding closed.
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Item Number	2	
VCS Standard 3.3 Requirements (04 October 2012)		3.16.5 Where measurement and monitoring equipment is used, the project proponent shall ensure the equipment is calibrated according to the equipment's specifications and/or relevant national or international standards.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)		PD 4.3
Validation or Verification		Validation
ESI Findings Round (23 October 2013)	- 1	Not stated if any equipment used requires calibration.
Round 1 NCR /CL / OFI (23 October 2013)	1	CL: Please clarify if calibration is needed for any measurement and monitoring equipment needed to complete monitoring. If any equipment utilized does require calibration, please include a statement within the monitoring plan that it will be calibrated.
Round 1 Response from Project Proponent (11 April 2014)	1	The following text was added to Section 4.3 of the PD, "All measurement and monitoring equipment requiring calibration will be calibrated according to the equipment's specifications and/or relevant national or international standards."
ESI Findings Round (29 April 2014)	- 2	Project proponents' amendment to the PD sufficiently addresses this finding. PD Section 4.2 also includes calibration information. Finding closed.

Item Number	3	
VCS Standard 3.3 Requirements (04 October 2012)		3.17.1 The project proponent shall ensure that all documents and records are kept in a secure and retrievable manner for at least two years after the end of the project crediting period.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)		PD 4.3
Validation or Verification		Validation

ESI Findings - Round 1 (23 October 2013)	Data archived will be maintained through at least two years beyond the end of the project crediting period.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: To ensure records are secure and retrievable, please provide more detail on how and where data are archived.
Round 1 Response from Project Proponent (11 April 2014)	The following text was added to Section 4.3 of the PD, "All project records are secure and retrievable. This includes project documents saved on the desktop of CarbonCo's Project Director and stored in the Director's file cabinets (based in Silver Spring, Maryland). An identical version of the project documents are remotely saved on an external hard drive and in the cloud via DropBox. Furthermore, many project documents (e.g., VCS Project Description, Monitoring Reports, CCBS Project Design Document, Project Implementation Reports, Validation and Verification Reports, etc.) are publicly available and stored on both the Standards' website and on the Markit Environmental Registry. "
ESI Findings - Round 2 (29 April 2014)	Data archiving procedures have been elaborated by PP within the PD in section 4.3 and sufficiently explain document storage in a secure and retrievable manner for two years after the project crediting period. This CL is addressed.

Item Number	4
VCS Standard 3.3 Requirements (04 October 2012)	3.17.2 For validation, the project proponent shall make available to the validation/verification body the project description, evidence of right of use and any requested supporting information and data needed to support statements and data in the project description and evidence of right of use.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 1.12
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The Certidao de Inteiro Teor (or certification of full rights) referenced in section 1.12 of the PD could not be found in the project database provided (folder "06 Title Documentation" was empty)
Round 1 NCR /CL / OFI (23 October 2013)	Pending row 42 of the "Risk Assessment" tab.
Round 1 Response from Project Proponent (11 April 2014)	

ESI Findings Round - 2 (29 April 2014)	The certificate of land registry (Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf) and descriptive survey results (Valparaiso Project's Memorial Descritivo (Translated).pdf) have been provided by the project proponents and page 1 of Valparaiso Project's Memorial Descritivo (Translated).pdf correctly identifies Manoel Batista Lopes, ME (dated 16 January 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. The legal contractual agreements (Tri-party) supplied by project proponents establishes Right of Use for all three project proponents. Finding closed.
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Item Number	5
VCS Standard 3.3 Requirements (04 October 2012)	3.17.3 For verification, the project proponent shall make available to the validation/verification body the project description, validation report, monitoring report applicable to the monitoring period and any requested supporting information and data needed to evidence statements and data in the monitoring report.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	NA
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	
Round 1 NCR /CL / OFI (23 October 2013)	
Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings Round - 2 (29 April 2014)	This is Validation only.

Item Number	6
VCS Standard 3.3 Requirements (04 October 2012)	3.18.1 The project description describes the project's GHG emission reduction or removal activities. The project proponent shall use the VCS Project Description Template (or approved GHG program project description template where the project is requesting registration under an approved GHG program) and adhere to all instructional text within the template.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD

Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	New template is available, but not required until 8 April 2014
Round 1 NCR /CL / OFI (23 October 2013)	
Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings - Round 2 (29 April 2014)	The PD has been revised to use the new VCS template. However, PD Section 4.2 does not contain the "Purpose of data" field in the Parameter Tables.
Round 2 NCR /CL/OFI (12 May 2014)	NCR: Please address the findings and update the Parameter Tables in PD Section 4.2 so that they adhere to all instructional text within the template.
Round 2 Response from Project Proponent (25 June 2014)	The "Purpose of data" row has been added to parameters in Section 4.2 and all instructional text within the template has been adhered to.
Final ESI Findings	ESI finds that the parameters tables now adhere to all instructional text within the template. Finding closed.

Item Number	7
VCS Standard 3.3 Requirements (04 October 2012)	7) Evidence of right to use and a demonstration that net GHG emission reductions or removals generated by the project will not be used for compliance with an emission trading program or to meet binding limits on GHG emissions.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 1.12
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The Certidao de Inteiro Teor (or certification of full rights) referenced in section 1.12 of the PD could not be found in the project database provided (folder "06 Title Documentation" was empty)
Round 1 NCR /CL / OFI (23 October 2013)	Pending row 42 of the "Risk Assessment" tab.
Round 1 Response from Project Proponent (11 April 2014)	

ESI Findings Round - 2 (29 April 2014)	The certificate of land registry (Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf) and descriptive survey results (Valparaiso Project's Memorial Descritivo (Translated).pdf) have been provided by the project proponents and page 1 of Valparaiso Project's Memorial Descritivo (Translated).pdf correctly identifies Manoel Batista Lopes, ME (dated 16 January 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. The legal contractual agreements (Tri-party) supplied by project proponents establishes Right of Use for all three project proponents. Finding closed.
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Item Number	8
VCS Standard 3.3 Requirements (04 October 2012)	3.18.3 All information in the project documents shall be presumed to be available for public review, though commercially sensitive information may be protected, as set out in VCS document Registration and Issuance Process, where it can be demonstrated that such information is commercially sensitive. The validation/verification body shall check that any information designated by the project proponent as commercially sensitive meets the VCS Program definition of commercially sensitive information. Information in the project documents related to the determination of the baseline scenario, demonstration of additionality, and estimation and monitoring of GHG emission reductions and removals shall not be considered to be commercially sensitive and shall be provided in the public versions of the project documents.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 1.13
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	
Round 1 NCR /CL / OFI (23 October 2013)	CL: Though the PD states "There is no commercially sensitive information in this project description document." it is unclear if any other of the documents are commercially sensitive. Please clarify and state which documents are commercially sensitive, if any.
Round 1 Response from Project Proponent (11 April 2014)	All required project documents will be submitted to Markit Environmental Registry. The following text was added to Section of the PD 1.13. "There is no commercially sensitive information in this project description document, itself. Supporting documents which include commercially sensitive information that will not be made publicly available include: the Tri-Party Agreements (along with the Addendum); Contracts with Buyers and Service Providers; and documents related to project financials used in the risk assessment, including bank statements and the pro-forma."
ESI Findings Round - 2 (29 April 2014)	Text added to the PD by PP addresses the CL as written. Supporting documentation is appropriately available as part of the accompanying project documentation and commercially sensitive information is withheld. Finding closed.

Item Number	9
VCS AFOLU Requirements Version 3.3 (4 October 2012)	3.1.11 Where ARR, ALM, IFM or REDD project activities occur on wetlands, the project shall adhere to both the respective project category requirements and the WRC requirements, unless the expected emissions from the soil organic carbon pool or change in the soil organic carbon pool in the project scenario is deemed below de minimis as set out in Section 4.3.3, or can be conservatively excluded (as set out in Section 4.3.4), in which case the project shall not be subject to the WRC requirements.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Figure 1.10
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The methodology states "The project area can include forested wetlands (such as bottomland forests, floodplain forests, mangrove forests) as long as they do not grow on peat. Peat shall be defined as organic soils with at least 65% organic matter and a minimum thickness of 50 cm ³ . If the project area includes a forested wetlands growing on peat (e.g. peat swamp forests), this methodology is not applicable." The project proponent has provided a map showing no organic soils exist within the project area.
Round 1 NCR /CL / OFI (23 October 2013)	
Round 1 Response from Project Proponent (11 April 2014)	The text in Table 2.1 has been revised to read: "As demonstrated in Figure 1.10, no organic soils (or peatlands) exist within the project area. Further, soil carbon has been conservatively excluded as stated in section 2.3; hence the project is not subject to VCS WRC requirements."
ESI Findings - Round 2 (29 April 2014)	This revision to the PD was confirmed to have been made. Finding closed.

Item Number	10
VCS AFOLU Requirements Version 3.3 (4 October 2012)	5) Details of ownership.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 1.12
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	The land owner, Manoel Batista Lopes, who is also a project proponents (Manoel Batista Lopes, ME), owns the project area outright (see Section 1.12) and has full resource access/use rights, who are not shared with anyone. The property was geo-referenced and officially registered in the cadaster (Cadastro Ambiental Rural), a process which involved on the ground assessment of all property boundaries and consultations with neighboring landowners and resolution of any existing boundary disputes. The Certidao de Inteiro Teor (or certification of full rights) referenced in section 1.12 of the PD could not be found in the project database provided (folder "06 Title Documentation" was empty)
Round 1 NCR /CL / OFI (23 October 2013)	Pending row 42 of the Risk Assessment tab.
Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings - Round 2 (29 April 2014)	The certificate of land registry (Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf) and descriptive survey results (Valparaiso Project's Memorial Descritivo (Translated).pdf) have been provided by the project proponents and page 1 of Valparaiso Project's Memorial Descritivo (Translated).pdf correctly identifies Manoel Batista Lopes, ME (dated 16 January 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. Finding closed.

Item Number	11
VCS AFOLU Requirements Version 3.3 (4 October 2012)	3.4.2 The project proponent shall demonstrate control over the entire project area with proof of title with respect to one or more rights of use accorded to the project proponent as set out in the VCS Standard, noting the following:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 1.9
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	There is a legal contractual agreement to maintain the project area as forest for at least a 60 year period (i.e. greater than the length of the crediting period) from the project start date. There are a couple legal contracts available in the project files. The tri party agreement appears to be a legally binding contract within the United States and explicitly states as such.
Round 1 NCR /CL / OFI (23 October 2013)	Pending rows 42 and 32 of the Risk Assessment tab.
Round 1 Response from Project Proponent (11 April 2014)	

ESI Findings Round 2 (29 April 2014)	- 2	The certificate of land registry (Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf) and descriptive survey results (Valparaiso Project's Memorial Descritivo (Translated).pdf) have been provided by the project proponents and page 1 of Valparaiso Project's Memorial Descritivo (Translated).pdf correctly identifies Manoel Batista Lopes, ME (dated 16 January 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. The legal contractual agreements (Tri-party) supplied by project proponents establishes Right of Use for all three project proponents.
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Item Number	12
VCS AFOLU Requirements Version 3.3 (4 October 2012)	1) For non-grouped projects, the entire project area shall be under the control of the project proponent at the time of validation, or shall come to be under the control of the project proponent by the first verification event. Where the project proponent does not yet have control over the entire area at validation, the entire project area (that shall be specified in accordance with Section 3.4.1) is to be validated as if it were under control and the project is ready to be implemented. Where less than 80 percent of the total proposed area of the project is under current control at validation, the following applies:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 1.9
Validation or Verification	Validation
ESI Findings Round 1 (23 October 2013)	- 1 There is a legal contractual agreement to maintain the project area as forest for at least a 60 year period (i.e. greater than the length of the crediting period) from the project start date. There are a couple legal contracts available in the project files. The tri party agreement appears to be a legally binding contract within the United States and explicitly states as such.
Round 1 NCR /CL / OFI (23 October 2013)	1 Pending rows 42 and 32 of the Risk Assessment tab.
Round 1 Response from Project Proponent (11 April 2014)	1
ESI Findings Round 2 (29 April 2014)	- 2 The certificate of land registry (Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf) and descriptive survey results (Valparaiso Project's Memorial Descritivo (Translated).pdf) have been provided by the project proponents and page 1 of Valparaiso Project's Memorial Descritivo (Translated).pdf correctly identifies Manoel Batista Lopes, ME (dated 16 January 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. The legal contractual agreements (Tri-party) supplied by project proponents establishes Right of Use for all three project proponents.

Item Number	13
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14	The historical reference period is the temporal domain from which information on historical deforestation is extracted, analyzed and projected into the future. A historical reference period shall be defined for all eligible REDD categories. The starting date of this period <i>shall be between 9 and 12 years in the past and the end date shall be within two years of project start.</i>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 3.1.1.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	January 1, 1996 to December 31, 2010 - Start date and end date of the historical reference period. However the requirement states that the starting date of this period shall be between 9 and 12 years in the past...".
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please rectify how the start date of the historical reference period can be 1996 as this exceeds 12 years prior to the project start by 3 years.
Round 1 Response from Project Proponent (11 April 2014)	The historical reference period has been changed to be in line with this requirement. As stated in the revised PD Section 3.1.1. The historical reference period is now "January 1, 1999 to December 31, 2010". This has led to recalculation of ABSL,RR,unplanned,t, PRRL, and reallocation of ABSL,RR to the RRL. This has resulted in changes to the amounts of baseline deforestation in the project area and leakage belt. These changes and changes in the net GHG accounting resulting from these changes have been tracked in the revised PD.
ESI Findings - Round 2 (29 April 2014)	The historical reference has been properly changed to be in line with this REDD-MF requirement. January 1, 1999 to December 31, 2010 is now the start date and end date of the historical reference period. Calculations related to the revised historical reference were checked in other tabs. Finding closed.

Item Number	14
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14	• Monitoring of actual carbon stock changes and greenhouse gas emissions
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 4.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Headers do not match exactly as required.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please ensure the header for this section states "Monitoring of actual carbon stock changes and greenhouse gas emissions".
Round 1 Response from Project Proponent (11 April 2014)	The following header "Monitoring of actual carbon stock changes and greenhouse gas emissions" was added to the monitoring plan.
ESI Findings - Round 2 (29 April 2014)	This heading within the Monitoring Plan was appropriately amended per VCS rules. Finding closed.

Item Number	15
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14	• Monitoring of leakage carbon stock changes and greenhouse gas emissions

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 4.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Headers do not match exactly as required.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please ensure the header for this section states "Monitoring of leakage carbon stock changes and greenhouse gas emissions".
Round 1 Response from Project Proponent (11 April 2014)	The "Monitoring Leakage" section of the monitoring plan has been renamed "Monitoring of leakage carbon stock changes and greenhouse gas emissions".
ESI Findings - Round 2 (29 April 2014)	This heading within the Monitoring Plan was appropriately amended per VCS rules. Finding closed.

Item Number	16
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14	• Estimation of ex-post net carbon stock changes and greenhouse gas emissions.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 4.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Headers do not match exactly as required.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please ensure the header for this section states "Estimation of ex-post net carbon stock changes and greenhouse gas emissions".

Round 1 Response from Project Proponent (11 April 2014)	The header "Estimation of ex-post net carbon stock changes and greenhouse gas emissions" and the following text have been added to section 4.3 of the PD in response to this finding. "Ex-post net carbon stock changes and greenhouse gas emissions can only be calculated after monitoring: • The net carbon stock change as a result of deforestation in the project area; • The net carbon stock change as a result of degradation in the project area; • The net carbon stock change as a result of natural disturbance in the project area; and • The greenhouse gas emissions as a result of deforestation and degradation activities within the project area."
ESI Findings - Round 2 (29 April 2014)	This heading and associated text was appropriately added to the Monitoring Plan per VCS rules. Iso, the text added by project proponents accurately identifies ex-post calculations after monitoring efforts. Finding closed.

Item Number	17
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012	Project cash flow breakeven point is less than 4 years from the current risk assessment
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD, pro forma for Russas and Valparaiso project.xls (CCO's Valparaiso Proforma tab.)
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Project cash flow breakeven point is 4 years or less from the current risk assessment. Details are provided in a cash flow analysis which can be found in the project database. The project financial prospects show that the project would reach break-even well before the 4 year mark, however there is no support documentation for these numbers as required by the risk tool. It is not clear if any interest expenses, repayment of loans or forward purchase agreements, and any required equity distributions are considered, as stated as a minimum demonstration requirement in the tool.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: It is unclear what details were provided for evidence of this item. AFOLU Risk Tool indicates that "Projects may demonstrate that funding has been secured through, for example, financial statements, bank records, executed commodity purchase agreements, executed emission reduction purchase agreements, or other signed contractual agreements. Evidence shall be provided that agreement counterparties are in good financial standing, to demonstrate the ability to meet the financial obligations." Please provide appropriate evidence.

Round 1 Response from Project Proponent (11 April 2014)	To demonstrate CarbonCo has sufficient financial resources, CarbonCo provided to ESI: 1) a CFO Letter of Support for the Purus, Russas and Valparaiso Projects 2) a bank statement for CarbonCo and 3) a Verified Emission Reduction Purchase Agreement executed between CarbonCo and a buyer. These three documents were uploaded to the Risk Assessment subfolder in the shared Drop Box folder entitled CarbonCo Project Archive.
ESI Findings - Round 2 (29 April 2014)	Project proponents have supplied appropriate documentation to satisfy this requirement. The Verified Emission Reduction Purchase Agreement seems to be for the CarbonCo Purus project and would seem to similar to an agreement reached for the Valparaiso project. Letter of support and bank statement indicate that the project has secured 100% of the funding needed to cover the total cash out before the project reaches breakeven (2014). Maintaining a positive cash flow, and thus breakeven, is dependent upon credit sales beginning in 2014. However, credit sales are not supported by CarbonCoCarbonNeutralSignedVERPADecember 302012.pdf as it is specific to the Purus project. This specific evidence is not required for this item as Section 2.2.2 of the AFOLU Non-Permanence Risk Tool allows for "conservatively projected revenues from the sale of GHG credits." The letter of support and bank statement, along with the assumption that the VER market remains stable combine to provide reasonable assurance that the breakeven point is less than 4 years. Finding closed.

Item Number	18
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012	Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Project has secured 100% of funding needed to cover the total cash out before the project reaches breakeven. Details are provided in a cash flow analysis which can be found in the project database. Projects may demonstrate that funding has been secured through, for example, financial statements, bank records, executed commodity purchase agreements, executed emission reduction purchase agreements, or other signed contractual agreements. Evidence shall be provided that agreement counterparties are in good financial standing, to demonstrate the ability to meet the financial obligations.
Round 1 NCR /CL / OFI (23 October 2013)	Pending row 17.

Round 1 Response from Project Proponent (11 April 2014)	To demonstrate CarbonCo has sufficient financial resources, CarbonCo provided to ESI: 1) a CFO Letter of Support for the Purus, Russas and Valparaiso Projects 2) a bank statement for CarbonCo and 3) a Verified Emission Reduction Purchase Agreement executed between CarbonCo and a buyer. These three documents were uploaded to the Risk Assessment subfolder in the shared DropBox folder entitled CarbonCo Project Archive.
ESI Findings - Round 2 (29 April 2014)	Project proponents have supplied appropriate documentation to satisfy this requirement. The Verified Emission Reduction Purchase Agreement seems to be for the CarbonCo Purus project and would seem to similar to an agreement reached for the Russas project. Letter of support and bank statement indicate that the project has secured 100% of the funding needed to cover the total cash out before the project reaches breakeven (2014). Finding closed.

Item Number	19
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012	Mitigation: Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Project has available at least 50% of the total cash out before project reaches breakeven. Project proponents are utilizing internal, non-restricted funds as evidenced in the project database. Callable financial resources are those not included in secured funding, but that are readily available to the project. The availability of such resources may be indicated through letters of credit, revolving credit lines or other financial backing, as evidenced by signed agreements and which demonstrate the project's ability to access funding as needed. It does not appear that the project has provided evidence that they have callable resources available.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide evidence of callable financial resources including "letters of credit, revolving credit lines or other financial backing, as evidenced by signed agreements and which demonstrate the project's ability to access funding as needed."
Round 1 Response from Project Proponent (11 April 2014)	To demonstrate CarbonCo has sufficient financial resources, CarbonCo provided to ESI: 1) a CFO Letter of Support for the Purus, Russas and Valparaiso Projects 2) a bank statement for CarbonCo and 3) a Verified Emission Reduction Purchase Agreement executed between CarbonCo and a buyer. These three documents were uploaded to the Risk Assessment subfolder in the shared Drop Box folder entitled CarbonCo Project Archive.

ESI Findings Round - 2 (29 April 2014)	Project proponents have supplied appropriate documentation to satisfy this requirement,. The Verified Emission Reduction Purchase Agreement seems to be for the CarbonCo Purus project and would seem to similar to an agreement reached for the Russas project. The letter from the CFO provides confirmation that \$1M in non-restricted funds are accessible. Based on that documentation, the verifier has obtained reasonable assurance that the project has the ability to access funding as needed. Finding closed.
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Item Number	20
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012	Mitigation: Project is protected by legally binding commitment (see Section 2.2.4) to continue management practices that protect the credited carbon stocks over the length of the project crediting period
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	There is a legal contractual agreement to maintain the project area as forest for at least a 60 year period (i.e. greater than the length of the crediting period) from the project start date. There are a couple legal contracts available in the project files. The tri party agreement appears to be a legally binding contract within the United States and explicitly states as such.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please explain the legal agreement's enforceability as a means of protecting the carbon stocks within the State of Acre and/or Brazil.

Round 1 Response from Project Proponent (11 April 2014)	As stated by the Consulate General of Brazil in Washington, “any document which originates outside Brazil requires legalization by the Consulate to be recognized and to ensure the validity of the document. The legalization consists of the recognition of the signature or authentication of the actual document” (See http://cgwashington.itamaraty.gov.br/en-us/procedures_for_legalization_and_authentication_of_documents.xml). In accordance with the Consulate’s guidance, CarbonCo undertook the following steps to ensure the Tri-Party Agreements are legally-binding in both Brazil and the United States of America: • Counterparties in Brazil sign identical Tri-Party Agreements in English and Portuguese and then have their signatures notarized. • The Chief Executive Officer of CarbonCo signs the Tri-Party Agreements, with original signatures of our counterparties, and the CEO’s signature is also notarized. • The fully-signed Agreements are brought to the Office of the Clerk of the Circuit Court for Montgomery County (note: CarbonCo is based in Bethesda, Maryland of Montgomery County) to certify that the notarizer of CarbonCo’s CEO signature “is a commissioned/appointed and qualified notary public.” • The Agreements are then sent to the Office of the Secretary of State for Maryland to provide a statement declaring the Clerk of the Circuit Court is “the duly elected and qualified Clerk of the Circuit Court for Montgomery County whose official acts as such should be given full faith and credit in all Courts of Justice and elsewhere.” • Finally, the Agreements are brought to the Consulate General of Brazil in Washington for the legalization and authentication of the Agreement to be used in both Brazil and the United States of America. This final process is demonstrated with a seal affixed to the Tri-Party Agreements.
ESI Findings - Round 2 (29 April 2014)	The legal contractual agreement (Tri-party) supplied by project proponents appear to address enforceability of carbon stock protection for the Acre State in Brazil. The validator reviewed the Consulate General of Brazil website. Based on the provided response from the proponent and the web review it is clear that the tri-party document has been legalized within Brazil based on the affixed seal. This clarification request has been satisfied. Finding closed.

Item Number	21
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012	Ownership and resource access/use rights are held by same entity(s)
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD and site visit.
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	The land owner, Manoel Batista Lopes, who is also a project proponents (Manoel Batista Lopes, ME), owns the project area outright (see Section 1.12) and has full resource access/use rights, who are not shared with anyone. The property was geo-referenced and officially registered in the cadaster (Cadastro Ambiental Rural), a process which involved on the ground assessment of all property boundaries and consultations with neighboring landowners and resolution of any existing boundary disputes.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: The Certidao de Inteiro Teor (or certification of full rights) referenced in section 1.12 of the PD could not be found in the project database provided (folder "06 Title Documentation" was empty) Please present evidence of ownership.
Round 1 Response from Project Proponent (11 April 2014)	Please see the PDF files entitled, "Valparaiso Project Inteiro Teor" and "Valparaiso Project Memorial Descritivo" which were uploaded to the subfolder on DropBox entitled, "06 Title Documentation."
ESI Findings - Round 2 (29 April 2014)	The certificate of land registry (Valparaiso Project's Certidao de Inteiro Teor (Translated).pdf) and descriptive survey results (Valparaiso Project's Memorial Descritivo (Translated).pdf) have been provided by the project proponents and page 1 of Valparaiso Project's Memorial Descritivo (Translated).pdf correctly identifies Manoel Batista Lopes, ME (dated 16 January 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. Finding closed.

Item Number	22
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012	In more than 5% of the project area, there exist disputes over land tenure or ownership
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD and site visit.
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Site visit observations and discussions with community members indicated that the communities who live within the project area do not own the land they are living on. While this was not presented as a dispute, it is important to note the ownership pattern and any issues that may arise due to the granting of ownership as a consequence of the project.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please describe the ownership in the project area in relation to the fact that the communities living in the project area do not have title to their land and explain how this is not considered to be a problem for the purposes of the Risk Assessment.
Round 1 Response from Project Proponent (11 April 2014)	No communities actually live within the project area. At the start of the project, the project area, in accordance with methodological guidance, only included forested areas owned by the project proponents. According to Brazilian law, communities need to clear forest and put land under productive use (e.g., housing, agriculture, livestock, etc.) for a certain period of time prior to having an ownership claim to the cleared and productive land.

ESI Findings Round (29 April 2014)	- 2	It is understood that no communities live within the project area, rather they live within the boundaries of the land ownership, but they are excluded from project area. Thus, the ownership is owned by the project proponents. There are no disputes with the land tenureship area. Finding closed.
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Item Number	23	
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012		Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted
Evidence Used to Assess (Location in PD/MR or Supporting Documents)		PD and site visit.
Validation or Verification		Validation
ESI Findings Round (23 October 2013)	- 1	All households living on the Valparaiso property directly adjacent to the project area have been consulted and to their knowledge, all families reliant on the project area have been contacted. Verifiers observations confirm that this is the case and have no reason to believe that any communities within the project area have been passed over. Several personal meetings with residents in and outside the project area during the site visit confirm this finding. However, the only instance where the risk tool permits a score of "0" here is if there are no communities reliant on the project area, which is not the case.
Round NCR /CL / OFI (23 October 2013)	1	A score of zero has been provided, however that is only possible where there are no communities reliant on the project area. It appears a score of "5" is appropriate here. Please address.
Round Response from Project Proponent (11 April 2014)	1	The VCS AFOLU Non-Permanence Risk Tool guidance states, "Community engagement shall be assessed for projects where local populations, including those living within or surrounding the project area (given as within 20 km of the project boundary), are reliant on the project area, such as for essential food, fuel, fodder, medicines or building materials. Where local populations are not reliant on the project area, the risk is not relevant to the project and the risk rating for community engagement (CE) shall be zero. Evidence may include social assessments such as household surveys and participatory rural appraisals." Thus, there are two scenarios when a score of zero is justified. The first scenario is when no local populations are reliant on the project area. The second scenario is when all the communities reliant on the project area have been consulted, which is the case for the Russas Project. We think the confusion stems from the fact that this risk section is assessed differently from the other sections, this is not an A or B. For this section, both A and B are assessed independently. Where the answer to question A is "no", a risk of zero is scored for A. Where the answer to questions B is "no", a risk of zero is scored for B.
ESI Findings Round (29 April 2014)	- 2	Given that 100% of the local communities have been consulted and are involved in the project neither A nor B is applicable, and thus the default risk value of zero is applicable. Finding closed.

Item Number	24
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012	Fire
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD -Cochrane M.A.& Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, Journal Of Tropical Ecology, 18:311-325. -Cochrane M.A., Alencar A., Schulze M.D., Souza C.M., Nepstad D.C., Lefebvre P. & Davidson E.A., 1999. Positive feedbacks in the fire dynamic of closed canopy tropical forests, Science, 284(5421):1832-1835. -Cochrane M.A.& Schulze M.D., 1999. Fire as a recurrent event in tropical forests of the eastern Amazon: Effects on forest structure, biomass, and species composition, Biotropica, 31(1):2-16. 66 Cochrane M.A.& Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, Journal of Tropical Ecology, 18:311-325.
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The project proponent makes the case that frequency is tied to anthropogenic sources and forest edge, that severity is likely to be limited due to incomplete combustion of live aboveground biomass and that drought is key to both frequency and intensity. While it is agreed that proportionally there is limited forest edge, the droughts of 2005 and 2010 were some of the worst on record for the region and literature (e.g.. "The Incidence of Fire in Amazonian Forests with Implications for REDD", Luiz E. O. C. Aragão, Yosio E. Shimabukuro) appears to support an increased frequency of fires and drought. Further the project proponent states that "Despite fire induced tree mortality, tree mortality itself is unlikely to result in the loss of substantial biomass due to incomplete combustion of live aboveground biomass. Biomass is merely transferred from the live biomass to dead biomass pool, which is also accounted for in this project." however if drought conditions occur in subsequent years, subsequent fires will likely occur which would result in reductions.
Round 1 NCR /CL / OFI (23 October 2013)	Please provide further justification for the fire return interval Of 10-25 years as the study provided by the project proponent was from another part of the Amazon and other literature appears to support an increased firer frequency. Please provide additional support for the severity score within the context of the 2005 and 2010 droughts as the potential for subsequent fires is possible when drought conditions reoccur with greater frequency.

Round 1 Response from Project Proponent (11 April 2014)	Incidence of fire in the Amazon has increased with recent severe droughts of 1998, 2005 and 2010, all of which preceded the project validation date and informed the risk assessment. While drought conditions facilitate forest fire, fire still requires sufficient fuel loads (typically produced from previous disturbance) and an ignition source, both of which can reasonably be assumed to be less (and by extension, fire incidence should be less) in the large, intact block of forest of the project area (and maintained through project-funded protection activities) than in the surrounding land use matrix. The referenced paper (Aragao and Shimbukuro 2010) in fact shows that the state of Acre, which has large blocks of intact forest, has no observed increase in fire incidence from 1998 to 2006 (Figure 1b.), as compared with more developed and impacted areas of the eastern and central Amazon (e.g. Para, Mato Grosso, Rondonia and Maranhao). Consequently, the rates of fire incidence referenced in the project risk report (Cochrane and Laurance 2002), based on data from Para state, should be considered overestimates of expected incidence in Acre, and therefore clearly conservative. Aragao and Shimbukuro (2010) further observe that “fire-free land-management can substantially reduce fire incidence by as much as 69%.” The state of Acre, as part of its State System of Incentives for Environmental Services (SISA), has instituted state-wide fire control and monitoring activities since 2010, and should be expected to show results similar to those areas of fire-free land-management witnessed (between 1998 and 2006) by Arago and Shimbukuro. The project area should be expected to benefit in terms of reduced fire risk from decreased fire incidence and proximal ignition sources in the surrounding land use matrix. The original validated severity score for forest fire (Minor; < 25% loss of carbon stocks) is consistent with expected severity with increased incidence of droughts (and likely conservative). A severe burn (subsequent to initial lighter burns) can result in up to 40% mortality of stems. Assuming this represents ~40% of aboveground biomass (often mortality will be mostly in smaller, less resilient stems), equivalent to ~33% reduction of total above- and belowground biomass (assuming an average belowground component equal to 20% of aboveground biomass), a 25% loss of project carbon stocks would require a severe burn on ~3/4 of the entire project area ($16,049 \text{ ha} = 21,185 \text{ ha} * 0.25 * (1/0.33)$). (note this calculation does not even consider that all biomass is killed stems is not immediately oxidized at the time of burn, but instead emitted gradually through decomposition, and some is locked up in recalcitrant charcoal). A fire covering this extent of the project area would be highly unlikely.
ESI Findings Round 2 (29 April 2014)	Responses by project proponents appear to be well supported by the literature. However, the paper cited notes reduced fire incidence in already converted areas of intensive agriculture and reduced fuel availability. The mosaic landscape of ongoing conversion and variable disturbance can be attributed to higher rates of fire. Therefore project proponents presume that without fuel loads (and ignition sources) induced by on-going disturbance, then fire would be less in areas without conversion. This paper also illustrates (figure 1) that lower rates of deforestation and associated fire incidence in Acre state are not representative of Amazonia region. Project proponents then presume that without as extensive conversion activities, fire risk is lower and the Acre State fire control measures enacted in 2010 would keep fire risk relatively low. Literature and response from project proponent are sufficient to address this finding. Finding closed.

Item Number	25
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	iii) If applicable, activities similar to the proposed project activity on at least part of the land within the project boundary of the proposed VCS AFOLU project at a rate resulting from:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 2.4
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	No other alternatives proposed and none were identified in the site visit. Clearing of the forest for agriculture by the current owners was not discussed.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please clarify why clearing of the land for agricultural use by the current landowner was not discussed.
Round 1 Response from Project Proponent (11 April 2014)	Clearing of the land for agricultural use by the current landowner was not discussed as this scenario is no longer considered credible as the land owner has no intention to convert his land to agriculture, infact the opposite is true and he wants to protect his land. For the case of unplanned REDD case iii is really the same as case ii, where the land owner undertakes activities similar to the project activities. As discussed in the additionality argument, there is no legal requirement to undertake activities similar to those proposed in the project. Further there are no similar activities in the geographical area on private land as discussed in the common practice section of the additionality section. We have added the following statement to case ii (Section 2.4.2 of the PD): "Further there is no legal requirements to undertake activities similar to the project activity. Likewise, there are no observed similar activities in the geographical region on private lands."

ESI Findings Round - 2 (29 April 2014)	The PP response sufficiently addresses the clarification request as stated. PP have correctly asserted that no similar activities as the project occur in the geographical area, which was confirmed on the site visit and also "continuation of the pre-project land use with unabated threat of illegal deforestation" is the only other threat. Further, in the Acre state, no other regulatory policies are enforced which are similar to those occurring in the project area. Finding closed.
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Item Number	26
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	c) Outcome of Sub-step 1a: List of credible alternative land use scenarios that could have occurred on the land within the project boundary of the VCS AFOLU project.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 2.4
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	Outcome of Sub-step 1a: List of credible alternative land use scenarios that could have occurred on the land within the project boundary of the VCS AFOLU project was not provided at this stage.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide the "Outcome of Sub-step 1a: List of credible alternative land use scenarios that could have occurred on the land within the project boundary of the VCS AFOLU project." within the PD as it does not appear to exist prior to step 1b.
Round 1 Response from Project Proponent (11 April 2014)	The following text has been added to Section 2.1 of the PD "As the outcome of sub-step 1a of the tool, the following alternative land use scenarios were identified."
ESI Findings Round - 2 (29 April 2014)	The PD now clearly shows where sub-step 1a is addressed. Note that this statement was added to section 2.4. Finding closed.

Item Number	27
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	b) Outcome of Sub-step 1b: List of plausible alternative land use scenarios to the VCS AFOLU project activity that are in compliance with mandatory legislation and regulations taking into account their enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 2.4
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Outcome of Sub-step 1b: List of plausible alternative land use scenarios to the VCS AFOLU project activity that are in compliance with mandatory legislation and regulations taking into account their enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations was not provided at this stage.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide the "Outcome of Sub-step 1b: List of plausible alternative land use scenarios to the VCS AFOLU project activity that are in compliance with mandatory legislation and regulations taking into account their enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations." within the PD as it does not appear to exist prior to step 1c.
Round 1 Response from Project Proponent (11 April 2014)	Text in Section 2.1 of the PD, has been revised to read: "As the outcome of Sub-step 1b, all land use scenarios identified above are in compliance with applicable legal and regulatory requirements, except #1, which represents illegal deforestation not undertaken by the landowners or project proponents. These scenarios are discussed and justified below."
ESI Findings - Round 2 (29 April 2014)	The PD now clearly shows where sub-step 1b is addressed. Note that this statement was added to section 2.4. Finding closed.

Item Number	28
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Document the costs associated with the VCS AFOLU project and demonstrate that the activity produces no financial benefits other than VCS related income.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 2.5.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The PD states the high level basis for costs of the project activities, but does not provide any numbers or numerical basis.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please reference the "Pro Forma for Russas and Valparaiso Project (7-22-13).xls" document in the PD which documents the costs associated with the VCS AFOLU project and demonstrates that the activity produces no financial benefits other than VCS related income.
Round 1 Response from Project Proponent (11 April 2014)	The following footnote was added to Section 2.5.1 "Please see the "Pro Forma for Russas and Valparaiso Project (7-22-13).xls" for a detailed list of project costs."
ESI Findings - Round 2 (29 April 2014)	Footnote reference to the pro forma documentation now included in the PD. Pro forma shows no revenues other than VCS related income. Finding closed.

Item Number	29
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	2.4.2 Provide an analysis to which extent similar activities to the one proposed as the VCS AFOLU project activity have been implemented previously or are currently underway.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD 2.5.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The PD mentions "certain social and environmental programs without carbon financing, such as government assistance with agricultural extension." but does not provide the name of these programs or any solid basis for why they are insufficient.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide more detail on the social programs referenced in the PD so that a clear determination of their insufficiency can be made.

Round 1 Response from Project Proponent (11 April 2014)	The Valparaíso Project will offer a variety of social and environmental programs (for example, offering agricultural extension courses and improving access to a doctor and health clinic) beyond what is traditionally provided by Acre's state and local governments. For example, while agricultural extension services are occasionally available from the State of Acre's Instituto Dom Moacir (for example, courses on agro-ecology, forestry and agribusiness), these courses are only taught in the municipality's capital (i.e., Cruzeiro do Sul) and they are not taught in the field. In contrast, the Valparaíso Project surveyed communities on 33 different agricultural extension courses and will teach the top-10 courses for free and onsite at the Russas-Valparaíso Projects. With this in mind, it is important to note that many communities at the Russas-Valparaíso Projects do not have sufficient transportation of money for fuel (i.e., only 37.5% of the communities at the Russas Project have a boat or canoe) to travel from their homes to Cruzeiro do Sul to attend Instituto Dom Moacir courses. Similarly, manioc is one of the most important crops for the communities living at the Russas-Valparaíso Project, yet only 12.5% of the communities have a kit for making manioc flour. Furthermore, the Acre State Government provides healthcare services to local communities via the program Saúde Itinerante (Itinerant Health in English), but only 18.75% of the communities at the Russas-Valparaíso Project reported access to a doctor and health clinic.
ESI Findings - Round 2 (29 April 2014)	Sufficient detail on similar programs had been provided to show that there is currently a lack of programs similar to what the project is offering. Finding closed.

Item Number	30
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	3. Where a project claims no fuelwood collection was occurring this shall be evidenced through a PRA process. Where fuelwood collection is claimed to be sustainable, the following criteria must in the absence of the project be met:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.2 and 6; PRA Results March 2013.xls
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	PRA was conducted on March 30 - April 1, 2013. Actual Survey records could not be located - only provided in Excel.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide copies of the PRA survey sheets as documentary evidence of the PRA results provided in PRA Results March 2013.xls .
Round 1 Response from Project Proponent (11 April 2014)	Please see the PDF file entitled, "Valparaiso Project and Leakage Belt PRAs" in the Drop Box subfolder entitled "10 Participatory Rural Appraisal."
ESI Findings - Round 2 (29 April 2014)	The PDF file entitled, "Valparaiso Project and Leakage Belt PRAs" was provided to validators. The scanned PRA was reviewed and found to correlate to PRA Results March 2013.xls. Finding closed. See additional details related to this finding directly below.

Item Number	31
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	a. The land area remains a forest; and
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.2 and 6; PRA Results March 2013.xls; Valparaiso Sustainable Fuelwood Analysis 2013.07.15.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PD States: "Forested areas where fuelwood collection does occurs remains as forest as the amount of fuel wood collected (approximately 0.15 tonnes d.m. ha-1 yr-1) is less than the growth in aboveground biomass in the same area (3.1 tonnes d.m. ha-1 yr-1; see Table 4.9 in IPCC 2006)." This is based on an analysis conducted in the file Valparaiso Sustainable Fuelwood Analysis 2013.07.15.xls. The analysis assumes 0.85 cubic meters of fuelwood use per person per year (sourced from http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#). Values of fuelwood use per person per year from the PRA are higher than those used.

Round 1 NCR /CL / OFI (23 October 2013)	CL: The average fuelwood use per person per year (m3) from the PRA results are higher than those sourced from http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#. Please justify why the average yearly fuelwood consumption (m3/person) value used in Valparaíso Sustainable Fuelwood Analysis 2013.07.15.xls is more appropriate or conservative. Else, include the average fuelwood use per person per year from the PRA results in the Sustainable Fuelwood Analysis.
Round 1 Response from Project Proponent (11 April 2014)	Using responses to PRAs on the distance that community members enter into the forest to collect fuelwood and the amount of fuelwood collected each month, the biomass of fuelwood collected was estimated to be 0.02 tons of biomass/ha. Please note an error in the PRA due to a miscommunication between Pedro Freitas and Brian McFarland. The amount of fuelwood collected was in units of m3/month rather than m3/week as initially indicated. The total solid volume of fuel wood collected per year was calculated by multiplying the bulk volume of wood collected per month by 12 to scale to a yearly value and then a conversion rate of 0.65 to scale from bulk volume to solid volume (see FAO 2004, p. 24). The solid volume was then summed to represent the total amount of fuelwood collected by all communities. The area from which this fuelwood was collected was calculated (2,827 ha) from the distance community members go into the forest to retrieve fuelwood. This solid volume of wood was converted to biomass using the average wood density of both live and dead wood, 0.45 g/cm³. This value conservatively assumes 1/2 of fuelwood collected is live (with a live wood density for Amazonian forests of 0.62 g/cm³, Baker et al. 2004) and 1/2 is dead (with a solid lying dead wood density as determined in the forest inventory of 0.31 g/cm³). Igor Agapejev de Andrade, a local forester familiar with the property states “The community uses fuelwood originating from dead wood, usually in areas cleared for agriculture (roçados). Rarely are live trees cut down for fuelwood” (pers comm) The above calculated biomass value was divided by the collection area to get the biomass of fuelwood collected per unit area. This value was then scaled to the number of people collecting from the project area to get a total amount of fuelwood collected as 0.02 tonnes d.m. ha⁻¹. As this value is less than the increase in above-ground net biomass (i.e., annual growth in forest biomass) in natural forests in South America (for forests greater than 20 years old with over 2,000 mm rain per year) fuelwood collection can be considered to be sustainable and does not lead to a systematic decrease in carbon stocks over time. This value is highly conservative because it assumes all fuelwood is collected over the same area. It is further conservative as it assumes that 1/2 of the fuelwood collected is live, where only rarely are live trees cut for fuelwood. Details of this analysis can be found in the project database in the excel file “Valparaíso Sustainable Fuelwood Analysis 2014.04.09”. As previously noted in our conversation on 1/29/14, there was an error in the PRA due to a miscommunication between Pedro Freitas and Brian McFarland who conducted the PRAs. The amount of fuelwood collected was in units of m3/month rather than m3/week as initially indicated. The PRA’s m3/year figure was then incorrectly calculated using the m3/week figure (multiplied by 52) as opposed to the proper calculation using the m3/month figure (multiplied by 12).

ESI Findings - Round 2 (29 April 2014)	The revised sustainable fuelwood analysis (Valparaiso Sustainable Fuelwood Analysis 2014.04.09.xls) was reviewed and found to correctly calculate values by month and scaled to year. The volume of fuelwood to solid volume conversion was performed using an appropriate default value from the FAO of 0.65. The fuelwood collection area was calculated from the farthest distance community members go into the forest to retrieve fuelwood, this approach is reasonable. Average wood density assumes 1/2 of fuelwood collected is live and 1/2 is dead, this is conservative as the local forester noted that rarely live trees are removed for fuelwood. PD was confirmed to have been updated in Table 2.2 to reflect the correct value and this applicability condition is now met. Finding closed.
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Item Number	32
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	For each spatial feature, the criteria used to define their geographic boundaries must be described and justified. Vector or raster files, maps, GPS coordinates or any other locational information that allows the unambiguous identification of boundaries must be available. Key features of each of the spatial areas <u>summarized in table on page 7</u>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	14 Maps and GIS Folder
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	1. Key spatial features available in GIS dataset supplied by client. 2. Unable to determine if LB is 100% forested at start of project 4. Unable to determine if RRD is 100% forested at start of project
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide imagery and spatial data to allow for validation of forested levels of LB, RRD, and RRL at the start of the historical reference period.

Round 1 Response from Project Proponent (11 April 2014)	Imagery analysis for the annual deforestation dataset in Acre is conducted by UC GEO, an official state organization. (See response to Finding 125). All documentation of the processing and imagery used can be found in the documentation provided from UC GEO. (See response to Finding 119). The revised Acre deforestation dataset has been added to the project database as part of the response to the finding. When checking that deforestation prior to the start of the historical reference period has been removed, only display deforestation in the years 1988 to 1998. When checking that deforestation prior to the project start has been removed, only display deforestation in the years 1988 to 2010. This will enable you to validate the forest cover at these time points. According to the methodology the RRD must be 100% forested at the start of the historical reference period, rather than the project start date as stated in the finding. Please note: The LB boundary GIS file has been revised. Please see the shapefile "ValparaisoLB_2014.04.09" in the project database. The RRD boundary has also been revised. Please see the shapefile "RusVAL_RRD_2013.2.18". Both the workbook and PD have been revised in response to these changes. 1) This dataset has been provided again with a new name as the State of Acre did not update the name although they had revised the dataset. The revised deforestation dataset can be found at: CarbonCo Project Archive and is entitled "Desmate_Acre_1988_2012_Revised.shp" 2) All maps, calculation, tables, text, and figures in the PD dependent on the aforementioned revisions have been updated. All changes have been tracked.
ESI Findings Round 2 (29 April 2014)	The appropriate imagery and spatial data has been provided to validate forested levels of LB, RRD, and RRL at the start of the historical reference period. Forested levels of the RRD are evaluated in row 41 below. The document entitled "REVIEW OF THE DYNAMICS OF THE STATE OF ACRE DEFORESTATION: TEMPORAL ANALYSIS OF 23 YEARS (PERIOD 1988 TO 2010)". MS Word title METODOLOGIA DO ACRE 2011 (English) was reviewed and while it is an excerpt of the main document in Portuguese, it outlines the procedures for detection and monitoring of deforestation across Acre state. The remote sensing methods described are detailed and precise, providing the necessary criteria for objectively defining deforestation temporal and spatial boundaries. See below in row 119 and others for adherence to methodological requirements of the appropriateness of data sources. This finding is closed in difference to findings below.

Item Number	33
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	c. Transportation networks and human infrastructure , such as roads, navigable rivers and settlements, that increase the likelihood of deforestation and that exist historically in the RRD must be directly comparable to those that are expected to exist within the project area during the project term. The following conditions shall be met: (1) Where navigable rivers are present in the project area, navigable river/stream density (m/km ²) is the same ($\pm 20\%$) for the RRD and the project area. (2) Road density (m/km ²) is the same ($\pm 20\%$) for the RRD at the start of the historical reference period as for the project area, including a buffer around the project area of at least 1 km. (3) Settlement density (settlements/km ²) is the same ($\pm 20\%$) for non-forested areas in a 1 km buffer around the project area at the start of the baseline period as in 1 km buffer zones around parcels (if more than one) in the RRD at the start of the historical reference period.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PDD noted only areas within 65 kilometers of primary roads were included in the RRD - unable to confirm from provided spatial data, no imagery was given and roads were at the boundary of the RRD - imagery requested in Row 34 above.
Round 1 NCR /CL / OFI (23 October 2013)	Pending NCR in Row 34 above
Round 1 Response from Project Proponent (11 April 2014)	The roads layer (Ac_Roads.shp) as well as a clip of the roads layer with the RRD (RRD_roads20140220.shp) have been provided in the project archive in response to this finding. Further, road density for each project area was calculated in an excel sheet (BoundaryComparison_2014.04.09) located in the project database. Road and transportation vectors in general increase deforestation; however we have not included road building/modelling in this project. Finally, Table 3.1 of the PD was updated to reflect the road density in the RRD and the expected road density in the PA and LB.
ESI Findings - Round 2 (29 April 2014)	When the Acre state roads layer (Ac_roads.shp) is viewed in ArcMap, no roads appear to fall within the PA and the select by location tool did not reveal any roads falling within the PA.

Round 2 NCR /CL/OFI (12 May 2014)	NCR: Please address the findings and demonstrate how road density (m/km²) is the same ($\pm 20\%$) for the RRD at the start of the historical reference period as for the project area, including a buffer around the project area of at least 1 km. Include appropriate information regarding the methods used to come to this determination in PD Section 3.1.1.1 and provide adequate supporting calculations for validation review.
Round 2 Response from Project Proponent (25 June 2014)	All boundary comparisons have been rerun as the project area, leakage belt and RRD boundaries have been updated. Updated GIS project boundaries, an excel file containing the results of the comparison analysis (BoundaryComparison_2014.06.25), and GIS files related to running the comparison analyses have been provided in response to this finding. As suggested by the methodology, roads "that exist historically in the RRD must be directly comparable to those that are expected to exist within the project area during the project term." Roads in the RRD are therefore compared to expected future roads in the project area and leakage belt. Knowledge of expected future roads are based on a conversation Ilderlei Souza Rodrigues Cordeiro had with the Department of Transportation on the location of a proposed road linking Cruzeiro do Sul to Porto Walther. While the location of the road is not known, it will almost definitely cross the project area and leakage belt should the road be built east of the Jurua River. The road comparison analysis for the project area included proposed roads in a 1 km buffer around the project area.
Final ESI Findings	The revised comparison analysis among boundaries was reviewed. In the case of roads, auditors accept the assertion that roads "expected to exist" can include proposed or planned roads through the project area and leakage belt. This assumption allows the project to be in compliance of the road density requirement ($\pm 20\%$) and was confirmed through communication with VCS regarding the intent of the methodology. Roads and settlement density analysis now appropriately accounts for the 1km buffer in adherence to the $\pm 20\%$ requirement. Finding closed.

Item Number	34
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	c. Transportation networks and human infrastructure, such as roads, navigable rivers and settlements, that increase the likelihood of deforestation and that exist historically in the RRD must be directly comparable to those that are expected to exist within the project area during the project term. The following conditions shall be met: (1) Where navigable river/stream density (m/km²) is the same ($\pm 20\%$) for the RRD and the project area. (2) Road density (m/km²) is the same ($\pm 20\%$) for the RRD at the start of the historical reference period as for the project area, including a buffer around the project area of at least 1 km. (3) Settlement density (settlements/km²) is the same ($\pm 20\%$) for non-forested areas in a 1 km buffer around the project area at the start of the baseline period as in 1 km buffer zones around parcels (if more than one) in the RRD at the start of the historical reference period.

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	JAP: It is unclear if the river density values presented in Table 3.1 represent Navigable rivers and river density in the RRD is 28 % lower than the PA.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please clarify in PD Section 3.1.1.1 if the river density values presented in Table 3.1 represent navigable rivers. Provide supporting evidence as necessary. If the river density values represent navigable rivers, please demonstrate how the stream density is the same ($\pm 20\%$) for the RRD and the project area.
Round 1 Response from Project Proponent (11 April 2014)	The river density in the project boundaries has been revised to be based on navigable rivers rather than permanent rivers to conform with methodology criteria. Navigable rivers include class 1, 2, 3, and 4 rivers of the Acre rivers shapefile. The river density in Table 3.1 has been revised to reflect the river densities of 139 m/km ² , 114 m/km ² , and 118 m/km ² of the project area, leakage belt, and the RRD, respectively. Thus, the density of rivers in the project area, leakage belt and RRD are within 20% of the project area. Shapefiles of the navigable rivers layer and navigable rivers by project boundary have been provided in response to this finding. Also, please see the excel file "BoundaryComparison_2014.04.09" for calculations.
ESI Findings - Round 2 (29 April 2014)	The spatial files and spreadsheets supplied by PP were reviewed and areas calculated; vegetation, elevation, slope, and soils are correct. The project area river density however is incorrect when independently calculated and as seen in "BoundaryComparison_2014.04.09" cells E9 to F9 of the "river" tab, navigable river density is not within $\pm 20\%$ of the RRD per the methodology requirement. The PA navigable river density has been reported incorrectly in table 3.1 and therefore not within $\pm 20\%$ of the RRD per this methodology requirement.
Round 2 NCR /CL/OFI (12 May 2014)	NCR: Please address the findings and demonstrate how the stream density is the same ($\pm 20\%$) for the RRD and the project area. Please update PD Table 3.1 accordingly in addressing this NCR.
Round 2 Response from Project Proponent (25 June 2014)	All boundary comparisons have been rerun as the project area, leakage belt and RRD boundaries have been updated in response to this finding. Updated GIS project boundaries, an excel file containing the results of the comparison analysis (BoundaryComparison_2014.06.25), and GIS files related to running the comparison analyses have been provided in response to this finding. As shown in the updated Table 3.1 and the supporting GIS files the river densities in the RRD (132 m/km ²) and leakage belt (154 m/km ²) are within $\pm 20\%$ of the project area (162 m/km ²).
Final ESI Findings	All supporting GIS files supplied by PP were independently calculated and confirmed to be correct. The $\pm 20\%$ requirement between the RRD and PA for the navigable rivers, road density, and settlement density was confirmed correct and the requirement is now met. Finding closed.

Item Number	35
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	c. Transportation networks and human infrastructure , such as roads, navigable rivers and settlements, that increase the likelihood of deforestation and that exist historically in the <i>RRD</i> must be directly comparable to those that are expected to exist within the project area during the project term. The following conditions shall be met: (1) Where navigable rivers are present in the project area, navigable river/stream density (m/km ²) is the same ($\pm 20\%$) for the <i>RRD</i> and the project area. (2) Road density (m/km ²) is the same ($\pm 20\%$) for the <i>RRD</i> at the start of the historical reference period as for the project area, including a buffer around the project area of at least 1 km. (3) Settlement density (settlements/km ²) is the same ($\pm 20\%$) for non-forested areas in a 1 km buffer around the project area at the start of the baseline period as in 1 km buffer zones around parcels (if more than one) in the <i>RRD</i> at the start of the historical reference period.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	
Round 1 NCR /CL / OFI (23 October 2013)	
Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings - Round 2 (29 April 2014)	It is understood that population density was used as a proxy for settlement density. It is clear that the settlement density (or population density) in the <i>RRD</i> does not meet the $\pm 20\%$ requirement. The quoted methodology deviation found in the response in Row 86 below and PD Section 2.6 ("The PA and <i>RRD</i> boundary comparison requirements for transportation networks and human infrastructure can deviate from the required $\pm 20\%$, where this deviation results in a conservative baseline.") appears to be a deviation from a condition of Section 1.1.1.1.b of BL-UP and not related to monitoring or measurement.

Round 2 NCR /CL/OFI (12 May 2014)	NCR: Please demonstrate how the methodology deviation quoted in the findings meets the requirements of Section 3.5 of the VCS Standard V3.4. Else, demonstrate how settlement density (settlements/km ²) is the same ($\pm 20\%$) for non-forested areas in a 1 km buffer around the project area at the start of the baseline period as in 1 km buffer zones around parcels (if more than one) in the RRD at the start of the historical reference period.
Round 2 Response from Project Proponent (25 June 2014)	The proposed deviation "The PA and RRD boundary comparison requirements for transportation networks and human infrastructure can deviate from the required $\pm 20\%$, where this deviation results in a conservative baseline." has been removed from the project document and all boundary comparisons have been rerun as the project area, leakage belt and RRD boundaries have been updated in response to this finding. Updated GIS project boundaries, an excel file containing the results of the comparison analysis (BoundaryComparison_2014.06.25), and GIS files related to running the comparison analyses have been provided in response to this finding. Further this analysis has been rerun using a 1km buffering around each project boundary. All nonforested areas within this 1 km buffer were then incorporated into the settlement/population density analysis. The results in Table 3.1 indicate settlement densities in the RRD (7.63 people/km²) and leakage belt (8.87people/km²) are within +/- 20% of the project area (7.87 people/km²).
Final ESI Findings	The proposed deviation was confirmed to have been deleted from the PD. Comparison boundaries spatial files and the worksheet containing calculations were assessed in the above finding. Finding closed.

Item Number	36
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	e. Policies and regulations having an impact on land-use change patterns within the <i>RRD</i> and the project area must be of the same type or have an equivalent effect at the start of the historical reference period, taking into account the current level of enforcement. This means that where sub-national administrative units are governed by a different set of land-use regulations, it is necessary to ensure that the boundary of the <i>RRD</i> does not cross into another sub-national unit that does not have equivalent policies or regulations.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	PDD noted municipal, state, and federal forest conservation areas and indigenous reserves were excluded from the RRD. Findings: this could not be confirmed though the provided spatial data.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide sufficient spatial data to allow for validation that municipal, state, and federal forest conservation areas and indigenous reserves were excluded from the RRD.
Round 1 Response from Project Proponent (11 April 2014)	In response to this finding, additional GIS shapefiles have been provided for validation of these areas, including "AC_conservation_unit.shp" and "AC_Indigenous_areas.shp".
ESI Findings - Round 2 (29 April 2014)	Areas other than privately-owned were appropriately excluded from the RRD (i.e. indigenous lands and conservation areas). Further, a statement was appropriately included in the PD addressing the lack of enforcement in the region (see below). Project proponents have supplied evidence that the Acre state policy is to avoid large scale deforestation. Land use patterns in the RRD are the same as the project area in this case within the last 5 years. Further, discussions with members of the validation team who performed the field visit confirm that deforestation is not incentivized nor enforced and regulation is higher under private ownership. For this reason, areas other than privately-owned were appropriately excluded from the leakage belt (i.e. indigenous lands and conservation areas). Finding closed.

Item Number	37
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	f. Exclusion of planned deforestation. Areas of planned deforestation shall be excluded from the reference region boundaries where evident ⁸ .
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PDD noted municipal, state, and federal forest conservation areas and indigenous reserves were excluded from the RRD. Findings: Exclusion of planned deforestation is not Addressed in PD Section 3.1.1.1

Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please demonstrate in PD Section 3.1.1.1 that any areas of planned deforestation are excluded from the RRD boundaries . Provide supporting evidence as necessary.
Round 1 Response from Project Proponent (11 April 2014)	No areas of planned deforestation in Acre State were identified, hence no areas of planned deforestation were excluded. The follow statement has been added to Section 3.1.1.1 of the PD. "A local forester, Igor Agapejev de Andrade, familiar with the forestry and land use in the region states "There is no planned deforestation or local/state government incentivized deforestation initiatives in the State of Acre. Land conversion incentives have been dead since the mid 1990's. Rather, current Acre State Policy is to encourage and aid in decreasing current deforestation. Large government projects which result in deforestation are against Acre State's environmental plans" (pers comm)."
ESI Findings - Round 2 (29 April 2014)	Other forms of planned deforestation (i.e. public works projects, mining) were not excluded because they are not actively promoted in Acre state, this is supported by the comment by the local Forester and in conversations with PP. The potential inclusion of a proposed highway in the PA and LB is addressed in criteria c. Finding closed.
Round 2 NCR /CL/OFI (12 May 2014)	
Round 2 Response from Project Proponent (25 June 2014)	
Final ESI Findings	Please see relevant finding under 1.1.1.1 c. Finding closed.

Item Number	38
Approved VCS Tool VT0001,Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	<i>At the start of the baseline period, RRL must have the same proportion of forests suitable for conversion to the land-use practices of the deforestation agents as the project area ($\pm 30\%$) as demonstrated by soil suitability, precipitation regime, elevation and access to markets.</i>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Table 2.1, Section 3.1.1.1

Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	RRL has similar proportion of forests suitable for land conversion as project area. Findings: this is not addressed in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate in PD Section 3.1.1.1 that RRL has the same proportion of forests suitable for conversion to the land-use practices of the deforestation agents as the project area ($\pm 30\%$) as demonstrated by soil suitability, precipitation regime, elevation and access to markets. Provide supporting evidence (spatial data, etc.) as necessary.
Round 1 Response from Project Proponent (11 April 2014)	The following text has been added to Section 3.1.1.1 of the PD "As the primary driver of deforestation is subsistence and small scale farming, access to and availability of land are the most important factors when determining if land is suitable for settling and conversion. Neither, soil suitability, precipitation, elevation, or access to markets play a significant role in the deforestation agent's decision on where to settle and convert land." Further, while the RRL and PA are similar ($\pm 30\%$) as demonstrated below for precipitation and elevation, these parameters along with soil type and access to markets have little effect on where subsistence farmers choose to settle. The precipitation in the project area is approximately 2200 mm/yr. As the precipitation in the state ranges from approximately 1950-2250 mm/yr, the precipitation in the RRL, which is located entirely within the state, is within 30% of the precipitation in the project area. Please find a map of the precipitation isolines and the project boundaries in the project database (AcrePrecipitationMap_2014.02.20.jpg). A map of the project boundaries and methodology delineated elevation classes (0-500m in black, and 500-1000m in red) can be found in the project archive (ElevationMap_2014.02.20.jpg). This map indicates the project area, leakage belt, and RRD are all 100% in the 0-500m class. The RRL is over 99% in 0-500m class, hence the elevation in the RRL and PA are within 30% of each other. Information on soil type has been provided in the project archive (see the "soil" and "Soils Defor in RRD 1999-2012" tab in the excel workbook entitled "BoundaryComparison_2014.04.09"). An analysis at the level of the RRD indicates that deforestation occurs in all soil types, hence all soil types are suitable for conversion as mentioned above. The relative weight of how suitable or how productive land/soil is of little importance when choosing where to settle.
ESI Findings - Round 2 (29 April 2014)	PP have provided evidence to support that the RRL has a similar proportion of forest suitable for conversion as the PA. (a) Deforestation pressure in the RRL is not affected by soil type as pressures tend to be biased toward the city as mentioned by project proponents. (b) Precipitation isolines within the RRD (and RRL) are within the limits (30%) as specified by the methodology and seen in a map provided by PP. (c) Elevation, as noted by PP is low in all project boundaries and therefore within the criteria. Validation team can conclude that evidence supplied supports the claim that factors; soil, precip, elevation, or access to markets as little effect on determination of deforestation agent mindset on where to settle or convert land. Finding closed.

Item Number	39
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	RRL shall exclude areas of protected forest where the protected status is enforced.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	This is not addressed in the PD
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate in PD Section 3.1.1.1 that any areas of protected forest have been excluded from the RRL boundary. Provide supporting evidence (spatial data, etc.) as necessary.
Round 1 Response from Project Proponent (11 April 2014)	No protected forests have been removed from the RRL, as the protected status of conservation areas is not enforced. Using GIS layers for conservation areas and the 2012 deforestation dataset, we found that more than 514,000 ha of deforestation are found in conservation areas. In Acre State, other factors, most notably accessibility (i.e., river and roads) determine where deforestation occurs. Further, the following text has been added to Section 3.1.1.1 of the PD "No protected forests have been removed from the RRL, as the protected status of conservation areas is not enforced." The following footnote has also been added "The lack of protected status of conservation areas is evident by the amount of deforestation observed within the boundaries of the conservation areas."
ESI Findings - Round 2 (29 April 2014)	The RRL was confirmed in GIS to have conservation areas (.shp) included as the protected status is not enforced. Further, appropriate text was confirmed to have been added to section 3.1.1.1 of the PD to clarify protected status lands in the RRL. Finding closed.

Item Number	40
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	(1) Where navigable rivers/streams are present in the project area, navigable river/stream density (m/km ²) is the same ($\pm 20\%$) for the leakage belt and the project area.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Page 50
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Navigable rivers are 105.84 m/km ² for PA and 24.48 m/km ² for LB. River density in the LB is 77% lower than the PA.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please demonstrate how the stream density is the same ($\pm 20\%$) for the LB and the project area. Note Item XX (Row 47 above) in addressing this NCR.
Round 1 Response from Project Proponent (11 April 2014)	Please see the response in row 47 above.
ESI Findings - Round 2 (29 April 2014)	Navigable river density in the LB has been confirmed in the finding in row 46 above. However, the PA navigable river density has been reported incorrectly in table 3.1 and therefore not within $\pm 20\%$ of the LB per this methodology requirement.
Round 2 NCR /CL/OFI (12 May 2014)	NCR: Please address the findings and demonstrate how the stream density is the same ($\pm 20\%$) for the LB and the project area.
Round 2 Response from Project Proponent (25 June 2014)	Please see response to finding 47.
Final ESI Findings	Final ESI finding resolution can be found in Section 1.1.1.1 above.

Item Number	41
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	(2) Road density (m/km ²) is the same ($\pm 20\%$) for the leakage belt as for the projected density (in the baseline period) for the project area (including a buffer around the project area of at least 1 km and up to the total project area).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Page 50
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	No roads in PA or LB
Round 1 NCR /CL / OFI (23 October 2013)	
Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings - Round 2 (29 April 2014)	When the Acre state roads layer (Ac_roads.shp) is viewed in ArcMap, no roads appear to fall within the LB and the select by location tool did not reveal any roads falling within the LB. Perhaps it is the same case as in the adjacent Russas project where a proposed highway which would run through the leakage belt. If the proposed highway is being used, this method is not clear in the PD and needs to be described near table 3.1. Supporting calculations must also be provided.
Round 2 NCR /CL/OFI (12 May 2014)	NCR: Please address the findings and demonstrate how road density (m/km ²) is the same ($\pm 20\%$) for the leakage belt as for the projected density (in the baseline period) for the project area (including a buffer around the project area of at least 1 km and up to the total project area). Include appropriate information regarding the methods used to come to this determination in PD Section 3.1.1.1 and provide adequate supporting calculations for validation review.
Round 2 Response from Project Proponent (25 June 2014)	Please see response to finding 46.

Final ESI Findings	Final ESI finding resolution can be found in Section 1.1.1.1 above.
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Item Number	42
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	(3) Settlement density (settlements/km ²) is the same ($\pm 20\%$) for non-forested areas in a 1km buffer around the project area as in 1 km buffer zones around forested areas in the leakage belt.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Settlements are similar proportion density for PA and LB. JAP: Reported Settlement density in the LB is 44 % lower than the PA.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please demonstrate how settlement density (settlements/km ²) is the same ($\pm 20\%$) for non-forested areas in a 1km buffer around the project area as in 1 km buffer zones around forested areas in the leakage belt.

**Round 1
Response from
Project Proponent
(11 April 2014)**

While the methodologies states "Settlement density (settlements/km²) is the same ($\pm 20\%$) for non-forested areas in a 1 km buffer around the project area at the start of the baseline period as in 1 km buffer zones around parcels (if more than one) in the RRD at the start of the historical reference period", the intent is that settlement density reflects relative density of resident populations (and level of pressures associated with that population). Instead we assess population density as a more reliable and accurate criteria. The Acre state's GIS settlement layer is notoriously incorrect. The layer was developed in 2006 and has not been updated since then. Even in 2006 the settlement layer was incomplete, as not all settlements were recorded. Deficiencies are evident in the attached map of the project area and leakage belt along with settlements (red dots; from the Acre GIS settlement layer). Note the cleared areas which have been removed from the project boundaries (project area in blue and leakage belt in yellow) because these areas have been deforested. Field visits confirm that there are settlements near these deforested areas. Quality of settlement data is inconsistent (e.g. municipalities with more government resources and areas along primary transportation vectors are better mapped than more rural areas such as where the project area and leakage belt occur), new settlements have initiated since 2006 (e.g. the group of settlements directly northeast of the project area), and therefore the layer is unreliable. Instead we have assessed comparative population density in the areas, because reliable population data (down to the municipal level) is available and because population density more closely aligns with the intent of the methodology (D. Shoch, pers comm). Use of the settlement layers gives the same weight to much larger towns as to smaller communities with several families, yet the deforestation pressures are greater near the larger towns. Population density at the municipal level for the year 2010 was taken from the following government statistics website:
<http://cidades.ibge.gov.br/xtras/uf.php?lang=&coduf=12&search=acre>

The settlement/population density in Table 3.1 has been revised to reflect the population densities of 8.14 person/km², 7.64 person/km², and 5.90 person/km² of the project area, leakage belt, and the RRD, respectively. While the settlement/population density in the leakage belt is within 20% of the project area, the settlement/population density in the RRD belt is within 28% of the project area. As this boundary comparison results in a conservative baseline (i.e. deforestation rates in the RRD are likely to be less than the PA) this deviation should be allowed as proposed below.

The following deviations were added to Section 2.6 of the PD. "The similarities of the project boundaries were assessed using population density rather than settlement density. This methodological deviation is warranted due to obvious inconsistencies in the available data on the location of settlements within the state. Use of population density data still meets the intent of the methodology as both population and settlement density reflect the relative density of resident populations (and level of pressures associated with those population)."

"The PA and RRD boundary comparison requirements for transportation networks and human infrastructure can deviate from the required $\pm 20\%$, where this deviation results in a conservative baseline. "

ESI Findings Round - 2 (29 April 2014)	The calculations for population density are correct, but do not follow the instructions per the requirement to determine settlement density. This deviation was reviewed at length by validators and the approach using population density as a proxy settlement density is reasonable. The Project Proponent has demonstrated that the Acre state's GIS settlement layer is inaccurate. Although the use of population density is not equivalent to settlement density, the validator agrees that it is an adequate parameter for assessing similarities/differences in human infrastructure between the PA, LB, and the RRD. Supporting files were reviewed and found to correlate to the statistics found on the IBGE website. Additionally, it was confirmed that the Acre municipality layer was accurately clipped for the PA, LB, and the RRD. Population density values were correct. Additionally, PD Table 3.1 has been updated accordingly. It has been demonstrated that the population density is the same ($\pm 20\%$) for the LB and the project area. The methods employed here are acceptable and adequate for assessing similarities/differences in human infrastructure between the PA, LB, and the RRD and are included as a methodology deviation in PD Section 2.6. That is, this is a deviation from the procedures for the measurement of settlement density as specified in this section. This Item can be closed. However, settlement density in the RRD does not meet the $\pm 20\%$ requirement. Further, the second quoted methodology deviation does not appear to meet the requirements of such. See Row 48 Above for the applicable NCR
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Item Number	43
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	f. Policies and regulations having an impact on land-use change patterns within the leakage belt and the project area must be of the same type or have the same effect, taking into account the current level of enforcement. This means that where sub-national administrative units are governed by a different set of land-use regulations, it is necessary to ensure that the boundary of the leakage belt does not cross into another sub-national unit that does not have equivalent policies or regulations.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	PDD noted municipal, state, and federal forest conservation areas and indigenous reserves are same for PA and LB. Findings: This is not addressed in the PD.

Round 1 NCR /CL / OFI (23 October 2013)	CL: Please clarify in PD Section 3.1.1.1 if municipal, state, and federal forest conservation areas and indigenous reserves were excluded from the LB boundary. Provide supporting evidence (spatial data, etc.) as necessary.
Round 1 Response from Project Proponent (11 April 2014)	Shapefiles are provided to support that all areas of forest conservation and indigenous lands have been removed from the project area and leakage belt. The following statement was added to Section 3.1.1.1 of the PD. "Further, municipal, state, and federal forest conservation areas and indigenous reserves were excluded from the leakage belt as administrative polices and regulation in these areas differ from privately-owned areas."
ESI Findings - Round 2 (29 April 2014)	The shapefiles for conservation and indigenous areas were confirmed to have been correctly clipped out of the PA and LB. The statement concerning conservation and indigenous areas exclusion was confirmed to have been included in the PD. Finding closed.

Item Number	44
Approved VCS Tool VT0001,Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	(1) Collect medium resolution remotely sensed spatial data ¹¹ (30m x 30m resolution or less, such as Landsat, Resourcesat-1 or Spot sensor data) for three points in time of no less than 3 years apart covering no more than 12 years (with the first point in time being no more than 2 years from the project start date). Three time points over a maximum of 12 years must be included, however, additional points either within or beyond the 12 year period may be added to enhance the deforestation analysis.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1.2.1, files from client
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PDD noted UCEGEO imagery derived from Landsat. JAP: This has not been provided for validation.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide imagery used to conduct deforestation analysis.

Round 1 Response from Project Proponent (11 April 2014)	The original imagery UCEGEO uses to produce the Acre State Deforestation dataset is not available. However, the Acre State Deforestation dataset meets all methodological requirements. This is documented in the attached source "REVIEW OF THE DYNAMICS OF THE STATE OF ACRE DEFORESTATION: TEMPORAL ANALYSIS OF 23 YEARS (PERIOD 1988 TO 2010)". MS Word title METODOLOGIA DO ACRE 2011 (English).
ESI Findings - Round 2 (29 April 2014)	The deforestation dataset from UCEGEO for the historical reference period was reviewed for years 1999-2012; deforestation was tallied according to year of polygon feature class. The datasets used meet the resolution and time period requirements. The document entitled "REVIEW OF THE DYNAMICS OF THE STATE OF ACRE DEFORESTATION: TEMPORAL ANALYSIS OF 23 YEARS (PERIOD 1988 TO 2010)". MS Word title METODOLOGIA DO ACRE 2011 (English) was reviewed and while it is an excerpt of the main document in Portuguese, it outlines the procedures for detection and monitoring of deforestation across Acre state. The remote sensing methods described are detailed and precise, providing the necessary criteria for objectively defining deforestation temporal and spatial boundaries. Finding closed.

Item Number	45
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	(2) For the first point in time from the project start date, collect high-resolution data from remote sensors (<5 x 5 m pixels) and/or from direct field observations for ground-truthing the medium resolution data collected in previous step. These data must be of sufficient quantity to produce a map that shall have an accuracy of no less than 90% in the classification of forest versus non- forest as per Step 2.1.4.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1.2.1, files from client
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PDD noted An accuracy assessment used 100 randomly distributed ground truth points per class for a total of 200 ground truthing points, from Google Earth
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide accuracy assessment confusion matrix and Google Earth imagery points used to derive accuracy assessment

Round 1 Response from Project Proponent (11 April 2014)	Details of the accuracy assessment are provided in response to this finding, including km2 of point locations and a confusion matrix. Please see the accuracy assessment folder in the additional support file.
ESI Findings - Round 2 (29 April 2014)	See below in section 2.1.4 for more details of this requirement. The finding for this requirement is closed.

Item Number	46
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Using the data collected in Step 2.1.1 divide the reference region (RRD) into polygons ¹³ representing “forest” land and “non-forest” land at different dates in the past ¹⁴ (<i>Forest Cover Maps</i>) as well as “deforested” land (<i>Deforestation Maps</i>) at different time periods in the past. Deforestation Maps showing areas of deforestation with paired data shall be prepared and available for the time periods between each historic image. Given the heterogeneity of methods, data sources, and software, no specific methodology is prescribed for forest land and deforestation mapping. However, good practice of remote sensing analysis has to be followed in any case ¹⁵ . Mapping methods for each map type (forest / deforestation) have to be able to generate consistent datasets. Consistent with the applicability condition, areas of planned deforestation shall be identified and excluded from both the Forest Cover Maps and the Deforestation Maps.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Figure 1.1, files from client
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Historical deforestation noted in Figure in PDD, but unable to confirm in GIS
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Unable to confirm historical deforestation locations and dates, please provide Forest Cover and Deforestation Spatial Data over the reference period.
Round 1 Response from Project Proponent (11 April 2014)	The deforestation data from UCGeo has been provided in response to this finding. Please find this shapefile at Additional --> GIS --> Base GIS --> "Revised 2012 Deforestation Dataset. Also, the new RRD is included in the project archive and is entitled RusVAL_RRD_2013.2.18.shp. Its file path is: Additional --> GIS --> VCS_ProjectBoundaries --> RusVAL_RRD_2013.2.18.shp.

ESI Findings Round 2 (29 April 2014)	- 2	PP divided the RRD into forest and nonforest in an intermediate analysis step where the deforestation UCEGEO dataset represents nonforest and all other areas within the RRD representing forestlands. The deforestation dataset prepared for the RRD contains yearly deforestation from 1999-2012. Good practice of remote sensing was followed in employing the UCEGEO dataset. Datasets were confirmed to be consistent across map types as confirmed from validator analysis performed elsewhere in this review. No areas of planned deforestation were identified as this is not promoted in Acre state and all deforestation is the result of unplanned activities. Finding closed.
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Item Number	47
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	12. Note: For the purpose of this module, mapping forest and non-forest land is sufficient. However, project participants may consider to divide these two classes in sub-classes representing different carbon densities, as long as such classes can be accurately mapped using the data collected in Step 2.1 and such mapping is useful for other methodology steps.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1.4.1
Validation or Verification	Validation
ESI Findings Round 1 (23 October 2013)	- 1 Forest type stratified into 5 classes. JAP: PD Section 3.1.4.1 States: "One further stratum not present in the project area, open alluvial forest with bamboo (FAB - Alluvial), represented a very small area of the leakage belt." However, this stratum does not exist in the LB. Rather, the LB contains 399 Ha of FABD (Bamboo dominated open forest). This is not present in the PA. Also, PD Figure 1.9 indicates that FAP-Alluvial is present in the LB, which is not the case.
Round 1 NCR /CL / OFI (23 October 2013)	1 CL: Please address the findings and update PD Section 3.1.4.1 and PD Figure 1.9 accordingly.
Round 1 Response from Project Proponent (11 April 2014)	1 The text in Section 3.1.4.1 has been revised to read "One further stratum not present in the project area, bamboo dominated open forest (FABD), represented a very small area of the leakage belt. A map of the vegetation strata in the project area and leakage belt can be found in Figure 1.9." Further Figure 1.9 has been updated.

ESI Findings Round 2 (29 April 2014)	- 2	PP have provided a stratum map identifying the 5 stratum present in the PA and LB (figure 1.9) and 2011 stratum compared to nonforested (deforested) areas (Figure 1.7b). The areas of the stratum were confirmed to be correct in GIS. The text addition to section 3.1.4.1 was confirmed to have been added. Finding closed.
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Item Number	48
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	A verifiable accuracy assessment of the maps (AAU) produced in the previous sub-step is necessary to produce a credible estimate of the historical deforestation rate ¹⁶ .
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1.2.1, files from client
Validation or Verification	Validation
ESI Findings Round 1 (23 October 2013)	- 1 Unable to verify accuracy assessment without additional data
Round 1 NCR /CL / OFI (23 October 2013)	1 Pending NCR in Row 120 above
Round 1 Response from Project Proponent (11 April 2014)	1

ESI Findings Round 2 (29 April 2014)	The findings in this section address the Round 1 PP responses from row 120. 100 reference points for forest and non-forest (totaling 200), were collected to verify overall classification accuracy for the entire Acre state. PP collected a sufficient number of validation points and are in compliance with industry standards of ~100 samples >1 million acres. However, the spatial distribution of the points is poor and does not cover much of the interior of Acre state. Also, the validator is unable to determine if spatial independence was violated and training data was also used for validation points. Lastly, there is no statistical description of the chosen sample size for the accuracy assessment of the entire Acre state. A minimum mapping unit reference was not found in UCEGEO guidance documentation or within the PD.
Round 2 NCR /CL/OFI (12 May 2014)	CL: The following clarification requests reflect good remote sensing practice: a) The spatial distribution of the validation points throughout Acre state is poor and tends to bias the boundaries and eastern parts, please explain in the PD whether or not the point distribution was performed in a random fashion. Please identify where this information was added. b) Please confirm that the Google Earth validation data for performing the accuracy assessment is spatially independent from data used for training the classification (UCEGEO dataset). c) Please elaborate in section 3.1.2.1 about the accuracy assessment sample size to mention a statistically valid description of sample size for the validation data. d) Please identify the minimum mapping unit utilized in classification of the UCEGEO deforestation dataset

Round 2 Response from Project Proponent (25 June 2014)	a) The following text was added to Section 3.1.2.1 of PD: "Deforestation in Acre State is closely linked to the road network. The primary roads, BR-364 and BR-317, run east-west across the north of the state and north-south along the eastern edge of the state, respectively. Distribution of validation point was limited to areas where high resolution imagery was available for corresponding dates to the classification imagery. Within these high resolution scenes accuracy assessment points were randomly distributed. As availability of high resolution imagery corresponds to areas of active deforestation and development, it follows that these scenes are a mosaic landscape with patches of forest/nonforest. It is within this mosaic landscape where classification is most likely to be erroneous due to the scale at which deforestation is taking place and the resolution of Landsat which can create the challenge of mixed pixels. As such, the higher concentration of accuracy assessment points within these mosaicked landscapes is not only logical since deforestation is most prevalent here, but it is also where classification errors are more likely, thus increasing the difficulty of attaining the requisite classification accuracy." b) The Google Earth imagery used for the accuracy assessment is from QuickBird. The information used for training classes in Acre States classification are forest/nonforest ground observations with corresponding GPS points. c) The following text was added as a footnote to Section 3.1.2.1 of the PD: "Congalton (2005) suggests a sample sizes of 50 to 100 assessment points for each map category. Congalton, R. G. 2005. Thematic and Positional Accuracy Assessment of Digital Remotely Sensed Data. 2005 Proceedings of the Seventh Annual Forest Inventory and Analysis Symposium. 2005 October 3–6; Portland, ME." Further this source has been provided in response to this finding. d) The minimum mapping unit utilized in the UCEGEO classification is 0.54 ha, as noted in section 3.2.2 of the UCEGEO guidance document.
Final ESI Findings	a) Validation team accept this response and prefer that "validation point" and "accuracy assessment points" be referred to as "ground reference points" in the future to more accurately reflect their purpose. B) This response is sufficient to satisfy the clarification request c) The reference to Congalton 2005 in footnote 45 is sufficient to provide background on accuracy assessment sample size. d) This response is sufficient to address the clarification request. Finding closed.

Item Number	49
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	As with the <i>RRD</i> , remote sensing data is needed for the spatial analysis. The remote sensing data shall meet the same requirements as those for the <i>RRD</i> and described in Sections 2.1.1 to 2.1.4.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1.3.1, files from client
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Land cover maps for 2000 and 2010 shown in PDD to be used for the SELVA model, but no GIS files provided
Round 1 NCR /CL / OFI (23 October 2013)	Pending NCR in Row 125 above
Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings - Round 2 (29 April 2014)	Forest/nonforest land cover maps (Figure 3.3) were assumed to have been created through a union of the RRL outline and mapped deforestation up to and including the year of interest (2000, 2005, 2010).
Round 2 NCR /CL/OFI (12 May 2014)	CL: Please identify in the PD section 3.1.3.1 where the remote sensing data originated for performing the spatial analysis.
Round 2 Response from Project Proponent (25 June 2014)	The following text was added to Section 3.1.3.1 of the PD. "Remote sensing data used for imagery classification was derived from LandSat imagery and was processed by UCEGEO." This is evidence by the source "METODOLOGIA DESMATAMENTO DO ACRE 2011" which has been previously provided"

Final ESI Findings	Auditors accept this response and confirmed that the text was appropriately added to the PD. This supplemental information suffices to meet the requirement. Finding closed.
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Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	The final analysis shall use a minimum of one factor from each of the four classes of factors given above, and create digital maps representing the <i>Spatial Features</i> of each factor (i.e. the shape files representing the point, lines or polygon features or the raster files representing surface features). Models are required to produce <i>Distance Maps</i> from the mapped features (e.g. distance to roads or distance to already cleared lands) or maps representing continuous variables (e.g. slope classes) and categorical variables (e.g. soil quality classes). For simplicity, all these maps are called " <i>Factor Maps</i> ".
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Table 3.4
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Model uses at least 2 factors from each class. JAP: Factor Map spatial data has not been provided.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide "Factor Map" spatial data that was used to derive vulnerability (risk) maps.
Round 1 Response from Project Proponent (11 April 2014)	Factor maps are provided in response to this finding. The file path is additional -->model-->factor maps.
ESI Findings - Round 2 (29 April 2014)	PP have supplied "factor map" IDRISI .rst file type spatial data for validators to identify (within a range) model results. The resulting rasters show predicted deforestation according to a classified histogram. Screen shots of the model results were also reviewed. This information gives reasonable assurance that the factor maps and vulnerability risk maps were properly modeled and are sufficient to address this NCR. Finding closed.

Item Number	51
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	A <i>Risk Map</i> shows, for each pixel location <i>I</i> , the risk, or “suitability”, for deforestation as a numerical scale (e.g. from 0 = minimum risk to some upper limit representing the maximum).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Table 3.4
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Risk map values ranked in descending order: JAP: Risk Map Spatial data has not been provided.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide "Risk Map" spatial data that was used to predict the location of future deforestation..
Round 1 Response from Project Proponent (11 April 2014)	The risk map has been provided in response to this finding. The file path is additional-->model-->output-->risk map.
ESI Findings - Round 2 (29 April 2014)	The risk map in raster format (RiskMap.rst) was supplied by PP and pixel values were confirmed to have been properly assigned a value between 0 and 1 depending on likelihood of deforestation. The results are reasonable because higher risk pixels are located along the stream corridor which borders the PA. Finding closed.

Item Number	52
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Prepare for each <i>Risk Map</i> a <i>Prediction Map</i> of the deforestation in the confirmation period (e.g. between historic interval one and two, if using three remote sensing images). Overlay the predicted deforestation with locations that were actually deforested during the confirmation period. Select the Prediction Map with the best fit and identify the <i>Risk Map</i> that was used to produce it.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Figure 3.4
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Prediction map given for future deforestation, no prediction map shown for year 2010
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide "Prediction Map" spatial data for the confirmation period with overlain measured deforested areas.

Round 1 Response from Project Proponent (11 April 2014)	The 2010 modeled deforestation layer is provided in response to this finding. The file path is additional -->model-->output-->prediction map. As discussed on the phone call on 1/29/14, we have provided the documentation regarding selecting the "best fitting model". Through the evaluation of multiple model runs for predictive accuracy using the Figure of Merit (FOM) measure, the best possible model is chosen. The Figure of Merit not only ensures that the most accurate model is chosen, it also sets the minimum acceptable accuracy of the model. The actual range of values for FOM found for land change models in the literature range from 1- 59%. The median value of a set of 20 reported FOM values was 10.25 (Lavallo, 2011, Fuller et al 2011, Kim, 2010, Pontius et al, 2008, Hepinstall, 2008). FOM values will vary greatly with data availability and quality, landscape configuration and spatial and temporal resolution. In a comparative analysis of many modeling efforts, Pontius et al (2008) found that the only strong relationship with the predictive accuracy of a model was the amount of observed net change in the reference maps. As we are modelling frontier deforestation where the amount of observed net change is quite low, a lower FOM is expected. As the selected model was the "best fitting model" and the FOM value of 9% was greater than the minimum threshold of 1.03%, it was selected for use. We have provided the following source to support this response. Pontius et al. 2008. Comparing the input, output, and validation maps for several models of land change. The Annals of Regional Science. 42 (1): 11-37. The above concept is summarized in Pontius et al. (2008) in his conclusion: "Twelve of the 13 LUCC modeling applications in this paper's comparison contain more erroneous pixels than pixels of correctly predicted land change at the fine resolution of the raw data. Multiple resolution analysis reveals that these errors vanish at coarser resolutions, since near errors of location over small distances become resolved as resolution becomes slightly coarser. The most synthetic result is that LUCC models that are applied to landscapes that have larger amounts of observed net change tend to have higher rates of predictive accuracy as indicated by the figure of merit, for the voluntary sample of applications that we analyzed. This underscores: (1) the necessity of considering both the observed change and the predicted change in order to interpret the model error, and (2) the importance of characterizing the map differences in terms of quantity disagreement and location disagreement. As scientists continue to develop this rapidly growing field of LUCC modeling, it is essential that we communicate in ways that facilitate cross laboratory comparison. Therefore, we encourage scientists to use the concepts and techniques of this paper in order to communicate with a common language that is scientifically rigorous, generally applicable, and intellectually accessible." Further, the raster rank file (rank_rrl_220) and a shapefile conversion of this rank (rank_rrl_220.shp) have been provided in response to this finding. These files contain the allocation of the ABSL,RR,unplanned,t to the RRL for each year in the baseline. The PA and LB baseline are then quantified by clipping the RRL rank shapefile by the project area and leakage belt and then intersecting the resulting baseline file with the PA strata file and LB strata file. Shapefiles of the PA and LB baseline have been provided in the project archive. These shapefiles are entitled (ValparaisoPABaseline_040914) and (ValparaisoLBBaseline_040914). These files can be found in the following folder: Additional\GIS\Baseline. All baseline values in Table 3.5 and 3.6 have been revised and tracked in the PD. This has led to changes in net GHG accounting which have also been tracked.
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ESI Findings Round 2 (29 April 2014)	The 2010 modeled deforestation .rst layer was reviewed in GIS and the results seem reasonable. While the validator has limited capacity to check that multiple model runs were performed and the best predictive accuracy was achieved, the results of this modeling effort as represented by the FOM value seem reasonable. Valparaíso model FOM value of 9% is close to the median value of 10.25 as reported in the literature (see references in Round 1 response from PP). Factors outside of the PP control including rate of deforestation and variation among input parameters effect the FOM measure. PP have sufficiently demonstrated that the calculated FOM is reasonable and the best fitting model was appropriately selected. The raster rank file and resulting .shp conversion appropriately indicate that ABSL,RR,unplanned,t to the RRL were allocated at the correct amount for each modeled year from 2012-2021. However, the area of predicted deforestation for years 2012-2021 was allocated according to the average historic rate of deforestation in the RRL, not the RRD as stated in section 3.1.3.2. The PA and LB were correctly quantified by stratum and independently checked to confirm tables 3.5 and 3.6 of the PD. Figure 3.4 illustrates the deforestation predictions of the best fitting model (after calibration and validation) and project proponents have provided the raster .rst file of this result. Project proponents have indicated in the PD that the model was compared to actual values with the 2012 deforestation dataset in order to confirm model performance. Finding closed.
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Item Number	53
Approved VCS Tool VT0001,Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	When using Artificial Neural Networks to determine the best fit (lowest error) model, project proponents will apply the following guidance: (1) For the calibration period (i.e. the first time step in the historical reference period, used to calibrate the model), a minimum of 5,000 samples (pixels) of the “transition” category (forest to non-forest) and 5,000 samples (pixels) of the “persistence” category (locations that do not transition but remain as forest) will be randomly selected and used for training and testing. (2) A minimum of 10,000 iterations of the model will be run before selecting the best fit model.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1.3.3
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	ANN used with 5,000 pixels and >10,000 iterations run
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please provide model outputs or other material to allow for validation of the number of iterations performed
Round 1 Response from Project Proponent (11 April 2014)	An output of the model is provided in a word document (Land Change Modeler MLP Model Result.doc) as well as an image of the model process screen is provided to demonstrate the number of iterations and the sample size. Please find the files in the folder : Additional\Model\Output
ESI Findings - Round 2 (29 April 2014)	Model run results supplied by project proponents demonstrate that trained and tested neural networks were used to determine the best fit model. Iterations were confirmed to have been performed 10,000 times. The model outputs further indicate that 10,000 samples were used to calibrate the model for the transition (forest to non-forest) and persistence (stayed as forest) classes. Finding closed.

Item Number	54
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Where location analysis has been conducted, the area of deforestation to be used is <i>ABSL,RR,unplanned,t</i> allowing the allocation of deforested areas throughout the <i>RRL</i> based on highest likelihood of deforestation at any point in time as predicted by the spatial model. In this manner, the spatial model may lead to a larger area of deforestation in the project area than elsewhere in the <i>RRL</i> , or alternately the model may lead to a smaller area within the project area to be deforested than elsewhere in the <i>RRL</i> .
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Table 3.5
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Model indicated deforestation of 7,126.0 ha. JAP Could not confirm without "Prediction Map" spatial data.
Round 1 NCR /CL / OFI (23 October 2013)	Pending NCR in Row 225 above
Round 1 Response from Project Proponent (11 April 2014)	

ESI Findings Round (29 April 2014)	- 2	The raster rank file and resulting .shp conversion appropriately indicate that ABSL,RR,unplanned,t to the RRL were allocated at the correct amount for each modeled year from 2012-2021. The area of predicted deforestation for years 2012-2021 was allocated according to the average historic rate of deforestation in the RRD. Land Change Modeler outputs show that RRL was used and the vector deforestation .shp was confirmed in GIS. However, the PD does not indicate whether the results of the spatial model have led to a larger or smaller area of deforestation in the project area as compared to the RRL.
Round NCR /CL/OFI (12 May 2014)	2	CL: Please indicate in section 3.1.3.4 whether the results of the spatial model have led to a larger or smaller area of deforestation in the project area as compared to the RRL, per this requirement.
Round Response from Project Proponent (25 June 2014)	2	The following statement has been added to Section 3.1.3.4 of the PD. "The spatial model predicts there will be less hectares of deforestation in the project area than in the RRL."
Final ESI Findings		Auditors accept this response and confirmed the revision to the PD. Finding closed.

Item Number	55
Approved VCS Tool VT0001,Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	(4) Prepare a table showing the number of hectares that will be deforested each year in the baseline case for the baseline period in the project area. In addition, prepare a Crediting Period Baseline Deforestation Map showing the hectares projected to be deforested in each year in the fixed (10 year) baseline period.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Table 3.5
Validation or Verification	Validation
ESI Findings Round (23 October 2013)	- 1 Table provided in PDD, same as previous step map? JAP: Map provided in PD as well. Table 3.5 and the map need confirmed after receiving Prediction Map Spatial Data
Round NCR /CL / OFI (23 October 2013)	1 Pending NCR in Row 225 above

Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings - Round 2 (29 April 2014)	Tables 3.5 and 3.6 display the hectares that will be deforested each year in the baseline case for the baseline period according to stratum in the PA and LB, but not total hectares by year. The map produced in step 2 (although without hectares displayed) partially meets this requirement.
Round 2 NCR /CL/OFI (12 May 2014)	CL: Please revise PD Figure 3.4 to improve readability (It is very hard to discern predicted deforestation for any given year) and display total hectares to be deforested in each year for the project area per this requirement.
Round 2 Response from Project Proponent (25 June 2014)	I have tried to remake Figure 3.4 to improve readability but the displayed color bar best displays the information. This map is meant to be indicative of where deforestation is to occur and the actual model output (ValRRL_baseline2014.06.25) has been provided to the auditor for zooming in to spot checking specific areas. As noted, Table 3.5 and 3.6 display the areas deforested by stratum, thereby meeting this requirement. The total sum by year is not useful for net GHG calculations and hence is not warranted.
Final ESI Findings	Auditors accept this response and agree that readability is difficult to achieve for the predicted deforestation map in this context. The areas deforested by stratum are appropriate in Tables 3.5 and 3.6. Finding closed.

Item Number	56
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Each forest stratum will be represented by a carbon stock estimated within 2 years before the project start date, for simplicity referred to here as stocks at $t=0$ (see CP-AB).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Tables 3.9
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	Each table represents a carbon stock JAP: True story, However, Findings: The inventory was conducted in 2013, which is not prior to the project start date.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Given that the inventory was conducted in 2013, please demonstrate how each forest stratum is represented by a carbon stock estimated within 2 years before the project start date.
Round 1 Response from Project Proponent (11 April 2014)	The guidance in the BL-UP module does not agree with the guidance in the CP-AB module. Guidance from the BL-UP module- "Each forest stratum will be represented by a carbon stock estimated within 2 years before the project start date, for simplicity referred to here as stocks at t=0 (see CP-AB)." Guidance from the CP-AB module -"Measurements of initial stocks employed in the baseline must take place within ± 5 years of the project start date, for simplicity referred to here as stocks at t=0." As the guidance in the BL-UP module references the CP-AB module and the CP-AB module has all other guidance in regards to the forest inventory, it seems clear that an inventory date of 2013 should be allowed as it is within 5 years of the project start date. Further, in an email on February 06, 2014, Shawn McMahon of ESI wrote the following to Andrew Beauchamp of VCS: "Regarding the inconsistency between the BL-UP requirement that "Each forest stratum will be represented by a carbon stock estimated within 2 years before the project start date" and CP-AB where it says "Measurements of initial stocks employed in the baseline must take place within ± 5 years of the project start date". You spoke with the methodology developers and they indicated this is an error in the methodology and the intention was ± 5 years of the project start date as stated in CP-AB. ". It therefore seems that this issue has been addressed and there is no need to model the 2013 forest biomass stocks data back to the project start date.
ESI Findings - Round 2 (29 April 2014)	The validation team agrees this is an error in the methodology and has decided to allow the project proponent to use inventory data from 2013 as this is in agreement with the requirement for module CP-AB. There is a clear oversight in module BL-UP not being updated to be in accordance with module CP-AB and VCS guidance on the matter (through email date Feb. 19, 2014) allowed for the validation team to make a professional judgment call. Finding closed.

Item Number	57
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU)	Option 2 – Historical area-weighted average: The historical land-use matrix will refer to post- deforestation land uses initiated during the historical reference period. An historical mix of post- deforestation land-uses is assumed to be representative of future changes. The area-weighted average of the mature carbon stock for each land use is calculated from the historical land-use change matrix and is assumed to represent all post-deforestation carbon stocks in that land use during the project term. Note that in cyclical post-deforestation land-use systems the time-weighted average of stocks in a cycle shall be used. The historical reference period shall be used as the time-frame reference.

PROJECT ACTIVITIES, Sectoral Scope 14	
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.4.3; Valparaíso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Post deforestation land uses are Pasture (81%), Agriculture (6%) and Secondary Succession (13%). These do not appear to be based on a historical land-use change matrix resulting from the LULC analyses used to determine the deforestation rate. No land use change matrix could be located in the PD or supporting files. "ACRE. Governo do Estado do Acre. Secretaria de Estado de Planejamento e Desenvolvimento Econômico-Sustentável, Secretaria de Estado de Meio Ambiente e Recursos Naturais. Programa Estadual de Zoneamento Ecológico-Econômico do Acre. Zoneamento Ecológico-Econômico do Acre Fase II. Documento Síntese, 2006." could not be located in the supporting files.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate that the post-deforestation land uses (Pasture (81%), Agriculture (6%) and Secondary Succession (13%)) are sourced from a historical land-use change matrix from the reference region during the historical reference period. Please provide the historical land-use change matrix to allow for validation.

Round 1 Response from Project Proponent (11 April 2014)	We have decided to change our approach for estimating Cpost to option 1, the simple approach using the highest long-term carbon stock value, rather than option 2 which uses the historical area-weighted average. This change was undertaken as there is a new understanding that the "likely post-deforestation land uses" only include agriculture and pasture. While secondary forest was initially included as a land use class, we have since learned that rather than true secondary forest on abandoned land, regrowth only occurs on agricultural land that is left fallow. Many farmers do not have any fallow period in which case their land is under continuous cultivation or their agricultural land is converted to pasture. Where farmers do employ a fallow period, this fallow period is limited to 2 years as stated in the responses from the PRAs. As such the following text was added to Table 3.12 of the PD. "Option 1, the simple approach, was used in the estimation of post-deforestation carbon stocks. A land use classification produced by the State of Acre indicated that forest in Acre State is converted into three non-forest classes including agriculture, pasture, and urban lands. As the deforestation in the project area is occurring in rural areas, the post-deforestation land uses do not include urban lands, but are limited to pasture and cropland. After a thorough review of literature, the best source of information on biomass stocks was a local study by Salimon et al. entitled "Estimating state-wide biomass carbon stocks for a REDD plan in Acre, Brazil". This peer reviewed study lists biomass values from both pasture (16.0 tons d.m./ha) and cropland (11.6 tons d.m./ha) and was in part supported by the Acre Environment Office and Fundação de Tecnologia do Estado do Acre; two organizations which are helping to develop the Acre state baseline. These values were converted to the total aboveground and belowground biomass stock using allometric root equation developed by Cairns and converted to stocks of carbon using a carbon fraction of 0.47, as per the VM007 module. The resulting estimate for post-deforestation carbon stocks are 9.6 and 7.0 t C/ha for both pasture and cropland, respectively. As pasture has the highest carbon stock of the post-deforestation land uses, the value of 9.6 t C/ha has been used as the post deforestation carbon stock. After converting to t CO2/ha, a conservative estimate of post-deforestation carbon stocks of 35.2 t CO2/ha was calculated. See the project database for details of the analysis."
ESI Findings Round 2 (29 April 2014)	The revised estimates for Cpost using the simple approach were reviewed by the validation team and deemed acceptable, further the new c post calcs in Post Deforestation Stocks 2014.02.14.xls were checked and are correct. It seems reasonable that local farmers would limit fallow periods and therefore limit post-deforestation land use to only pasture and agriculture. Biomass values are confirmed from a reputable source Salimon et al. Finding closed.

Item Number	58
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Option 2 – Historical area-weighted average: The historical land-use matrix will refer to post- deforestation land uses initiated during the historical reference period. An historical mix of post- deforestation land-uses is assumed to be representative of future changes. The area-weighted average of the mature carbon stock for each land use is calculated from the historical land-use change matrix and is assumed to represent all post-deforestation carbon stocks in that land use during the project term. Note that in cyclical post-deforestation land-use systems the time-weighted average of stocks in a cycle shall be used. The historical reference period shall be used as the time-frame reference.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.4.3; Valparaiso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PD States: "Salimon et al. lists biomass values for pasture (16.0 tons d.m./ha), agriculture (11.6 tons d.m./ha) and secondary forest cropland (37.0 tons d.m./ha). These values were converted to the total aboveground and belowground biomass stock applying the allometric root equation developed by Cairns et al. . After converting to t CO₂/ha, an area weighted average of 40.4 t CO₂/ha was calculated. See the project database for details of the analysis." This analysis could not be located.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide the analysis file that demonstrates the quantification of below ground biomass and the area-weighted average of the mature carbon stock for each post-deforestation land use. Note Items XX (Row 269 above) and XX (Row 271 Below) in addressing this CL.
Round 1 Response from Project Proponent (11 April 2014)	Please see the file "Post Deforestation Stocks 2014.02.14" which documents the calculation of belowground biomass. This file has been provided in response to this finding.
ESI Findings - Round 2 (29 April 2014)	The analysis file ("Post Deforestation Stocks 2014.02.14") that demonstrates the quantification of below ground biomass was provided and reviewed by validators. Calculations were confirmed correct and the new approach deemed reasonable. Finding closed.

Item Number	59
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Post-deforestation carbon stocks of the selected land-use classes shall be obtained from local studies and, where examples of mature vegetation for a particular land-use do not exist in the reference area then data shall be obtained from credible and representative literature sources (e.g. IPCC GL 2006 or other credible literature sources). The local study areas shall include sites that represent the conditions and the land management practices identified as the most likely post-deforestation baseline conditions. Local data shall be based on a sampling scheme that produces conservative estimates of the carbon stocks ²³ . Where stocks accumulate through time, the mature stock shall be used and where stocks are in a cycle such as in shifting cultivation, the time-weighted average of C stocks in a cycle shall be used in option 1 and 2. Carbon pools excluded from the project can be accounted as zero. For the determination which carbon pools shall be included in the calculations as a minimum, see Table 1 in REDD-MF and tool T-SIG.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.4.3; Valparaíso Project 2013.07.16.xls; Salimon et al 2011.pdf
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Post-deforestation carbon stocks of the selected land-use classes are sourced from Salimon et al 2011.pdf. Because the values presented in Salimon et al 2011 were extracted from other published values, it is unclear if these values represent mature vegetation for secondary forest, whether the estimates are conservative, whether the estimates for Pasture and Agriculture represent the time-weighted average of C stocks, and whether or not the carbon stock estimates are reflective of those carbon pools that are included in the project boundary..
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate how post-deforestation carbon stocks estimates sourced from Salimon et al 2011 represent mature vegetation for secondary forest, whether the estimates for Pasture and Agriculture represent the time-weighted average of C stocks, whether the estimates are conservative, and whether or not the carbon stock estimates are reflective of those carbon pools that are included in the project boundary.
Round 1 Response from Project Proponent (11 April 2014)	We have removed the secondary forest land use class from the Cpost analysis; hence this finding is no longer warranted. Secondary forest was removed due to confusion over land being abandoned versus land being let fallow and part of the agriculture class. Please see the response to finding 269, above.
ESI Findings - Round 2 (29 April 2014)	PP removed the secondary forest land use class from the Cpost analysis and this finding is no longer warranted. Secondary forest was removed due to confusion over land being abandoned versus land being let fallow and part of the agriculture class. Please see the response to finding 270, above. Finding closed.

Item Number	60
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Stock changes in each pool are calculated by subtracting post-deforestation carbon stocks from forest carbon stocks. <u>(See page 30 and 31 for carbon stock change equations)</u>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.4.2; Valparaíso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Confirmed the application of Equation 16 - see 3.1 Tab - note it is not calculated separately. Confirmed the application of Equation 18 - see BB baseline Tab - note it is not calculated separately. Confirmed the application of Equation 20 - see DW baseline Tab - note it is not calculated separately. However, for Equation 20, C Post for DW = 0. The PD does not mention the lack of deadwood in the post-deforestation cases. Rather it indicates that deadwood is greater in the baseline. Secondary forest certainly would have dead wood.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Cpost is equal to zero in the quantification of the baseline carbon stock change in dead wood in all strata despite being a pool that is included in the project boundary. This is not justified in the PD. Please justify how this is conservative or more appropriate. Else estimate CDW _{post,i} and include in the calculations.
Round 1 Response from Project Proponent (11 April 2014)	Salimon et al. is the best sources for information on biomass and carbon stocks for Acre State. It is for this reason that Cpost was derived from this source. While not specifically noted in the project document a dead wood value of 0.0 has been included in the calculation of Cpost. A value of zero is appropriate for dead wood stocks post deforestation because nonforested areas are periodically burnt and fuelwood is most often collected from nonforest areas leading to a lack of deadwood in post deforestation land uses. We have removed the secondary forest land use class from the Cpost analysis; hence this finding is no longer warranted. Secondary forest was removed due to confusion over land being abandoned versus land being let fallow and part of the agriculture class. Please see the response to finding 269, above.

ESI Findings Round - 2 (29 April 2014)	The response adequately justifies a CDW,post,,i value of zero for Pasture. PP removed the secondary forest land use class from the Cpost analysis. Secondary forest was removed due to confusion over land being abandoned versus land being let fallow and part of the agriculture class. Please see the response to finding 270, above. Finding closed.
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Item Number	61
Approved VCS Tool VT0001,Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Quality Assurance / Quality Control: Where leakage belt boundaries have not been derived using GPS on-the-ground measurements quality control shall be carried out. A minimum of 30 locations on the leakage belt boundary, each separated by at least 1km, shall be visited. If a systematic bias is detected in the original boundaries and/or if >10% of locations differ by >50m then the entire boundary shall be resurveyed
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1; ValparaisoLB_2013.07.10.shp
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	This is not addressed in the PD. It appears that the LB boundaries were not derived using GPS on-the-ground measurements.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please identify in PD Section 3.1.1.1 if the leakage belt boundaries were derived using GPS on the ground measurements and describe any QA/QC procedures that have been and/or will be carried out regarding the leakage belt boundaries.

Round 1 Response from Project Proponent (11 April 2014)	The leakage belt has been developed according to the methodological requirements and as it shares a border with the project area part of the LB boundary has been derived using GPS (see response to Finding 367). Delineation of the "outer" boundary of the leakage belt using a GPS is not warranted as it does not affect how the project activities or project monitoring is carried out. Further, as the cited guidance is part of a monitoring parameter, we can deviate from this requirement should this be necessary. The VCS standard states "Deviations from the applied methodology are permitted where they represent a deviation from the criteria and procedures relating to monitoring or measurement set out in the methodology (i.e., deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan)" The following text was added to 3.1 of the PD: "Further, parts of the Valparaíso leakage belt boundaries were delineated and georeferenced using a GPS as part of the registration and titling of the property, as the leakage belt shares a border with the project area."
ESI Findings - Round 2 (29 April 2014)	PP described how the interior (adjacent to PA) boundary of the LB was determined but did not mention whether or how the QA/QC procedures outlined in this requirement were followed. Area of the LB was recalculated in GIS and found to be correct.
Round 2 NCR /CL/OFI (12 May 2014)	CL: Please explain how the exterior portion of the LB was delineated and whether QA/QC measures were properly employed per this requirement. Else, please provide justification to validators that this is a permissible methodology deviation. As required in the VCS Standard v3.3 methodology Deviation definition, please demonstrate how an absence of monitoring in the exterior boundary of the LB will not negatively effect the conservatism of quantification.
Round 2 Response from Project Proponent (25 June 2014)	In an email on 6/6/2014 from Shawn McMahon at ESI, he states "Avoided Deforestation partners has indicated that the quality control (30 GPS points) is not intended to be required where the LB is not purely defined from RS. This means a deviation is not required and this item can be closed out."
Final ESI Findings	The guidance from methodology developers suffices to satisfy this requirement. Finding closed.

Item Number	62
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Source of data: GPS coordinates and/or remote sensing data

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1; Valparaiso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Area in PDD (21,902 ha) matched to area calculated in GIS JAP: Sum of strata = 21,837 ha vs. 21,902
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please explain the discrepancies in the values of PA (ha) reported in PD Section 3.1.1.1 and the sum of the strata areas. The validator must be able to confirm the value for PA (ha).
Round 1 Response from Project Proponent (11 April 2014)	The shapefile (ValparaisoPA_2014.04.09) and the project area reported in PD Section 3.1.1.1 are the same(21,185 ha). They are in agreement with the revised project area strata map (ValStrata_2014.04.09).
ESI Findings - Round 2 (29 April 2014)	The PA .shp was reviewed in GIS and area reported is correct and in agreement throughout the PD. Finding closed.

Item Number	63
Approved VCS Tool VT0001,Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Quality Assurance / Quality Control: Where project boundaries have not been derived using GPS on-the-ground measurements quality control shall be carried out. A minimum of 30 locations on the project boundary, each separated by at least 1km, shall be visited. If a systematic bias is detected in the original boundaries and/or if >10% of locations differ by >50m then the entire boundary shall be resurveyed
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.1.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	This is not addressed in the PD. It appears that the PA boundaries were not derived using GPS on-the-ground measurements.

Round 1 NCR /CL / OFI (23 October 2013)	CL: Please identify in PD Section 3.1.1.1 if the project area boundaries were derived using GPS on the ground measurements and describe any QA/QC procedures that have been and/or will be carried out regarding the project area boundaries.
Round 1 Response from Project Proponent (11 April 2014)	Project boundaries are from the official land tenure document which are derived from ground GPS points. As part of the geo-referencing and titling of properties the owner met all requirements including field GPS confirmation. The following statement was added to Section 3.1.1.1 of the PD: "The Valparaíso property boundaries were delineated and georeferenced using a GPS as part of the registration and titling of the property." The AutoCAD file (ser_valparaisomanoelopes.dwg) used in the course of the georeferencing of the property has also been provided in response to this finding.
ESI Findings - Round 2 (29 April 2014)	~35 control points were established during surveying using a GPS were installed when the owner boundarized the PA as seen in the AutoCAD file used for registration and titling of the property. The AutoCAD file was reviewed in GIS and demonstrates how the project boundaries were determined. Finding closed.

Item Number	64
Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Measurement procedures (if any): Calculated from the result of remotely sensed data analysis
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.2.3; Valparaíso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Calculated as 0.817. Confirmation is pending receipt of forest/non-forest cover maps
Round 1 NCR /CL / OFI (23 October 2013)	Pending NCR in row 34 above
Round 1 Response from Project Proponent	The area of forest in the RRL in 1999 has been updated. This value is 4,424,719.5 ha. As part of this response a topology error in the original RRL shape file had be fixed resulting in a new RRL shape file,

(11 April 2014)	RusVAL_RRL_2014.02.07. Note the area is the same as the original file (RusVAL_RRL_2013.07.05). We clipped the revised deforestation dataset (Desmate_Acre_1988_2012_Revised) using the shapefile RusVAL_RRL_2014.02.07. This resulted in a shapefile containing all areas deforested within the RRL (RRL_Deforestation2014.02.shp). The attribute table of this resulting shapefile was then exported to an excel file for calculations. This excel file (RRL_AmtDefor 2014.02.18) has been provided in the dropbox archive in response to this finding as it contains the RRL calculations. The area of forest in 1999 was then calculated as the total area of the RRL minus all areas of deforestation 1988-1998. The value for the PRRL has been updated with the correct value of 0.835. Further, all statistics reliant on these changes, in Section 3.1 of the PD, related to the RRL have been checked and updated where warranted including: RRL_Forest1996, % Nonforest at Project Start, % Forest at Project Start, PRRL, and RRL2011 as % of RRD.
ESI Findings - Round 2 (29 April 2014)	Forested levels in the RRL were reviewed for the start of the (new) historical reference period. The deforestation dataset was clipped to the RRL polygon and deforestation which occurred from the start of Acre state deforestation remote sensing analysis (1988) to 1998 (year before start of historical reference period) was subtracted from the area of the RRL to achieve forested area in 1999. The analysis for finding for forest area at 2011 was similar, but it appears as though deforestation is double counted for 2011. This method assumes that areas remain deforested indefinitely and does not use the Acre state vegetation map which may have been available for the 1999 and 2011 periods to determine areas nonforested.
Round 2 NCR /CL/OFI (12 May 2014)	CL: In calculating the parameter ARRL, forest t (ARRL,Forest1999 & ARRL,Forest2011) it was assumed that areas deforested prior remain so, please justify this assumption. The calculation for parameter ARRL,Forest2011 appears to be double counting deforestation from years 1988-1998, please indicate if this is the case. The parameter ARRL,Forest1999 accounts for deforestation until the end of 1998 while ARRL,Forest2011 accounts for deforestation until the end of 2011, please explain. Also please indicate whether or not Acre state historical vegetation maps were available and whether they would have been a viable alternative method of determining nonforested areas in years 1999 and 2011 in the RRL.

Round 2 Response from Project Proponent (25 June 2014)	As discussed during our explanation of the Acre deforestation dataset, forest converted to nonforest is a labor extensive process and cleared lands are unlikely to be abandoned other than for a fallow period associated with crop production. Regardless, the accuracy assessment indicates the forest/nonforest classification from which estimates of ARRL,Forest1999 and ARRL,Forest2011 is correct 99% of the time. The calculation of ARRL,Forest2011 has been update to eliminate this double counting and has been recalculated to be 4,311,812 ha. This calculation has been updated in the file "RRL_AmtDefor 2014.06.23". Further, the percentage of forest and nonforest at the time of the project start and the forested area of the RRL as a percentage of the RRD has been updated in the PD. The parameter ARRL,Forest1999 has been renamed ARRL,Forest1998 to accurately reflect that all deforestation prior to the start of the historical reference period (1999) has been removed. No historical Acre state vegetation maps are available. Current vegetations maps are available and have a settlement class but we have found that this class is highly inaccurate and while it can be used to show broad settlement patterns in the state it is only indicative not accurate for use as a forest/nonforest class.
ESI Findings - Round 3 (09 July 2014)	The validation team accepts the explanation given by the PP to justify the low likelihood of forest re-growth after conversion. However, the likelihood of the accuracy assessment detecting forest re-growth is relatively low. The calculation of ARRL,Forest2011 was checked and the double counting for years 1988-1998 was corrected. This value needs to be corrected in the PD. The percentage of forest and nonforest at the time of the project start could be explicitly noted in the PD. ARRL,Forest1999 has not been renamed ARRL,Forest1998 per the PP response. The values in the "justification" box need to be updated as well (Table 3.3 of PD).
Round 3 Response from Project Proponent (09 July 2014)	In Table 3.3 of the PD, the area of the RRD was updated to "4,651,620" ha in the justification box and the value for parameter PRRL was also updated to 0.951. "RRL forested area" in the justification box has also been renamed "ARRL,Forest1998". The text in Section 3.1.1.1 on the RRL already states "Further, it is 5.3% non-forest and 94.7% forest and thus in compliance with the methodological requirements of a minimum of 5% non-forest and a minimum of 50% forest".
Final ESI Findings	The revisions as stated by the PP in the response were confirmed to have been made in the PD. Finding closed.

Item Number	65
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and	The net carbon stock change as a result of deforestation is equal to the area deforested multiplied by the emission per unit area (represented by <u>Equations 3 and 4 on page 8</u>)

removals (M-MON), Sectoral Scope 14	
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.2; Valparaiso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Equation 3: Ex-ante areas of deforestation in the project area are summed and multiplied by 0.2. The result is then multiplied by the weighted mean net carbon stock changes. Thus, the net carbon stock change as a result of deforestation in project case are not being quantified at the strata level and then summed as per M-MON. Rather, the strata areas deforested are summed and then multiplied by the weighted mean net carbon stock changes.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please demonstrate that calculating the net carbon stock change as a result of deforestation in project case (ex-ante) at the strata level results in no difference when compared to calculating the net carbon stock change as a result of deforestation in project case (ex-ante) by summing the area deforested by strata and then multiplying by the weighted mean net carbon stock changes. Else, quantify net carbon stock change as a result of deforestation in project case (ex-ante) at the strata level and sum.
Round 1 Response from Project Proponent (11 April 2014)	In the with-project case, the net carbon stock change as a result of deforestation will be quantified at the strata level and then summed as per M-MON. This is not possible in the ex-ante case as there is no way of knowing in which strata the deforestation occurs, hence the weighted mean net carbon stock has been used. As discussed in detail on our call of 1/29/14, while it is reasonable to assume that the area deforested in the baseline is the same as that deforested in the with-project case, not all of the deforestation in the baseline is expect to occur in the with-project case due to implementation of the project activities. As such there is no way to predict where the deforestation is occurring and which strata are being deforested ex-ante in the with-project case. It is for this reason that we have used an area weighted average for the net carbon stock change in the with-project ex-ante case.
ESI Findings - Round 2 (29 April 2014)	This CL has not been completely addressed as written and project proponents have calculated net carbon stock change in the with-project case differently than the requirement. As in the case of the Russas project, validators agree to allow project proponents to use a weighted mean net carbon stock method as the estimate is ex-ante and doesn't affect the baseline or ex-post emission estimates . Project proponents stated that this parameter will be calculated in compliance for monitoring. Finding closed.

Item Number	66
Approved VCS Module VMD0015,Version 2.1 (20 November 2012), REDD	Carbon stocks in the selected pools (must be the same as those used in the baseline modules) must be measured and estimated using the methods given in modules CP-AB, CP-D, CP-L, CP-S.

Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.2; Valparaiso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Dead wood is not included in Cpost. There is an NCR Covering this in BL-UP - Row 274. Cpost values are sourced from Salimon et al.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Cpost values are sourced from Salimon et al. Please justify how this is a result of measurement and estimation using the methods given in modules CP-AB and CP-D.
Round 1 Response from Project Proponent (11 April 2014)	The methodology states both: "Post-deforestation carbon stocks of the selected land-use classes shall be obtained from local studies and, where examples of mature vegetation for a particular land-use do not exist in the reference area then data shall be obtained from credible and representative literature sources (e.g. IPCC GL 2006 or other credible literature sources). The local study areas shall include sites that represent the conditions and the land management practices identified as the most likely post-deforestation baseline conditions." in the BL-UP module. And "For each post-deforestation land use (u) estimate the long-term carbon stock. Carbon stocks in the selected pools (must be the same as those used in the baseline modules) must be measured and estimated using the methods given in modules CP-AB, CP-D, CP-L, CP-S." in the M-MON module. While the methodology appears to contradict itself, derivation of Cpost from the literature value is entirely consistent with the methodology and VCS guidance. While the project proponents were not responsible for measurement and estimations of this parameter, this value was derived from a local peer reviewed study.
ESI Findings - Round 2 (29 April 2014)	It is clear that there is an inconsistency in this requirement and Section 4.2.2 of BL-UP. Given that both BL-UP and M-MON fall within the framework of REDD-MF, and that the values in Salimon et al ultimately arise from field measurement, it appears that both approaches seem sound. Thus, the value from Salimon et al. is sufficient. Finding closed.

Item Number	67
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	Carbon stocks must be measured and estimated using the methods given in module CP-AB, CP-D, CP-L, and CP-S. Quantification is represented by <u>Equation 24 on Page 21</u>).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.2 and 4.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Ex ante $\Delta CP, DistPA, i, t = 0$. This is a validation review and, thus Equation 24 is Not applicable. However, The Data and parameters Monitored and the Monitoring Plan does not include the parameter "Carbon stock in all pools in post-natural disturbance q in baseline stratum i"
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please include the parameter "Carbon stock in all pools in post-natural disturbance q in baseline stratum i" in PD Section 4.2 and describe whether this parameter will be monitored or whether it will be conservatively assumed to be equal to zero.
Round 1 Response from Project Proponent (11 April 2014)	The parameter, CP,Dist,q,I, has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (29 April 2014)	This parameter was confirmed to be included in Section 4.2 of the PD and this source of data will be monitored under guidance from methods mentioned in modules CP-AB and CP-D. Finding closed.

Item Number	68
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	a. Data sources and pre-processing: Type, resolution, source and acquisition date of the remotely sensed data (and other data) used; geometric, radiometric and other corrections performed, if any; spectral bands and indexes used (such as NDVI); projection and parameters used to geo-reference the images; error estimate of the geometric correction; software and software version used to perform tasks; etc.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 4.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Pre-processing steps by UCEGEO unclear
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide additional detail regarding the pre-processing steps conducted by UCEGEO in PD Section 4.3.
Round 1 Response from Project Proponent (11 April 2014)	The following text was added to Section 4.3 of the PD. "This dataset is based on classification of a series of Landsat imagery. Each image selected for classification contains less than 10% cloud cover. This is followed by processing of the images by applying the filter HAZE. This algorithm was developed by Carlotto and aims to improve visibility by reducing the effect of atmospheric haze and smoke. This algorithm was applied using the software ENVI, version 4.6. This step was followed by geometric correction using base the NASA GeoCover 2000 product as the base data. ENVI + IDL, version 4.6 were used to group multispectral bands, while ERDAS IMAGINE 9.1 software was used for georeferencing. The RMS error of the georeferenced product was < 1 pixel, meeting good practice standards in remote sensing. Additional details on pre-processing can be found in the UCEGEO methodology."

ESI Findings Round - 2 (29 April 2014)	The following text was confirmed to have been added to the PD, "This dataset is based on classification of a series of Landsat imagery. Each image selected for classification contains less than 10% cloud cover. This is followed by processing of the images by applying the filter HAZE. This algorithm was developed by Carlotto and aims to improve visibility by reducing the effect of atmospheric haze and smoke. This algorithm was applied using the software ENVI, version 4.6." This is sufficient to address the requested additional information on pre-processing in addition to previous language in the PD addressing persistent cloud cover issues of the deforestation mapping using mosaic images "New deforestation included in the annual statewide deforestation map produced by UCEGEO include new deforestation detected within the calendar year (i.e., Landsat scenes are mosaicked from various months within a calendar year to produce a single image with minimal cloud cover)." Finding closed.
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Item Number	69
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	c. Classification accuracy assessment: Accuracy assessment technique used; coordinates and description of the ground-truth data collected for classification accuracy assessment; and final classification accuracy assessment.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 4.3
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	Ground truthing points collected using Google Earth. Accuracy assessment = 99% for forest/nonforest cover types
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please clarify in PD Section 4.3 if accuracy assessments prepared for monitoring efforts will be the same as for establishing the baseline.
Round 1 Response from Project Proponent (11 April 2014)	The phrase "for both the baseline and monitoring" has been added to the following sentence in Section 4.3 of the PD: "Accuracy of the classification, for both the baseline and monitoring, will be assessed by comparing the classification with ground-truth points or samples of high resolution imagery."
ESI Findings Round - 2 (29 April 2014)	The addition to the PD was confirmed to have been added and clarifies where accuracy assessments are appropriately applied. However, since the accuracy assessment is in essence reflective of the UCEGEO deforestation dataset, the results depend on the quality of the UCEGEO classification.

Round 2 NCR /CL/OFI (12 May 2014)	CL: As the accuracy of the forest/nonforest map is inherently linked to the UCEGEO deforestation dataset, please mention in section 3.1.2.2 that the UCEGEO data has undergone an extensive accuracy evaluation and correction process of the classification as seen in the English translation of "METODOLOGIA DESMATAMENTO DO ACRE 2011.doc"
Round 2 Response from Project Proponent (25 June 2014)	The following statement has been added to Section 4.3 of the PD: "Data provided by UCEGEO has undergone geometric correction, extensive processing, and accuracy evaluation as mentioned by the State of Acre (2011) in their "Review of deforestation dynamics of deforestation in Acre" . "
Final ESI Findings	The statement quoted in the response to this finding was appropriately added to the PD and is sufficient. Finding closed.

Item Number	70
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	d. Changes in Data sources and pre-processing / Data classification: If in subsequent periods changes will be made to the original data or use of data:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 4.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Unclear if data changes/processing will occur in monitoring efforts
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please confirm in PD Section 4.3 if existing data sources and processing for classification will occur for monitoring.
Round 1 Response from Project Proponent (11 April 2014)	As stated in the PD "Changes in forest cover will be monitored using data provided by the State of Acre." It is the intention of the project to use the preprocessed state level deforestation data for all monitoring periods.
ESI Findings - Round 2 (29 April 2014)	The statement by the PP answers the clarification question regarding consistent data sources for monitoring periods, but in some cases improved remote sensing data sources may be available and should be utilized. Finding closed.
Round 2 NCR /CL/OFI (12 May 2014)	OFI: Monitoring remote sensing data and parameters could utilize improved remote sensing data sources to be used as they become available.

Round 2 Response from Project Proponent (25 June 2014)	Thank you for this suggestion.
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Item Number	71
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	Regional Forest Cover / Non-Forest Cover Benchmark Map
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Figure 3.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Regional cover type map in PDD. There are NCRs related to this in "BL-UP - VMD0007" Section 2.1.1.
Round 1 NCR /CL / OFI (23 October 2013)	
Round 1 Response from Project Proponent (11 April 2014)	
ESI Findings - Round 2 (29 April 2014)	This specific map does not appear to have been included in the PD. Accuracy assessment was performed for entire Acre state and reviewed elsewhere in this checklist.
Round 2 NCR /CL/OFI (12 May 2014)	CL: Please include in the PD a regional forest cover map per this requirement showing forest/nonforest of the RRD and RRL (similar to Figure 3.1).
Round 2 Response from Project Proponent (25 June 2014)	A forest/nonforest map at the level of the state has been added as Figure 3.1b.
Final ESI Findings	A regional forest/nonforest map at the Acre state level was appropriately added to the PD. Finding closed.

Item Number	72
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	Where forest land contains more than one forest class, the map must be stratified into forest classes using module X-STR.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD: Figure 1.7, PD Section 3.1.4.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The Project Forest Cover Benchmark Map not show stratification.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the strata defined for both the Project Area and the Leakage Belt in PD Section 3.1.4 in PD Figure 1.7 (Forest Cover Benchmark Map).
Round 1 Response from Project Proponent (11 April 2014)	A benchmark strata map was appropriately added as Figure 1.7b, which indicates both the PA and LB strata similar to Figure 1.9.
ESI Findings - Round 2 (29 April 2014)	Figure 1.7 shows 2011 forest/nonforest cover, Figures 1.7a and b display forest/non forest cover and stratum distribution. Finding closed.

Item Number	73
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	Area of stratum I (Ai)

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Table 3.7, files from client
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Table in PDD checked to calculations in GIS
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please identify if nonforested areas (i.e. villages) not explicit in the GIS layer were clipped out.
Round 1 Response from Project Proponent (11 April 2014)	All nonforest areas were removed from the project area, as stated in Section 3.1.1.1 and shown in Figure 3.2
ESI Findings - Round 2 (29 April 2014)	The PA .shp was reviewed in GIS and confirmed to have nonforested (deforested from UCEGEO dataset) clipped out from years 2010 and prior. Spot checking of local settlements in recent aerial imagery indicated that they were appropriately removed from the PA. Finding closed.

Item Number	74
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.2 and 6; Valparaíso Sustainable Fuelwood Analysis 2013.07.15.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	For the Sustainable Fuelwood Analysis, Species level mean wood density for Amazonian forests of 0.62 g/cm ³ calculated by Baker et al. (2004) and subsequently validated for western Amazonia by Anderson et al (2009) was used. However, these documents were not provided.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide the references supporting the species level mean wood density value for Amazonian forests of 0.62 g/cm ³ used in the Sustainable Fuelwood Analysis.

Round 1 Response from Project Proponent (11 April 2014)	Baker et al 2004 and Anderson et al 2009 have been provided in response to this finding.
ESI Findings - Round 2 (29 April 2014)	Baker et al includes wood density values for 56 plots located in Amazonia. The mean of the 56 plots is 0.62. Anderson et al is a published study examining the results of Baker et al and supports their findings. These sources report values that are relevant to the project area and appropriate in this case. Finding closed.

Item Number	75
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	Where using wood densities developed outside of the project country (cases (b) and (c) above under Source of data), wood densities must be validated with either limited destructive sampling or direct measurement of wood hardness (e.g. with a Pilodyn wood tester) in the field and correlating with wood density. Samples or measurements should be from 20-30 trees. For validation of mean forest type or species group wood densities, representation of species in the sample should be proportional to their occurrence in terms of basal area or volume in the project area (not abundance or stem density). Samples should provide representation across the length of the tree. Wood samples are cut in discs and thickness and diameter measured to calculate green volume. Samples are oven dried (70o C) to a constant weight in the laboratory, and density calculated as dry weight (g) per unit green volume (cm3). If the density of the samples/measurements (or mean density in the case of forest type or species group means) is within $\pm 10\%$ of the selected density values, then the selected density values may be used. Otherwise, a new density value must be developed with more extensive sampling, using the validation samples as a base. Where new species are encountered in the course of monitoring, new wood density values must be sourced from the literature and validated, if necessary, as per requirements and procedures above.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Russas Valparaiso Forest Inventory 2013.06.29.doc; PD Sections 2.2 and 6; Chave et al 2006.
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Option B is used. While the Wood densities for the Eastern Amazon from Chave et al 2006 are most within Brazil, Venezuela and Columbia also appear to be included. Given that the values from Baker et al are for the Western Amazon, this data would also be sourced from other countries as well. There is no mention of validation of the wood densities in any of the provided documents.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate that the wood density values used for the determination of carbon stocking from the inventory, and those used in the Sustainable fuelwood analysis, were developed from samples exclusively within Brazil. Else, please validate the applicability of the wood densities via the Limited Destructive Sampling approach or the Direct Measurement of Wood Hardness approach. The methods and results should be included in the PD or as an Annex.
Round 1 Response from Project Proponent (11 April 2014)	This guidance is related to parameter, Dj, which is specific to equations 11 and 37 of the MON module. As both of these equation are related to logging and no logging occurs in the baseline or with project scenario, this parameter is not utilized and hence has not been included in the PD, thus this guidance is not applicable. Further, wood density sampled as part of the forest inventory for dead wood calculation was sampled from within the project property.

ESI Findings Round (29 April 2014)	- 2	The validator agrees that this requirement is related to parameter, Dj, which is specific to equations 11 and 37 of the MON module and that no logging occurs in the baseline or with project scenario. Thus, the equations are not used and this requirement is not applicable. The validator now understands that wood density was not used for the determination of carbon stocking from the inventory (i.e. Brown (1997) Biomass regression equations are used). Further, the wood densities used in the Sustainable fuelwood analysis and in the validation of allometric equations do not fall under this requirement and are not used in the quantification of net GHG emission reductions and removals. Finding closed.
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Item Number	76	
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14		Ex-ante, estimations of emissions from natural disturbances shall be based on historic incidence of such event in the Project region
Evidence Used to Assess (Location in PD/MR or Supporting Documents)		PD Section 3.2
Validation or Verification		Validation
ESI Findings Round (23 October 2013)	- 1	PD States : "Forests in Acre state have a low incidence of natural disturbance outside of flooding, which does not generally result in tree death and C emissions." Ex ante estimations of emissions from natural disturbances are set to equal zero based on this claim. However no supporting evidence has been provided to justify this claim.
Round 1 NCR /CL / OFI (23 October 2013)	1	CL: Please provide (and refer to in PD Section 3.2) information on historical natural disturbance events in the project region supporting the ex ante estimations of emissions from natural disturbances as zero.
Round 1 Response from Project Proponent (11 April 2014)	1	No reliable data exists on which to forecast likely rates of natural disturbance to include in ex ante estimates, particularly over a short 10-year period. While we acknowledge that the zero value assumption does not have an empirical basis, no other value could be more credibly justified. "Near zero" is a reasonable ex ante assumption given the rarity of significant natural disturbances in the project region (as demonstrated in the risk assessment).
ESI Findings Round (29 April 2014)	- 2	The project proponent's response, combined with the information presented in Section A.1.3 of the VCS NON-PERMANENCE RISK REPORT, adequately justify setting ex ante emissions from natural disturbances equal to zero. Finding closed.

Item Number	77
Approved VCS Module VMD0015, Version 2.1 (20 November 2012), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	Ex-ante an estimation shall be made of likely degradation in the with-project case. Such an estimation shall be based on rates of degradation in surrounding areas and the degree of protection that will be in place (e.g. forest guards) in the with-project case.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PD States: "As the agent of deforestation (and degradation), have committed to no longer harvesting fuelwood and timber in forests surrounding their farms, and forest patrols with further deter degradation activities ex-ante degradation is estimated as zero." The PRA indicates a potential for degradation and it is inexplicitly indicated in the PD that the Degradation prevention activities will be 85% effective.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate to the validator (and include the demonstration in PD Section 3.2) that an ex ante degradation of zero is based on rates of degradation in surrounding areas and the degree of protection that will be in place (e.g. forest guards) in the with-project case.
Round 1 Response from Project Proponent (11 April 2014)	Most degradation is anticipated to be due to fuelwood collection. An analysis based on initial PRA results is included in the PD in Table 2.2 and demonstrates that net emissions (growth minus removals) are unlikely to exceed zero.
ESI Findings - Round 2 (29 April 2014)	The analysis based on the initial PRA is to demonstrate that fuelwood collections is sustainable. Based on that analysis, any degradation associated with fuel wood collection would be de-minimis. Thus, setting the ex-ante project emissions associated with degradation to zero is justified and warranted. This item is confirmed from correct calculations per requirement in BL-UP row 14. Finding closed.

Item Number	78
Approved VCS Module VMD0010 Version 1.0 REDD Methodological Module: Estimation of emissions from activity shifting for avoided unplanned deforestation (LK-ASU) Sectoral Scope 14	Any comment: Areas included in the calculation of COLB shall be limited to areas demonstrated to be suitable for agriculture or livestock ranching. Demonstration shall be through existing areas of agriculture or livestock ranching on adjacent lands with the same soil type and climate. Areas unsuitable for agriculture or livestock such as areas that are excessively dry, flooded or nutrient poor shall be excluded. The available national forest area and MANFOR and PROTFOR will change over time. The area weighted average must be recalculated at least every 5 years.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.3 and 4.1; Valparaíso Project 2013.07.16.xls; FAO 2010 FRA Brasil.pdf
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PD Section 4.3 indicates that TOTFOR, PROTFOR, and MANFOR will be Monitored prior to each verification event and at least every 5 years. However the requirement for limiting COLB quantification to only areas suitable for agriculture or livestock ranching is not addressed in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate to the validator, and include a related discussion in PD Section 3.3, that the areas included in the calculation of COLB are limited to areas demonstrated to be suitable for agriculture or livestock ranching.
Round 1 Response from Project Proponent (11 April 2014)	We have added the following deviation to Section 2.6 of the PD: "The parameter COLB has not been "limited to areas demonstrated to be suitable for agriculture or livestock ranching" as mentioned in the methodology. COLB has conservatively been set to the largest forest aboveground tree carbon stock rather than the area-weighted average aboveground tree carbon stock. This deviation results in conservative accounting of leakage outside the leakage belt." For more information see row 97 below.
ESI Findings - Round 2 (29 April 2014)	PP decided to adjust this parameter from the FAO value of the Amazon basin to the country-specific Brazil value. This change to a larger value was deemed more conservative because it is a higher stock. This also resulted in a larger proportional difference in carbon stocks between areas of forest available for unplanned deforestation inside and outside the LB. While this change in the COLB represents a methodology deviation, the validation team believes it is appropriate given the desire to achieve a higher level of conservativeness. Revised calculations pertaining to COLB throughout the entire PD were individually checked for accuracy and confirmed correct as amended in the PD. This check was performed using the project carbon workbook supplied by project proponents. Finding closed.

Item Number	79
Approved VCS Module VMD0010 Version 1.0 REDD Methodological Module: Estimation of emissions from activity shifting for avoided unplanned deforestation (LK-ASU) Sectoral Scope 14	Any comment: Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock. Ex-ante it can be conservatively be assumed that TOTFOR shall remain constant for the baseline period.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 3.3. and 4.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Ex-ante it is assumed that TOTFOR will remain constant during the baseline period. However the requirement for limiting TOTFOR to forest areas within 5km of roads and rivers is not addressed in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please demonstrate to the validator, and include a related discussion in PD Section 3.3, that the areas included in TOTFOR are limited to forest areas within 5km of roads and rivers.
Round 1 Response from Project Proponent (11 April 2014)	As discussed on our phone call on 1/29/14, we have added the following deviation to Section 2.6 of the PD: "The parameter TOTFOR has not been "limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock" as mentioned in the methodology. This results in conservative accounting of leakage outside the leakage belt. As the resulting TOTFOR value is greater, the AVFOR value is also greater. The PROPLB parameter is therefore smaller thus resulting in more leakage outside the leakage belt and hence a conservative estimate."
ESI Findings - Round 2 (29 April 2014)	The validation team accepts this deviation. The acceptance of the deviation resulted from assurances by the project proponent that changing the TOTFOR parameter would be immaterial in effecting credits, is ex-ante and is a parameter evaluated at monitoring. Revised calculations pertaining to TOTFOR throughout the entire PD were individually checked for accuracy and confirmed correct as amended in the PD. This check was performed using the project carbon workbook supplied by project proponents. Finding closed.

Item Number	80
Approved VCS Module VMD0016, Version 1.0 (13 December 2010), REDD Methodological Module: Methods for stratification of the project area (X-STR), Sectoral Scope 14	Pre-stratification (prior to inventory) of the project area is not required, however, pre-stratification may serve to avoid requirements for post measurement stratification later (below).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PDD: Section 3.1; Forest Inventory Report Section 3.1.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Stratification conducted prior to inventory. JAP: Stratification is based on a vegetation map from the Acre State publication "Ecological and Economical Zoning" where land cover is classified using the Brazilian Forest Classification System. These references have not been provided
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please provide the publications the stratification was based on for validation. Please also provide any spatial data used for stratification purposes.
Round 1 Response from Project Proponent (11 April 2014)	As part of the Acre publication "ACRE. Governo do Estado do Acre. Secretaria de Estado de Planejamento e Desenvolvimento Econômico-Sustentável, Secretaria de Estado de Meio Ambiente e Recursos Naturais. Programa Estadual de Zoneamento Ecológico-Econômico do Acre. Zoneamento Ecológico-Econômico do Acre Fase II. Documento Síntese, 2006." a geographic (i.e., GIS) database was compiled. This publication (file name ZEE Acre 2006.pdf) and original vegetation layer (file name Ac_Vegetation.shp) upon which our stratification was based on have been provided in response to this finding. Further, the GIS file (RusVALStrata_2012.12.21) used for stratification of the project area for the forest inventory has also been included. As discussed on our call on 1/20/14, "RusVALStrata_2012.12.21" was the stratification of the original forest inventory area. Once the project area was finalized we stratified the project area using the same base stratification layer, a vegetation map from the Acre State publication "Ecological and Economical Zoning", resulting in the ValStrata_2014.04.09.shp. The external boundary of the ValStrata_2014.04.09.shp file is in agreement with the original georeferenced project boundary "ValparaisoProperty_2012.12.20".

ESI Findings Round (29 April 2014)	- 2	Project proponents do not have access to the original Acre state level Landsat imagery for the stratification layer. UCEGEO land cover stratification methods seem to follow techniques outlined in METODOLOGIA DO ACRE 2011 (English).docx, which appears to be a translation of the beginning of the UCEGEO Methodology 2011.doc. ZEE Acre 2006 and is in Portuguese and unverifiable. The methods used in the METODOLOGIA document are good remote sensing practice. The original vegetation layer supplied to project proponents is sufficient to the scope of the guidance documentation supplied and contains vegetation cover types. Stratification was checked as part of M-MON forest cover benchmark map criteria. Appropriate strata and PA .shp files are in agreement. Finding closed.
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Item Number	81
Approved VCS Module VMD0016, Version 1.0 (13 December 2010), REDD Methodological Module: Methods for stratification of the project area (X-STR), Sectoral Scope 14	Area of stratum I (Ai)
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.2
Validation or Verification	Validation
ESI Findings Round (23 October 2013)	- 1 Parameter Ai is not described in the monitored parameters section of the PD.
Round 1 NCR /CL / OFI (23 October 2013)	1 NCR: Please add parameter Ai (Area of stratum i) to the monitored parameters section of the PD.
Round 1 Response from Project Proponent (11 April 2014)	1 The parameter Ai has been added to Section 4.2 of the PD.
ESI Findings Round (29 April 2014)	- 2 The parameter Ai has been added to Section 4.2 of the PD as indicated. Areas of individual strata correctly sum to the total project area, this was checked as part of other related GIS area checks. Finding closed

Item Number	82
Approved VCS Module VMD0017, Version 2.0 (31 July 2012), REDD Methodological Module: ESTIMATION OF UNCERTAINTY FOR REDD PROJECT ACTIVITIES (X-UNC), Sectoral Scope 14	Step 1: Assess uncertainty in projection of baseline rate of deforestation or degradation
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	NA in PD
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Uncertainty is not discussed in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please include a section in the PD discussing uncertainty. Please include information related to how uncertainty was assessed for all components following this module and the results. Please identify where this was added.

Round 1 Response from Project Proponent (11 April 2014)	The following text was added to Section 3.4 of the PD detailing assessment of uncertainty. "Uncertainty will be assessed applying module X-UNC. Uncertainty in the baseline rate, parameter UncertaintyBSL,RATE, is equal to zero. Per the X-UNC module, "It is here assumed that there is zero uncertainty in baseline rate of deforestation or degradation where numbers are equal to a long-term average (BL-UP)" as they are for this project. Total uncertainty in carbon stocks in forest (parameter UncertaintyBSL,SS) is equal to combined uncertainty of forest carbon pool stock estimates, calculated using propagation of errors (equation 4 of VM0007 module X-UNC). Parameter UncertaintyBSL,SS is thus calculated to be 9.7% at the 95% confidence level (calculations detailed in Forest Biomass Carbon Inventory Report) for the initial forest inventory. Results of overall uncertainty calculations are presented below in Table 3.32." Please see the attached excel file (RusVal_Data_2014.02.19) with the uncertainty calculations for the forest inventory. In the uncertainty tab, eqn 4 can be found in row 30 and equation 5 in row 33. Further, section 7.2 of the forest inventory report entitled "Russas Valparaiso Forest Inventory 2014.02.19" has also been updated in response to this finding. It has been provided in the project archive in response to this finding.
ESI Findings - Round 2 (29 April 2014)	Confirmed the text was added to PD Section 3.4 as indicated. Supporting documentation Russas Valparaiso Forest Inventory 2014.02.19.doc and RusVal_Data_2014.02.19.xls are reviewed regarding other items below. This Item can be closed.

Item Number	83
Approved VCS Module VMD0017,Version 2.0 (31 July 2012), REDD Methodological Module: ESTIMATION OF UNCERTAINTY FOR REDD PROJECT ACTIVITIES (X-UNC), Sectoral Scope 14	Uncertainty should be expressed as the 95% confidence interval as a percentage of the mean using <u>Equation 4 on Page 8</u>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	NA in PD, Forest Inventory Report Section 7.2
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	Uncertainty values associated with carbon pools are presented in section 7.2 of the Forest Inventory Report. These appear to be based on all inventory points and not just those within the Valparaíso project boundary. Thus, inventory points from outside of the project area are included in quantification.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please justify the appropriateness (using forest inventory literature sources as necessary) of including plots from outside of the project area in the quantification mean carbon stocking and uncertainty estimates. Else, remove plots external to the project area from the quantification of mean carbon stocking and uncertainty estimates
Round 1 Response from Project Proponent (11 April 2014)	Methodology VM7 does not explicitly require that sample points be from within the project area. To be cost-effective, a single forest biomass carbon inventory effort was conducted covering two adjoining project areas (the Russas project and the neighboring Valparaíso project). Samples outside the project area are deemed representative of the project area, as they are sourced from, and applied to, the same strata (i.e. forest structure). Strata were defined per the Acre State publication “Ecological and Economical Zoning” (Acre State, 2006. Zoneamento Ecológico-Econômico do Estado do Acre–Fase II Documentos Síntese. Rio Branco, Acre) where land cover is classified using the Brazilian Forest Classification System (Veloso, H.P., Rangel FO, A.L.R., Lima, J.C.A., 1991. Classificação da vegetação brasileira, adaptada a um Sistema Universal. IBGE, Rio de Janeiro). The same forest cover classes were used in Salimon et al. 2011. Estimating state-wide biomass carbon stocks for a REDD plan in Acre, Brazil. Forest Ecology and Management 262: 555-560, and demonstrated to correspond to biomass stocking. Through stratification in this way, we have reduced the potential for un-representative samples to be included in the derivation of estimates. Derived estimates are also more conservative on the whole than those from Salimon et al 2011, with the exception of the FAB+FAP stratum (which is only 10% higher than the Salimon et al 2011 estimate). Additionally, 1. Stratification of the project area was based on a vegetation map (“Ac_Vegetation.shp”) provided by the state of Acre. This map was provided by the Climate Change Institute and used for the forest inventory developed for REDD at the state level (see Salimon et al., 2011). The inventory was designed to representatively sample the strata found in the forest inventory area, based on expected variability in biomass stocks and the area of each strata. As such, strata level estimates for biomass were derived from plots located within the strata regardless if the plots were located within the final project boundaries. Strata were checked using google earth to ensure similar forests (i.e. color and texture) were grouped together. No other ground truthing of strata was performed nor required. 2. At the initiation of the forest inventory, the project boundaries were not 100% confirmed, hence several of the forest inventory plots fall outside the project boundary. The project baseline is determined using knowledge of biomass stocks present in forest strata found in the project area. It is not necessary that 100% of the sampling plots which determine forest biomass stocks are located within the project boundaries to determine carbon stocks as the methodology does not specify that the plots must be located from within the project boundary. It is important that the strata being sampled are representatively sampled and that all areas covered in the inventory have a chance of being sampled. The areas within the project boundaries had the chance of being sampled when plots were allocated. There is no inconsistency in the fact that monitoring plots will only be located

		within the project area at the next reassessment. The original plots are not meant to track growth, and new plots will be randomly located and representatively sample the original strata within the project boundaries and are not expected to be substantially different due to a slightly smaller sample population than the original inventory. 3. Figure 2.1b has been added to the "Russas Valparaíso Forest Inventory 2014.02.19" report. This map displays the final project boundaries for both the Russas and Valparaíso projects. Figures 3.1 and 5.1 are left as is as they remain relevant in documenting the inventory sample design (and delineation of the sample populations).
ESI Findings Round (29 April 2014)	- 2	The project inventory was based on a sampling effort that was focused on the strata level sampling across the entirety of two project areas as well as a nearby non-project area. Validators have had a one hour conversation with project developers (Jan 22, 2014) where the details of the sampling effort were discussed in detail. The project developers contend that their sampling effort was intended to follow the Tier 3 (IPCC) level of sampling effort as outlined and allowed under the BL-UP and CP-AB modules. The sampling effort assumes that the strata sampled were representative of the same strata that exist within the project boundary. Most strata in the Valparaíso project were sampled directly within the project boundaries; however there was at least two strata that was not directly sampled within the boundaries. The resulting mean values inventoried were listed as being within approximately 10% of the Salimon, et al. strata level mean values. The strata originated from government data. When the combined project areas are viewed as a single population of interest, the traditional assumptions of inventory sample design hold true such as stratification and plot distribution. Sample plots were distributed across strata based on variability of vegetation and area of the strata. The comprehensive validation team review ensured that although the inventory did not capture the population of interest as determined by the project area boundaries, the inventory sample plots are indeed reasonably representative based on the original combined sample design. This review was performed on a subset of inventory data to confirm that the sample plots are in large part distributed according to a stratified random pattern and uncertainty in carbon stock estimates was addressed through sample plot distribution across all strata. Project proponents further elaborated on this issue during the validation process and offered additional reasons for why stratification occurred at the Acre state vegetation level instead of the project area. The forest inventory was initiated prior to confirmation of project boundaries and was performed according to biomass stocks of forest strata exclusive to the project area. Project proponents highlighted the need to representatively sample all strata contained in the project area and that monitoring plots will be located exclusively within the project area. Further, monitoring plots will be randomly allocated to representatively sample the original strata and are anticipated to be similar to the original inventory because of a slightly smaller sample population. The methodology does not specifically address this element of sample design and therefore it is not considered a deviation. Further, a review of VCS rules by the validation team revealed there is nothing in VCS rules that explicitly prevent the sampling procedures as undertaken by project proponents for the Valparaíso Project. For these reasons, conservativeness of the inventory approach is addressed through the overall validation review. The validation team concludes that review of all inventory data, inventory sampling procedures, and analysis methods indicates that the sampling approach is reasonably conservative and acceptable.

	However, the PA presented in Figure 2.1b does not correlate to the PD Figures. The validator also noted that PD Figure 1.5 needs updated as well.
Round 2 NCR /CL/OFI (12 May 2014)	CL: Please update Figure 2.1b of "Forest biomass carbon inventory for the Russas and Valparaíso Properties, Acre State, Brazil" and Figure 1.5 of the PD to be reflective of the current PA.
Round 2 Response from Project Proponent (25 June 2014)	Both 2.1b of the "Forest biomass carbon inventory for the Russas and Valparaíso Properties, Acre State, Brazil" and Figure 1.5 of the PD have been updated to reflect the current project area.
Final ESI Findings	The revised figure 2.1b of the "Forest biomass carbon inventory for the Russas and Valparaíso Properties, Acre State, Brazil" was confirmed to have been inserted and correlates to Figure 1.5 of the PD. Both figures are representative of the new project area as seen in spatial files supplied by PP. Finding closed.

Item Number	84
Approved VCS Module VMD0017, Version 2.0 (31 July 2012), REDD Methodological Module: ESTIMATION OF UNCERTAINTY FOR REDD PROJECT ACTIVITIES (X-UNC), Sectoral Scope 14	Uncertainty should be expressed as the 95% confidence interval as a percentage of the mean using <u>Equation 4 on Page 8</u>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	NA in PD, Forest Inventory Report Section 7.2; RusVal_Data_2013.06.24a.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Forest Inventory Report Section 7.2 presents Area weighted averages and uncertainty estimates for each biomass component and an overall uncertainty value of 7.9%. However, it is clear that Equation 4 was not applied. The Percentage uncertainty in the combined carbon stocks and greenhouse gas sources in the baseline case in strata i through M are not reported.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please apply Equation 4 of X-UNC in the assessment of uncertainty of emissions and removals. Please provide a spreadsheet supporting the calculations and report the strata level uncertainties in baseline case the PD.

Round 1 Response from Project Proponent (11 April 2014)	The "uncertainty" tab on the Russas/Valparaiso forest inventory spreadsheet has been updated to calculate uncertainty on the strata level applying equation 4 of the x-unc module. Further, these values have been incorporated in section 4 of the PD. New text was added to section 3.4 of the PD on the project level uncertainty, while parameter tables for EBSL,SS,i,pool#, UBSL,SS,i,pool#, EBSL,SS,t,I, and UncertaintyBSL,SS,I were added to section 4.2. Please see the response to the finding in row 23 above.
ESI Findings - Round 2 (29 April 2014)	Uncertainty bsl, ss, I at the 95% C.I. was confirmed (by pool and then strata) and calculations are correct. Calculations for combined uncertainty were checked in RusVal_Data_2014.02.19.xlsx and are correct per equation 4 of X-UNC at the combined strata level. Total uncertainty is reported in PD Section 3.4 and the strata level uncertainties are reported in PD Section 4.2. Finding closed

Item Number	85
Approved VCS Module VMD0017,Version 2.0 (31 July 2012), REDD Methodological Module: ESTIMATION OF UNCERTAINTY FOR REDD PROJECT ACTIVITIES (X-UNC), Sectoral Scope 14	Assess uncertainty across combined strata using <u>Equation 5 on Page 8</u>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	NA in PD, Forest Inventory Report Section 7.2; RusVal_Data_2013.06.24a.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Forest Inventory Report Section 7.2 presents Area weighted averages and uncertainty estimates for each biomass component and an overall uncertainty value of 7.9%. However, it is clear that Equation 5 was not applied. The validator independently quantified total uncertainty in the combined carbon stocks and greenhouse gas sources in the baseline case and the value does not equal 7.9 %
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please apply Equation 5 of X-UNC in the assessment of uncertainty of emissions and removals. Please provide a spreadsheet supporting the calculations and report the appropriate value for Total uncertainty in the combined carbon stocks and greenhouse gas sources in the baseline case in the PD.

Round 1 Response from Project Proponent (11 April 2014)	The "uncertainty" tab on the Russas/Valparaiso forest inventory spreadsheet has been updated to calculate uncertainty at the project level applying equation 5 of the x-unc module. Further, these values have been incorporated in section 4 of the PD. New text was added to section 3.4 on the project level uncertainty, while parameter tables for EBSL,SS,i,pool#, UBSL,SS,i,pool#, EBSL,SS,t,l, and UncertaintyBSL,SS,l were added to section 4.2. Please see the response to the finding in row 23 above.
ESI Findings - Round 2 (29 April 2014)	Cumulative uncertainty across all strata (project level) or eqn 5 was checked for accuracy and confirmed correct in RusVal_Data_2014.02.19.xlsx. Total uncertainty is reported in PD Section 3.4. Finding closed.

Item Number	86
Approved VCS Module VMD0017,Version 2.0 (31 July 2012), REDD Methodological Module: ESTIMATION OF UNCERTAINTY FOR REDD PROJECT ACTIVITIES (X- UNC), Sectoral Scope 14	Monitored at least once every five years
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.3
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	PD States: "Forest carbon stock estimates will be derived from field measurements less than or equal to 10 years old." UP,SS,i,pool# must be updated at least once every five years.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please revise the monitoring plan to indicate that carbon pools will be re-measured every less than or equal to 5 years. Please also include relevant information related to monitoring uncertainty in PD Sections 4.2 and 4.3.

Round 1 Response from Project Proponent (11 April 2014)	Per CP-AB and other pools modules, stock estimates are assumed valid for 10 years (in this case through 2023). The monitoring plan has been revised to specify when stocks will be re-sampled. Differing from the pools modules, module X-UNC requires that uncertainty in pools be re-assessed every 5 years. To align the modules, and follow the intent of the methodology, the following deviation is included: "Parameter UP,SS,i,pool# will be monitored at least once every 10 years, on re-measurement of forest carbon stocks. While module X-UNC requires that monitoring of this parameter occur every < 5 years, this requirement is inconsistent with the VM0007 pools modules, which specify that stock estimates (from which uncertainty is calculated) are assumed valid for 10 years. Therefore, a deviation to module X-UNC is applied to permit parameter UP,SS,i,pool# to be monitored every < 10 years, putting it into alignment with modules CP-AB and CP-D." Also, a parameter table for UPssipool# in Section 4.2 has been added to clarify frequency of re-assessment.
ESI Findings - Round 2 (29 April 2014)	The project proponent is correct in that no other module requires that forest measurements occur in intervals less than 10 years. Since this project also includes remote sensing and is clearly planning to update the baseline carbon stocks at 10 year intervals with inventory sample points, then this deviation is considered to be an acceptable approach by validators. The validation team cannot find any other instance where updates to the inventory plots are required in less than 10 year increments, thus there would be no new inventory plots to use for the update of the sampling error, as suggested by this monitoring frequency requirement. Finding closed.

Item Number	87
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Measurements of initial stocks employed in the baseline must take place within ± 5 years of the project start date, for simplicity referred to here as stocks at $t=0$.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.1.4.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The forest was inventoried in 2013, this was within 5 years of the start date of 17 March 2011. PD states that data from Salimon et al. was used for the FAB-Alluvial stratum. It is unclear how this data was used.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please describe how the Salimon et al. data was used for the FAB Alluvial stratum as described in the PD in Section 3.1.4.2.

Round 1 Response from Project Proponent (11 April 2014)	The stratum FAB-A was not part of the project area or leakage belt for the Valparaíso project. However, as the FAB-D stratum was not part of the project area, it was not sampled as part of the forest inventory. Instead aboveground biomass estimates for this leakage belt strata were derived from Salimon et al. The aboveground biomass value for the FAB-D strata as found in Table 3.9f was revised to the correct value (192.8 tons d.m./ ha) as found in the Salimon publication. Dry aboveground biomass was then converted to CO2 stocks: $192.8 \text{ tons d.m./ ha} \times 0.47 \times (44/12) = 332.3 \text{ t CO}_2\text{e ha}^{-1}$. This value for aboveground biomass was corrected in table 3.9f. Belowground biomass was calculated to be 44.0 tons d.m./ ha using Cairnes equation. This value was revised in Table 3.9f. Dry belowground biomass was then converted to CO2 stocks: $44.0 \text{ tons d.m./ ha} \times 0.47 \times (44/12) = 75.9 \text{ t CO}_2\text{e ha}^{-1}$.
ESI Findings - Round 2 (29 April 2014)	The calculation for CAB_tree,I (t CO2-e ha-1) strata FABD was checked and confirmed correct. Table 3.9f. Estimation of Carbon Stocks for Stratum FABD in the PD was appropriately updated. Finding closed.

Item Number	88
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	For each stratum, where the re-measured estimate is within the 90% confidence interval of the t=0 estimate, the t=0 stock estimate takes precedence and is re-employed, and where the re-measured estimate is outside (i.e. greater than or less than) the 90% confidence interval of the t=0 estimate, the new stock estimate takes precedence and is used for the subsequent period.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Was unable to find this in the PD
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the approach for when the re-measured estimate is within 90% of the t=0 estimate into the PD.

Round 1 Response from Project Proponent (11 April 2014)	This methodology requirement applies only when stock estimates are updated after 10 years, thus this assessment will not be made until 2023 and the monitoring plan has been updated to specify this. The following text was added to Section 4.3 of the PD. "Aboveground and belowground live tree and dead wood stocks will be re-assessed on or before 2023. For each stratum, where the re-measured estimate is within the 90% confidence interval of the t=0 estimate, the t=0 stock estimate takes precedence and is re-employed, and where the re-measured estimate is outside (i.e. greater than or less than) the 90% confidence interval of the t=0 estimate, the new stock estimate takes precedence and is used for the subsequent period."
ESI Findings - Round 2 (29 April 2014)	The methodological approach has been included in Section 4.3. Finding closed.

Item Number	89
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Step 2: Select or develop an appropriate and validated allometric equation for forest type/group of species j (e.g. tropical humid forest or tropical dry forest) or for each species or family j (group of species) found in the inventory (hereafter referred to as species group). Any equation selected may only be used if applicability has been demonstrated and validated per guidance in the parameters section below.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.6, 3.1.4.2; Russas Valparaíso Forest Inventory 2013.06.29.doc
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Brown, S. 1997, moist area equation was used for all species with the exception of palms. Palms were calculated based on the volume of a paraboloid as described in the methodology deviation section. The verifier questions whether this is not a methodology revision as the palm model does not meet all of the requirements for allometric validation as described in the data/parameter section.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please justify how the use of a paraboloid to estimate palm biomass is not a methodology revision, as it did not meet all of the allometric applicability requirements.

Round 1 Response from Project Proponent (11 April 2014)	The palm equation was not validated as per methodological guidance, however the equation used is undeniably conservative. This represents a deviation "from the criteria and procedures relating to monitoring or measurement set out in the methodology" as stated in the VCS Standard. This deviation has been justified in Section 2.6 of the PD "The forest inventory has deviated from the criteria for selection (i.e., the equation is based on a datasets comprising at least 30 trees, with an r^2 that is ≥ 0.8) and validation of the allometric equation related to palm biomass, however the equation used is likely to result in a conservative estimate of palm biomass for the following reasons: -Volume is calculated as the volume of a paraboloid rather than the volume of a cylinder; -Only stem biomass is estimated, thus conservatively excluding other aboveground biomass; - A conservative measure of basal diameter (i.e., dbh) was used." This parameter is clearly related to monitoring of forest carbon stocks. See parameter fj(X,Y) on page 11 of CP-AB. Hence a deviation as stated in the response above should be allowed. The VCS text related to deviations state "deviations are permitted where they relate to data and parameters available at validation" Further, in a phone call between Shawn McMahon at ESI and Andrew Beauchamp at VCS, Andrew stated "that because the paraboloid is not an actual allometric as long as it is conservative it does not need to be validated through the standard approach."
ESI Findings - Round 2 (29 April 2014)	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a paraboloid is a conservative allometric to represent palm trees. Further, this method for determining above-ground biomass is a parameter available at validation and therefore a justifiable deviation. This finding resulted from an email from the adjacent Russas project clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	90
Approved VCS Module VMD0001,Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Step 3: Estimate carbon stock in aboveground biomass for each individual tree of species group j in the sample plot located in stratum i using the selected or developed allometric equation applied to the tree dimensions resulting from Step 1 and sum the carbon stocks in the sample plot
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.6, 3.1.4.2; Russas Valparaiso Forest Inventory 2013.06.29.doc; RusVal_Data_2013.06.24a.xls - Live Tree-data, biomass stocks tabs

Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Calculations were performed correctly as described in step 3 of the methodology. Trees with diameters smaller than 10 cm were given 0 cm diameters, these trees still had positive volumes that were included in the calculation of carbon stock in aboveground biomass.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please ensure that trees that are being given 0cm diameter are not included in plot level carbon calculations.
Round 1 Response from Project Proponent (11 April 2014)	Biomass for trees with a 0 cm dbh has been hard coded to zero in the biomass calculation column of the "RusVal_Data_2014.02.19" forest inventory calculation spreadsheet. All values resulting from this change will also be updated after all inventory related findings are closed.
ESI Findings - Round 2 (29 April 2014)	The biomass for 0 dbh trees were appropriately set to zero in the "live tree - data" tab and column "Live aboveground biomass (tons). Finding closed.

Item Number	91
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Step 4: Calculate the mean carbon stock in aboveground biomass for each stratum, converted to carbon dioxide equivalents
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.6, 3.1.4.2; Russas Valparaiso Forest Inventory 2013.06.29.doc; RusVal_Data_2013.06.24a.xls - Live Tree-data, biomass stocks tabs
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Unable to locate the calculation of the mean carbon stock in above ground biomass for each stratum. Pending CL in uncertainty checklist line 33.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please calculate the mean carbon stock in aboveground biomass for each stratum, converted to CO2 equivalents, as required by the methodology.
Round 1 Response from Project Proponent (11 April 2014)	This has been calculated in the uncertainty tab of the "RusVal_Data_2014.02.19" forest inventory calculation spreadsheet. It is further located in column n under the "BL-UP parameters" tab of the "Valparaiso Project 2014.04.11" calculation spreadsheet.

ESI Findings Round - 2 (29 April 2014)	The calculations have been verified and mean carbon stock in aboveground biomass for each stratum are converted to CO2 equivalents appropriately. Finding closed.
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Item Number	92
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Step 1: Calculate the belowground tree biomass carbon stock for each plot by multiplying the root to shoot ratio by the AGB calculated in Part 1
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	The proponent used the Cairns et al, 1997 equation in place of the root shoot method. The verifier questions whether this would be a methodology revision.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please justify how the use of the Cairns et al., 1997 equation used in place of the root shoo approach described in the methodology is not a revision to the methodology.

Round 1 Response from Project Proponent (11 April 2014)	As stated in Section 2.6 of the PD "Rather than using a root to shoot ratio to estimate belowground biomass as per the CP-AB module, belowground biomass was estimated using an allometric equation developed by Cairns et al." Use of an allometric equation rather than a root to shoot ratio qualifies as a deviation "from the criteria and procedures relating to monitoring or measurement set out in the methodology" as stated in the VCS Standard. The root to shoot parameter, R, is clearly related to monitoring of forest carbon stocks and is a parameter as listed on page 15 of the CP-AB module. As discussed on our call of 1/29/14, deviations are permitted where they relate to data and parameters available at validation, hence this deviation should be allowed. Further, the Cairns equation generates a conservative estimate of root biomass. The average root to shoot ratio calculated using Cairns is 0.2286 versus the default value for tropical forest, as listed in the methodology, of 0.24. Please see the file in the project database, "Cairns Root to Shoot 2014.02.06" for details of these calculations. Further in an email on Feb 6 from Shawn McMahon of ESI to VCS, ESI states "Regarding the Cairns substitution for the root/shoot approach in the methodology, this is acceptable as a deviation as it is substituting an existing parameter which is allowed within the definition of a methodology deviations."
ESI Findings - Round 2 (29 April 2014)	The validation team accepts this methodology deviation for the root to shoot parameter which was demonstrated as conservative by project proponents. This finding resulted from an email related to the adjacent project Russas clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	93
Approved VCS Module VMD0001,Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees, expressed as t d.m. tree-1 ($f_j(X,Y)$)
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	This parameter has not been included.

Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the parameter for the allometric equations for species j linking measured tree variable to aboveground biomass of living trees - $F_j(X,Y)$ into the PD
Round 1 Response from Project Proponent (11 April 2014)	The parameters for the tree allometric equation (dbh) can already be found in section 4.2, along with the parameters, basal diameter and height, used for the palm allometric equation. The parameter, $f_j(X,Y)$, has been added to the Section 4.2 of the PD.
ESI Findings - Round 2 (29 April 2014)	This parameter was added to the end of section 4.2 of the PD. However, this is not a parameter that is monitored.
Round 2 NCR /CL/OFI (12 May 2014)	CL: Please move the parameter table for "Allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees" to PD Section 4.1.
Round 2 Response from Project Proponent (25 June 2014)	The parameter table for "Allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees" has been moved to PD Section 4.1.
Final ESI Findings	This parameter was confirmed to have been appropriately moved. Finding closed.

Item Number	94
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Equations must have been derived using a wide range of measured variables (e.g. DBH, Height, etc.) based on datasets that comprise at least 30 trees. Equations must be based on statistically significant regressions and must have an r^2 that is ≥ 0.8 . The source of equation(s) shall be chosen with priority from higher to lower preference, as available, as follows:
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.6, 3.1.4.2; Russas Valparaiso Forest Inventory 2013.06.29.doc
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The Brown equation was based on 170 trees, the equation had an R^2 value of 0.84. The palm paraboloid equation has no empirical support.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please indicate empirical evidence that was used to justify the use of the palm paraboloid equation.

Round 1 Response from Project Proponent (11 April 2014)	The palm equation was not validated as per methodological guidance, however the equation used is undeniably conservative. This represents a deviation "from the criteria and procedures relating to monitoring or measurement set out in the methodology" as stated in the VCS Standard. This deviation has been justified in Section 2.6 of the PD "The forest inventory has deviated from the criteria for selection (i.e., the equation is based on a datasets comprising at least 30 trees, with an r^2 that is ≥ 0.8) and validation of the allometric equation related to palm biomass, however the equation used is likely to result in a conservative estimate of palm biomass for the following reasons: -Volume is calculated as the volume of a paraboloid rather than the volume of a cylinder; -Only stem biomass is estimated, thus conservatively excluding other aboveground biomass; and - A conservative measure of basal diameter (i.e., dbh) was used."
ESI Findings - Round 2 (29 April 2014)	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a paraboloid is a conservative allometric to represent palm trees. Further, this method for determining above-ground biomass is a parameter available at validation and therefore a justifiable deviation. This finding resulted from an email related to the adjacent project Russas clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	95
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	· Select at least 30 trees (if validating forest type-specific equation, selection should be representative of the species composition in the project area, i.e. species representation in roughly in proportion to relative basal area). Minimum diameter of measured trees shall be 20cm and maximum diameter shall reflect the largest trees present or potentially present in the future in the project area (and/or leakage belt)
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Russas Valparaiso Forest Inventory 2013.06.29.doc Section 7.3; RusVal_EqVal 2013.06.24a.xls - Equation Validation Tab
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Validation of the Brown equation was performed using 333 samples (heights and diameters) greater than 20 cm DBH. Measurements covered a large range of heights/diameters/ and species, representative of the project area. No validation of the palm equation was found.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please indicate the location of the palm species allometric validation.

Round 1 Response from Project Proponent (11 April 2014)	Please see the response to line 62 above.
ESI Findings - Round 2 (29 April 2014)	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a paraboloid is a conservative allometric to represent palm trees. Further, this method for determining above-ground biomass is a parameter available at validation and therefore a justifiable deviation. This finding resulted from an email related to the adjacent project Russas clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	96
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	· Plot all the estimated biomass of all the measured trees along with the curve of biomass against diameter as predicted by the allometric equation. If the estimated biomass of the measured trees are distributed both above and below the curve (as predicted by the allometric equation) the equation may be used. The equation may also be used if the measured individuals have a biomass consistently higher than predicted by the equation. If plotting the biomass of the measured trees indicates a systematic bias to overestimation of biomass (>75% of the trees above the predicted curve) then destructive sampling must be undertaken, or another equation selected. or
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Russas Valparaiso Forest Inventory 2013.06.29.doc Section 7.3; RusVal_EqVal 2013.06.24a.xls - Equation Validation Tab
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	A plot of the predicted versus observed values was included. There was no plot of the predicted values versus DBH. An examination of the residuals showed that observed values are higher than the values of Brown for over 70 % of the dataset.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include a plot of the predicted and observed values plotted against dbh, as required by the methodology.
Round 1 Response from Project Proponent (11 April 2014)	The phrase "The equation may also be used if" indicates than only one of the graphs referenced in cell A76 is needed to validate the equation. As, indicated in MPP's review of the forest inventory equation validation less than 75% of the measured trees are above the predicted curve, hence there is no need to also include a plot of the predicted and observed values plotted against dbh.
ESI Findings - Round 2 (29 April 2014)	The validator confirms the assertions provided. Finding closed.

Item Number	97
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Root to shoot ratio appropriate to species or forest type / biome; note that as defined here, root to shoot ratio is applied as belowground biomass per unit area: aboveground biomass per unit area (not on a per stem basis) - R
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	This parameter is not included.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the parameter root to shoot ratio - R into the parameter section of the PD, as required by the methodology.
Round 1 Response from Project Proponent (11 April 2014)	As a root to shoot ratio was not used to estimate root biomass this parameter has not been included in Section 4.2 of the PD. Instead a table with the parameter AGB (aboveground biomass density) has been added to Section 4.2., as this parameter was used in the allometric root equation developed by Cairns et al which was used.
ESI Findings - Round 2 (29 April 2014)	A table with the parameter AGB (aboveground biomass density) has been added to Section 4.2. However, the parameter AGB does not suffice as a replacement for the parameter R as it does not represent a calculation of root biomass density. Further, R or similar is not monitored.
Round 2 NCR /CL/OFI (12 May 2014)	CL: Please include an appropriate Parameter Table in PD Section 4.1 representing the equation used to estimate root biomass density.
Round 2 Response from Project Proponent (25 June 2014)	The parameter table for "Allometric equation for species j linking measured tree variable(s) to aboveground biomass of living trees" has been moved to PD Section 4.1.
Final ESI Findings	Auditors believe that the PP was referring to the newly added data/parameter "Root Biomass Density" which was added to PD section 4.1. It describes the Cairns et al equation used to estimate root biomass density as a function of aboveground biomass density. Finding closed.

Item Number	98
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Area of sample plots in ha (Asp)
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Unable to locate area of sample plots parameter in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the area of sample plots, Asp into the PD, as required by the methodology.
Round 1 Response from Project Proponent (11 April 2014)	A parameter table for Asp has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (29 April 2014)	A parameter table for Asp has been appropriately added to Section 4.2 of the PD.

Item Number	99
Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live	Area of one sampling frame (Asf)

tree and non-tree pools (CP-AB), Sectoral Scope 14	
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Unable to locate the area of one sampling parameter in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the area of one sampling frame, Asf into the PD, as required by the methodology.
Round 1 Response from Project Proponent (11 April 2014)	The parameter Asf is used in equation 10 in the CP-AB module which is used to calculate aboveground non-tree biomass. As aboveground nontree biomass is not included in the project, this parameter has not been included.
ESI Findings - Round 2 (29 April 2014)	The validator confirmed the assertions provided by PP. Finding closed.

Item Number	100
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	· Dead wood shall be included if stocks are greater in the baseline than in the project scenario (in conformance with REDD-MF), <u>and</u>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 2.1
Validation or Verification	Validation

ESI Findings - Round 1 (23 October 2013)	PD states that dead wood is higher in the baseline than in the project necessitating its inclusion as a carbon pool.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please clarify how dead wood is higher in the baseline than the project scenario, as described in Section 2.1 of the PD.
Round 1 Response from Project Proponent (11 April 2014)	This is an error and the related text in Section 2.1 of the PD has been revised. The revised text states "Finally, CP-AB is mandatory in all cases and while CP-D is optional, as the dead wood pool is greater in the project scenario than the baseline scenario, it has been included."
ESI Findings - Round 2 (29 April 2014)	The PD has been modified to correctly state that the project case is higher than the baseline. Finding closed.

Item Number	101
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	· Dead wood shall be included if determined to be significant (using T-SIG).
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 2.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Verifier was unable to locate the calculation of T-sig. The proponent states that dead wood is a mandatory pool for the project. The evaluation of T-sig factors into the determination of whether dead wood is a mandatory carbon pool.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please indicate where T-Sig tool was used to assess the necessity of the dead wood pool, as PD states that dead wood is mandatory.
Round 1 Response from Project Proponent (11 April 2014)	Per the tool, dead wood shall be included if significant, as opposed to the reverse (i.e. dead wood shall not be included if insignificant). Dead wood is included in the project boundary and no significance test is necessary.
ESI Findings - Round 2 (29 April 2014)	The dead wood pool has been included and thus it is irrelevant of the results of the T-sig tool. Finding closed.

Item Number	102
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	For each stratum, where the re-measured estimate is within the 90% confidence interval of the t=0 estimate, the t=0 stock estimate takes precedence and is re-employed, and where the re-measured estimate is outside (i.e. greater than or less than) the 90% confidence interval of the t=0 estimate, the new stock estimate takes precedence and is used for the subsequent period.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Was unable to find this in the PD
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the approach for when the re-measured estimate is within 90% of the t=0 estimate into the PD.
Round 1 Response from Project Proponent (11 April 2014)	This methodology requirement applies only when stock estimates are updated after 10 years, thus this assessment will not be made until 2023 and the monitoring plan has been updated to specify this. The following text was added to Section 4.3 of the PD. "Aboveground and belowground live tree and dead wood stocks will be re-assessed on or before 2023. For each stratum, where the re-measured estimate is within the 90% confidence interval of the t=0 estimate, the t=0 stock estimate takes precedence and is re-employed, and where the re-measured estimate is outside (i.e. greater than or less than) the 90% confidence interval of the t=0 estimate, the new stock estimate takes precedence and is used for the subsequent period."
ESI Findings - Round 2 (29 April 2014)	The methodological approach has been included in Section 4.3. Finding closed.

Item Number	103
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Step 3: The volume of lying dead wood per unit area is estimated using the equation (Warren and Olsen 1964) ² as modified by Van Wagner (1968) ³ separately for each density state. <u>The equation (7) is provided on page 6.</u>
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.6, 3.1.4.2; Russas Valparaiso Forest Inventory 2013.06.29.doc- Section A.2.5; RusVal_Data_2013.06.24a.xls - Lying Dead Wood tab
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The calculation of individual stem volumes was performed, it is unclear where the calculation of the volume of lying dead wood per unit area for a given strata/density class is located.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please calculate the volume of lying dead wood per unit area in density class dc in stratum I; $m^3 ha^{-1}$, as required by equation 7 of the CP-D methodology.
Round 1 Response from Project Proponent (11 April 2014)	In order to calculate uncertainty, stocks of biomass for each forest component need to be calculated at the plot level. For this reason, the volume of each piece of woody debris has been multiplied by the wood density values for the corresponding decay class. The resulting biomass values have then been summed at the plot level to give an estimate of lying dead wood. It is not feasible to calculate uncertainty for lying dead wood, when summing volumes by decay class at the strata level and then multiplying by wood density, as this only gives one estimates of biomass at the strata level. Equation 7 and 8 as written in the CP-D module are incorrect as they are either missing a parameter to scale strata stocks by the number of sampling plots; or are missing subscript such that both equation 7 and 8 calculate volume and then biomass of dead wood for each plot within a stratum rather than at only the stratum level. We propose calculating volume and biomass for each plot as this is needed to run the uncertainty calculations in the X-UNC module. A further equation is however needed between the current equation 8 and 9, to average the plot level data thus providing an estimate of the mean for each strata. This proposed change to the CP-D module has been provided as an attachment to this response. This MS-Word document is titled "CP-D Lying Dead changes 2014.02.19"

ESI Findings Round - 2 (29 April 2014)	The validation team has reviewed the document outlining proposed changes to the CP-D module as supplied by the project proponent. While the methodology specifies that lying deadwood volume be calculated on a per unit area basis, calculating volume and biomass at the plot and then extrapolating to the strata level. This is logical given the poor guidance by the module where a parameter is apparently missing. Therefore the validation team deems this approach reasonable and accepts this response. Finding closed.
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Item Number	104
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Step 4: Volume of lying dead wood shall be converted into biomass using <u>Equation 8 on page 7</u> . Density of each dead wood density class (DDWdc) is estimated as per guidance in measured parameters section below.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.6, 3.1.4.2; Russas Valparaiso Forest Inventory 2013.06.29.doc-Section A.2.5; RusVal_Data_2013.06.24a.xls - Lying Dead Wood tab
Validation or Verification	Validation
ESI Findings Round - 1 (23 October 2013)	It is unclear where the calculation of equation 8 takes place. Density for each piece of lying dead wood is performed on the 'Lying Dead Wood' tab of the excel inventory file.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please calculate the biomass of lying dead wood per unit area in stratum I ; d.m. ha ⁻¹ , as required by the CP-D methodology.
Round 1 Response from Project Proponent (11 April 2014)	Please see the response to Finding 46 above.
ESI Findings Round - 2 (29 April 2014)	This finding has been resolved in row 46. Finding closed.

Item Number	105
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Step 5: Mean carbon stock in dead wood for each stratum is then calculated as the sum of standing and lying dead wood components, converted to carbon dioxide equivalents
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Sections 2.6, 3.1.4.2; Russas Valparaiso Forest Inventory 2013.06.29.doc- Section A.2.5; RusVal_Data_2013.06.24a.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The verifier was unable to locate the calculation of the parameter C _{dwi} . Pending CL in uncertainty checklist line 33.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please calculate the mean carbon stock of dead wood in stratum I; t CO ₂ e ha ⁻¹ , as required by equation 9 of the CP-D methodology.
Round 1 Response from Project Proponent (11 April 2014)	Please see the response to Finding 46 above.
ESI Findings - Round 2 (29 April 2014)	This finding has been resolved in row 46. Finding closed.

Item Number	106
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Mean wood density of dead wood in the density class (dc) – sound (1), intermediate (2), and rotten (3); t d.m. m ⁻³

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.1
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	The parameter is not included in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the parameter mean wood density of dead wood in the density class;Ddwdc in the PD.
Round 1 Response from Project Proponent (11 April 2014)	The parameter, Ddwdc, has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (29 April 2014)	The item has been appropriately included in the PD in section 4.2. Because this will be monitored during every forest inventory, it is appropriate to include it in PD Section 4.2. Finding closed.

Item Number	107
Approved VCS Module VMD0002,Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Project-specific determination of density is most likely necessary, requiring collection of representative samples (in terms of scale and representation of forest strata/species composition similar to the inventory), from a minimum of 20-30 trees from each density class. Density classes need not be determined for specific species or species groups.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	Russas Valparaiso Forest Inventory 2013.06.29.doc-Section A.2.5; RusVal_Data_2013.06.24a.xls - Dead Wood Density Data tab
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	A sample of 43 trees were used (13,17,13 for each class) to determine dead wood density values.
Round 1 NCR /CL / OFI (23 October 2013)	CL: The number of samples does not equal to the minimum number of samples required for the determination of densities required by the methodology. Please include a Methodology Deviation to account for this discrepancy.

Round 1 Response from Project Proponent (11 April 2014)	The following deviation was added to Section 2.6 of the PD. "Dead wood collected for density determination was opportunistically sampled from within the project area. The forest inventory collected a total of 13,17,13 samples for the sound, intermediate, and rotten classes, respectively. While the minimum number of samples, twenty, as stated in the CP-D module of the methodology was not collected for each class, the sample was still sufficient for a robust estimate of the mean as indicated by the low coefficient of variations for each of the classes (i.e., less than 20% for each class)."
ESI Findings - Round 2 (29 April 2014)	The validator accepts the methodology deviation as it pertains to the monitoring/measurement of the dead wood densities. An examination of the coefficient of variation and other relevant statistics justify the homogeneity of the samples collected. Finding closed.

Item Number	108
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Top diameter of standing dead tree in cm (TDSDW)
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Unable to locate the top diameter of standing dead tree in cm (TDSDW) parameter in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the top diameter of standing dead tree in cm (TDSDW) into the PD, as required by the methodology.
Round 1 Response from Project Proponent (11 April 2014)	As stated in the CP-D module in reference to standing dead wood, "Volume is estimated as either the volume of a cone if the top diameter cannot be measured (and is assumed to be zero), or a cylinder (using Smalian's formula) if the top diameter can be measured directly or by using an instrument such as a relascope or laser inventory instrument or estimated using a taper function." As we estimated the volume of standing dead wood as the volume of a cone, the parameter top diameter of standing dead tree(TDSDW), has not and will not be used during the course of the project and thus has not been included in the PD.
ESI Findings - Round 2 (29 April 2014)	The validator understands that the top diameter will not be measured throughout the life of the project period, and thus will be treated as a conic calculation. Finding closed.

Item Number	109
Approved VCS Module VMD0002, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Height of standing dead tree in m (HSDW)
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.2
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Unable to locate the height of standing dead tree in m (HSDW) parameter in the PD.
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include the height of standing dead tree in m (HSDW) into the PD, as required by the methodology.
Round 1 Response from Project Proponent (11 April 2014)	The parameter Hsdw has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (29 April 2014)	This parameter has been appropriately included in Section 4.2 of the PD. Finding closed

Item Number	110
Approved VCS Module VMD0013, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of greenhouse gas emissions from biomass burning (E-BB), Sectoral Scope 14	Where fires occur ex-post the module shall be used to account greenhouse gas emissions.

Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.2 and 4.3; Valparaiso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	Emissions associated with Biomass Burning in the leakage belt were not quantified.
Round 1 NCR /CL / OFI (23 October 2013)	CL: Please justify the non-quantification of emissions associated with Biomass Burning in the leakage belt. Else, conservatively quantify and update the PD accordingly. Please also indicate in PD Section 4.3 how Aburn,i,t relates to ADefLB,i,t and how Monitoring accounts for Biomass Burning in the leakage Belt.
Round 1 Response from Project Proponent (11 April 2014)	The monitoring plan (PD Section 4.3) has been revised to include quantification of emissions from biomass burning in the leakage belt, applying the conservative assumption that burning is a part of the forest conversion process in all incidents of deforestation taking place in the leakage belt. The text added to Section 4.3 is as follows: "It is conservatively assumed that burning is a part of the forest conversion process in all incidents of deforestation taking place in the leakage belt. Thus, for deforested strata in the leakage belt, parameter Aburn,i,t (Area burnt for stratum i at time t; ha) will be set equal to monitored parameter ADefLB,i,t (Area of recorded deforestation in the leakage belt at time t; ha). The T-SIG tool can then be applied, and if parameter E BiomassBurn,t (Greenhouse emissions due to biomass burning as part of deforestation activities in stratum i in year t) is determined to be insignificant, E BiomassBurn,t, can be assumed equal to zero." Further, ex-emissions from biomass burning in the leakage belt have been calculated and included in Section 3.2. Table 3.21 in Section 3.2 of the PD has been updated to include information on GHG emissions associated with biomass burning in the leakage belt. Further, Table 3.24 in Section 3.3 has also been updated with the information in the excel workbook "Valparaiso Project 2014.04.11".
ESI Findings - Round 2 (29 April 2014)	Biomass burning GHG emissions in the leakage belt (CH4 and N2O) have been appropriately added to the PD in tables 3.21 and 3.24 and are confirmed. This clarification request has been satisfied as written.

Item Number	111
Approved VCS Module VMD0013, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of greenhouse gas emissions from biomass burning (E-BB), Sectoral	Based on the IPCC 2006 Inventory Guidelines, estimating greenhouse gas emissions from biomass burning shall be determined using Equation 1 on page 2.

Scope 14	
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 3.2; Valparaiso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please demonstrate that calculating the greenhouse gas emissions due to biomass burning at the strata level results in no difference when compared to calculating the greenhouse gas emissions due to biomass burning by summing the area deforested by strata and then multiplying by the by the E-BB parameters. Else, quantify the greenhouse gas emissions due to biomass burning at the strata level and sum. Note Item XX (Row 18 below) in addressing this NCR.
Round 1 Response from Project Proponent (11 April 2014)	As the location/strata of deforestation in the with-project case is not known ex-ante, EBB calculations using the overall estimates for CAB+CDW across all strata. In the with-project case the parameter Bi,t is calculated for each strata. Similarly, the area weighted mean carbon stock is used in the calculating of $\Delta CP, DefPA,i,t$ (or ex-ante emissions from deforestation in the project area). As discussed in detail on our call of 1/29/14 (in relation to M-Mon row 75), while it is reasonable to assume that the area deforested in the baseline is the same as that deforested in the with-project case, not all of the deforestation in the baseline is expected to occur in the with-project case due to implementation of the project activities. As such there is no way to predict where the deforestation is occurring and which strata are being deforested ex-ante in the with-project case. It is for this reason that we have used an area weighted average for the Bi,t parameter in the with-project ex-ante case. Further, as explained on our phone call on 1/29/14, the rationale for quantifying $ADefLB,u,i,t$ as the $((\text{sum of } Aunplanned,i,t \text{ in the PA}) - ADefPA,u,i,t) * 0.15$, is that by definition leakage in the leakage belt results from deforestation displaced from the project area. Deforestation which has occurred in the project area cannot be displaced hence subtracting $ADefPA,u,i,t$ from the sum of $Aunplanned,i,t$ in the PA. As only a portion of deforestation is expected to be displaced the difference is multiplied by a factor between 0 and 1, with zero being no leakage and 1 being 100% leakage. As project activities are addressing deforestation pressures in the project area and leakage belt, the amount of leakage expected to be displaced is 15% or 0.15.
ESI Findings - Round 2 (29 April 2014)	The validation team recognizes this CL has not been completely addressed as written and project proponents have calculated net carbon stock change in the with-project case differently than the requirement. After discussion, it was concluded to permit project proponents to use this method as the estimate is ex-ante and doesn't affect the baseline or ex-post emission estimates. Further, in a previous response, project proponents remarked that this parameter will be calculated in compliance for monitoring. Validation team accepts the response to address this finding as sufficient. Finding closed.

Item Number	112
Approved VCS Module VMD0013, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of greenhouse gas emissions from biomass burning (E-BB), Sectoral Scope 14	Based on the IPCC 2006 Inventory Guidelines, estimating greenhouse gas emissions from biomass burning shall be determined using Equation 1 on page 2.
Evidence Used to Assess (Location in PD/MR or Supporting Documents)	PD Section 4.3; Valparaiso Project 2013.07.16.xls
Validation or Verification	Validation
ESI Findings - Round 1 (23 October 2013)	
Round 1 NCR /CL / OFI (23 October 2013)	NCR: Please include Average aboveground biomass stock before burning ($B_{i,t}$) in the quantification of the greenhouse gas emissions due to biomass burning.
Round 1 Response from Project Proponent (11 April 2014)	$B_{i,t}$ has been calculated ex-ante in cell T9 of the BL-UP parameters tab of the "Valparaiso Project 2014.04.11" workbook, further this parameter has been incorporated into the calculation of EBB and included in section 4.2 of the PD. The calculations in the excel workbook "Valparaiso Project 2014.04.11" regarding emissions for biomass burning in the leakage belt have been revised to reference the weighted average stock for the leakage belt (cell T10 of the BL-UP parameters) rather than the project area (cell T9 of the BL-UP parameters).
ESI Findings - Round 2 (29 April 2014)	Valparaiso Project 2014.04.11.xls was reviewed. It has been confirmed that the appropriate $B_{i,t}$ has been implemented for both the PA and the LB. Item Addressed.