

EL ARRIERO 2013 VERIFICATION REPORT

SCS Global Services

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Summary:

- This report describes the verification audit of the El Arriero Afforestation on Degraded Grasslands under Extensive Grazing project (“Project”). The Project establishes pine plantations on land previously under extensive grazing by beef cattle in Uruguay. The plantations will be managed on 22 – 25 year rotations for the purposes of producing high quality sawlogs. The purpose of the verification audit is to assess whether the Monitoring Report submitted for the period 30 April 2009 to 25 March 2013 conforms to the requirements of the VSCA and to assess whether the calculated number of VCUs is free of material error. The verification activities included document

review and a site visit that included interviews and field reconnaissance. During the course of the verification audit 30 findings were raised. The issues raised in these findings were successfully resolved, resulting in their closure. The project complies with all of the verification criteria, and the assessment team has no restrictions or uncertainties with respect to the compliance of the project with the verification criteria. The GHG reductions and removal enhancements claimed for the reporting period are free of material error.

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1 INTRODUCTION

1.1 Objective

The objective of the verification was to conduct an independent assessment of the El Arriero Afforestation of Degraded Grasslands under Extensive Grazing project ("Project") to determine whether the quantification of GHG emissions reductions or removals for the period 30 April 2009 to 25 March 2013 complies with the verification criteria as set out in the guidance documents listed in Section 1.2 of this report

1.2 Scope and Criteria

In accordance with Section 4.3.4 of ISO 14064-3:2006, the scope was defined as follows:

- The project and its baseline scenarios;
- The physical infrastructure, activities, technologies and processes of the project;
- The GHG sources, sinks and/or reservoirs that are applicable to the project;
- The types of GHGs that are applicable to the project; and
- The reporting period, as discussed in Section 5 of this report.

In accordance with Section 5.3.1 of the VCS Standard, the criteria for verification were the VCS Version 3 program documents, including the following:

- VCS Program Guide
- VCS Standard
- VCS AFOLU Requirements
- VCS AFOLU Non-Permanence Risk Tool

Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document.

The assessment was also performed against the CDM methodology, AR-ACM0001 "Afforestation and reforestation of degraded land" version 05.2.0, EB 65.

1.3 Level of Assurance

In accordance with Section 5.3.1 of the VCS Standard, the level of assurance of this report is reasonable.

1.4 Summary Description of the Project

The project comprises a total of 4,987.91 ha of land previously under extensive grazing by beef cattle, on which afforestation for obtaining high-value, long-lived timber products and for sequestering large amounts of carbon dioxide from the atmosphere was established. The forests are to be managed on a 22 – 25 year rotation of loblolly pine (*Pinus taeda*) and a Caribbean pine / slash pine hybrid (*caribea* x *Ellioti*). Plantations will undergo thinning and pruning in stages, prior to harvest.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through a combination of document review, interviews with relevant personnel and on-site inspections, as discussed in Sections 2.2 through 2.4 of this report. At all times, the project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.5, findings were issued to ensure that the project was in full conformance to all requirements.

Prior to the site inspections documented in Section 3.2 below, a sampling plan was assembled that highlighted the areas of highest risk of material error. These included the inventory and quantification procedures and land area determinations. A verification plan was constructed that took the sampling plan into account.

2.2 Document Review

The monitoring report and supporting documentation were carefully reviewed for conformance to the verification criteria. The verification was performed as an audit where the project description, monitoring report and any supporting documents were reviewed, cross checked and compared with identified and stated requirements. The description and accounts of this review are described in detail in the sections below.

In addition to the monitoring report, the following written documents (e.g., reports, memos, land deeds and titles) were reviewed to ensure conformance of the project to the VCS rules and the methodology

Document	Date Reviewed
http://info.fsc.org/certificate.php#result FSC website confirm FM/COC certification is valid	April 2014
Tipos de arcillas en suelos del Uruguay.pdf (including English translation – Clay types in Uruguayan soils).	March 2014

2.3 Interviews

Interviews constituted an important component of the audit process. The following personnel associated with the project proponent and/or implementing partner were interviewed. The phrase “throughout audit” under “Date Interviewed” indicates that the individual in question was interviewed on multiple occasions throughout the audit process. The primary interviews for this verification audit were conducted during the office meeting described below. The verification team presented questions to the project development team. The questions were addressed by the most appropriate member of the project development team. In addition to the office meeting, the verification team maintained a continuing dialog via email and phone conversations with Carbosur throughout the audit..

Individual	Affiliation	Date Interviewed
Agustin Inthamoussu	Carbosur Ltda.; Project development team leader	Throughout audit
Ines Aguerre	Carbosur Ltda.; Project development team member	July – October 2013
Daniel Ramirez	Cambium Forestal Uruguay; Forestry manager	Throughout audit
Alvaro Perez del Castillo	Pike & Co Consultora Forestal; Forest inventory consultant	31 July 2013

2.4 Site Inspections

A Site Inspection was conducted from July 30 to August 2, 2013. An office meeting was held July 30 in the office of Carbosur, Ltda in Montevideo, Uruguay followed by visits to selected plantations on July 31 and August 1 and a closing meeting held on August 2 at Carbosur’s Montevideo office. The objectives of the office visit were:

- To interview project personnel to gather information pertaining to project implementation and monitoring procedures;
- Discuss with project personnel issues that were raised by the verification team during review of project documents including the Monitoring Report;
- Ascertain whether any Methodology Deviations were implemented during the monitoring period;
- Interview project personnel to gather information pertaining to Project Description Deviations;

- Review the inventory methodology, data processing procedures, and quantification methodologies employed during development of the monitoring report

The objectives of the field inspections performed were to:

- Select samples of data from on-the-ground measurements for verification in order to meet a reasonable level of assurance and to meet the materiality requirements of the project, as required by Section 5.1.3 of the VCS Standard;
- Perform a risk-based review of the project area and project activities to ensure that the project conformed to the requirements of the VCS rules and the methodology throughout the monitoring period; and ensure that monitoring was conducted in accordance with the requirements of the validated monitoring plan, the methodology employed and the VCS rules.

2.5 Resolution of Findings

Any potential or actual material discrepancies identified during the assessment process were resolved through the issuance of findings. The types of findings issued by SCS were characterized as follows:

Non-Conformity Report (NCR): An NCR signified a material discrepancy with respect to a specific requirement. NCRs are equivalent to Corrective Action Requests. This type of finding could only be closed upon receipt by SCS of evidence indicating that the identified discrepancy had been corrected. Resolution of all open NCRs was a prerequisite for issuance of a verification statement.

New Information Request (NIR): An NIR signified a need for supplementary information in order to determine whether a material discrepancy existed with respect to a specific requirement. NIRs are equivalent to Clarifications. Receipt of an NIR did not necessarily indicate that the project was not in compliance with a specific requirement. However, resolution of all open NIRs was a prerequisite for issuance of a verification statement.

Opportunity for Improvement (OFI): An OFI indicated an area that should be monitored or ideally, improved upon. OFI's were considered to be an indication of something that could become a non-conformity if not given proper attention, and were sometimes issued in the case that a non-material discrepancy was identified. OFIs are considered to be closed upon issuance.

A total of 30 findings were raised during the verification process: 20 NCRs, 7 NIRs, and 3 OFIs

All findings issued by the audit team during the verification process have been closed. In accordance with Section 5.3.6 of the VCS Standard, all findings issued during the verification process, and the impetus for their closure, are described in Appendix A of this report.

2.5.1 Forward Action Requests

No Forward Action Requests were issued.

2.6 Eligibility for Validation Activities

SCS Global Services is accredited for validation for the AFOLU sectoral scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

This section is not applicable. The Project is not seeking registration under another GHG program.

3.2 Methodology Deviations

There were no methodology deviations. All requirements of the methodology were followed.

3.3 Project Description Deviations

The monitoring report identifies 5 Project Description Deviations:

- 1) a change in the reported project area;
- 2) an increase in the number of sample plots monitored;
- 3) corrections regarding the version number of some CDM methodological tools
- 4) changes in the method used to estimate the change in carbon stocks in dead wood and litter;
- 5) changes in the parameters and procedures followed in calculation of changes in soil organic carbon; and
- 6) a change in the procedure followed in cases where a check plot measured as part of the QA/QC process differs in carbon stock estimate by more than 10% from the carbon stocks estimated from the original measurements.

None of these deviations affect the applicability of the methodology. The applicability conditions are 1) project activity is implemented on degraded soils; 2) a drainage restriction for projects on organic soils, which is not applicable; 3) the land is not wetlands; plus these additional conditions for projects in which changes in soil organic carbon are accounted: a) litter shall remain on site and b) restrictions on soil ripping. The identified deviations do not relate in any way to the applicability conditions of the methodology.

None of these deviations affect the additionality of the project. Additionality is based on analysis of alternative land uses. The identified deviations have to do with quantification, reporting, and QA/QC procedures and not to alternative land uses, and therefore do not impact the additionality of the Project.

The baseline scenario identified in the PD is continued overgrazing and associated degradation of the land. The deviations do not have any effect on the appropriateness of the baseline scenario.

The project deviations identified in the monitoring report correct small errors in project area reporting (the project area boundaries are unchanged), changes in sampling intensity and QA/QC procedures and carbon stock estimation methods for litter and dead wood. The project remains in full compliance with the requirements of the methodology and the VCS requirements and therefore they are valid.

3.3.1 Project area

The project area was changed from 5377.0 as reported in the PD to 4,987.1 hectares reported in the monitoring report. The change represented a correction for two different errors. The largest error was due to an oversight in GIS processing during data preparation for the PD in which the area for some polygons was not recalculated following line work edits to the project boundaries. The boundaries themselves were not adjusted since validation, only the calculated area. The verification team reviewed the area calculation process during the office meeting. The other error in reporting project area resulted from inadvertent inclusion of 7 polygons in the Sandobayhu farm which, prior to the project commencement date, had supported stands of Eucalyptus. The verification team reviewed Google earth imagery from April 2009 and August 2009 overlain with Arriero project boundaries and confirmed the existence of tree cover prior to the project commencement date. The revision to the project area is consistent with the monitoring report, and the Project Description deviation is valid.

3.3.2 Number of sample plots

The project proponent increased the number of sample plots, compared to the estimated number of sample plots provided in the PD, in order to be able to calculate standard error statistics while retaining the current stratification scheme. The verification team finds this deviation to be valid as increasing the sample size leads to a more precise estimate.

3.3.3 Methodological tool versions

There were some discrepancies in the PD with respect to identification of version numbers for some methodological tools. These are corrected in the monitoring report and reported as Project Description deviations. There were no changes in calculation procedures prescribed by the updated version of the tools used by the Project; therefore the verification team finds the deviation to be valid.

3.3.4 Dead Wood and Litter pools

The Project Description proposes to estimate actual carbon in dead wood and litter using either a sample based approach or the default factors listed in the CDM tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”. Both of these options are allowed by the methodology. For project implementation, the default factors specified in the tool are used. Since the procedures and values used conform to the methodology and associated tools, verification team finds the deviation to be valid.

3.3.5 Soil Organic Carbon

Changes in soil organic carbon are estimated using the CDM tool “Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities”, as allowed by the methodology. For project implementation the project proponent applies different factors and uses a modified procedure compared to the Project Description. Section 4.2 of this report describes the calculation procedure. Since the factors and methodologies used conform to the requirements of the tool, the verification team finds the deviation to be valid.

3.3.6 Check Plot Procedure

The Project Description describes a provision for reconciling differences in carbon stocks between inventory plots and quality assurance check plots. Under the procedure described in the PD, if the difference in carbon stocks between an inventory plot and the corresponding check plot is more than 5%, the plot would be re-measured. If the difference is more than 10%, the plot would be eliminated from the carbon stock estimate. Under the revised procedure, if the difference between plot carbon estimates is more than 10%, the value for the plot with the lower estimate is used in the calculation. The procedure is justified because the uncertainty regarding carbon stocks on such a plot is resolved by using the most conservative estimate, in accordance with the VCS rules. Since the revised procedure applies a conservative approach, the verification team finds the deviation to be valid.

3.4 Grouped Project

This section is not applicable. The Project is not a grouped project

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project's implementation during the reporting period was consistent with the Project Description. Extensive evidence that vegetation management activities are being implemented as described in the PD, including pruning and thinning, was observed during field reconnaissance. The verification team confirmed that the Project remains certified under FSC by visiting the FSC web site and confirming that the certification status of Forestal El Arriero S.A. is "valid". There were no discrepancies between project implementation and the project description observed during two days of field reconnaissance, and none were detected during review of aerial imagery.

The project implements a plan for routine monitoring of the project area for disturbance or damage wherein field crews engaged in operations planning or implementation report any such occurrences to the forest manager. Neither the methodology nor the VCS rules prescribe a fixed schedule for conducting forest Inventories. The forest inventory was conducted at the end of the current reporting period. The implemented monitoring system is thus suitable for obtaining, recording, compiling and analysing the monitored data and parameters. The monitoring plan is being implemented as described in the project description, with the exception of the deviations described in Section 3.3 of this report. A total of 128 inventory plots were installed and measured from 27 November 2012 to 25 March 2013. The verification team visited and re-measured 4 randomly selected inventory plots during the field reconnaissance portion of the site visit. The verification team obtained printed maps and field data sheets for these plots to perform visual confirmation the accuracy of the mapping, to assess whether the plots could be relocated, to confirm that the inventory data for these plots were collected in accordance with the monitoring plan. The verification team found no discrepancies with respect to the mapping and was able to locate all of the selected sample plots. There no cases where plot data on the field data sheets were not consistent with the trees on the plot, an indication that the data management system is functioning adequately. The sampling intensity was sufficient to achieve a standard error of less than 10% of the estimated mean carbon stocks.

Due to the rapid growth rate of these trees and the fact that up to 10 months had elapsed between the inventory measurements and the site visit, statistically valid direct comparison of diameter and height measurements on individual trees was not possible. The verification team was able to confirm that all trees in the plots visited had greater diameter and height compared to the original measurement. Differences in height measurement were consistent with back dated heights based on branch whorls. Differences in dbh measurement were consistent with observed growth rings on trees that had been removed during thinning operations. There was no evidence of bias or error with respect to the inventory measurements. The forest inventory measurements were taken by Pike & Co., a professional forestry consulting firm located in Montevideo, Uruguay.

The verification team performed a web-based search to determine whether an emission trading system exists in Uruguay. As there is no emission trading system in Uruguay, the emission reductions and removals generated by the project have not become included in an emissions trading program or any other mechanism that included GHG allowance trading. As attested by Carbosur Ltda, the project has neither received nor sought any other form of environmental credit, nor has it been rejected by another GHG program..

Based on information reviewed during the office visit and direct observation during the field reconnaissance portion of the site visit, the verification team can state with a reasonable level of assurance that the project is being implemented as described in the project description and that the monitoring system implemented is complete and suitable for its purpose.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

Under the terms of the methodology, changes in carbon stocks under the baseline scenario can be assumed to be zero. Therefore project GHG emission reductions and removals are based on project actual carbon stocks. The Project tracks carbon stocks in 5 pools: above-ground tree biomass, below-ground tree biomass, dead wood, litter, and soil organic carbon.

Carbon in above and below ground tree biomass is calculated using the CDM tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”, as described in the project description. Forest inventory data including dbh and a subsample of tree heights were collected as described in the monitoring report. Regional height regressions were developed from the height subsample data and applied to trees whose heights were not measured. The regression analysis was confirmed by the verification team. Tree volume was calculated by applying a Tree Shape Factor (TSR) to the volume of a cylinder calculated from dbh and tree height. The appropriateness of the volume calculation method and TSR were demonstrated based on the tool “Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities”. Volume was converted to biomass using the appropriate wood density and age-specific BEF factors that were approved at validation. Below ground biomass was estimated by applying root-to-shoot ratios calculated using the default procedure specified in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”, as approved at validation. Biomass of individual trees was summed to plot level, then to strata level. Strata level carbon stocks were weighted by area and summed. Biomass in dead wood and litter was calculated by applying the default percentages described in Section 3.3.4 of this report to the live tree biomass estimates.

The procedure for calculation change in soil organic carbon was revised from the procedure described in the project description based on improved information. The project developer stratified the project into areas of high activity clay and low activity clay based on soil maps developed by the Uruguayan Ministry of Agriculture. Default values from Table 3 of the “tool for estimation of change in soil organic carbon due to the implementation of A/R CDM project activities” for high activity clay and low activity clay were applied to the soil strata. In another departure from the project description, the project developer applied a value of 0.7 for the relative stock change factor for Management (fMG). This value is appropriate since the lands were identified as degraded lands using the “Tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R project activities”.

The verification team reviewed the calculation workbook used to calculate project carbon stocks and found the spreadsheet formulae, conversions, and aggregations were performed in accordance with the requirements of the respective tools, and that the data and parameters were applied consistently. The methods and formulae used are consistent with the project description except for the project description deviations that have been identified.

The verification team has a reasonable level of assurance that the GHG emission reductions and removals have been calculated without material error.

Baseline carbon stocks and leakage, are assumed to be zero, as allowed by the methodology and assessed at validation. Under the applicability conditions of the methodology only activity displacement leakage can occur, being the displacement of agricultural activities, which for the Project is cattle grazing. Under the methodology and associated tools, if displacement of cattle resulting from implementation of project activities would be onto lands that are considered degraded or degrading, then leakage can be assumed to be zero. That the condition of the pre-project lands can be considered degraded or degrading was established at validation as an eligibility condition of the methodology. A report from the Uruguayan National Environment Directorate, reviewed during validation, attests to the general degradation of soils in Uruguay resulting from 370 years of livestock grazing, including a 24% decrease in net primary productivity and changes in species composition toward species such as *Cynodon dactylon* (Bermuda grass) and *Baccharis trimera*, which are indicators of overgrazing and degradation. Site reconnaissance confirmed these conditions exist on both project area lands and lands surrounding the project areas.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The GHG removals for the project reporting period are based on forest inventory measurements and calculation procedures and factors that have been assessed by the verification team, as described in Section 4.2 of this report. The verification team has attained a reasonable level of assurance that these measurements and procedures, including the internal quality control measures such as check plots, were designed and have been implemented to the highest level of quality. The project proponent has enlisted 3 professional forestry consulting companies in the development of the project: Carbosur Ltda in development of the VCS project and the carbon offset calculations; Cambium Forestal Uruguay S.A. to plan and manage forestry operations including land acquisition, selection of planting stock, silvicultural treatments, etc.; and Pike Consultura Forestal to collect and process the forest inventory data. The verification team interviewed personnel from these firms relevant to the project and confirmed their qualifications and expertise.

The verification team conducted a risk based sampling of the field inventory plots and data management systems to assess the reliability of the evidence, and the source and nature of the evidence for the determination of GHG removals.. Forest inventory measurement data were transferred to electronic spreadsheets for analysis. Quality control procedures included verifying that dbh and height measurements fall within reasonable ranges. The verification team traced the calculation process from tree measurement data to the project level GHG removal estimate. All calculations supporting the claims regarding the GHG removals reported in the monitoring report were reviewed.

The project relies on monitoring conducted by field crews and inventory data collected by inventory field crews and not on monitoring equipment therefore the frequency of calibration of monitoring equipment is not applicable to the Project.

The verification team found, with a reasonable level of assurance that the evidence used to determine GHG removals is of sufficient quantity and appropriate quality.

4.4 Non-Permanence Risk Analysis

The verification team reviewed the Non-Permanence Risk Assessment provided at project validation. There has been no change regarding the status or applicability of any of the risk factors since project validation, including political factors, socio-economic factors, environmental factors, or factors relating to implementation of project activities. The verification team therefore concludes that the default minimum 10% risk rating is appropriate for the current reporting period. Please see Appendix B for a detailed description of the steps taken to assess the non-permanence risk rating determined by the project proponent.

5 VERIFICATION CONCLUSION

The verification team has a reasonable level of assurance that the project and the GHG emission removals for the reporting period comply with the verification criteria set out in VCS Version 3 without qualification. The project has been implemented in accordance with the project description, except for project description deviations which have been adequately described and determined by the verification team to be valid.

The verification team finds that the GHG removals in the amount of 30,608 metric tonnes, CO₂ equivalent, for the current reporting period are calculated in accordance with the requirements of the methodology and the VCS rules and are free of material error.

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)

2009	0	-3,546	0	-3,546
2010	0	-10,674	0	-10,674
2011	0	6,256	0	6,256
2012	0	38,571	0	38,571
Total	0	30,608	0	30,608

The VCS Registration and Issuance Process v3.5 Procedural Document, Section 4.1.7 prohibits breakdown of VCUs into individual vintages within a verification period in cases where any year within the verification period has a negative number of GHG emission reductions or removals. Therefore the tradable VCUs and Buffer pool contribution are calculated against the Total Net GHG emission removals for the monitoring period.as follows:

Net GHG removals (tCO ₂ e)	Risk Rating	Buffer Pool Contribution (VCUs)	Tradable VCUs
30,608	10%	3,061	27,547

APPENDIX A: LIST OF FINDINGS

NCR 2012.1 dated 07/09/2013

Standard Reference: Methodology, CDM Methodological Tool AR-TOOL14, version 03.0.0

Document Reference: Monitoring Report Section 1.8 and Table 2

Finding: The Monitoring Report, section 1.8 and Table 2 in section 2.2 lists the version number of the CDM tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activity" as version 01. The Methodology specifies that the tools, procedures, and guidelines must be latest approved version. The version of this tool as of the date of the issuance of the project validation report, was version 3.0.0, adopted 23 November 2012.

Client Response: Correct. This item was already corrected in the Monitoring Report document.

Auditor Response: The Monitoring report identified with the date code 17092013 contains the proper reference.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.2 dated 07/12/2013

Standard Reference: Methodology, CDM tool "Estimation of carbon stocks and change in carbon stocks in deadwood and litter in A/R CDM project activity"

Document Reference: Monitoring Report Section 1.8 and Table 2

Finding: The Monitoring Report, section 1.8 and Table 2 in section 2.2 lists the version number of the CDM tool "Estimation of carbon stocks nad change in carbon stocks in deadwood and litter in A/R CDM project activity" as version 01. The Methodology specifies that the tools, procedures, and guidelines must be latest approved version. The version of this tool as of the issuance of the project validation report, was version 2.0.0, adopted 11 May 2012.

Client Response: Correct. This item was already corrected in the Monitoring Report document.

Auditor Response: The Monitoring report identified with the date code 17092013 contains the proper reference.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.3 dated 07/12/2013

Standard Reference: Methodology, CDM tool "Estimation of non-CO2 GHG emissions from burning of biomass attributable to CDM A/R project activity"

Document Reference: Monitoring Report Section 1.8

Finding: The phrase "(Validated and registered as Version 03.1)" found in the portion of Section 1.8 identifying the version of the CDM tool "Estimation of non-CO2 GHG emissions from burning of biomass attributable to A/R CDM project activity" implies that the project was registered under version 03.1 of the tool. The current version of the tool, Version 04.0.0 was adopted 25 November 2011 and is the version of the tool that was valid at registration, and remains the version of the tool that is applicable to the project. The phrase is therefore misleading.

Client Response: Correct. This item was already corrected in the Monitoring Report document.

Auditor Response: The Monitoring report identified with the date code 17092013 contains the proper reference.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.4 dated 07/12/2013

Standard Reference: Methodology

Document Reference: Monitoring Report Table 2, Comments

Finding: The monitoring report states that the CDM "Procedures to demonstrate the eligibility of lands for afforestation and reforestation CDM project activities" is not used in version 5.2.0 of the Methodology. However, the procedure is listed in the Methodology.

Client Response: Correct. This finding was already corrected on the Monitoring Report document.

Auditor Response: The Monitoring report identified with the date code 17092013 contains the proper reference.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.5 dated 07/12/2013

Standard Reference: Methodology

Document Reference: Monitoring Report Table 2, Comments

Finding: The comment in Table 2 states that the CDM "Guidance on conservative choice and application of default data in estimation of the net anthropogenic GHG removals by sinks" is "not quoted exactly in the newest version of the methodology". However, version 5.2.0 of the Methodology specifically includes reference to this guidance.

Client Response: Correct. This finding was already corrected on the Monitoring Report document.

Auditor Response: The Monitoring report identified with the date code 17092013 contains the proper reference.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.6 dated 07/12/2013

Standard Reference: NA

Document Reference: Monitoring report, Section 3.1

Finding: The Data and Parameters section of the Monitoring report states the GPS is the most important tool for measuring geographical variables. Please describe the GPS equipment used by the project and the procedures followed to collect the GPS data.

Client Response: The Monitoring Report was modified to clarify the data and parameters that used GPS as an instrument. The GPS used corresponds to Garmin, model eTrex Legend. Moreover, it was added a description of the steps followed in order reach each sample plot during the field visits.

Auditor Response: The Monitoring report identified with the date code 17092013 has been revised to include the identity and use of the GPS equipment.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.7 dated 07/12/2013

Standard Reference: VCS Standard, 2.2.1; AFOLU Requirements 4.8.1; Methodology Section III

Document Reference: Monitoring Report, Section 3.3

Finding: The Monitoring Report states that the Monitoring Plan is in Spanish. However, the VCS Standard requires that the PD and all other project documentation required under the VCS Program shall be in English. The AFOLU requirements require that a methodology include a Monitoring Plan. Since the Monitoring Plan is required under the VCS Program, it must be made available in English.

Client Response: There was a misunderstanding. The Monitoring Report should say "Terms of Reference" instead of "Monitoring Plan". There is not a Monitoring Plan as a separate document. The document containing the Terms of Reference is available in English as well as in Spanish.

Auditor Response: The Project Proponent has provided an English language version of the Terms of Reference, containing the inventory measurement specifications

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.8 dated 07/12/2013

Standard Reference: NA

Document Reference: Monitoring Report, Section 3.3

Finding: The Monitoring Report states that the Monitoring event, i.e., the forest inventory, took place between November 27 and March 25, 2013. Please correct the description.

Client Response: Period of monitoring events was already modified in the Monitoring Report. It should have said: between 27 November, 2012 and 25 March, 2013.

Auditor Response: The Monitoring report identified with the date code 17092013 has been revised as indicated in the Client Response.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.9 dated 07/12/2013

Standard Reference: NA

Document Reference: Monitoring Report, Section 4.2

Finding: The Monitoring Report describes the formula for calculating cubic volume of individual trees as a cylindrical volume equation corrected by a taper value. However, the printed formula for V_{tree} does not include a taper term. Please correct the V_{tree} formula so that it conforms to its description.

Client Response: The term corresponding to the Tree Shape Factor (TSF) was already added to the cubic volume formula on the Monitoring Report document.

Auditor Response: The Monitoring report identified with the date code 17092013 has been revised to include the tree shape factor (also known as form factor) to the formula to calculate V_{tree} .

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.10 dated 08/23/2013

Standard Reference: CDM Tool "Demonstrating the appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities"

Document Reference: Monitoring Report, Section 4.2

Finding: Please explain where in the reference provided to demonstrate the appropriateness of the volume equation it is shown that the volume equation described in the Monitoring Report was used for the national forest inventory and national GHG inventories and used in commercial forestry. It must be clear that the volume calculation referred to in the document provided is identical to the volume calculation used for the ex post project calculations. Please include an English translation of the essential phrases that form the demonstration.

Client Response: The appropriateness of the volume equation can be demonstrated in the book "Manual para diseño y ejecución de inventarios forestales" by Arianna Sorrentino (1996). This equation figures in page 319 as " $V = f g h$ ", where f is tree shape factor, g is basal area of the tree and h is height of the tree. This Manual is auspiciated by the Ministry of Agriculture, Livestock and Fisheries of Uruguay (MGAP) through The World Bank Project "UR 3131". See document attached.

Auditor Response: The 'Manual para diseño y ejecución de inventarios forestales', which was provided by the project proponent is evidence that the basic volume calculation method is an accepted forestry practice under the Uruguayan Ministry of Forestry. That which remains to be demonstrated is the appropriateness of the tree shape factor value of 0.5. The Monitoring Report references a document at this web site:

<http://www.oas.org/dsd/publications/Unit/oea20s/ch08.htm>

The document is on the website of OAS and is co-authored by the Ministry of Forestry for Uruguay. Table 6.7 shows tree form factor for *p. taeda* as a function of Dbh. the value of 0.5 is shown for trees with Dbh < 20 cm, which is applicable to the project at this time. These documents demonstrate the appropriateness of the volume equation used for the current Monitoring Report, and allow this finding to be closed

Closing Remarks: NIR 2012.10 is closed. However, see NIR 2012.30 regarding tree shape factor

NCR 2012.11 dated 08/23/2013

Standard Reference: NA

Document Reference: Monitoring Report, section 2.1, including Table 1

Finding: The monitoring report discloses changes in area, however, the description of the changes in the report is unclear regarding the reasons for the differences in area. Please make clear the reason for the changes in project area, including the matter of updating the GIS queries, as discussed during the site visit. Please provide the verification team with a pdf map that includes an aerial imagery layer and overlays showing the old project boundary and the new project boundary. If necessary, provide multiple maps so that the map scale shows the imagery in high resolution.

Client Response: Area changes are mainly due to changes in Sandobayú farm. This area reduction in Sandobayú is explained by the fact that after the registration of the project, an error was discovered. That error was that some area corresponding to reforestation plantations was included in project area. By definition, ARR project must be comprised exclusively by afforested areas. This represents an area reduction of 69,8 hectares. An image showing those area changes is presented in a separate file.

Auditor Response: The Project Proponent provided 2 images for the Sandobayu farm in pdf format in "Evidence for Finding 2012.11 - Area Changes (1).pdf" and Evidence for Finding 2012.11 - Area Changes (2).pdf". The revised area boundaries are consistent with the KMZ file provided by the Project. However, the sum of the areas of the deleted polygons does not appear to equal 69.8 hectares. Please provide a list of the deleted polygons and their area and explain why the net area reduction is 69.8 hectares.

Client Response 2: A complete description of land changes (polygons being deleted or corrected) is presented in section 2.2 of the Monitoring Report.

Auditor Response 2: The description of changes in project area provided in section 2.2 of the 2013/2014 version of the Monitoring Report clearly explains and justifies the changes in project area that are reported as PD deviations. The project proponent notes that the project area boundaries were not changed, excepting the removal of parts of the Sandobayu farm that had previously been planted to Eucalyptus and therefore do not meet the eligibility requirements for afforestation projects under the methodology. In all other cases, changes in reported project area were the result of correction of errors in the GIS processing.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.12 dated 07/15/2013

Standard Reference: CDM Tool AR-TOOL14; "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities, version 03.0.0", Equation 13

Document Reference: Monitoring Report section 3.2

Finding: The Monitoring report specifies a value for CF of .5. However, the default value for CF, as shown in the version of the tool that was current at time of registration is 0.47. Please use the default value or provide transparent and verifiable information to justify a different value.

Client Response: The reason why the value used for CF is 0.5 and not 0,47 is in 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 4 "Agriculture, Forestry and Other Land Use"; Table 4.3 "Carbon Fraction of Aboveground Forest Biomass" , page 4.48. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf

Auditor Response: Table 4.3 in the 2006 IPCC Guidelines shows a carbon fraction of .51 is appropriate for Temperate and Boreal conifers. Since this value is more specific in terms of location and species than the default value, and is from a source recognized by VCSA, and the value proposed by the project proponent, 0.5, is conservative in comparison to the value in Table 4.3, the verification team finds that use of a value of 0.5 for carbon factor is acceptable.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.13 dated 07/15/2013

Standard Reference: VCS Standard, Principle of Transparency

Document Reference: Monitoring Report section 4.3

Finding: The Monitoring Report claims that the application of the "Guidelines on conditions under which increase in GHG emissions related to displacement of pre-project grazing activities in A/R CDM project activity is insignificant" resulted in the conclusion that the project will not cause any displacement, however, it does not state which condition or conditions in the guidelines were met that allowed the conclusion to be made. Please expand the discussion by indicating the condition or conditions that are satisfied by the project that allow displacement to be considered insignificant.

Client Response: According to "Guidelines on conditions under which increase in GHG emissions related to displacement of pre-project grazing activities in A/R CDM project activity is insignificant" El Arriero project will not cause any displacement due to the accomplishment of the following conditions stated in this tool: b (items i and ii) and d (items i, ii and v). This explanation was added to the Monitoring Report document.

Auditor Response: The project proponent cites a number of conditions under which increase in GHG emissions related to displacement of pre-project grazing activities can be considered insignificant using the tool. Condition 4 (d)(i), displacement to areas of land that can be identified as degraded or degrading, which was established as part of the assessment of project eligibility, is sufficient justification, and is cited in the updated version of the Monitoring Report.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.14 dated 07/15/2013

Standard Reference: VCS Standard, Principle of Transparency; AR-TOOL14, Section 10

Document Reference: Monitoring Report section 4.4

Finding: The Monitoring Report states that, since the value of uncertainty in mean tree biomass per hectare is 7.71% that GHG Reductions is "totally reliable". This terminology is not consistent with the language of the tool, or with generally accepted interpretations of the results of statistical tests. It may convey an impression that is not accurate.

Client Response: Correct. The word "totally" was deleted from that sentence.

Auditor Response: The 17092013 version of the Monitoring Report has been revised as indicated.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.15 dated 07/15/2013

Standard Reference: VCS Standard v3.3, Section 3.16.6; VCS Monitoring Report Template v3.1

Document Reference: Monitoring Report

Finding: The Monitoring Report is required to be prepared using the VCS Monitoring Report Template. However, the current Monitoring Report lacks the page headers and footers that are a part of the VCS template.

Client Response: Page headers and footers were already added to El Arriero Monitoring Report document.

Auditor Response: The 17092013 version of the Monitoring Report is based on the current template, and the headers are displayed normally.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.16 dated 07/19/2013

Standard Reference: NA

Document Reference: Monitoring Report Figure 2

Finding: The map in Figure 2, whose caption indicates that it shows the 4 project regions does not show the 4 project regions, as does the map in figure 2 of the PD.

Client Response: Correct. The correspondent map showing the four project regions was already added to the Monitoring Report document.

Auditor Response: The 17092013 version of the Monitoring Report displays the project regions appropriately.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.17 dated 08/23/2013

Standard Reference: NA

Document Reference: Monitoring Report Section 4.2

Finding: The Monitoring Report refers to a forest fire within the premises of 'Manolete', however, Manolete is not a part of the El Arriero project.

Client Response: Correct. Manolete is a site that comprises Forteko project area, not El Arriero. This sentence was already deleted from El Arriero Monitoring Report document.

Auditor Response: The reference to Manolete has been removed from the 17092013 version of the Monitoring Report.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.18 dated 08/23/2013

Standard Reference: NA

Document Reference: Monitoring Report Section 1.8

Finding: The comments regarding the CDM tool "Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activity" include the phrase "Validated and registered as Version 01". This phrase could be interpreted to mean that the project is subject to the requirements of version 01 of the tool. This is not accurate. Version 2.0.0 of the tool was current at project registration and remains the version to which the project must conform. The comments are therefore misleading.

Client Response: Correct. This item was already corrected in the Monitoring Report document.

Auditor Response: The comment has been removed from the 17092013 version of the Monitoring Report.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.19 dated 08/23/2013

Standard Reference: NA

Document Reference: Monitoring Report Section 1.8

Finding: The comments regarding the CDM tool "Estimation of carbon stocks and change in carbon stocks in trees and shrubs in A/R CDM project activity" include the phrase "Validated and registered as Version 01". This phrase could be interpreted to mean that the project is subject to the requirements of version 01 of the tool. This is not accurate. Version 3.0.0 of the tool was current at project registration and remains the version to which the project must conform. The comment is therefore misleading.

Client Response: Correct. This item was already corrected in the Monitoring Report document.

Auditor Response: The comment has been removed from the 17092013 version of the Monitoring Report.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.20 dated 08/23/2013

Standard Reference: NA

Document Reference: Monitoring Report Section 3.1

Finding: In the table describing the BEF2 parameter, please include more information describing the reasoning behind the assignment of BEF by age class.

Client Response: There is a new document attached to this set of responses that intends to explain the use of BEF.

Auditor Response: The verification team finds that the Project Proponent's justification for using a variable BEF2, and the procedures followed to determine that value of BEF2 by age class are adequate.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.21 dated 08/23/2013

Standard Reference: Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities (Version 01.1.0)

Document Reference: Arriero and Forteko Carbon Stock Calculation.xlxs; version sent with initial project information.

Finding: The procedure followed in the workbook does not account for dSOC in the year of site preparation as specified by equation 5 of the tool. Please ensure that all requirements of the tool are followed.

Client Response: As we understand the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" (Version 01.1.0), in item 10 describes three possible ways for calculating the parameter d SOC t,i (rate of change in SOC stock in stratum i of the areas of land, in year t; t C ha/yr) depending on the time SOC must be calculated in relation with the year in which first soil disturbance took place. Based on that, equation number 4 and 5 are not necessary to be used for d SOC calculation, because they do not correspond to the time when the monitoring event was done., which is 2013 (year 4 of the project).

Auditor Response: The procedure for calculation of change in soil organic carbon in the "Arriero and Forteko carbon stock calculation.xlsx" workbook provided with the responses to findings received 18 September 2013 is to multiply the number of days since planting by a value for daily change in SOC. This is not the procedure that is outlined by the tool. Equation 5 of the tool is used to estimate change in SOC for the year in which site preparation occurs, and Equation 6 is used for the years following site preparation until the presumed steady state is reached 20 years after site preparation. The scope of the tool is "for estimation of change in carbon stock in [SOC] due to implementation of an A/R CDM project activity". Step 9 requires that carbon loss attributable to site preparation be accounted if such site preparation disturbs more than 10% of the project area. The audit team finds that in order to estimate change in carbon stock due to implementation of the project activity, it is necessary to account for the carbon loss due to site preparation. Whereas the change in SOC from year 2 to year 3 can be calculated using equation 6, in order to calculate net change in SOC from project start to the end of the reporting period, it is necessary to also account for the initial carbon loss using equation 5.

Client Response 2: After a second revision, we found that the SOC calculation was not following strictly the procedure established in tool and that the SOC stock was wrongly estimated, as the verifier noticed. We made the necessary correction in the workbook to account for the SOC and we are now considering the SOC loss at the time of site preparation. There is an explanatory text in chapter 4.2 with the modifications done. The project proponent basically considered the SOC loss during site preparation which resulted in project emissions, but at the same time reconsidered the fMG (factor for Management) from 0.95 "moderately degraded grassland" to "severely degraded grassland" which is applicable due to the application of the "tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R project activities". The project proponent also reclassified the soils according to High Activity Clay soils or Low Activity Clay soils. A soil expert technician was hired to classify the type of soils (according to CONEAT) to HAC or LAC. The final PDF report is attached to this set of responses: "Tipos de arcillas en suelos de Uruguay" (Type of clays in Uruguayan soils). The areas under each type of soil (CONEAT or LAC/HAC) is in the Excel file "Suelo pino forestacion ene2014" (Soils pinus forestry

January 2014). The final values are presented in "Arriero and Forteko carbon stock calculation".

Auditor Response 2: The changes in SOC calculation methodology and the revision to the value of the fMG parameter are consistent with the requirements and procedures laid out in the tool.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.22 dated 08/23/2013

Standard Reference: NA

Document Reference: Monitoring Report Table 4; Observation on site

Finding: The Monitoring Report states that Dbh was measured using a caliper. However, during the field visit it was disclosed that Diameter measurements are sometimes taken using a D-tape. Please make sure that all measurement methodologies are described. If different tools for measuring diameter are used, please explain why different tools are used. Also please note that while calipers and d-tapes are both used commonly to obtain unbiased stocking estimates when considering an entire forest property, the practice of using them interchangeably may introduce additional variability when comparing differences between plots.

Client Response: In most of the cases, the instrument used for measuring DBH was a caliper model "Mantax Blue" of Haglof, Sweden. Also, for the minority of the trees, it was used a diametric tape for measuring DBH. This explanation was already added to the Monitoring Report document.

Auditor Response: Both the Monitoring Report and "Terms of Reference" document used as the inventory manual indicate that diameter tape may be used, in addition to caliper, to measure Dbh. During the field audit, it was observed that taping was done in cases where it was physically impossible to use the caliper due to interference from branch whorls and similar impediments. These practices result in the best estimate of Dbh under the conditions.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.23 dated 08/23/2013

Standard Reference: VCS Standard, Section 3.10.1

Document Reference: NA

Finding: Please provide updated KML files showing the most up to date information on the physical project boundaries.

Client Response: Cambium provided a kmz file, including all areas under afforestation of both funds (El Arriero and Forteko). In this file it is included the area corresponding to Manolete site, which is planned to be planted during 2013. The file is attached in a separate file, and its name is "RodalesCLyTT_CO2_Jun2013.kmz".

Auditor Response: The kmz file was provided by the project proponent.

Closing Remarks: The Client's response adequately addresses the finding.

NCR 2012.24 dated

Standard Reference: NA

Document Reference: Monitoring Report, Section 3.2

Finding: The Monitoring Report includes description of parameters pertaining to lying dead wood transects in the discussion of Data and Parameters Monitored. However, dead wood transects are not used for project monitoring, as described in the section on Deviations from the Project Description. Including these parameter tables may lead to a false conclusion that lying dead wood estimates are based on transect data.

Client Response: According to this finding, the parameters Dn (diameter of the nth piece of lying dead wood intersecting a transect line), DWR LI,p,i (dry-to-wet ratio of the litter sub-sample collected from plots), N (total number of wood pieces intersecting the transect) and B LI_WET,p,i (wet weight of the composite litter sample) were eliminated from section 3.2 of the Monitoring Report document. The reason is that those parameters were effectively monitored, but after field measurement events it was decided to use default and conservative values for calculating dead wood and litter carbon stocks., corresponding to 8% and 4% of carbon stock in tree biomass, respectively.

Auditor Response: The references to lying dead wood transects have been removed from the Monitoring Report.

Closing Remarks: The Client's response adequately addresses the finding.

OFI 2012.25 dated 08/23/2013

Standard Reference: NA

Document Reference: Field visit observations

Finding: It was observed during the field visit that the exact locations of plot centers are not permanently marked. A wood post is placed within the tree row nearest the plot center, and the actual plot center is assumed to be in the center of the row of trees adjacent to and north of this post. Re-establishment of plot boundaries for the purpose of performing re-measurements for quality control or for verification, is accomplished by locating trees that have been marked with blue paint to indicate that they are at the ends of the rows of trees that are within the plot. These trees were marked during the initial plot measurement. The presumed location of plot center is determined iteratively by measuring the distance from the end-of-row trees to presumed plot center. If one of the end-of-row trees is located more than 12.62 m from the presumed plot center, the presumed plot center is re-located. When all end-of-row trees are found to be within 12.62 m of the presumed plot center, it is assumed that the presumed plot center is the actual plot center. The process is aided greatly by a stem map included on the original plot data sheet. This procedure is made more complex when trees within the plot die or are removed in thinning operations; making the exact location of the plot center less certain.

These field procedures, as applied, were not found to have a significant likelihood of over-estimating carbon stocks for the current monitoring period, so long as the plot size associated with each monitoring event is accurately measured to be 12.62 m. However, the uncertainty in the exact location of plot center may introduce additional uncertainty over time, as trees grow and die and are removed by thinning, and it becomes increasingly more difficult to determine the actual, original plot center. This uncertainty may manifest as greater differences in carbon stocks between plots that are presumed to be paired, which will affect the statistical tests used in quality control and in verification.

An Opportunity for Improvement therefore exists in regards to the methods used to determine and mark the plot center. Please make note of any changes in field procedures in the appropriate documents.

Client Response: This OFI was already explained to Cambium staff. During the meeting, they committed to evaluate different solutions for this item.

Auditor Response:

Closing Remarks: The Client's response adequately addresses the finding.

OFI 2012.26 dated 08/23/2013

Standard Reference: NA

Document Reference: Field visit observations

Finding: It was observed during the field visit that plot radius measurements on sloping ground were often taken without correction for slope. Since slope distance is always greater than or equal to horizontal distance, there is no risk of including trees within the plot that should be excluded due to distance from plot center, and therefore no risk of overestimating carbon stocking due to this practice. However, more accurate plot radius measurements would likely lead to more precise estimates of carbon stocks on plots located on sloping ground.

Please make note of any changes in field procedures in the appropriate documents.

Client Response: During the field visit there were measured all the trees comprised inside each sample plot. In order to know which trees had to be included, the area of each sample plot was corroborated by measuring its radius (12.62 m). In cases where the terrain presented slope, radius was measured without correcting by slope. Although this would not lead to an overestimation of the C stock on each plot, for future verifications radius of the plots should be measured by correcting it with slope.

Auditor Response:

Closing Remarks: The Client's response adequately addresses the finding.

OFI 2012.27 dated 08/23/2013

Standard Reference: NA

Document Reference: Site visit discussion

Finding: During the site visit, the project developer indicated they were considering adopting locally developed volume equations, in place of the equations in the SISPINUS model referred to in the PD and Monitoring Plan. If such practice is adopted, please be sure to follow the requirements of the VCS Standard, section 3.1.4 regarding demonstration of appropriateness. If new volume equations are adopted the VCSA may require additional changes to project documentation. Please observe all requirements of the VCSA if a change in the volume equations is to be implemented.

Client Response: Project proponent decided not to adopt this practice.

Auditor Response:

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.28 dated 08/23/2013

Standard Reference: AFOLU Requirements 3.7.10

Document Reference: Monitoring Report, Section 3.3

Finding: The monitoring report states that "boundaries may vary or new strata may be created after disturbances". The AFOLU requirements require that the same geographic boundary for the project area be maintained. Please make clear that any changes to boundaries, such as strata boundaries, resulting from disturbance do not apply to the geographic boundaries of the project area.

Client Response: In the Monitoring Report document it was added the word "potential", in order to assure that the reader understand that those disturbances (pests, fire or droughts) are not so common to occur.

Auditor Response: AFOLU Requirements, Section 3.7.10 states "The same geographic boundary shall be maintained. The entire project area, including areas degraded or disturbed by the non-catastrophic event, shall continue to be a part of project monitoring". Section 3.3 of the Monitoring Report, under "Sampling design and stratification" states "Project boundaries were defined at the beginning of project activity and will be updated along the crediting period, since boundaries may vary or new strata may be created after potential disturbances...". The language of the Monitoring Report suggests that the geographic boundary of the project area may change due to disturbance. The language of AFOLU Section 3.7.10 does not allow this. While revision of strata boundaries is allowed, modification of project area boundaries is not. Please revise the Monitoring Report to make clear that any changes to boundaries, such as strata boundaries, resulting from disturbance do not apply to the geographical boundaries of the project area.

Client Response 2: The text in section 3.3 has been modified to express the intention of the project developer to follow the AFOLU requirements.

Auditor Response 2: The revised text adequately expresses the requirement.

Closing Remarks: The Client's response adequately addresses the finding.

NIR 2012.29 dated 08/23/2013

Standard Reference: CDM tool ar-am-tool-18-v1.0.1 Demonstrating the appropriateness of volume tables

Document Reference: Monitoring Report, section 4.2

Finding: The information presented in the monitoring report does not demonstrate that the tree shape factor 0.5 is used in the model used for the national GHG inventory or that it satisfies other requirements of the tool. Please provide evidence that the national inventory uses a tree shape factor of 0.5 or other evidence, as allowed by the tool, demonstrating that it is appropriate for the project.

Client Response: This finding is not applicable because during the verification visit, PP decided to use other TSF values. This new values corresponds to real TSF values obtained by tree age, by Cambium. A document containing explanations about the procedures followed in order to obtain this values is attached to this sheet.

Auditor Response: Due to the change in tree shape factor, this finding is no longer applicable and is therefore closed. Please see NIR 2012.30.

Closing Remarks: Finding NIR 2012.29 is Closed, however see NIR 2013.30 regarding tree shape factor.

NIR 2012.30 dated 11/14/2013

Standard Reference: CDM tool ar-am-tool-18-v1.0.1 Demonstrating the appropriateness of volume tables

Document Reference: Monitoring Report, carbon stock calculator

Finding: During site visit conducted 30 July 2013 to 2 August 2013, the project proponent advised the verification team it was considering adoption of tree shape factors developed by Cambium, to replace the value 0.5 used in calculations for the Monitoring Report dated 27 June, 2013. The proposed changes were formalized in the 17 September, 2013 version of the Monitoring Report. The Methodology requires use of the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities” to calculate change in tree biomass. This tool specifies that volume tables or equations used must be demonstrated to be appropriate for the purpose of estimation of tree biomass by applying the tool “Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities”. The project proponent provided a document authored by Cambium, describing the development of the tree shape factors proposed for the project. However, the information provided did not satisfy any of the conditions specified in item 5 of the tool for estimating the appropriateness of volume equations.

Client Response:

On 26 December, 2013, the project proponent provided additional evidence to demonstrate the appropriateness of the tree shape factors. The evidence provided includes a data set of at least 30 sample trees showing a coefficient of determination > 0.85 , for each of the 5 age classes. This evidence satisfies the requirement of item 5 (c) of the tool “Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities”. In addition, evidence is provided that the equation has been used in commercial forestry in Uruguay for 10 years or more, satisfying item 5 (b) of the Tool.

Based on the evidence provided, the verification team finds that the appropriateness of the updated tree shape factors has been adequately demonstrated.

Closing Remarks: The Client’s response adequately addresses the finding.

APPENDIX B: NON-PERMANENCE RISK ASSESSMENT

In accordance with Section 3.7.3 of the AFOLU Requirements, the project’s non-permanence risk report was assessed by the audit team. The non-permanence risk report upon which the risk analysis assessment was based is contained within the risk report (Version 01, dated 20 July 2013). The findings and conclusion regarding the non-permanence risk analysis undertaken for the project are summarized

below for each risk category and factor. Unless noted otherwise, the audit team agrees with the conclusion stated in the non-permanence risk report.

The findings of the audit team regarding the risk scores applied for each factor are as follows.

Project Management		
Risk Factor	Verification Findings	Risk Rating
a)	This factor is not applicable, as GHG credits have not previously been issued.	0
b)	This factor is not applicable, as GHG credits have not previously been issued.	0
c)	The audit team was able to confirm, through interviews with project personnel and review of the control systems associated with the delivery of GHG information, that the management team includes individuals with significant experience in each of the skills required for effective project implementation. The management team appeared to be the audit team to be highly competent, with a wealth of experience in forest management and GHG accounting.	0
d)	The audit team can confirm that the project proponent operates offices in Montevideo, Uruguay. All of the project area is less than a day's travel from Montevideo.	0
e)	The audit team can affirm that the management team includes individuals that have already guided the project through successful validation of the project under the VCS Program and has personal knowledge that Carbosur has led 2 additional afforestation projects through VCS validation. The audit team finds no inconsistencies with the claims regarding Carbosur's experience in project design and implementation, carbon accounting, and reporting.	-2
f)	The primary potential risks to the project that can be managed include fire and insect attack. The project developer provided written plans at validation to address both of these areas of risk. During site reconnaissance the audit team visited fire lookouts and equipment storage facilities and observed the maintenance status of fuel breaks. The audit team confirmed that these are being maintained as described in the plan. The project proponent provided evidence of a cooperative fire protection program among landowners. Monitoring for pest attacks and formulating appropriate responses are described in the pest management plan. In addition, the project participates in a cooperative program under the Ministry of Agriculture to detect and manage pests. Plans for managing fire and pests are inherently adaptive because they involve detection followed by appropriate response.	-2
Total Project Management (PM) [as applicable, (a + b + c + d + e + f)]		-4
Total may be less than zero.		

Financial Viability		
Risk Factor	Verification Findings	Risk Rating
a)	The audit team was presented with a spreadsheet documenting the projected expenditures and revenue streams for the project. The audit team reviewed revenue and expense assumptions and found them to be reasonable. The audit team also reviewed and confirmed the general correctness of the formulas within the spreadsheet. The audit team finds that the assumption that the project cash flow breakeven point is greater than 20 years is justified by the analysis.	3
b)		
c)		
d)		
e)	The audit team was provided with financial statements and other evidence demonstrating that more than 50% of total costs to the breakeven point had been incurred as land acquisition and plantation establishment costs, and had already been accounted for by the investment fund.	-2
f)		
g)		
h)		
i)	The audit team was not provided with evidence of callable financial resources.	0
Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)]		1
Total may not be less than zero.		

Opportunity Cost		
Risk Factor	Verification Findings	Risk Rating
a)	The audit team was presented with a financial analysis covering the crediting period demonstrating that the profitability under the most profitable alternative land use activity is 78% more than the profitability under the project activities. The changes in opportunity costs since they were evaluated at validation are due to increases in operating costs due to inflation and a decrease in log prices.	6
b)		
c)		
d)		
e)		
f)		

g)	Not applicable. The project proponent is not claiming mitigation credits for this risk factor.	0
h)	Not applicable. The project proponent is not claiming mitigation credits for this risk factor.	0
i)	Not applicable. The project proponent is not claiming mitigation credits for this risk factor.	0
Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g or h)]		6
Total may not be less than 0.		

Project Longevity		
Risk Factor	Verification Findings	Risk Rating
a)	The project is not bound by a legal agreement to continue the management practice, therefore the formula in a) applies. The audit team reviewed Notarial Certificates confirming that Forestal El Arriero S.A. is the owner in fee, and reviewed documents from DINAMA pertaining to the forest plantation permits and environmental analysis. The project description attests that the project proponent intends to continue the management practice through multiple rotations, which is confirmed by certification under FSC. Project longevity is therefore set to the length of 1 rotation following the last harvest in the project crediting period. The audit team finds that the Risk Rating is calculated correctly.	0
b)		
Total Project Longevity (PL)		0
May not be less than zero		

The findings of the audit team regarding the risk scores applied for each factor are as follows.

Land Ownership and Resource Access/Use Rights		
Risk Factor	Verification Findings	Risk Rating
a)	Ownership in fee by Forestal El Arriero S.A. was confirmed by review of Notarial Certificates. The Uruguayan technical expert on the validation team confirmed that fee ownership in Uruguay includes resource access / use rights.	0
b)		

c)	As attested by Carbosur, no disputes are known to exist.	0
d)	Forest management is regulated by DINAMA, the Uruguayan Ministry for the Environment. Establishment of forest plantations require permits which specifically allow the project activities. Thus there are no land use or access rights disputes	0
e)	Not applicable, as this is not a WRC project.	0
f)	Not applicable	0
g)	Not applicable	0
Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e+ f)]		0
Total may not be less than zero.		

Community Engagement		
Risk Factor	Verification Findings	Risk Rating
a)	The local population is not reliant on the project area for food, fuel, fodder, medicines, or building materials. The project area and vicinity are private lands, mostly managed for livestock production. As directly observed during field reconnaissance, the local population lives in small towns or on the ranches where they are employed. There is no local population "living on the land".	0
b)	See above	0
c)	Not applicable. The project proponent is not claiming mitigation credits for this risk factor	0
Total Community Engagement (CE) [where applicable, (a+b+c)]		0
Total may be less than zero.		

Political Risk		
Risk Factor	Verification Findings	Risk Rating
a)	The audit team performed an independent calculation of the governance score	1

b)	for Uruguay for the period 2008 to 2012, the latest for which data were available. The calculated value, 0.78 is not identical to the value. 0.77, reported in the Non-Permanence Risk Report. However, the associated Risk Rating is identical.	
c)		
d)		
e)		
f)	The audit team verified Uruguay complies with the Designated National Authority by visiting the website provided in the Non-Permanence Risk Report, and confirmation its status. The verification team has direct knowledge of at least one registered CDM Afforestation/Reforestation project in Uruguay.	-2
Total Political (PC) [as applicable ((a, b, c, d or e) + f)]		0
Total may not be less than zero.		

The findings of the audit team regarding the risk scores applied for natural risk are as follows.

Natural Risk		
Risk Factor	Verification Findings	Risk Rating
F	The audit team reviewed the fire statistics provided by the National Emergency System and confirmed the assessments of likelihood and significance. The technical expert on the validation team confirmed the low likelihood and significance scores are appropriate. The audit team confirmed that efforts to mitigate the risk of loss due to fire under the fire protection plan described in the project description are being implemented. The audit team therefore finds the net risk rating for Fire of 1.25 to be appropriate.	1.25
PD	The project proponent provided evidence from the scientific literature that there were few incidents of damage in pine plantations in Uruguay due to pests. The validation team's technical expert in Uruguayan forestry confirmed that damage due to pest and disease outbreaks in Uruguay is generally not significant. The potential for losses due to pests is mitigated by the monitoring for pest damage conducted as part of the monitoring plan. The audit team finds that the assessment of risk of pest and disease outbreak is appropriate.	.5
W	The project proponent provide evidence from the National Emergency System over the past 140 years supporting the assertion that extreme weather events in Uruguay are rare; with incidents occurring from 10 to 25 years. The majority of these incidents were droughts. Since the primary effect of drought on p. taeda is loss of vigor, and not mortality, carbon stocks would not be expected to decrease as a result, Risk of losses due to flooding are mitigated by the fact that the	.5

	project excludes riparian areas. The validation team's technical expert in Uruguayan forestry confirmed the assessment of risk of extreme weather was appropriate.	
G	The audit team agrees that the risk of landslides in the project area is low due to the low topographic relief and generally high competence of the underlying rocks. The project proponent provided evidence from the Regional Center for Seismology for South America attesting to the low risk of earthquakes and reference to a publication on Physical Geography to justify the low risk of volcanic activity. The low risk level is related to the relatively long distance between the project area and the boundaries of tectonic plates where most such activity occurs. The low level of geologic risk was corroborated by the Uruguayan technical expert on the audit team.	0
Total Natural Risk (as applicable, F + PD + W + G + ON)		2.25

Risk Category	Rating
a) Internal Risk	3
b) External Risk	0
c) Natural Risk	2.25
Overall Risk Rating (a + b + c)	5.25

In summary, the overall risk rating that was determined for the project, in accordance with the VCS Non-Permanence Risk Tool, is 5.25%, therefore the default minimum 10% risk rating is applicable. The audit team has concluded that the above risk rating is in conformance with the VCS rules.

Thus, the audit team can confirm that 3061 buffer credits should be deposited into the AFOLU pooled buffer account.