RUSSAS PROJECT – A TROPICAL FOREST CONSERVATION PROJECT IN ACRE, BRAZIL

VCS VALIDATION REPORT

Document Prepared By: Environmental Services, Inc.

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Summary:

Environmental Services, Inc., (ESI) was contracted by CarbonCo, LLC, on 16 April 2013 to conduct the validation of *The Russas Project: A Tropical Forest Conservation Project in Acre, Brazil.* The Russas 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 Russas Project's compliance under the Verified Carbon Standard (VCS) Version 3 (and all associated updates), the selected methodology, and the Project Description. The Russas 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 Russas Project; GHG sources, sinks and/or reservoirs; types of GHG's; and time periods covered. The geographic verification 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)" v1.3 (20 November 2012) 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 Russas Project dated 13 March 2014 (v1.2) 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 GHG emissions reduction or removal of 1,201,474 tCO2 equivalents by the project during the 10 year initial reporting period (2012 - 2021). This value is gross of the estimated 10% (164,593 tCO_2 equivalents) buffer withholding based on the non-permanence risk assessment tool.

TABLE OF CONTENTS

1 Introduction 5
1.1 Objective 5
1.2 Scope and Criteria 5
1.3 Level of Assurance 6
1.4 Summary Description of the Project 6
2 Validation Process 6
2.1 Method and Criteria 6
2.2 Document Review 7
2.3 Interviews 7
2.4 Site Inspections 9
2.5 Resolution of Findings 11
2.6 Forward Action Requests 12
3 Validation Findings 12
3.1 Project Details 12
3.2 Application of Methodology 13
3.2.1 Title and Reference 13
3.2.2 Applicability 14
3.2.3 Project Boundary 17
3.2.4 Baseline Scenario 20
3.2.5 Additionality 21
3.2.6 Quantification of GHG Emission Reductions and Removals 22
3.2.7 Methodology Deviations 24
3.2.8 Monitoring Plan 28
3.3 Non-Permanence Risk Analysis 33
3.4 Environmental Impact 35
3.5 Comments by Stakeholders 35
4 Validation Conclusion 35
Appendix A – Documents Received/Reviewed 37
Appendix B – NCRs/CL/OFIs 52

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 Russas 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 17 March 2011 to 16 March 2041. The validation objective of the Russas 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 Russas Project was outlined by the Project Proponent within the Project Description and is presented below 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: 17 March 2011 Initial Baseline Crediting Period: 10 years
Project Boundary	This project is located in the state of Acre, Brazil, alongside the Jurua and Valparaiso Rivers, 41,976 ha.
GHG credits expected to be eligible for issuance as VCUs for the initial 10 year	1,201,474 tCO2e

baseline crediting period	

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 are 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 Russas 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 subsidence 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 following is a list of the main interviewees:

Name	Information Discussed
Ilderlei Souza Rodrigues Cordeiro	This individual owns the land for the Russas project and wishes to see it 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 Lopez	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 Nascimiento	She is the environmental minister for Cruziero 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.
Marmud, Maria and Glaouco Dene de Carvalho	Husband, wife and son who are the project area managers collectively working for both Russas and Valparaiso 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 verification 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:

<u>General</u>

- 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.
- Verification 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 were 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, 101 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 Russas 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 Russas 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 Russas Project including CarbonCo, LLC ("CarbonCo"), Freitas International Group, LLC ("Carbon Securities"), and I.S.R.C. Investimentos e Acessória LTDA ("I.S.R.C."). 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 I.S.R.C. and provides logistical support during site visits. Ilderlei Souza Rodrigues Cordeiro is the land owner and sole proprietor of I.S.R.C., an 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 Russas Project commencement of the REDD project crediting period began on March 17, 2011 and will run through March 16, 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 annual emissions reductions of 120,147 tCO_2e 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 Russas 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 Russas 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 Ilderlei Souza Rodrigues Cordeiro (dated 2012) 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 Russas 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 Russas 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 Russas 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 Russas 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 verification.	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 Ilderlei Souza Rodrigues Cordeiro (dated 2012) as the owner of the property. The tri party agreement between Ilderlei Souza Rodrigues Cordeiro to CarbonCo and Carbon Securitiesis 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 compliance-orientated) must be	The validation team confirmed that no other emissions trading programs, GHG programs, or environmental credits are applicable for the Russas project per VCS Standard Sections 3.11.3 - 3.11.9.

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.	
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 management areas that possess and	Not applicable

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 Russas 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 and N2O emissions are conservatively excluded in the

biomass burning”	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 Russas 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 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_2O 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_2O emissions due to biomass burning. CO_2 source is appropriately excluded because it has already been accounted for.
	CH_4		
	N_2O		
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_2O		
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_2O		

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 Russas 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 Russas 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 Russas project in conjunction with an abutting project area to the east known as Valparaiso because the original intention was a single unified project. The Valparaiso 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 Russas 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 Russas 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 Russas 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 Russas 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 al[1].

Project emissions

The Russas 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

[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.

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. 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.

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	Validation team confirmed that Cecropia genus

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.	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. The omission of Cecropia 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. Project proponents have included methodology deviations in the PD to describe deviations from the methodology. 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 Cairns [2] approach is a conservative allometric method to estimate belowground biomass. 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 an r2 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 validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a parabloid is a 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

[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.

the following reasons: • Volume is calculated as the volume a parabaloid 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.	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. 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 sparse and therefore population density was used instead. 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 Report[3]. As a result, the PROPLB parameter is smaller and produces a more conservative estimate as more leakage outside the leakage belt is accounted for. 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 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. This change to a larger value was deemed more conservative. 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. This deviation is permissible under VCS Standard Section 3.5.1.
Parameter $U_{P,SS,i,pool\#}$ will be monitored at least once every 10 years, on re-measurement of	Validation team confirmed that project proponents are correct in that no other module

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

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.	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 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.
$\Delta C_{P,Def,i,t}$	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 ΔCP,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 ADefPA,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.
$\Delta Cpools,Def,u,i,t$	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 (Russas Project 2014.01.10.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 (Ai) 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.
Bi,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 *q* in baseline stratum *i.*

The Russas 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 Russas 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 a verification the risk analysis was assessed for appropriateness and to provide additional context for the validation review of the project. As 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
Internal Risk	
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 Russas 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 Appendum, 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 Ilderlei Souza Rodrigues Cordeiro (dated 2012) 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 (ie 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 Russas 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 Russas 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 Russas 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 Russas 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 Russas Project, as prepared by CarbonCo LLC, is likely to achieve an estimated GHG emission reduction or removal of 1,201,474 tCO2 equivalents during the initial 10 year baseline crediing period (2012 - 2021).

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 Contact- Brian McFarland, bmcfarland@carbonfund.org, 240-247-0630
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:	19 March 2014

SMM/JPM/rmb/VO13023.00 Validation Report-final 19 March 2014.doc
K: PF 03/19/14f

APPENDIX A – DOCUMENTS RECEIVED/REVIEWED

Documents received 11 July 2013

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

Documents received 17 July 2013

- Russas Project Final Draft VCS PD (7-17-2013).pdf
- Russas Project Final Draft CCBS PDD - Portuguese (7-16-13).pdf
- Russas Project Final Draft VCS PD (7-17-2013) Shawn Notes.pdf

Documents received 13 August 2013

- Russas Valparaiso Project Archive
  - 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
  - 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
  - 03 Literature Sources
    - Salimon et al 2011.pdf
    - FAO 2010 FRA Brasil.pdf
  - 04 Project Proponents Contracts
    - Russas Tri-Party, Fully Signed and Certified (English).pdf
  - 05 Community Contracts
    - Russas Atas, March 2011 to May 2013.pdf
  - 07 Laws
    - Procedimentos de Segurança em Campo (TECMAN).pdf
    - Employee Handbook 2010 April.pdf
  - 08 Letter of Approval
    - OAB-AC - Ofício Declaraç_o.pdf
    - OAB AC translation.doc
  - 10 Participatory Rural Appraisal
    - PRA Results March 2013.xls
  - 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
    - 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
        - GPS_out
            - ValStrataLB.kmz
            - GPX file"
            - Rus_Strata.kmz
            - Rus_Strata__SA_Lambert_Confml_Conic.kml
            - RussasLB.kmz
            - RussasPA.kmz
            - RussasProperty.kmz
            - RusStrataLB.kmz
    - 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
    - 16 Miscellaneous
        - Russas Sustainable Fuelwood Analysis 2013.07.15.xls

Documents received 20 August 2013

- Certificados
    - Certificado 01 - Cultivo da Banana.pptx
    - Certificado 02 - Cultivo do Milho.pptx
    - Certificado 03 - Cultivo da Macaxeira.pptx
    - Certificado 04 - Cultivo da Graviola.pptx
- Listas de presenças digitalizadas dos cursos
    - Lista de presença digitalizada - Foz do Valparaiso

    - Lista de presença digitalizada - Lua Clara
    - Lista de Presença digitalizada - Terra Firme
    - Lista de presença digitalizada - Três Bocas
- Materia Jurua Oline Valparaiso e Russas
    - Texto Jornal.docx
    - Comunidade Foz do Valpaiso.JPG
    - Comunidade Lua Clara.JPG
    - Comunidade Terra Firme.JPG
    - Comunidade Três Bocas.JPG
- Materiais oudiovisuais utilizados nos Cursos
    - Folder.docx
    - Cultura da Banana
    - Cultura da Graviola
    - Cultura da Macaxeira
    - Cultura do Maracuja
    - Cultura do Milho
    - Produção de Mudas
    - Roçado Sustentavel com uso de leguminosa - Mucuna preta
    - Banner.pptx
- Registro fotografico dos cursos
    - Fotos Foz do Valparaiso

Documents received 14 November 2013

- CFO Letter of Support for Purus, Russas and Valparaiso Projects.pdf
- Public Comment Period Announcements
    - Tribuna do Juruá Public Comment Period for Russas-Valparaiso Projects (Print).pdf
    - Brian McFarland's Promotion of Public Comment Period.pdf
    - CF's Newsletter for Purus, Russas and Valparaiso Projects' CCBS Public Comment Period.pdf
    - Tribuna do Juruá Public Comment Period for Russas-Valparaiso Projects (Online).pdf
- Addendum to Russas Tri-Party Agreement, Fully Signed.pdf
- BNS for Russas and Valparaiso.xlsx
- CarbonCoCarbonNeutralSignedVERPADecember 302012.pdf
- CarbonCo's Bank Statement.pdf

Documents received 20 December 2013

- 01 Project Document
    - PD Submission 7-17-2013
        - 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
- 02 Forest Inventory
    - Salimon et al 2011.pdf
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    - Russas Valparaiso Forest Inventory 2013.06.29.doc
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    - Russas Tri-Party, Fully Signed and Certified (English).pdf
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    - Russas Atas, March 2011 to May 2013.pdf
- 06 Title Documentation
    - Russas Project Landownership Documentation.pdf
- 07 Laws
    - Procedimentos de Segurança em Campo (TECMAN).pdf
    - Employee Handbook 2010 April.pdf
- 08 Letter of Approval
    - Mayor's Letter of Support for Russas Project.pdf
    - OAB AC translation.doc
    - OAB-AC - Ofício Declaraç_o.pdf
    - Russas Letters of Support Translated.docx"
    - Russas Project Letters of Support, #1.pdf
    - Russas Project Letters of Support, #2.pdf
- 09 Project Meeting Notes
    - Russas and Valparaiso Project Notes.docx
- 10 Participatory Rural Appraisal
    - PRA Results for Russas-Valparaiso Projects.xlsx
    - Russas Project and Leakage Belt PRAs.pdf
- 11 Basic Necessity Survey
    - BNS for Russas and Valparaiso.xlsx
    - Russas and Russas Leakage Belt BNS.pdf
- 12 Agricultural Survey
    - Russas and Russas Leakage Belt Ag Surveys.pdf
    - Russas-Valparaiso Ag Courses Aggregated.xlsx
- 13 VCS CDM Documents
    - VCS
        - VCS Standard, v3.3.pdf
        - AFOLU Non-Permanence Risk Tool, v3.2.pdf
        - AFOLU Requirements v3.3_0.pdf
    - Methodology
        - VMD0017 X_UNC v2.0.pdf
        - VM0007 REDD-MF Version 1.4.pdf
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        - VMD0010 LK-ASU Unplanned leakage.pdf
        - VMD0013 E-BB Biomass burning.pdf
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        - VMD0016 X-STR Stratification.pdf
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        - RUSVAL_inventoryCompleted2013.06.24.sbn
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        - RUSVAL_inventoryCompleted2013.06.24.shp.xml
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    - RusStrata_2013.07.06.sbn
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    - RussasPA_2013.07.05.sbx
    - RussasPA_2013.07.05.shp
    - RussasPA_2013.07.05.shx
    - RussasProperty_2013.03.14.dbf
    - RussasProperty_2013.03.14.prj
    - RussasProperty_2013.03.14.sbn
    - RussasProperty_2013.03.14.sbx
    - RussasProperty_2013.03.14.shp
    - RussasProperty_2013.03.14.shx
    - RussasRRD_2013.07.05.dbf
    - RussasRRD_2013.07.05.prj
    - RussasRRD_2013.07.05.sbn
    - RussasRRD_2013.07.05.sbx
    - RussasRRD_2013.07.05.shp
    - RussasRRD_2013.07.05.shp.xml
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    - RusVAL_RRL_2013.07.05.dbf
    - RusVAL_RRL_2013.07.05.prj
    - RusVAL_RRL_2013.07.05.sbn
    - RusVAL_RRL_2013.07.05.sbx
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  - Pro Forma for Russas and Valparaiso Project (7-22-13).xls
  - CarbonCoCarbonNeutralSignedVERPADecember 302012.pdf
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    - 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
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        - Russas Sustainable Fuelwood Analysis 2013.07.15.xls
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        - Tribuna do Juruá Public Comment Period for Russas-Valparaiso Projects (Print).pdf
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        - CF's Newsletter for Purus, Russas and Valparaiso Projects' CCBS Public Comment Period.pdf
        - Tribuna do Juruá Public Comment Period for Russas-Valparaiso Projects (Online).pdf
- 17 Validation
    - Validation Finding Responses 2013.12.20
        - RusVal_Data_2013.12.20.xls
        - Additional Support
            - ZEE Acre 2006.pdf
            - Accuracy Assessment
                - Acre_2012AA.xls
                - AccuracyAssessment.docx
                - Acre_2012AA.kmz
            - GIS Files
                - 2012 deforestation revised
                - Desmate_Acre_1988_2012_Merge_6pixel.shx
                - Desmate_Acre_1988_2012_Merge_6pixel.dbf
                - Desmate_Acre_1988_2012_Merge_6pixel.prj
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        - Ac_Vegetation.shp.xml
- Model
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        - PredictionMap
            - 2010_modeledresult.rst
            - 2010_modeledresult.RDC
        - RiskMap
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            - RiskMap.RDC
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        - Final_rank.rst
        - Final_rank_reclass_1213.RDC
        - Final_rank_reclass_1213.rst
        - Final_Russas_baseline.RDC
        - Final_Russas_baseline.rst
        - Final_RussasLB_baseline.RDC
        - Final_RussasLB_baseline.rst
        - Land Change Modeler MLP Model Results.docx
        - model output iterations confirmation.html
    - Factor maps
        - RTRM_MOSAIC_FULL_UTM_AC.rst
        - RC_ALLROADS_PR_SC_UTM_DIST_MASK.RDC
        - RC_ALLROADS_PR_SC_UTM_DIST_MASK.rst
        - RC_DEFORESTATION_TO1995_ANO.RDC
        - RC_DEFORESTATION_TO1995_ANO.rst
        - RC_RIVERS_ALL_1VAL_DIST_MASK.RDC
        - RC_RIVERS_ALL_1VAL_DIST_MASK.rst
        - rrl_Protectedlands_dist.RDC
        - rrl_Protectedlands_dist.rst
        - RTRM_MOSAIC_FULL_UTM_AC.RDC
- Anderson et al 2009 Biogeosciences.pdf
- Arag_o and Shimabukuro 2010.pdf
- Baker et al 2004 Variation in wood density in Amazon.pdf
- METODOLOGIA DESMATAMENTO DO ACRE 2011.doc
- METODOLOGIA DO ACRE 2011 (English).docx

            - Post Deforestation Stocks 2013.07.12.xls
        - CarbonCo_Russas_Final Round 1 NCRs Responses 2013.12.20.xlsx
        - Russas Project 2013.12.20.xls
        - RussasProject VCS PD 2013.12.20.doc

Documents received 10 January 2014

- CarbonCo_Russas_Final Round 1 NCRs Responses 2014.01.10.xlsx
- validation finding responses 2014.01.10
    - RussasProject VCS PD 2014.01.10.doc
    - CarbonCo_Russas_Final Round 1 NCRs Responses 2014.01.10.xlsx
    - Russas Project 2014.01.10.xls
    - additional support
        - RusVAL_RRD_2013.12.10
            - RusVAL_RRD_2013.12.10.shx
            - RusVAL_RRD_2013.12.10.dbf
            - RusVAL_RRD_2013.12.10.prj
            - RusVAL_RRD_2013.12.10.sbn
            - RusVAL_RRD_2013.12.10.sbx
            - RusVAL_RRD_2013.12.10.shp
            - RusVAL_RRD_2013.12.10.shp.xml
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            - RussasLB_2013.12.10.dbf
            - RussasLB_2013.12.10.prj
            - RussasLB_2013.12.10.sbn
            - RussasLB_2013.12.10.sbx
            - RussasLB_2013.12.10.shp
            - RussasLB_2013.12.10.shp.xml
        - RusStrataLB_2013.12.13
            - RusStrataLB_2013.12.13.shx
            - RusStrataLB_2013.12.13.dbf
            - RusStrataLB_2013.12.13.prj
            - RusStrataLB_2013.12.13.sbn
            - RusStrataLB_2013.12.13.sbx
            - RusStrataLB_2013.12.13.shp
            - RusStrataLB_2013.12.13.shp.xml

Documents received 15 January 2014

- Russas Project Transfer Agreement (Original and Translated).pdf
- Russas Project CCBS PDD - English, Revised - 1-15-14.pdf
- Russas Project Certidao de Inteiro Teor (Original and Translated).pdf
- Russas Project Memorial Descritivo (Original and Translated).pdf

Documents received 16 January 2014

- CarbonCo_Russas_Final Round 1 NCRs Responses 2014.01.16.xlsx
- Validation Finding Responses 2014.01.16
    - RussasProject VCS PD 2014.01.16.doc
    - CarbonCo_Russas_Final Round 1 NCRs Responses 2014.01.16.xlsx
    - Finding 47 and 48 River and settlement Responses 2014 01 16.docx
    - Additional
        - Settlements_2014.01.16.xlsx
        - River Density_2014.04.14.xlsx
        - Settlements_2014.01.14

- RRD_municipalities.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
- LB2_municipalities.dbf
- LB2_municipalities.prj
- LB2_municipalities.sbn
- LB2_municipalities.sbx
- LB2_municipalities.shp
- LB2_municipalities.shp.xml
- LB2_municipalities.shx
- PA_municipalities.dbf
- PA_municipalities.prj
- PA_municipalities.sbn
- PA_municipalities.sbx
- PA_municipalities.shp
- PA_municipalities.shp.xml
- PA_municipalities.shx
- RRD_municipalities.dbf
- RRD_municipalities.prj
- RRD_municipalities.sbn
- RRD_municipalities.sbx
- RRD_municipalities.shp
- RRD_municipalities.shp.xml

▪ Navigable Rivers
- RRD_NavRivers.shx
- LB_NavRivers.dbf
- LB_NavRivers.prj
- LB_NavRivers.sbn
- LB_NavRivers.sbx
- LB_NavRivers.shp
- LB_NavRivers.shp.xml
- LB_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
- RRD_NavRivers.dbf
- RRD_NavRivers.prj

- RRD_NavRivers.sbn
- RRD_NavRivers.sbx
- RRD_NavRivers.shp
- RRD_NavRivers.shp.xml

Documents received 17 January 2014

- CarbonCo_Russas_Final Round 1 NCRs Responses 2014.01.17.xlsx
- Validation Finding Responses 2014.01.17
  - RussasProject VCS PD 2014.01.17.doc
  - Additional work
    - Russas Sustainable Fuelwood Analysis 2014.01.16.xls
    - FAO 2004 UBET.pdf
  - CarbonCo_Russas_Final Round 1 NCRs Responses 2014.01.17.xlsx

Documents received 24 February 2014

- Additional
  - Ac_Vegetation
    - Ac_Vegetation.shx
    - Ac_Vegetation.dbf
    - Ac_Vegetation.prj
    - Ac_Vegetation.sbn
    - Ac_Vegetation.sbx
    - Ac_Vegetation.shp
    - Ac_Vegetation.shp.xml
  - 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
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      - rank_rrl_220.tif.vat.dbf
      - rank_rrl_220.dbf
      - rank_rrl_220.prj
      - rank_rrl_220.sbn
      - rank_rrl_220.sbx
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        - rank_rrl_220.shx
        - rank_rrl_220.tfw
        - rank_rrl_220.tif
        - rank_rrl_220.tif.aux.xml
        - rank_rrl_220.tif.ovr
    - 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
    - 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
    - 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
    - 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
        - RRD_roads20140220.shp
        - RRD_roads20140220.shp.xml
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        - RusVAL_RRD_2013.2.18.shx
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        - RusVAL_RRD_2013.2.18.prj
        - RusVAL_RRD_2013.2.18.sbn
        - RusVAL_RRD_2013.2.18.sbx
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        - RusVAL_RRD_2013.2.18.shp.xml
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        - GIS
            - RRD_Defor20140219.shx
            - RRD_Defor20140219.dbf
            - RRD_Defor20140219.prj
            - RRD_Defor20140219.sbn
            - RRD_Defor20140219.sbx
            - RRD_Defor20140219.shp
            - RRD_Defor20140219.shp.xml
    - RRL
        - RusVAL_RRL_2014.02.07.shx
        - RusVAL_RRL_2014.02.07.dbf
        - RusVAL_RRL_2014.02.07.prj
        - RusVAL_RRL_2014.02.07.sbn
        - RusVAL_RRL_2014.02.07.sbx
        - RusVAL_RRL_2014.02.07.shp
    - RRL_AmtDefor 2014.02.18
        - RRL_AmtDefor 2014.02.18.xlsx
        - GIS
            - RRL_Deforestation2014.02.shx
            - RRL_Deforestation2014.02.dbf
            - RRL_Deforestation2014.02.prj
            - RRL_Deforestation2014.02.shp
            - RRL_Deforestation2014.02.shp.xml
    - Russas Forest Inventory
        - RusVal_Data_2014.02.19.xls
        - Russas Valparaiso Forest Inventory 2014.02.19.doc
    - Settlements_2014.02.20
        - RRD_municipalities220.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
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        - LB2_municipalities.dbf
        - LB2_municipalities.prj
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        - LB2_municipalities.shx
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        - PA_municipalities.prj
        - PA_municipalities.sbn
        - PA_municipalities.sbx
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        - PA_municipalities.shp.xml
        - PA_municipalities.shx
        - RRD_municipalities220.dbf
        - RRD_municipalities220.prj
        - RRD_municipalities220.sbn
        - RRD_municipalities220.sbx
        - RRD_municipalities220.shp
        - RRD_municipalities220.shp.xml
    - SlopeClass
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        - LB_slope20140221.sbn
        - LB_slope20140221.sbx
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        - LB_slope20140221.shp.xml
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        - PA_slope20140221.dbf
        - PA_slope20140221.prj
        - PA_slope20140221.sbn
        - PA_slope20140221.sbx
        - PA_slope20140221.shp
        - PA_slope20140221.shp.xml
        - PA_slope20140221.shx
        - RRD_slope20140221.dbf
        - RRD_slope20140221.prj
        - RRD_slope20140221.sbn
        - RRD_slope20140221.sbx
        - RRD_slope20140221.shp
        - RRD_slope20140221.shp.xml

        - RRD_slope20140221.shx
        - SlopeClass.dbf
        - SlopeClass.prj
        - SlopeClass.sbn
        - SlopeClass.sbx
        - SlopeClass.shp
        - SlopeClass.shp.xml
    - Soils
        - RRL_soil20140221.shx
        - Ac_Soil.dbf
        - Ac_Soil.prj
        - Ac_Soil.sbn
        - Ac_Soil.sbx
        - Ac_Soil.shp
        - Ac_Soil.shp.xml
        - Ac_Soil.shx
        - DeforRRD_soil20140221.dbf
        - DeforRRD_soil20140221.prj
        - DeforRRD_soil20140221.sbn
        - DeforRRD_soil20140221.sbx
        - DeforRRD_soil20140221.shp
        - DeforRRD_soil20140221.shp.xml
        - DeforRRD_soil20140221.shx
        - LB_soil20140221.dbf
        - LB_soil20140221.prj
        - LB_soil20140221.sbn
        - LB_soil20140221.sbx
        - LB_soil20140221.shp
        - LB_soil20140221.shp.xml
        - LB_soil20140221.shx
        - PA_soil20140221.dbf
        - PA_soil20140221.prj
        - PA_soil20140221.sbn
        - PA_soil20140221.sbx
        - PA_soil20140221.shp
        - PA_soil20140221.shp.xml
        - PA_soil20140221.shx
        - RRD_soil20140221.dbf
        - RRD_soil20140221.prj
        - RRD_soil20140221.sbn
        - RRD_soil20140221.sbx
        - RRD_soil20140221.shp
        - RRD_soil20140221.shp.xml
        - RRD_soil20140221.shx
        - RRL_soil20140221.dbf
        - RRL_soil20140221.prj
        - RRL_soil20140221.sbn
        - RRL_soil20140221.sbx

        - RRL_soil20140221.shp
        - RRL_soil20140221.shp.xml
    - VegClass
        - RRD_veg20140221.shx
        - Ac_VegClass.dbf
        - Ac_VegClass.prj
        - Ac_VegClass.sbn
        - Ac_VegClass.sbx
        - Ac_VegClass.shp
        - Ac_VegClass.shp.xml
        - Ac_VegClass.shx
        - LB_veg20140221.dbf
        - LB_veg20140221.prj
        - LB_veg20140221.sbn
        - LB_veg20140221.sbx
        - LB_veg20140221.shp
        - LB_veg20140221.shp.xml
        - LB_veg20140221.shx
        - PA_veg20140221.dbf
        - PA_veg20140221.prj
        - PA_veg20140221.sbn
        - PA_veg20140221.sbx
        - PA_veg20140221.shp
        - PA_veg20140221.shp.xml
        - PA_veg20140221.shx
        - RRD_veg20140221.dbf
        - RRD_veg20140221.prj
        - RRD_veg20140221.sbn
        - RRD_veg20140221.sbx
        - RRD_veg20140221.shp
        - RRD_veg20140221.shp.xml
    - AcrePrecipitationMap_2014.02.20.jpg
    - Cairns Root to Shoot 2014.02.06.xlsx
    - CP-D Lying Dead changes 2014 02 19.docx
    - ElevationMap_2014.02.20.jpg
    - pontius_etal_2008_ars.pdf
    - Post Deforestation Stocks 2014.02.14.xls
    - River Density_2014.02.20.xlsx
    - Road Density_2014.02.20.xlsx
    - Settlements_2014.02.20.xlsx
    - SlopeComparison_2014.02.21.xlsx
    - SoilComparison_2014.02.21.xlsx
    - VegClassComparison_2014.02.20.xlsx
- CarbonCo_Russas_Final Round 2 NCRs_2014.02.21.xls"
- Russas Project 2014.02.21.xls
- RussasProject VCS PD 2014.02.21 track changes.doc
- RussasProject VCS PD 2014.02.21.doc

APPENDIX B – NCR/CL/OFI SUMMARY

Item Number	1
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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Not stated if any equipment used requires calibration.
Round 1 NCR/CL/OFI (22 October 2013)	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 (20 December 2013)	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 2 (22 January 2014)	Project proponents' amendment to the PD sufficiently addresses this finding. Agreed. However, recent feedback from the VCS indicates that Section 4.2 does not meet the requirements . This item can be closed. However, See Section 3.18.1 for a NCR related to the parameter tables located in Section 4.2 of the PD. This will remain a Round 1 item. Finding closed.

Item Number	2
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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	
ESI Findings - Round 2 (22 January 2014)	A Round 1 NCR was written for this requirement. However, it was not transferred to the NCR file. Thus, it is presented here. This will remain a Round 1 Item.
Round 2 NCR /CL/OFI	NCR (Round 1): To ensure records are secure and retrievable, please provide more detail on how and where data are archived in PD Section 4.3.
Round 2 Response from Project Proponent (21 February 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. "
Final ESI Findings	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 as written. 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. Finding closed.

Item Number	3
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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	New template is available, but not required until 8 April 2014

Round 1 NCR/CL/OFI (22 October 2013)	
Round 1 Response from Project Proponent (20 December 2013)	
ESI Findings - Round 2 (22 January 2014)	The beginning of PD Section 4.2 indicates why certain fields of the parameter tables are left blank. However, as per this requirement, all instructional text within the template must be adhered to. Thus, these fields cannot be left blank as per the template.
Round 2 NCR /CL/OFI	NCR (Round 1): Please revise PD Section 4.2 and update the Parameter Tables so that they adhere to all instructional text within the template. Please "Identify how the data/parameter is measured" in the "Description of measurement methods and procedures to be applied" field, "Provide estimated value for the purpose of calculating ex-ante GHG emission reductions or removals" in the "Value applied" field, "Identify equipment used to monitor the data/parameter including type, accuracy class, serial number of equipment" in the "Monitoring equipment" field, and "Identify calibration information such as frequency, date of last calibration and validity" in the "QA/QC procedures to be applied" field.
Round 2 Response from Project Proponent (21 February 2014)	The parameter table is Section 4.2 of the PD have been revised to adhere to all instructional text within the template.
Final ESI Findings	Section 4.2 of the PD was checked and verified to be in compliance with VCS Rules for instructional text, the data and parameters table was properly updated. Per VCS Rules, all fields are now filled in with instructional text. This CL request has been addressed as written. Finding closed.

Item Number	4
VCS Standard 3.3 Requirements (04 October 2012)	
Evidence Used to Assess (Location in PD, MR or Supporting Documents	
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	
Round 1 NCR/CL/OFI (22 October 2013)	

Round 1 Response from Project Proponent (20 December 2013)	
ESI Findings - Round 2 (22 January 2014)	RussasProject VCS PD 2014.01.10.doc indicates it is Version 1 of the PD and that the date of Issue is 15 July 2013. This is the 3rd version of the PD and it was provided to the validators on 10 Jan 2014. This items need to be consistently updated upon submission to aid in tracking, ensure adherence to instructional text within the template, and to avoid potential related issues when the project is reviewed by the VCS. This item can be considered a Round 1 Item and will be billed as such.
Round 2 NCR /CL/OFI	CL (Round 1): In order to aid in tracking, ensure adherence to instructional text within the VCS PD Template, and to avoid potential related issues when the project is reviewed by the VCS, please consistently update the Version # and Date of Issue accordingly with each submission.
Round 2 Response from Project Proponent (21 February 2014)	The version and date of issue of the revised PD has been updated. Further, instuctional text within the VCS PD template has been followed.
Final ESI Findings	While previous versions and issue dates of the PD were not updated per VCS rules, the latest submission of the PD (dated February 21, v1.1) has been properly updated. Further, adherence to other VCS Rule instructional text as reviewed by the validation team has been followed correctly. This CL request has been addressed as written. Finding closed.

Item Number	5
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 or Both	Validation

ESI Findings - Round 1 (22 October 2013)	
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	It is clear in the VCS standard that it is the contents of the PD that is being questioned; hence our original statement "There is no commercially sensitive information in this project description document." is sufficient to meet this requirement. Documents other than the PD should not be considered.
ESI Findings - Round 2 (22 January 2014)	Section 3.18.3 of the VCS Standard is referring to "project documents" and not the "Project Description". The PD makes reference to multiple external documents (e.g. the Forest Inventory Report, the Project Database, the CCBA PDD, the Addendum to the Tri-Party Agreement). As such, the VCSA will expect these documents to be submitted to Markit along with the PD. These are "project documents" and it is unclear if any of them are commercially sensitive. Thus, the CL stands.
Round 2 NCR /CL/OFI	Round 1 CL stands as written.
Round 2 Response from Project Proponent (21 February 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 assesment, including bank statements and the pro-forma."
Final ESI Findings	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	6
VCS AFOLU Requirements Version 3.3 (4 October 2012) ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria listed in v3.3**	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
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Though the methodology states that projects can occur on wetlands if peatlands do not exist, this particular requirement is not discussed.
Round 1 NCR/CL/OFI (22 October 2013)	CL: Please show how this requirement is satisfied.
Round 1 Response from Project Proponent (20 December 2013)	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."
ESI Findings - Round 2 (22 January 2014)	This requirement is specifically related to wetlands, not just peatlands. The soils outlined in PD Figure 10.1 indicate that no peatlands are located within the project area, but really provide little insight regarding wetlands. Independent internet research suggested that part of the project area may lie within the Javari River wetland.
Round 2 NCR /CL/OFI	CL: Please demonstrate (using validatable evidence) that no portion of the project area occurs on a wetland as defined by the VCS Program Definitions V3.5. Else demonstrate that the expected emissions from the soil organic carbon pool or change in the soil organic carbon pool in the project scenario is deemed to be below de minimis as set out in Section 4.3.3, or can be conservatively excluded (as set out in Section 4.3.4). Else, the project will be subject to the WRC requirements

Round 2 Response from Project Proponent (21 February 2014)	The following text has been added to Table 2.1 "Further, soil carbon has been conservatively excluded as stated in section 2.3; hence the project is not subject to VCS WRC requirements."
Final ESI Findings	Methodology allows for conservative exclusion of SOC pool emissions or change to justify exclusion of WRC requirements. In this case, PP have excluded the SOC pool and therefore are not required to prove that wetlands exist in the project area. Finding closed.

Item Number	7
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria listed in v3.3**	The demonstration of eligibility shall be reported in the VCS PD.
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Though various components of eligibility are addressed in the PD, it is unclear if all eligibility requirements are addressed in the PD for each module.
Round 1 NCR/CL/OFI (22 October 2013)	CL: Are the eligibility (not applicability) requirements addressed in the PD for each module?
Round 1 Response from Project Proponent (20 December 2013)	There are no eligibility requirements for each module. The following text was added to section 2.1 of the PD in response to the eligibility statement in the REDD-MF module. "The only eligible activity as part of this project is avoiding unplanned deforestation, hence only modules related to unplanned deforestation are required. This project is eligible as an avoiding unplanned deforestation project because the forest land is expected to be converted to non-forest land in the baseline case and the land is not legally authorized and documented to be converted to non-forest or a managed tree plantation."

ESI Findings - Round 2 (22 January 2014)	Project proponents indicated that there are no eligibility requirements for individual modules, but that modules invoked are specific to the sole activity of avoided unplanned deforestation. This was confirmed. Response from project proponent and PD amendments are sufficient to address this clarification request. Finding closed.
Round 2 NCR /CL/OFI	NA

Item Number	8
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria listed in v3.3**	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 ***shall be between 9 and 12 years in the past and the end date shall be within two years of project start.***
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD 3.1.1.2
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	Section 2.1.1 of the BL-UP module expands on the cited guidance and states "As a minimum requirement: • Collect medium resolution remotely sensed spatial data11 (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." The project has imagery from over 3 time points in the period of 12 years before the project start. As allowed by the methodology, the project also uses data points beyond the 12 year period.
ESI Findings - Round 2 (22 January 2014)	A historical reference period longer than 12 years appears to allow for (3) additional points. This is allowed because additional points beyond or within the 12 year period have been included and exceed the specified minimum of 3 points in time no less than 3 years apart. Section 2.1.1 of BL-UP is a minimum requirement and project proponents can have additional historical years to enhance the deforestation analysis. Response from project proponent is sufficient to satisfy this NCR. 2014-01-14: Agree that BL-UP allows for exceeding the historical reference period. However, this requirement of REDD-MF is not currently met based on the current definition of the historical reference period (as stated in PD Section 3.1.1.2). It is clear that there is an inconsistency in this requirement and Section 2.1.1 of BL-UP. Given that REDD-MF is the framework of the REDD methodology, and BL-UP falls within the framework, logically REDD-MF criteria must be complied with in-full. In addition, exclusion of the 1996 through 2000 data will provide a more conservative value for ABSL,RRD,unplanned,t. The historical reference period must be re-defined in order for this requirement of REDD-MF to be met and this revision will ensure conservative estimates of baseline emissions.
Round 2 NCR /CL/OFI	NCR: Please re-define the historical reference period so that this requirement is met (i.e. January 1, 2000 to December 31, 2010). Please identify all changes to the PD and the quantification of GHG emissions reductions and removals that result from this update. Else, provide validatable evidence that Section 2.1.1 of BL-UP renders this requirement of REDD-MF irrelevant and provide justification as to why including the additional years "enhances the deforestation analysis."
Round 2 Response from Project Proponent (21 February 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.

Final ESI Findings	The historical reference has been properly changed to be in line with this REDD-MF requirement. Calculations related to the revised historical reference were checked in other tabs.

Item Number	9
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria listed in v3.3**	• 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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Headers do not match exactly as required.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	The following header "Monitoring of actual carbon stock changes and greenhouse gas emissions" was added to the monitoring plan.
ESI Findings - Round 2 (22 January 2014)	This heading within the Monitoring Plan was appropriately amended per VCS rules. Item is addressed.
Round 2 NCR /CL/OFI	NA

Item Number	10
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria listed in v3.3**	• 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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Headers do not match exactly as required.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	This heading within the Monitoring Plan was appropriately amended per VCS rules. Item is addressed.
Round 2 NCR /CL/OFI	NA

Item Number	11
Approved VCS Methodology VM0007 Version 1.3, 20 November 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria listed in v3.3**	• 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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Headers do not match exactly as required.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	This heading within the Monitoring Plan was appropriately amended per VCS rules. Also, the text added by project proponents accurately identifies ex-post calculations after monitoring efforts. Item is Addressed.

Round 2 NCR /CL/OFI	NA

Item Number	12
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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	Russas Project Final Draft VCS PD, pro forma for russas and Valparaiso project.xls (CCO's Valparaiso Proforma tab.)
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 their 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 (22 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 (20 December 2013)	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 (22 January 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. 2014-01-14: 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 break even point is less than 4 years. Finding closed.

Item Number	13
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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	Russas Project Final Draft VCS PD
Validation or Verification or Both	Validation

ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 (22 January 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. 2014-01-14: 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.

Item Number	14
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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	Russas Project Final Draft VCS PD Addendum to Russas Tri-Party Agreement, Fully Signed.pdf Russas Tri-Party, Fully Signed and Certified (English).pdf
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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. This is spelled out in the Addendum to teh Tri Party Agreement. 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 (22 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 (20 December 2013)	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 Sectary 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 (22 January 2014)	The legal contractual agreements (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	15
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	Ownership and resource access/use rights are held by same entity(s)
Evidence Used to Assess (Location in PD, MR or Supporting Documents	Russas Project Final Draft VCS PD and site visit.
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	The land owner, Ilderlei Souza Rodrigues Cordeiro, who is also a project proponent (I.S.R.C.), 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 (22 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 (20 December 2013)	Please see the PDF file entitled, “Russas Project Landownership Documentation” which was uploaded to the subfolder on DropBox entitled, “06 Title Documentation.”
ESI Findings - Round 2 (22 January 2014)	The certification of full rights document (Russas Project Landownership Documentation.pdf) has been provided by the project proponents and page 19 correctly identifies Ilderlei Souza Rodrigues Cordeiro (dated 2012) as the owner. The property appears to have been properly geo-referenced and any boundary disputes resolved. Finding closed.

Item Number	16
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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	Russas Project Final Draft VCS PD and site visit.
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 2 (22 January 2014)	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.

Item Number	17
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria** **Completed by Stewart McMorrow on Oct 7, 2013** **NOTE ABOUT MACRO GENERATION: COLUMN C "SCORE" IS CONTAINED**	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	Russas Project Final Draft VCS PD and site visit
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	All households living on the Russas 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 1 NCR/CL/OFI (22 October 2013)	CL: 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 1 Response from Project Proponent (20 December 2013)	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 2 (22 January 2014)	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	18
VCS AFOLU Non-Permanence Risk Tool, Version 3.2 04 Oct 2012 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	Fire
Evidence Used to Assess (Location in PD, MR or Supporting Documents	Russas Project Final Draft VCS 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 or Both	Validation
ESI Findings - Round 1 (22 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 (eg. "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 (22 October 2013)	CL: Please provide further justicification for the fire return interval 0f 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 (20 December 2013)	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 therefor 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 Aragao 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 (26,289 ha = 34,702 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 – not only would it be an exceptionally large area for a single burn, but it would have to cross the Russas River to affect 26,289 ha of the project area (the largest continuous block of the project area, "Central", located north of the river, is only 17,735 ha), and thus probably impossible.

ESI Findings - Round 2 (22 January 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 mosiac 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	19
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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. As stated in the CCBS PDD, "Ilderlei initially purchased the Russas Project property for wood management and also for cattle ranching on 20% of the property. In 2004, Ilderlei become Vice-Mayor of Cruzeiro do Sul and his plans for the Russas Project {as a wood management and cattle ranch} were temporarily put on hold. Ilderlei was Vice-Mayor until December 2006 and then from January 2007 to 2010, Ilderlei was a Federal Congressman representing the State of Acre in Brasilia. Ilderlei moved back to Cruzeiro do Sul in 2011 and began looking into projects for his property, when he eventually spoke to Normando Sales from the Purus Project and began to learn about REDD+ projects." This is why the clearing of the land for agricultural use by the current landowner (i.e., Ilderlei) was not discussed in the VCS PD.
ESI Findings - Round 2 (22 January 2014)	The project proponent's response sufficiently addresses the Clarification request as stated. Requirements I and ii are met. However, the Project Proponent has not demonstrated that requirement iii is not applicable as per below.
Round 2 NCR /CL/OFI	NCR (Round 1): Please demonstrate using validatable evidence that this requirement is not applicable.
Round 2 Response from Project Proponent (21 February 2014)	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 addtionality 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."
Final ESI Findings	PP has 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.

Item Number	20
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 (22 January 2014)	The PD now clearly shows where sub-step 1a is addressed. Finding closed.

Item Number	21
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 (22 January 2014)	The PD now clearly shows where sub-step 1b is addressed. Finding closed.

Item Number	22
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	The PD states the high level basis for costs of the proejct activities, but does not provide any numbers or numerical basis.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	Footnote inserting reference to the pro forma now included in document. Pro forma shows no revenues other than VCS related income. Finding closed.

Item Number	23
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 or Both	Validation
ESI Findings - Round 1 (22 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 soild basis for why they are sufficient.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	The Russas 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 Russas Project surveyed communities on 33 different agricultural extension courses and will teach the top-10 courses for free and onsite at the Russas-Valparaiso Projects. With this in mind, it is important to note that many communities at the Russas-Valparaiso 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 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 Project reported access to a doctor and health clinic.
ESI Findings - Round 2 (22 January 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	24
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	Please see the PDF file entitled, "Russas Project and Leakage Belt PRAs" in the Drop Box subfolder entitled "10 Participatory Rural Appraisal."
ESI Findings - Round 2 (22 January 2014)	Project proponents supplied 76 pages of the scanned PRA as documentary evidence. The scanned PRA was reviewed and found to correlate to PRA Results March 2013.xls. Finding closed.

Item Number	25
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	a. The land area remains a forest
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Sections 2.2 and 6; PRA Results March 2013.xls; Russas Sustainable Fuelwood Analysis 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	PD States: "Forested areas where fuelwood collection does occurs remains as forest as the amount of fuel wood collected (approximately 2.1 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 Russas 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 (22 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 Russas 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 (20 December 2013)	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 1.7 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 (79 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 1.7 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 “Russas Sustainable Fuelwood Analysis 2014.01.16”.
ESI Findings - Round 2 (22 January 2014)	Russas Project and Leakage Belt PRAs.pdf does not support the claim of an error in the PRA and that mount of fuelwood collected was in units of m3/month rather than m3/week. Close review of Russas Project and Leakage Belt PRAs.pdf shows that the following question was asked: "How much fuel wood, on average, do you collect per week?" and answers to the question are specified in both m^3 per week and m^3 per month. Fuelwood collection per year is also specified in the PRA and correlates to the per week estimates. This indicates that the values in Column K of Russas Sustainable Fuelwood Analysis 2014.01.16.xls are indeed in units of m3/week. Thus, while the methods and calculations are acceptable and sound, the value of 1.7 tons of biomass/ha year appears not to be accurate.

Round 2 NCR /CL/OFI	CL: Please provide validatable evidence that he values in Column K of Russas Sustainable Fuelwood Analysis 2014.01.16.xls are in units of m3/month. Else, revise the analysis by scaling to a yearly value using a factor of 52 vs. 12.
Round 2 Response from Project Proponent (21 February 2014)	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).
Final ESI Findings	The sustainable fuelwood analysis was correctly revised to calculate values by month and scaled to year. PD was updated in Table 2.2 to reflect the correct value and this applicability condition is now met. Finding closed

Item Number	26
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 **summarized in table on page 7**
Evidence Used to Assess (Location in PD, MR or Supporting Documents	14 Maps and GIS Folder
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	1. Key spatial features available in GIS dataset supplied by client. 2. RusStrata_2013.07.06.shp had different coordinate system (Geographic Coordinate System: GCS_South_American_1969). 3. 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 (22 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 (20 December 2013)	Imagery analysis for the annual deforestation dataset in Acre is conducted by UCGEO, an official state organization. (See response to Finding 126). All documentation of the processing and imagery used can be found in the documentation provided from UCGEO. (See response to Finding 120). 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 bemoved, only display deforestation in the years 1988 to 1995. When checking that deforestation prior to the project start has been bemoved, 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. (See response to Finding 353). The RRD boundary has also been revised. Please see the shapefile "RusVAL_RRD_2013.12.10". Both the workbook and PD have been revised in response to these changes.
ESI Findings - Round 2 (22 January 2014)	Project proponents properly define and describe the main spatial features in section 3.1.1.1 of the PDD. Project areas, leakage belt, RRD, and RRL files used to delineate boundaries have been supplied. Areas of these spatial features have been checked in a GIS database and are confirmed correct. Pending spatial files for roads/rivers a) Project proponents indicated in their response that a revised deforestation database would be provided (1-10-13), however no new file was submitted. The newest deforestation database submitted seems to be from 12/20/2013, unable to confirm if this version has since been revised. b) LB .shp files (RusStrataLB_2013.12.13 & RussasLB_2013.12.10) checked for accuracy in GIS and correct values confirmed in Russas Project 2014.01.10.xls and PD dated 2014.01.17. LB is also confirmed 100% forested at start of the project 2010. c) RRD .shp file (RusVAL_RRD_2013.12.10) was checked for accuracy in GIS and correct values confirmed in Russas Project 2014.01.10.xls and PD dated 2014.01.17. Conservation areas were confirmed in GIS to be appropriately excluded from the RRD. RRD is also confirmed to be 100% forested areas at the start of the historical reference period in the year 1996. It appears that small slivers of the RRD impropoperly overlap the LB (see "K:\Projects-Active\2013\023_00-CarbonCo - Russas\Lead Verifier\Russas_ESI_RRD_LB_improper_overlap.jpg"). d) RRL .shp file (RusVAL_RRL_2013_07_05) was checked for area accuracy in GIS and correct values confirmed in Russas Project 2014.01.10.xls and PD dated 2014.01.17.
Round 2 NCR /CL/OFI	NCR: a) A revised Acre deforestation dataset appears to not have been submitted to verifiers, please confirm if the deforestation dataset was revised since 12-20-2013 and supposed to be supplied on 1-10-14. b) Please address the small slivers of overlap of the RRD onto the LB. c) Please update all maps in the PD to be reflective of the updated LB and RRD, please identify all changes made in PD section 3.1.1.

Round 2 Response from Project Proponent (21 February 2014)	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-->Russas Valparaiso Project Archive-->17 Validation-->Validation Finding Responses 2014.02.21-->Additional-->Revised 2012 Deforestation Dataset-->Desmate_Acre_1988_2012_Revised.shp 2) The overlap in the RRD and the LB was revised by updating the RRD to eliminate any areas of overlap. The new RRD is included in the project archive and is entitled RusVAL_RRD_2013.2.18.shp. Its file path is: CarbonCo Project Archive-->Russas Valparaiso Project Archive-->17 Validation-->Validation Finding Responses 2014.02.21-->Additional-->RRD-->RusVAL_RRD_2013.2.18.shp. 3) All maps, calculation, tables, text, and figures in the PD dependent on the aforementioned revisions have been updated. All changes have been tracked.
Final ESI Findings	Deforestation dataset was received from project proponents. The RRD was checked for overlap in relation to the LB and areas of previous overlap were found to be correctly eliminated. RRD was also verified to appropriately exclude areas deforested prior to start of historical reference period 1999. All maps, calculations, and changes to the PD were checked for correctness and confirmed accurate. Finding closed.

Item Number	27
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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/km2) is the same (±20%) for the RRD and the project area. (2) Road density (m/km2) is the same (±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 (±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 or Both	
ESI Findings - Round 1 (22 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 (22 October 2013)	Pending NCR in Row 34 above
Round 1 Response from Project Proponent (20 December 2013)	
ESI Findings - Round 2 (22 January 2014)	Verifiers are unable to confirm roads within any of the project boundaries because spatial files or other materials have not been submitted for roads.
Round 2 NCR /CL/OFI	NCR: Please provide evidence and confirm if roads exist within any of the project boundaries (RRD, LB, PA) as well as whether or not they are expected to increase the rate of deforestation within the project area (see item 1.1.1.1c)
Round 2 Response from Project Proponent (21 February 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 (Road Density_2014.02.20) 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.
Final ESI Findings	In communication with project proponents, they indicated that the methodology does not give guidance on how to calculate roads expected to exist. After communication with the landowner, a proposed highway which would have run through the project area and leakage belt was used. The distance of the proposed highway through the project area and leakage belt was measured in Google Earth and then calculated on a m/km2 basis. While this method is not clear in the PD, it is evident that the criterion for road density has been met per the meth requirement. Finding closed.

Item Number	28
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	

Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	It is unclear if the river density values presented in Table 3.1 represent Navigable rivers and river density in the RRD is 54 % lower than the PA.
Round 1 NCR/CL/OFI (22 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 (±20%) for the RRD and the project area.
Round 1 Response from Project Proponent (20 December 2013)	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/km2, 152 m/km2, and 116 m/km2 of the project area, leakage belt, and the RRD, respectively. Thus, the density of rivers in the leakage belt and RRD are within 20% or the project area (111-167 m/km2). 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 "River Density_2014.04.14" for calculations.
ESI Findings - Round 2 (22 January 2014)	Provided files were reviewed. The rivers were confirmed to be navigable based on classification. Although PA_NavRivers.shp are not contained within the PA, the rivers run along the PA boundary and would clearly provide access to the PA. The density value of 139 m/km^2 was independently calculated and confirmed. Regarding the RRD, it was confirmed that the navigable rivers layer was accurately clipped and the density value of 139 m/km^2 was independently calculated and confirmed. Additionally, PD Table 3.1 has been updated accordingly. It has been demonstrated that the stream density is the same (±20%) for the RRD and the project area. Finding closed.

Item Number	29
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	

Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Reported settlement density in the PA is 73% lower that the RRD.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please demonstrate how settlement density (settlements/km2) is the same (±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 1 Response from Project Proponent (20 December 2013)	While the methodologies states "Settlement density (settlements/km2) is the same (±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; cleared areas flagged with purple arrows) 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 5.44 person/km2, 5.45 person/km2, and 5.96 person/km2 of the project area, leakage belt, and the RRD, respectively. Thus, the settlement/population density in the leakage belt and RRD are within 20% or the project area (4.36- 6.54 person/km2).

ESI Findings - Round 2 (22 January 2014)	2014-01-17: 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 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 both the PA and the RRD. Population density values were independently calculated and confirmed. Additionally, PD Table 3.1 has been updated accordingly. It has been demonstrated that the population density is the same (±20%) for the RRD and the project area. Although the methods employed here are acceptable and adequate for assessing similarities/differences in human infrastructure between the PA and the RRD, the methods employed need to be 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.
Round 2 NCR /CL/OFI	CL: Please include a methodology deviation in PD Section 2.6 describing the methods used to measure similarities/differences in human infrastructure between the PA and the RRD.
Round 2 Response from Project Proponent (21 February 2014)	The following deviation was 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 reflects the relative density of resident populations (and level of pressures associated with those populations)."
Final ESI Findings	Insertion of an explanation of the deviation was confirmed and acceptable to address the deviation of using population density rather than settlement density. Further, calculations for population density (number or people/km2) was checked and confirmed accurate. Finding closed.

Item Number	30
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	e. Policies and regulations having an impact on land-use change patterns within the *RRD* 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 *RRD* 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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	In response to this finding, additional GIS layers have been provided for validation of these areas. AC_conservation_unit.shp & AC_Indigenous_areas.shp
ESI Findings - Round 2 (22 January 2014)	AC_conservation_unit.shp & AC_Indigenous_areas.shp were checked in a GIS database and found to have been appropriately excluded from the RRD. Finding closed.

Item Number	31
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	f. **Exclusion of planned deforestation.** Areas of planned deforestation shall be excluded from the reference region boundaries where evident8.
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 3.1.1.1; Provided Spatial Data
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 (22 January 2014)	The added comment to the PDD and response are sufficient to address this NCR. Based on input from Igor Agapejev de Andrade, areas of planned deforestation do not exist in Acre or the RRD. Finding closed.

Item Number	32
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	*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 (±30%) as demonstrated by soil suitability, precipitation regime, elevation and access to markets.
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PDD: Table 2.1, Section 3.1.1.1
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (±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 (20 December 2013)	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."
ESI Findings - Round 2 (22 January 2014)	The validators understand that land access and availability are important factors for determining if land is suitable for settling and conversion. However, any intuitive settler will not deforest an area that is suitable for trees but not agriculture or pasture. The validator agrees that markets would not play a role as the commodities produced will be used by the settlers themselves. However, a settler is not going to clear an area that is not suitable for agriculture or pasture, which is a function of soil suitability, precipitation and elevation. The assumption that settlers will clear anywhere that is accessible downgrades their human intuition and does not clearly demonstrate that this requirement has been met.
Round 2 NCR /CL/OFI	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 (±30%) as demonstrated by soil suitability, precipitation regime, and elevation. Provide supporting evidence (spatial data, etc.) as necessary.

Round 2 Response from Project Proponent (21 February 2014)	As previously stated 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 plays a significant role in the deforestation agent's decision on where to settle and convert land." While the RRL and PA are similar (±30%) as demonstrated below for precipitation and elevation, these parameters along with soil type and access to markets have little affect 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 500-100m 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 excel file "SoilComparison_2014.02.21"). 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 importance when choosing where to settle.
Final ESI Findings	PP have provided evidence to support that the RRL has a similar proportion of forest suitable for conversion as RRL. (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, precipitation, 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	33
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	This is not addressed in the PD
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	This comment sufficiently addresses the criteria requirement, no protected forests are excluded from the RRL because protection is not enforced in Acre State. Per Round 1 response from project proponents, the area of RRL did not exclude conservation areas (Ac_Conservation_units.shp) as conservation status is not enforced in Acre state. This was confirmed visually in GIS.
Round 2 NCR /CL/OFI	CL: The clarification is not addressed as written, please add information to PD section 3.1.1.1 related to lack of enforcement and exclusion of protected areas in the RRL.

Round 2 Response from Project Proponent (21 February 2014)	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."
Final ESI Findings	This response and confirmed text additions to the PD sufficiently satisfy this requirement. Protected status is not enforced in Acre State. Finding closed.

Item Number	34
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	(3) Settlement density (settlements/km2) is the same (±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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Settlements are similar proportion density for PA and LB. JAP: Reported Settlement density in the LB is 89 % higher than the PA.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please demonstrate how settlement density (settlements/km2) is the same (±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 (20 December 2013)	Please see the response to Finding 48.
ESI Findings - Round 2 (22 January 2014)	It has been demonstrated that the population density is the same (±20%) for the LB and the project area. Finding closed.

Item Number	35
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	Shapefiles are provided to support that all areas of forest conservation and indigenous lands have been removed from the project area and leakage belt.
ESI Findings - Round 2 (22 January 2014)	AC_conservation_unit.shp & AC_Indigenous_areas.shp were checked in a GIS database and found to have been appropriately excluded from the RRD. AC_conservation_unit.shp & AC_Indigenous_areas.shp were reviewed in GIS. Conservation and indigenous areas were confirmed to be excluded from the RRD, PA, and LB. The PD mentions municipal, state, and federal forest conservation areas and indigenous reserves were excluded from the RRD as these differ from the privately-owned project area. However, there does not appear to be language in the PD for why these areas were excluded from the PA and LB.
Round 2 NCR /CL/OFI	CL: Please include clarifying language in the PD section 3.1.1.1 indicating why conservation and indigenous areas were excluded from the LB.

Round 2 Response from Project Proponent (21 February 2014)	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."
Final ESI Findings	Appropriate clarifying language was confirmed to have been added to the PDD and relevant shapefiles were confirmed as correct in GIS. 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. Finding closed.

Item Number	36
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	(1) Collect medium resolution remotely sensed spatial data11 (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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	PDD noted UCEGEO imagery derived from Landsat. JAP: This has not been provided for validation.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please provide imagery used to conduct deforestation analysis.
Round 1 Response from Project Proponent (20 December 2013)	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)".

ESI Findings - Round 2 (22 January 2014)	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. Methods outlined in METODOLOGIA and appears to be good remote sensing practice. The datasets used meet the resolution and time period requirements. Finding closed.

Item Number	37
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	Details of the accuracy assessment are provided in response to this finding, including kmls of point locations and a confusion matrix. Please see the accuracy assessment folder in the additional support file.
ESI Findings - Round 2 (22 January 2014)	100 reference points for forest and non-forest, respectively, were collected to verify overall classification accuracy. These high-resolution Google Earth Quickbird imagery reference point data were collected for the entire Acre state and resulted in an overall accuracy of 99%. Finding closed.

Item Number	38
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	Using the data collected in Step 2.1.1 divide the reference region (*RRD*) into polygons13 representing “forest” land and “non-forest” land at different dates in the past14 (*Forest Cover Maps*) as well as “deforested” land (*Deforestation Maps*) 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 case15. 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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Historical deforestation noted in Figure in PDD, but unable to confirm in GIS
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	The deforestation data from UCGEO has been provided in response to this finding. The 2012 deforestation dataset is name "Desmate_Acre_1988_2012_Merge_6pixel".
ESI Findings - Round 2 (22 January 2014)	ESI calculated different values than table 3.2 in Section 3.1.2.2. Steps followed: 1. Desmate_Acre_1988_2012_Merge_6pixel.shp select by attribute "Ano" IN('1996', '1997',....'2010') and export new .shp 2. Clipped new deforestation 1996-2010 .shp to RRD. Calculate geometry on hectares 3. Export new RRD deforestation 1996-2010 .shp as .txt file and sum years in excel pivot table.
Round 2 NCR /CL/OFI	CL: Please confirm GIS analysis steps (see findings) used to derive table of annual deforestation in RRD. If the steps are correct, please clarify why the annual area deforested resulting from "Desmate_Acre_1988_2012_Merge_6pixel" do not correlate to PD Table 3.2. If the values in PD Table 3.2 are outdated, please update accordingly.

Round 2 Response from Project Proponent (21 February 2014)	The steps listed are correct. In response to this finding the RRD boundary has been updated. The new RRD is included in the project archive and is entitled RusVAL_RRD_2013.2.18.shp. Its file path is: CarbonCo Project Archive-->Russas Valparaiso Project Archive-->17 Validation-->Validation Finding Responses 2014.02.21-->Additional-->RRD-->RusVAL_RRD_2013.2.18.shp. Further to ensure the correct "revised deforestation dataset" is used, 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-->Russas Valparaiso Project Archive-->17 Validation-->Validation Finding Responses 2014.02.21-->Additional-->Revised 2012 Deforestation Dataset-->Desmate_Acre_1988_2012_Revised.shp. Summing the deforestation within the RRD by year was completed in an excel file located in the project database, entitled "RRD_Deforestation2014.02.19". The revised deforestation dataset can be found at: CarbonCo Project Archive-->Russas Valparaiso Project Archive-->17 Validation-->Validation Finding Responses 2014.02.21-->Additional-->RRD_Deforestation2014.02.19. The values in Table 3.2 of the PD have been updated to those in the excel file: RRD_Deforestation2014.02.19.
Final ESI Findings	All files from project proponents were checked for accuracy and confirmed correct, further the PD table 3.2 has been correctly updated. Finding closed.

Item Number	39
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	Calculating the area of deforestation when maps have gaps due to cloud cover is a challenge. The use of multiple-date images for the same 12 month period can significantly reduce cloud cover, and the cloud cover in the final images must be no more than 10% of any image. If there are clouds in either date in question in the area for which the rate is being calculated, then the rate must come from areas that were cloud free in *both* dates in question. This must be estimated in hectares per year.
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PDD: Page 53
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	UCEGEO imagery assumed to be cloud free.

Round 1 NCR/CL/OFI (22 October 2013)	CL: Please confirm imagery used to derive historical deforestation database contained < 10% cloud cover.
Round 1 Response from Project Proponent (20 December 2013)	The attached source "REVIEW OF THE DYNAMICS OF THE STATE OF ACRE DEFORESTATION: TEMPORAL ANALYSIS OF 23 YEARS (PERIOD 1988 TO 2010)" documents UCEGEO's methodology including the fact that UCEGEO only uses images containing less than 10% cloud cover (see Section 3.1.1).
ESI Findings - Round 2 (22 January 2014)	Remote sensing methods used to derive historical deforestation dataset were demonstrated to be in good practice and specifically mention methods to deal with cloud cover and haze, as seen in METODOLOGIA DO ACRE 2011 (English).docx. Item is addressed.

Item Number	40
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 *Spatial Features* 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 *Distance Maps* 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 "*Factor Maps*".
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PDD: Table 3.4
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 October 2013)	NCR: Please provide "Factor Map" spatial data that was used to derive vulnerability (risk) maps.
Round 1 Response from Project Proponent (20 December 2013)	Factor maps are provided in response to this finding. The file path is additional support-->model-->factor maps folder
ESI Findings - Round 2 (22 January 2014)	They have supplied "factor map" spatial data as well as the input files. I was able to open the IDRISI .rst file type in ArcMap and identify (within a range) their model results. The resulting rasters showing predicted deforestation, screen shot of model results, and model output file were 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	41
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	A *Risk Map* shows, for each pixel location *l*, 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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Risk map values ranked in descending order: JAP: Risk Map Spatial data has not been provided.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	The risk map has been provided in response to this finding. The file path is additional support-->model-->outputs-->risk map.
ESI Findings - Round 2 (22 January 2014)	The risk map in raster format was supplied by project proponents and it was confirmed that pixel values were 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	42
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	Prepare for each *Risk Map* a *Prediction Map* 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 *Risk Map* that was used to produce it.

Evidence Used to Assess (Location in PD, MR or Supporting Documents	PDD: Figure 3.4
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Prediction map given for future deforestation, no prediction map shown for year 2010
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please provide "Prediction Map" spatial data for the confirmation period with overlain measured deforested areas.
Round 1 Response from Project Proponent (20 December 2013)	The 2010 modeled deforestation layer is provided in response to this finding. The file path is additional support-->model-->outputs-->prediction map.
ESI Findings - Round 2 (22 January 2014)	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. 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.

Item Number	43
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	ANN used with 5,000 pixels and >10,000 iterations run
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	An output of the model is provided in a word doc as well as an image of the model process screen is provided to demonstrate the number of iterations and the sample size. Please see the files located at additional support-->model-->outputs.
ESI Findings - Round 2 (22 January 2014)	Model related outputs supplied by project proponents sufficiently address this NCR by demonstrating that properly calibrated neural networks were used to determine the best fit model. Iterations were confirmed to have been performed 10,000 times. Finding closed.

Item Number	44
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 a inventory date of 2013 should be allowed as it is within 5 years of the project start date.

ESI Findings - Round 2 (22 January 2014)	Agree that CP-AB allows for inventory within ±5 years of the project start date. It is clear that there is an inconsistency in this requirement and Section 5 of CP-AB. Given that BL-UP is the overarching baseline module, and CP-AB falls within the module, logically BL-UP criteria must be complied with in-full. In addition, carbon stock estimates originating within two years before the project start date will provide a more conservative value for CBSL,i. The inventory must be "backgrown" using stand table projection or other accepted methods in order for this requirement of BL-UP to be met. In addition, this will ensure conservative estimates of baseline emissions.
Round 2 NCR /CL/OFI	NCR: Please de-increment the 2013 inventory back to the project start date (using stand table projection or other accepted methods) so that this requirement is met. Please identify all changes to the PD and the quantification of GHG emissions reductions and removals that result from this update. Else, provide validatable evidence that Section 5 of CP-AB renders this requirement of BL-UP irrelevant.
Round 2 Response from Project Proponent (21 February 2014)	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.
Final ESI Findings	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 judgement call. This finding is addressed. Finding closed.

Item Number	45
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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; Russas Project 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	Unfortunately, there is land use change matrix to provide. This land use data was sourced from the State of Acre and represents data from the historical reference period (2004). As described by Salimon et al 2011, "in 2004, 81% of the deforested areas were covered by pasture, 6% used for agriculture, and 13% were in some early stage of secondary succession (Acre, 2006)." Acre State, 2006. Zoneamento Ecológico-Econômico do Estado do Acre–Fase II. Documentos Síntese. Rio Branco, Acre. This information represents the official land use statistics in the state as it was release by the Acre State government. While this data is at the level of the state, this data is representative of the reference region as the reference region is expansive and covers the vast majority of areas subject to deforestation.
ESI Findings - Round 2 (22 January 2014)	The stated reference source (Salimon et al. 2011) confirms the post-deforestation land use percentages in the Discussion section of the paper and seems to be representative of Acre State
Round 2 NCR /CL/OFI	CL: As there is no land use change matrix, this does not appear to be consistent with the requirement. Please clarify why post deforestation land uses were not based on the information from the LULC analysis to be in conformance with this item, or why the highest post deforestation carbon stock was not used instead of the weighted average to be in conformance with Option 1 .

Round 2 Response from Project Proponent (21 February 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 scondary forest on abandonced 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 continous 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 are 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."
Final ESI Findings	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	46
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 3.1.4.3; Russas Project 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 270 above) and XX (Row 272 Below) in addressing this CL.
Round 1 Response from Project Proponent (20 December 2013)	Please see the file "Post Deforestation Stocks 2013.07.12" which documents the calculation of belowground biomass and the area-weighted average for wach post-deforestation land use. This file has been provided in response to this finding.
ESI Findings - Round 2 (22 January 2014)	Post Deforestation Stocks 2013.07.12 was reviewed and quantification of below ground biomass and the area-weighted average of 40.4 MtCO2e/ha was confirmed. Finding closed.

Item Number	47
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 stocks23. 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; Russas Project 2013.07.15.xls; Salimon et al 2011.pdf
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	It is assumed that the post-deforestation carbon stock estimates sourced from Salimon et al. 2011 represent a time weighted average of the carbon stocks as these values are representative of non-forest carbon stocks statewide which include pasture and agricultural lands of different ages. These stock estimates are sourced from a credible local peer reviewed publication have been derived for and used as part of the State of Acre's REDD initiative and reflect the carbon stocks on nonforest lands throughout the state including lands within the project boundary. This data source meets the standard requirements for data sets as out in Section 4.5.6 of the VCS Standard, namely that: "Data collected from secondary sources shall be available from a recognized, credible source and must be reviewed for publication by an appropriately qualified, independent organization or appropriate peer review group, or be published by a government agency."
ESI Findings - Round 2 (22 January 2014)	The validators agree that Salimon et. Al. 2011 qualifies as a credible and representative literature source. However, the response does not satisfy this NCR or demonstrate that this requirement is met. Assuming that the post-deforestation carbon stock estimates sourced from Salimon et al. 2011 represent a time weighted average does not demonstrate that they are in fact a time weighted average. Additionally, the response does not address the maturity of the secondary forests, conservativeness, or the carbon pools that are included. As per this requirement, mature carbon stock estimates must be used for secondary forest, the time-weighted average of C stocks in a cycle must be used for Pasture and Agriculture, all estimates must be conservative, and the pools included must be the same as those included in the project boundary (Above and belowground live tree biomass and dead wood (standing and lying)). It has not been demonstrated by the Project Proponent that this is the case. Because the values presented in Salimon et al 2011 were extracted from other published values, it does not demonstrate these requirements are met either.
Round 2 NCR /CL/OFI	CL: Please demonstrate using validatable evidence that the post-deforestation carbon stocks estimates sourced from Salimon et al 2011 represent mature vegetation for secondary forest, are the time-weighted average of C stocks for Pasture and Agriculture, that the estimates are conservative, and that the carbon stock estimates are reflective of those carbon pools that are included in the project boundary.
Round 2 Response from Project Proponent (21 February 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 verus land being let fallow and part of the agriculture class. Please see the response to finding 270, above.
Final ESI Findings	This finding has been addressed in row 270 above

Item Number	48
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	Stock changes in each pool are calculated by subtracting post-deforestation carbon stocks from forest carbon stocks. **(See page 30 and 31 for carbon stock change equations)**
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 3.1.4.2; Russas Project 2013.07.15.xls;
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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. Secondary forest certainly would have dead wood.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	The response adequately justifies a CDW,post,,i value of zero for the Agriculture and Pasture. However, regarding secondary forests, this is not addressed. Secondary forest would likley have dead wood and it is unlikely that these areas are periodically burnt.

Round 2 NCR /CL/OFI	CL: Please demonstrate using validatable evidence that post-deforestation secondary forests in Acre do not contain dead wood (standing and lying). Else estimate CDW,post,,l accordingly and include in the calculations.
Round 2 Response from Project Proponent (21 February 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 verus land being let fallow and part of the agriculture class. Please see the response to finding 270, above.
Final ESI Findings	This finding has been addressed in row 270 above. Finding closed.

Item Number	49
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), Sectoral Scope 14	Source of data: GPS coordinates and/or remote sensing data
Evidence Used to Assess (Location in PD, MR or Supporting Documents	RussasLB_2013.07.05.shp, PDD: page 51
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Leakage belt area noted in PD as 41,134. Shapefile in GIS has bad geometry, area calculation results in -41686.
Round 1 NCR/CL/OFI (22 October 2013)	CL: Please confirm if bad geometry exists in LB shapefile and correct if necessary. The validator must be able to confirm the value for LB (ha).
Round 1 Response from Project Proponent (20 December 2013)	The leakage belt has been redelineated using GIS vector files. The new shapefiles are called "RussasLB_2013.12.10" and "RusStrataLB_2013.12.13" and has an area of 37,896 ha. The shape of the LB has changed to avoid incorporating indigenous lands in the leakage belt.
ESI Findings - Round 2 (22 January 2014)	Accurate LB size was confirmed in GIS for updated .shp file dated 12-20-2013

Item Number	50
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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; RussasLB_2013.07.05.shp
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 368). 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)".
ESI Findings - Round 2 (22 January 2014)	Project proponents responded that GPS points were used for QC on the interior in accordance with the methodology. However, no information was added to the PD in section 3.1.1 for this clarification request.
Round 2 NCR /CL/OFI	CL: Please include incorporate information from your response into PD Section 3.1.1 indicating that the leakage belt boundaries were derived using GPS on the ground measurements.

Round 2 Response from Project Proponent (21 February 2014)	The following text was added to 3.1 of the PD: "Further, parts of the Russas 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."
Final ESI Findings	Project proponents assert that parts of the Russas LB boundaries were derived from GPS sources, and no systematic bias was mentioned in LB boundary layout. The added text inserted by project proponents sufficiently addresses this clarification. Finding closed.

Item Number	51
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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; Russas Project 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Area in PDD (41,976 ha) differs from area calculated in GIS (42,554 ha). Also, Sum of strata = 41,940 ha
Round 1 NCR/CL/OFI (22 October 2013)	CL: Please explain the discrepancies in the values of PA (ha) reported in PD Section 3.1.1.1, the provided shapefile, 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 (20 December 2013)	The shapefile (RussasPA_2013.07.05) and the project area reported in PD Section 3.1.1.1 are the same (41,976 ha). They are in agreement with the revised project area strata map (RusStrata_2013.12.13.).
ESI Findings - Round 2 (22 January 2014)	Response from project proponents has been confirmed correct in GIS dataset. Finding closed.

Item Number	52
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	Project boundaries are from the official land tenure document which are derived from ground GPS points. As part of the geo-referencing and titleing 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 Russas property boundaries were delineated and georeferenced using a GPS as part of the registration and titling of the property." The AutoCAD file (russa certoo.dwg) used in the course of the georeferencing of the property has also been provided in response to this finding.
ESI Findings - Round 2 (22 January 2014)	Response from project proponents, amendment to PDD, and file supplied is sufficient to address this clarification. Finding closed.

Item Number	53
Approved VCS Module VMD0007,Version 3.2 (3 May 2013), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), 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; Russas Project 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Calculated as 0.817. Confirmation is pending receipt of forest. non-forest cover maps
Round 1 NCR/CL/OFI (22 October 2013)	Pending NCR in row 34 above
Round 1 Response from Project Proponent (20 December 2013)	
ESI Findings - Round 2 (22 January 2014)	RRL was calculated in GIS and found to be correct. However, verifiers are unable to confirm the calculated forested area at the start of the historical reference period (RRL1996Forest) and the value for PRRL has changed from 0.817 to 0.825.
Round 2 NCR /CL/OFI	CL: Please confirm how RRL forested area at the start of the historical reference period was calculated. The validators independently quantified forested area in the RRL at the start of the historical reference period and the results do not match. Further, the value for PRRL has changed. Please update PD Section 3.1.2.3 accordingly. Please identify all changes made.

Round 2 Response from Project Proponent (21 February 2014)	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, 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.
Final ESI Findings	Steps and files provided by project proponents to determine the proportion of RRL were checked and found to be accurate. Finding closed.

Item Number	54
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 ***Equations 3 and 4 on page 8***)
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 3.2; Russas Project 2013.07.15.xls

Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	See 3.2 Tab: 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 (22 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 (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	The validator does not understand the response. Ex-ante, 20% of baseline deforestation occurs in the project case. Because baseline deforestation is quantified at the strata level, so too can the ex-ante project case deforestation. Is it not reasonable to assume that those areas predicted to be deforested in the baseline (based on risk factors, etc.) are those that would be deforested in the with project case?
Round 2 NCR /CL/OFI	CL: Please demonstrate that 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 provides conservative estimates when compared to calculating the net carbon stock change as a result of deforestation in project case (ex-ante)at the strata level and then summing. Else, includes estimates of net carbon stock change as a result of deforestation in project case as quantified using the latter method in the quantification of ex-ante net GHG emission reductions and removals.
Round 2 Response from Project Proponent (21 February 2014)	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 is 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.

Final ESI Findings	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 round 2 response to address this finding as sufficient. This finding is closed

Item Number	55
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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.
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 3.2; Russas Project 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Dead wood is not included in Cpost. There is an NCR Covering this in BL-UP - Row 81. Cpost values are sourced from Salimon et al.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 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	56
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 ***Equation 24 on Page 21***).

Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 4.2 and 4.3
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Ex ante ΔCP,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 (22 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 (20 December 2013)	The parameter, CP,Dist,q,I, has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (22 January 2014)	The parameter, CP,Dist,q,I was appropriately added to the PD in Section 4.2. Finding closed.

Item Number	57
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 *Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria	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 or Both	Validation

ESI Findings - Round 1 (22 October 2013)	Pre-processing steps by UCEGEO unclear
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	The following text was added to Section4.3 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 (22 January 2014)	Additions to the PD and response from project proponent sufficiently clarify remote sensing pre-processing analysis steps. This is also confirmed in the METODOLOGIA DO ACRE 2011 (English).docx document. Finding closed.

Item Number	58
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 or Both	Validation

ESI Findings - Round 1 (22 October 2013)	Ground truthing points collected using Google Earth. Accuracy assessment = 99% for forest/nonforest cover types
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	The addition to the PD addresses the clarification question sufficiently by explaining how accuracy assessments are performed. Finding closed.

Item Number	59
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 *Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria	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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Unclear if data changes/processing will occur in monitoring efforts
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	The comment by project proponents appropriately answers the clarification question regarding consistent data sources for monitoring periods. Item is addressed.

Item Number	60
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 *Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria	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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	The Project Forest Cover Benchmark Map not show stratification.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please include the strata defined fro 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 (20 December 2013)	A benchmark strata map was appropriately added as Figure 1.7b.
ESI Findings - Round 2 (22 January 2014)	Figure 1.7b has been confirmed as added to the PDD. The legend includes duplicates of all strata except FAB_alluvial. It is clear to the validators that there are five strata in the PA and 5 strata in the LB. However, an outside reader could conclude that there are 10 total strata based on the legend.
Round 2 NCR /CL/OFI	CL: Please revise the legend of PD Figure 1.7b so that either a. duplicate strata are removed or b. it clearly indicates the PA and LB strata (similar to PD Figure 1.9)

Round 2 Response from Project Proponent (21 February 2014)	Figure 1.7b has been revised to clearly indicate the PA and LB strata similar to Figure 1.9.
Final ESI Findings	Figure 1.7b was properly updated to be similar to Figure 1.9. Finding closed.

Item Number	61
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 *Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria	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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Table in PDD checked to calculations in GIS
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	The nonforest areas were appropriately clipped out as confirmed in a GIS review of shapefiles and the deforestation dataset. Finding closed.

Item Number	62
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 *Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria	
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Sections 2.2 and 6; Russas Sustainable Fuelwood Analysis 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	For the Sustainable Fuelwood Analysis, Species level mean wood density for Amazonian forests of 0.62 g/cm3 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 (22 October 2013)	CL: Please provide the references supporting the species level mean wood density value for Amazonian forests of 0.62 g/cm3 used in the Sustainable Fuelwood Analysis.
Round 1 Response from Project Proponent (20 December 2013)	Baker et al 2004 and Anderson et al 2009 have been provided in response to this finding.
ESI Findings - Round 2 (22 January 2014)	Provided documents were reviewed. 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. Finding closed.

Item Number	63
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	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 ±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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 2 (22 January 2014)	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.

Item Number	64
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 *Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria	Project Forest Cover Monitoring Map
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 4.3
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Monitoring Maps will be created from Remote sensing for each verification event. These maps/data will be assessed at verification.

Round 1 NCR/CL/OFI (22 October 2013)	NCR: Refer to tab "BL-UP - VMD0007" Section 2.1.1
Round 1 Response from Project Proponent (20 December 2013)	
ESI Findings - Round 2 (22 January 2014)	2014-3-13: Item addressed in appropriate section of BL-UP. 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 removals (M-MON), Sectoral Scope 14 *Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria	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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	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 (22 October 2013)	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 (20 December 2013)	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 2 (22 January 2014)	The project proponent's response, combined with the information presented (and validated) 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	66
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 ***Per the 08 October 2013 Guidance on changes that were issued by VCS that day, there did not appear to be any material changes that would affect the criteria**	Ex-ante estimation shall be made of likely degradation in the with-project case. Such 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 or Both	Validation
ESI Findings - Round 1 (22 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 or degradation and it is inexplicitly indicated in the PD that the Degradation prevention activities will be 85% effective.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	The analysis based on the initial PRA is to demonstrate that fuelwood collections are 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.
Round 2 NCR /CL/OFI	
Round 2 Response from Project Proponent (21 February 2014)	
Final ESI Findings	The sustainable fuelwood analysis was correctly revised to calculate values by month and scaled to year. PD was updated in Table 2.2 to reflect the correct value and this applicability condition is now met. Finding closed.

Item Number	67
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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Uncertainty is not discussed in the PD.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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."
ESI Findings - Round 2 (22 January 2014)	Uncertainty in the baseline rate is correclty equal to 0, according to Part 1, Step 1 of X-UNC where the baseline rate of deforestation is set to 0 when the numbers are equal to the long term average taken from BL-UP. The project is using the average annual rate of deforestation in the reference region. As quoted form the PD "The rate of deforestation was derived from an analysis of deforestation occurring within the RRD during the historical reference period, 1996-2010." This was confirmed via our review of BL-UP to be correct, therefore the project is allowed to use a baseline rate of deforestation uncertainty level of 0%. The PD does now include information on uncertainty and references the "Forest Biomass Carbon Inventory Report" but there is no document by that exact name found. The document "Russas Valparaiso Forest Inventory 2013.06.29.doc" was reviewed by validators and found no reference to 9.7% (at 95%CI) combined uncertainty (parameter UncertaintyBSL,SS), however the figure of 7.9% (at 95% CI) is calculated in that document (page 17) and all steps in the process are confirmed to be described, however further review of each step occurs later in this worksheet. No calculations are found that can be followed that result in a combined uncertainty of 9.7%. It does not appear that the project developers are using the equations 4 and 5 in the same manner as prescribed in X-UNC, however these are handled in lines 56 and 54 of this worksheet.
Round 2 NCR /CL/OFI	NCR: Please define where the figure of 9.7% is calculated and please provide calculations of this figure in an excel spreadsheet so that the calculations can be replicated.
Round 2 Response from Project Proponent (21 February 2014)	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.

Final ESI Findings	Calculations for cumulative uncertainty were checked in RusVal_Data_2014.02.19.xlsx and are correct per equation 4 of X-UNC at the combined strata level. Finding closed.

Item Number	68
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 ***Equation 4 on Page 8***
Evidence Used to Assess (Location in PD, MR or Supporting Documents	NA in PD, Forest Inventory Report Section 7.2
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 Russas project boundary. Thus, inventory points from outside of the project area are included in quantification.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 current Russas project and the neighboring Valparaiso 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 clases 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).

ESI Findings - Round 2 (22 January 2014)	1. The project inventory was based on a sampling effort that was focussed on the strata level sampling across the entirely 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 thier sampling effort was intended to follow the Tier 3 9 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 Russas project were sampled directly within the project boundaries, however there was at least one strata that was not directly sampled within the boundaries. The resulting mean values inventoried were lsited as being within approximately 10% of the Salimon, et al. strata level mean values. The strata originated from government data. While this approach may be determined to be acceptable from the methodology point of view, there are still two questions remaining. How were the off site plots (outside the project area) determined to be representative of the strata within the project boundary. How was this methodology determined to be a valid approach to estimation of the baseline stocks. 2. The monitoring plan states "Sample plots will be randomly located in areas within the Russas Project and measured following standard operating procedures located in Appendix B. " Validators are unclear on the justification to include plots from outside the project area for the determination of the baseline, when the monitoring plan clearly states that future plots will be located within the project area. 3. The inventory document titled "Forest biomass carbon inventory for the Russas and Valparaiso Properties, Acre State, Brazil" shows three differing maps of the project areas that were subject to the combined inventory. This makes it very unclear to the reader as to the exact scope of the project areas being sampled.
Round 2 NCR /CL/OFI	1. Please confirm and provide evidence of how it was determined that the strata sampled were representative of the project areas that contained the same strata but did not receive any sampling plots. Was ground truthing used or remote sensing? Please discuss and provide evidence. 2. Please explain the difference between and justify why baseline determination was done using plots from within both the Russas and Valparaiso projects, and from outside both project areas, however, monitoring plots will be located within the project areas (as per the monitoring plans in the PD). This appears to be inconsistent. 3. Please revise the maps in the "Forest biomass carbon inventory for the Russas and Valparaiso Properties, Acre State, Brazil" document so they are all consistently showing the same project areas that were subject to the inventory. Please only include the current project areas in these maps for clarity.

Round 2 Response from Project Proponent (21 February 2014)	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 Valparaiso Forest Inventory 2014.02.19" report. This map displays the final project boundaries for both the Russas and Valparaiso 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).
Final ESI Findings	This finding is addressed at length in the Report section 3.6.2.

Item Number	69
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	

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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	This information was added to section 3.4 of the PD, not section 4 as stated in the response. The PD does make reference to the use of equation 4, and this is referenced as being found in the Uncertainty tab of the "Russas/Valparaiso forest inventory spreadsheet", which validators must assume to be the document titled "RusVal_Data_2013.06.24". This tab was reviewed and found that the combined uncertainty is listed as 7.9%, rather than the 9.7% which is listed in the PD, section 3.4. The equation #4 is not found in it's exact form as listed in the X-UNC module in the Uncertainty tab of the referenced document. This is confusing to validators and as such, does not result in this NCR being closed.
Round 2 NCR /CL/OFI	CL: Please confirm the correct value for uncertainty, bsl,ss,i and please indicate exactly where (reference cells) the equation #4 is found in the uncertainty tab of the RusVal_Data_2013.06.24 file. Please use the exact file name when referring to a specific file to avoid confusion.
Round 2 Response from Project Proponent (21 February 2014)	Please see the response to the finding in row 23 above. In the previous response to this finding, new text was added to section 3.4 of the PD on the project level uncertainty, while paramter tables for EBSL,SS,i,pool#, UBSL,SS,i,pool#, EBSL,SS,t,I, and UncertaintyBSL,SS,I were added to section 4.2.
Final ESI Findings	Uncertainty bsl, ss, I at the 95% C.I. was confirmed in row 23 (by pool and then strata) and calculations are correct. Finding closed.

Item Number	70
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 ***Equation 5 on Page 8***
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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	This information was added to section 3.4 of the PD, not section 4 as stated in the response. The PD does make reference to the use of equation 5, and this is referenced as being found in the Uncertainty tab of the "Russas/Valparaiso forest inventory spreadsheet", which validators must assume to be the document titled "RusVal_Data_2013.06.24". This tab was reviewed and found that the combined uncertainty is listed as 7.9%, rather than the 9.7% which is now listed in the PD, section 3.4. The equation #5 is not found in it's exact form as listed in the X-UNC module in the Uncertainty tab of the referenced document. It appears that this calculation is carried out in cell F7, however that calculation is not the same format as listed in X-UNC. This is confusing to validators and as such, does not result in this NCR being closed.

Round 2 NCR /CL/OFI	CL: Please confirm the correct value for uncertainty, bsl,ss and please indicate exactly where (reference cells) the equation #5 is found in the uncertainty tab of the RusVal_Data_2013.06.24 file, since validators can not find the exact format of that calculation in the document. Please also use the exact file name when referring to a specific file in the PD to avoid confusion. Specifically, please be sure to reference the Forest Biomass Carbon Inventory Report by the true file name when referring to it in the PD. This appears to be correctly named "Russas Valparaiso Forest Inventory 2013-06-29" or "Forest biomass carbon inventory for the Russas and Valparaiso Properties, Acre State, Brazil".
Round 2 Response from Project Proponent (21 February 2014)	Please see the response to the finding in row 23 above. In the previous response to this finding, new text was added to section 3.4 on the project level uncertainty, while paramter tables for EBSL,SS,i,pool#, UBSL,SS,i,pool#, EBSL,SS,t,l, and UncertaintyBSL,SS,l were added to section 4.2.
Final ESI Findings	Cumulative uncertainty across all strata (project level) or eqn 5 was checked for accuracy and confirmed correct in RusVal_Data_2014.02.19.xlsx. Finding closed.

Item Number	71
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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 (22 January 2014)	The project proponent is correct in that no other module requires that forest measurements occure 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	72
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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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_2013.08.20.shp) used for stratification of the project area for the forest inventory has also been included.
ESI Findings - Round 2 (22 January 2014)	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.
Round 2 NCR /CL/OFI	CL: Please explain why RusVALStrata_2013.08.20.shp and RusStrata_2013.12.13.shp/RussasProperty_2013.03.14 appear to be misaligned. The western edges are off by about 1.6km
Round 2 Response from Project Proponent (21 February 2014)	As discussed on our call on 1/20/14, "RusVALStrata_2013.08.20.shp" 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 RusStrata_2013.12.13.shp file. The external boundary of the RusStrata_2013.12.13.shp file is in agreement with the original georeferenced project boundary "RussasProperty_2013.03.14.shp".
Final ESI Findings	Stratification was checked as part of M-MON forest cover benchmark map criteria. Appropriate strata and PA .shp files are in agreement. Finding closed.

Item Number	73
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; Russas Project 2013.07.15.xls; FAO 2010 FRA Brasil.pdf
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	There is disagreement within the module as to whether limiting the TOTFOR parameter to areas close to river and road and areas suitable for agriculture, should (p.5, section 4a) or shall (p.11, Colb parameter table) occur. Regardless, we choose to use official government statistics on forest area to assess the area of TOTFOR. While is desirable to reduce the area of TOTFOR as much as possible to limit leakage outside the leakage belt, it is conservative to not limit TOTFOR to the area of forest within 5km of a road or river that is suitable for conversion to agriculture or raising livestock. Further it is not practical to limit areas provided in official government statistics as these statistics are not spatially explicit. This use of conservatism, results in estimates for TOTFOR and leakage outside the leakage belt (ΔCLK-ASU-OLB) as greater than if the area was limited to within 5km of a road and river as described above.

ESI Findings - Round 2 (22 January 2014)	Step 4, page 5 of the leakage module states "a. Define the total available national forest area (TOTFOR). This can be assessed with a coarse-scale imagery (e.g. using MODIS imagery or similar), or with official government statistics on forest area. The total national forest area should be reduced to just the area of forest within 5km of a road3 or river4 that is suitable for conversion to agriculture or raising livestock. Page 11 of the Leakage module for COLB States that "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." Page 14 of the leakage module for TOTFOR simply states "Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock" Validators are aware of the ambiguity raised in the single use of the term "should", however the case is made more clear when comparing the use of that word, with the terms used in the parameters section of the leakage module, where the terms "shall" and "limited to" are used in more definitive terms. Especially the TOTFOR parameter description that simply indicates the limitation, without a qualifier. "Shall, should and limited to" combine to secure the validators opinion that the intent of this parameter was to limit the scope to only those areas that are the most likely to be deforested and converted, rather than larger areas that are under less risk of these activities. Validators understand the possibility of the wider forest area statistic being used that may induce a higher level of conservativeness, however the defining limitations on this parameter are clear to validators and need to be adhered to. The project description has also failed to address the second aspect of this parameter which is the need for the areas to be also suitable for conversion to agriculture or livestock. For these reasons, validators are not willing to allow this deviation from the module and do not agree that this definition of the scope is optional. The parameter for TOTFOR needs to be “Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock".
Round 2 NCR /CL/OFI	NCR: Please demonstrate to the validator, and include a related discussion in PD, that the areas included in the calculation of COLB and TOTFOR are “Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock".

Round 2 Response from Project Proponent (21 February 2014)	Part 1. Please see the response to row 97, below. Part 2. 2014-3-13: We have revised the following deviation and have included it in 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" similarly COLB has not been "limited to areas demonstrated to be suitable for agriculture or livestock ranching" as mentioned in the methodology. 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. Further, COLB has conservatively been set to the largest forest aboveground tree carbon stock rather than the area-weighted average aboveground tree carbon stock. These deviations results in conservative accounting of leakage outside the leakage belt."
Final ESI Findings	After discussion with project proponents on a call (2014-3-12), the project proponents 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	74
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 or Both	Validation

ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	Please see the response to finding 67, above.
ESI Findings - Round 2 (22 January 2014)	Step 4, page 5 of the leakage module states "a. Define the total available national forest area (TOTFOR). This can be assessed with a coarse-scale imagery (e.g. using MODIS imagery or similar), or with official government statistics on forest area. The total national forest area should be reduced to just the area of forest within 5km of a road3 or river4 that is suitable for conversion to agriculture or raising livestock. Page 11 of the Leakage module for COLB States that "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." Page 14 of the leakage module for TOTFOR simply states "Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock" Validators are aware of the ambiguity raised in the single use of the term "should", however the case is made more clear when comparing the use of that word, with the terms used in the parameters section of the leakage module, where the terms "shall" and "limited to" are used in more definitive terms. Especially the TOTFOR parameter description that simply indicates the limitation, without a qualifier. "Shall, should and limited to" combine to secure the validators opinion that the intent of this parameter was to limit the scope to only those areas that are the most likely to be deforested and converted, rather than larger areas that are under less risk of these activities. Validators understand the possibility of the wider forest area statistic being used that may induce a higher level of conservativeness, however the defining limitations on this parameter are clear to validators and need to be adhered to. The project description has also failed to address the second aspect of this parameter which is the need for the areas to be also suitable for conversion to agriculture or livestock. For these reasons, validators are not willing to allow this deviation from the module and do not agree that this definition of the scope is optional. The parameter for TOTFOR needs to be “Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock".

Round 2 **NCR /CL/OFI**	Part 1. NCR- Please demonstrate to the validator, and include a related discussion in the PD, that the areas included in the calculation of COLB and TOTFOR are “Limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock". Part 2. CL: Please further explain the justification for a methodology deviation to use a TOTFOR parameter that is larger than an area "limited to forest areas within 5km of roads and rivers suitable for conversion to agriculture / livestock". The validation team believes that the intent of the methodology for this requirement is to limit this parameter to areas suitable for conversion. Also, please address the part of the Round 2 NCR specific to the COLB parameter and demonstrate that this parameter was selected in accordance with the methodology intent of limiting the area to that which is suitable for conversion.
Round 2 Response from Project Proponent **(21 February 2014)**	Part 1. 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." Part 2. 2014-3-13: We have revised the following deviation and have included it in 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" similarly COLB has not been “limited to areas demonstrated to be suitable for agriculture or livestock ranching” as mentioned in the methodology. 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. Further, COLB has conservatively been set to the largest forest aboveground tree carbon stock rather than the area-weighted average aboveground tree carbon stock. These deviations results in conservative accounting of leakage outside the leakage belt.”

Final ESI Findings	Part 1. The smaller leakage belt by default resulted in a smaller PROPLB value and an obvious increase in the amount of leakage outside the leakage belt. We think the large TOTFOR value used has created an appearance of conservatism but does not adhere to recommended guidelines. Further, the Round 2 NCR part related to the COLB was not addressed in the PD as it does not state that the COLB are suitable for conversion. We believe the Round 2 clarification was not addressed and is re-written to be clearer of what the validation team is asking for. Part 2. 2014-3-13: After further discussions with project proponent (call dated 2014-3-13), the validation team decided to accept 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	75
Approved VCS Module VMD0001,Version 1.1 (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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	MPP: 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 (22 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 (20 December 2013)	As the FAB-Alluvial strata were not part of the project area, it was not sampled as part of the forest inventory. Instead aboveground biomass estimates for the leakage belt strata were derived from Salimon et al. The aboveground biomass value for the FAB-A strata as found in Table 3.9f was revised from 110.1 tons d.m./ ha 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 tons d.m./ ha. * 0.47 * (44/12) = 332.3 t CO2e ha-1. This value for aboveground biomass was correct 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 tons d.m./ ha. * 0.47 * (44/12) = 75.9 t CO2e ha-1.
ESI Findings - Round 2 (22 January 2014)	As the alluvial stratum is not part of the baseline, this item has been addressed. Finding closed.

Item Number	76
Approved VCS Module VMD0001,Version 1.1 (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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Was unable to find this in the PD
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	The methodological approach has been included in Section 4.3. Finding closed.

Item Number	77
Approved VCS Module VMD0001,Version 1.1 (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 Vaparaiso Forest Inventory 2013.06.29.doc
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	MPP: 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 parabaloid as described in the methodology deviation section. The verifer 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 (22 October 2013)	NCR: Please justify how the use of a parabaloid 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 (20 December 2013)	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 r2 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 parabloid 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 (22 January 2014)	The stated deviation does not refer to monitoring or measurement as described in the VCS Standard and clarified in the VCS Validation and Verification Manual. The methodology requires that allometric equations be verified either by Limited Measurements or Destructive Sampling as described in the parameter section of the module.
Round 2 NCR /CL/OFI	NCR: Please indicate empirical evidence that was used to justify the use of the palm parabloid equation. In the absence of required evidence, the provided palm equation cannot be used.
Round 2 Response from Project Proponent (21 February 2014)	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 to round 1 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 parabloid is not an actual allometric as long as it is conservative it does not need to be validated through the standard approach."
Final ESI Findings	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a parabloid 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 clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	78
Approved VCS Module VMD0001,Version 1.1 (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 Vaparaiso Forest Inventory 2013.06.29.doc; RusVal_Data_2013.06.24a.xls - Live Tree-data, biomass stocks tabs
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 October 2013)	NCR: Please ensure that trees that are being given 0cm diamter are not included in plot level carbon calculations.
Round 1 Response from Project Proponent (20 December 2013)	Biomass for trees with a 0 cm dbh has been hard coded to zero in the biomass calculation column of the "RusVal_Data" 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 (22 January 2014)	The biomass associated with trees smaller than 10cm has been modified to zero. Pending the update of all inventory related findings.
Round 2 NCR /CL/OFI	
Round 2 Response from Project Proponent (21 February 2014)	
Final ESI Findings	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	79
Approved VCS Module VMD0001,Version 1.1 (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 Vaparaiso Forest Inventory 2013.06.29.doc; RusVal_Data_2013.06.24a.xls - Live Tree-data, biomass stocks tabs
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Unable to locate the calculation of the mean carbon stock in above ground biomass for each stratum.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	This has been calculated in the uncertainty tab of the "RusVal_Data" forest inventory calculation spreadsheet. It is further located in column n under the "BL-UP parameters" tab of the "Russas Project" calculation spreadsheet.
ESI Findings - Round 2 (22 January 2014)	The calculations have been verified. This item has been addressed.

Item Number	80
Approved VCS Module VMD0001,Version 1.1 (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 or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	Methodology deviations are only allowed when relating to monitoring and measurement as set out in the VCS Standard. The VCS validation and verification manual and previous discussion with VCS state that direct modifications stated in the methodology would reflect a methodology revision, not a deviation.
Round 2 NCR /CL/OFI	NCR: Please describe how the use of Cairns equation does not modify or replace equations used within the methodology. If unable, the proposed methodology deviation is unacceptable and will need to be revised.
Round 2 Response from Project Proponent (21 February 2014)	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 Cairn 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."
Final ESI Findings	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 clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	81
Approved VCS Module VMD0001,Version 1.1 (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 (fj(X,Y))
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 4.1
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	This parameter has not been included.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please include the parameter for the allometric equations fore species j linking measured tree variable to aboveground biomass of living trees - Fj(X,Y) into the PD
Round 1 Response from Project Proponent (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	It is understood that the parameters of the allometric equations have been included in PD Section 4.2. This issue relates to the inclusion of a "parameter" from the allometric equation as a whole, linking the measured variables to the aboveground biomass (e.g. Brown's equation)
Round 2 NCR /CL/OFI	NCR: Please include the parameter for the allometric equations fore species j linking measured tree variable to aboveground biomass of living trees - Fj(X,Y) into the PD
Round 2 Response from Project Proponent (21 February 2014)	The parameter, fj(X,Y), has been added to the Section 4.2 of the PD.
Final ESI Findings	This parameter was added to the end of section 4.2 of the PD and includes all relevant text per instructional VCS Rules. Item is addressed as written. Finding closed.

Item Number	82
Approved VCS Module VMD0001,Version 1.1 (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 r2 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 Vaparaiso Forest Inventory 2013.06.29.doc
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	MPP: The Brown equation was based on 170 trees, the equation had an R^2 value of 0.84. The palm parabloid equation has no empirical support.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please indicate empirical evidence that was used to justify the use of the palm parabloid equation.
Round 1 Response from Project Proponent (20 December 2013)	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 r2 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 parabloid 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 (22 January 2014)	Pending Line 27, Round 2 Response.
Round 2 NCR /CL/OFI	
Round 2 Response from Project Proponent (21 February 2014)	

Final ESI Findings	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a parabloid 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 clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	83
Approved VCS Module VMD0001,Version 1.1 (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 Vaparaiso Forest Inventory 2013.06.29.doc Section 7.3; RusVal_EqVal 2013.06.24a.xls - Equation Validation Tab
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 October 2013)	NCR: Please indicate the location of the palm species allometric validation.
Round 1 Response from Project Proponent (20 December 2013)	Please see the response to line 62 above.
ESI Findings - Round 2 (22 January 2014)	Pending Response to Round 2 line 27 response.
Round 2 NCR /CL/OFI	
Round 2 Response from Project Proponent (21 February 2014)	

Final ESI Findings	The validation team has agreed to allow this deviation as it has been demonstrated by project proponents that using a parabloid 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 clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	84
Approved VCS Module VMD0001,Version 1.1 (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 Vaparaiso Forest Inventory 2013.06.29.doc Section 7.3; RusVal_EqVal 2013.06.24a.xls - Equation Validation Tab
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 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 (20 December 2013)	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 their is no need to also include a plot of the predicted and observed values plotted against dbh.
ESI Findings - Round 2 (22 January 2014)	The verifier confirms the assertions provided. Finding closed.

Item Number	85
Approved VCS Module VMD0001,Version 1.1 (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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	This parameter is not included.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	Pending Line 35 Round 2 Response.
Round 2 NCR /CL/OFI	
Round 2 Response from Project Proponent (21 February 2014)	
Final ESI Findings	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 clarifying the acceptability of the deviation (dated Feb 19, 2014). Finding closed.

Item Number	86
Approved VCS Module VMD0001,Version 1.1 (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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Unable to locate area of sample plots parameter in the PD.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	A parameter table for Asp has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (22 January 2014)	The item has been included. Finding closed.

Item Number	87
Approved VCS Module VMD0001,Version 1.1 (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 one sampling frame (Asf)

Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Section 4.2
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Unable to locate the area of one sampling parameter in the PD.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	The parameter Asf is used in equation 10 in th 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 (22 January 2014)	The verifier confirms the provided assertions. Finding closed.

Item Number	88
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), ***and***
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 October 2013)	CL: Please clarify how it is possible that the deadwood is higher in the baseline than in the project.
Round 1 Response from Project Proponent (20 December 2013)	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 (22 January 2014)	The PD has been modified to correctly state that the project case is higher than the baseline. Finding closed.

Item Number	89
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
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Verifier was unable to find the T-sig calculations necessitating the inclusion of dead wood.
Round 1 NCR/CL/OFI (22 October 2013)	CL: Please indicate where T-Sig tool was used to assess the necessity of the dead wood pool.
Round 1 Response from Project Proponent (20 December 2013)	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 (22 January 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	90
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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Was unable to find this in the PD

Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 (22 January 2014)	The verifier confirmed that this has been added to the PD. Finding closed.

Item Number	91
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. ***The equation (7) is provided on page 6.***
Evidence Used to Assess (Location in PD, MR or Supporting Documents	PD Sections 2.6, 3.1.4.2; Russas Vaparaiso Forest Inventory 2013.06.29.doc-Section A.2.5; RusVal_Data_2013.06.24a.xls - Lying Dead Wood tab
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	The calculation of individual stem volumes was performed, it is unclear where the calculation of the volume of lying dead wood per unity area for a given strata/density class is located.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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.

ESI Findings - Round 2 (22 January 2014)	While it is understood that the proponent believes that biomass need not be calculated at the strata level, the methodology requires that calculations be followed as prescribed in VMD002 CP-D. This would constitute a methodology revision if the prescribed equations are not followed as written.
Round 2 NCR /CL/OFI	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 2 Response from Project Proponent (21 February 2014)	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"
Final ESI Findings	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.

Item Number	92
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 ***Equation 8 on page 7***. 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 Vaparaiso Forest Inventory 2013.06.29.doc-Section A.2.5; RusVal_Data_2013.06.24a.xls - Lying Dead Wood tab
Validation or Verification or Both	Validation

ESI Findings - Round 1 (22 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 (22 October 2013)	NCR: Please calculate the biomass of lying dead wood per uin area in stratum I ; d.m. ha^-1, as required by the CP-D methodology.
Round 1 Response from Project Proponent (20 December 2013)	Biomass carbon at the statum level can be found in the "LyingDead Stats" tab of the forest inventory workbook "RusVal_Data". Biomass CO2 stocks at the statum level can be found in the "Uncertainty" tab of the forest inventory workbook "RusVal_Data". The biomass value at the stratum level is not needed. Please see the response to Finding 46 above.
ESI Findings - Round 2 (22 January 2014)	It is unclear that the calculation as presented is equivalent to the calculation of Equation 8 as written in the methodology.
Round 2 NCR /CL/OFI	NCR: Please transparently demonstrate that the calculation as provided is equivalent to equation 8 of the methodology, as inputs are not used as stated in the methodology equation.
Round 2 Response from Project Proponent (21 February 2014)	Please see the response to row 46, above.
Final ESI Findings	This finding has been resolved in a previous NCR. Finding closed.

Item Number	93
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 Vaparaiso Forest Inventory 2013.06.29.doc-Section A.2.5; RusVal_Data_2013.06.24a.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	MPP: The verifier was unable to locate the calculation of the parameter Cdwi
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please calculate the mean carbon stock of dead wood in stratum I; t CO2e ha^-1, as required by equation 9 of the CP-D methodology.

Round 1 Response from Project Proponent (20 December 2013)	This has been calculated in the uncertainty tab of the "RusVal_Data" forest inventory calculation spreadsheet. It is further located in column P under the "BL-UP parameters" tab of the "Russas Project" calculation spreadsheet.
ESI Findings - Round 2 (22 January 2014)	It is unclear that the calculation as presented is equivalent to the calculation of Equation 9 as written in the methodology.
Round 2 NCR /CL/OFI	NCR: Please transparently demonstrate that the calculation as provided is equivalent to equation 9 of the methodology, as inputs are not used as stated in the methodology equation..
Round 2 Response from Project Proponent (21 February 2014)	Please see the response to row 46, above.
Final ESI Findings	This finding has been resolved in row 46. Finding closed.

Item Number	94
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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	The parameter is not included in the PD.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	The parameter, Ddwdc, has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (22 January 2014)	The item has been included in the PD in section 4.2. Finding closed.

Item Number	95
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 Vaparaiso Forest Inventory 2013.06.29.doc-Section A.2.5; RusVal_Data_2013.06.24a.xls - Dead Wood Density Data tab
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 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 (22 October 2013)	NCR: 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 (20 December 2013)	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 (22 January 2014)	The verifier accepts the methodology deviation as it pertains to the monitoring/measurement of the dead wood densities. An examination of the coefficient of variations and other relevant statistics justify the homogeneity of the samples collected. Finding closed.

Item Number	96
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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Unable to locate the top diameter of standing dead tree in cm (TDSDW) parameter in the PD.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 relaskop 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 (22 January 2014)	The verifier 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	97
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 or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Unable to locate the height of standing dead tree in m (HSDW) parameter in the PD.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please include theheight of standing dead tree in m (HSDW) into the PD, as required by the methodology.
Round 1 Response from Project Proponent (20 December 2013)	The parameter Hsdw has been added to Section 4.2 of the PD.
ESI Findings - Round 2 (22 January 2014)	The item has been included in the PD. Finding closed.

Item Number	98
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; Russas Project 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	PD Section 3.2 indicates that this Module is used for ex-ante quantification. Monitoring Plan indicates that this Module will be used to account from Ex-Post fires However, PD Sections 3.3 or 4.3,nor the associated quantification excel file suggest that emissions associated with Biomass Burning are accounted for in the leakage belt. It seems very likely that deforestation in the leakage belt would include biomass burning.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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.
ESI Findings - Round 2 (22 January 2014)	Section 4.2 has been updated to show that the parameter Bi,t is applied to not only the project area but also the leakage belt. Additional language also describes how Aburn,i,t relates to ADefLB,i,t and how Monitoring accounts for Biomass Burning in the leakage Belt, through an application of testing for significance. Section 3.2 of the PD, table 3.20 shows that biomass burning is expected to occur in the with project case. 2014-01-20: PD Table 3.21 does not correlate to Russas Project 2014.01.10.xls 4.3 of the PD has been updated with the referenced language. Sections 3.2 and 3.3 does not show any additional calculations for biomass burning in the leakage belt. 2014-01-20: Agreed. Perhaps this was missed by validators. so a simple explanation as to where to find the leakage belt biomass burning calcs would solve this issue.
Round 2 NCR /CL/OFI	CL: The Tables in PD Section 3.2 do not correlate to Russas Project 2014.01.10.xls. Please update accordingly. The Tables in PD Section 3.3 do not correlate to Russas Project 2014.01.10.xls. Please update accordingly. Neither PD Section 3.2 or 3.3 includes information related to the quantification of GHG emissions associated with Biomass Burning in the leakage belt as indicated. Please update PD Section 3.3 accordingly.
Round 2 Response from Project Proponent (21 February 2014)	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 "Russas Project 2014.02.21".
Final ESI Findings	Biomass burning GHG emissions in the leakage belt 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. Finding closed.

Item Number	99
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 3.2; Russas Project 2013.07.15.xls
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	The Greenhouse emissions due to biomass burning as part of deforestation activities are not being quantified at the strata level and then summed as per E-BB. Rather, the strata areas deforested are summed and then multiplied by the E-BB parameters.
Round 1 NCR/CL/OFI (22 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 (20 December 2013)	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 ΔCP,DefPA,i,t (or ex-ante emissions from deforestation in the project area).
ESI Findings - Round 2 (22 January 2014)	Ex-ante, 20% of baseline deforestation occurs in the project case. Because baseline deforestation is quantified at the strata level, so too can the ex-ante project case deforestation. Is it not reasonable to assume that those areas predicted to be deforested in the baseline (based on risk factors, etc.) are those that would be deforested in the with-project case?

Round 2 NCR /CL/OFI	CL: Please demonstrate that calculating the greenhouse gas emissions due to biomass burning in the project case (ex-ante) by summing the area deforested by strata and then multiplying by the weighted mean Bi,t provides conservative estimates when compared to calculating the greenhouse gas emissions due to biomass burning at the strata level and then summing. Else, includes estimates of net carbon stock change the greenhouse gas emissions due to biomass burning in project case (ex-ante) as quantified using the latter method in the quantification of ex-ante net GHG emission reductions and removals.
Round 2 Response from Project Proponent (21 February 2014)	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 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 Bi,t parameter in the with project ex-ante case.
Final ESI Findings	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 round 2 response to address this finding as sufficient. Finding closed.

Item Number	100
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	
Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	

Round 1 NCR/CL/OFI (22 October 2013)	
Round 1 Response from Project Proponent (20 December 2013)	
ESI Findings - Round 2 (22 January 2014)	Russas Project 2014.01.10.xls - 3.3 Tab - For the LB, ADefLB,u,i,t is quantified as the ((sum of Aunplanned,i,t in the PA) - ADefPA,u,i,t)*0.15. The rationale for this method has not been explained and it is unclear why ADefLB,u,i,t is not equal to the sum of Aunplanned,i,t in the LB. There are no leakage prevention activities in the LB.
Round 2 NCR /CL/OFI	CL: Please describe/justify the rationale for quantifying ADefLB,u,i,t as the ((sum of Aunplanned,i,t in the PA) - ADefPA,u,i,t)*0.15 and demonstrate this method is conservative. Else, assume ADefLB,u,i,t is equal to the sum of Aunplanned,i,t in the LB in the calculating the greenhouse gas emissions due to biomass burning in the LB (ex-ante).
Round 2 Response from Project Proponent (21 February 2014)	As explained on our phone call on 1/29/14, the rationale for quantifying ADefLB,u,i,t as the ((sum of Aunplanned,i,t 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 occured 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 displace the difference is multiplied by a factor between 0 and 1, with zero being no leakage and 1 being 100% leakage. As project activites are addressing deforestation pressures in the project area and leakage belt, the amount of leakage expected to be displaced is 15% or 0.15.
Final ESI Findings	The validation team has reviewed this issue and agrees with project proponents 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%. Finding closed.

Item Number	101
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 3.2; Russas Project 2013.07.15.xls

Validation or Verification or Both	Validation
ESI Findings - Round 1 (22 October 2013)	Average aboveground biomass stock before burning (Bi,t) is not included in the Equation and is not defined in the PD.
Round 1 NCR/CL/OFI (22 October 2013)	NCR: Please include Average aboveground biomass stock before burning (Bi,t) in the quantification of the greenhouse gas emissions due to biomass burning and define this parameter in the PD.
Round 1 Response from Project Proponent (20 December 2013)	Bi,t has been calculated ex-ante in cell T9 of the BL-UP parameters tab of the "RussasProject" workbook, further this parameter has been incorporated into the calculation of EBB and included in section 4.2 of the PD.
ESI Findings - Round 2 (22 January 2014)	Weighted mean Bi,t quantification was confirmed in Russas Project 2014.01.10.xls.. However, Russas Project 2014.01.10.xls - 3.3 Tab - weighted mean Bi,t for the PA (vs. weighted mean Bi,t for the LB) is used for the quantification of the greenhouse gas emissions due to biomass burning in the LB (ex-ante).
Round 2 NCR /CL/OFI	CL: Please update the quantification of the greenhouse gas emissions due to biomass burning in the LB (ex-ante) using the appropriate Bi,t. Note Row 17 above in addressing this CL.
Round 2 Response from Project Proponent (21 February 2014)	The calculations in the excel workbook "Russas Project 2014.02.21" 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).
Final ESI Findings	This finding has been addressed in M-MON row 75 and above in row 17. Finding closed.