



OFFSET VERIFICATION REPORT

ARB VERIFICATION OF THE USAL REDWOOD FOREST IFM
(CAR1139/CAFR5281)

REPORTING PERIOD 8

Date: 6/30/2023

Version: 1.1

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Abbreviations

ARB	Air Resources Board
ARBOCs	Air Resources Board Offset Credits
APD	Authorized Project Designee
boRP	Beginning of Reporting Period
C	Carbon
CAR	Climate Action Reserve
COP	Compliance Offset Protocol
CO ₂ e	Carbon Dioxide Equivalent
eoRP	End of Reporting Period
GHG	Greenhouse Gas
HWP	Harvested Wood Products
ICS	Initial Carbon Stocks
IFM	Improved Forest Management
OMM	Offset Material Misstatement
OPR	Offset Project Registry
OPO	Offset Project Operator
OPDR	Offset Project Data Report
PP	Project Participants
QCE	Qualified Conservation Easement
ROCs	Registry Offset Credits
RP	Reporting Period
RPF	Registered Professional Forester
S&A	S&A Carbon
T	Metric Tonnes
TC	Technical Consultant
THP	Timber Harvest Plan

1 Introduction

S&A Carbon (S&A) has been contracted by the Usal Redwood Forest Company to verify the emission reductions generated by the Usal Redwood Forest IFM (the Project). The verification process is required by the California Air Resources Board Compliance Offset Protocol for U.S. Forest Protocol (November 14, 2014) and Title 17, California Code of Regulations, Article 5. S&A verification activities began on 4/7/2023. This report presents the findings from the verification the project's greenhouse gas (GHG) emission reductions/enhancements.

The Offset Project Registry (OPR) for this project is the Climate Action Reserve (CAR) listed as CAR1139/CAFR5281.

2 Project Overview

2.1 Description of Project

The Usal Redwood Forest IFM is an Improved Forest Management project consisting of 47,982 acres in Mendocino County, California. The Project is owned by the Usal Redwood Forest Company LLC, and is an Early Action project that was initially registered under the Climate Action Reserve's Forest Project Protocol Version 3.2. The Usal Redwood Forest IFM Project has since transitioned to the Compliance Protocol.

Upon acquisition of the property, Usal Redwood Forest Company (URFC) changed the management goals for the property to that of a working community forest whereby the property's environmental attributes will be maintained and restored over time while providing economic benefits to the local community in terms of jobs, property taxes and forest products.

Commercial harvesting is planned within the Project Area. The conservation easement placed a restriction on the entire property limiting conifer harvest volume removals to no more than 2.9% of total standing conifer inventory volume on an annual average basis over the length of each consecutive, non-overlapping 5-year period. The conservation easement also requires that the Redwood Usal Forest be managed under a third party. The Project is certified under the Forest Stewardship Council (FSC) currently.

The Usal Redwood Forest is a wholly owned subsidiary of the Redwood Forest Foundation and is managed as a community forest for multiple environmental, social and economic purposes. The Foundation acquired the property in June 2007 and immediately made significant changes to management that have and will continue to sequester carbon. These include:

- Prohibiting forest subdivision or conversion;
- Creating management standards that precluded industrial harvest;
- Completing watershed restoration projects; and
- Choosing to forgo any harvest during the recessionary period (2008-2012) as opposed to increasing harvest to meet economic objectives.

To achieve its goals as described above, the Usal Redwood Forest has developed a long range growth and harvest scenario that meets the terms of the recorded conservation easement while ensuring an economic return from the forest while at the same time increasing carbon stocks over time. This projected harvest scenario includes harvest levels significantly lower than those forecasted under the baseline harvest scenario described herein.

Date Description	Date
Offset Project Commencement Date	6/13/2007
Crediting Period	1/1/2015 – 12/31/2039
Reporting Period 8	1/1/2022 – 12/31/2022
Verification Start Date	4/7/2023

2.2 Offset Verification Services Scope and Criteria

The scope of the verification is to assess the Project's conformance with the ARB US Forest Projects Compliance Offset Protocol (COP) and other references cited below, for the eighth reporting period.

This verification included an assessment of the project's conformance with the standard criteria. The scope follows the pertinent reporting and verification requirements in COP sections 9 and 10. The verification assessed the project with respect to the data presented in the Offset Project Data Report (OPDR). This is a less-intensive, desk-based verification (without a site visit) of the eighth reporting period (1/1/2022 – 12/31/2022).

Specific verification tasks include:

- Verifying that actual monitoring systems and procedures are in compliance with COP;
- Evaluating the GHG emission reduction/enhancement data and express a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction/enhancement data is free from offset material misstatement of asserted emission reductions/enhancements; and
- Verifying that reported GHG emissions data is sufficiently supported by evidence.
- Verifying the project in accordance with the verification guidelines outlined in the Regulation and the COP

The criteria for the offset verification services are:

- Title 17, California Code of Regulations, Article 5, Subchapter 10, Sections 95800 to 96022 (Regulation), April 1, 2019
- Technical Guidance for Offset Verifiers: Verification of Offset Project Data Reports, October, 2013
- Guidance for Verifying Forest Carbon Inventories, September 9, 2013
- ARB Compliance Offset Program, U.S. Forest Offset Protocol, Frequently Asked Questions, October 2013
- Compliance Offset Protocol U.S. Forest Projects, November 14, 2014

2.3 Verification Objective

The purpose of this report is to document the verification process and to assess the Project's conformance with the California Air Resources Board (ARB) criteria listed above. The Offset Project Operator (OPO) for this project is Usal Redwood Forest Company. US Forest Capital (USFC) and North Coast Resource Management (NCRM), hereafter referred to as the Technical Consultants (TC) provided project development support to the OPO.

2.4 Materiality

The verification team must state with reasonable assurance that the total reported GHG emission reductions and removal enhancements are no more than a 5.00% overstatement of the “true” GHG emission reductions and removal enhancements, as calculated by the verifier using the equation below (§95977.1(b)(3)(Q)). The analysis must consider all discrepancies, omissions, or misreporting, for the subset of data included in the data checks.

$$\text{Percent error} = \frac{[\sum \text{Discrepancies} + \sum \text{Omissions} + \sum \text{Misreporting}] \times 100\%}{\text{Total Reported Emission Reductions and Removal Enhancements}}$$

2.5 Level of Assurance

S&A Carbon provides reasonable assurance that the Project meets ARB criteria.

2.6 Findings

Throughout the verification, findings were recorded by the verification team as per verification guidance outlined in the COP and supporting documents cited above. Any discrepancies, omissions, or misreporting identified by the verification team were documented in the Issues Log (§95977.1(b)(3)(O)). The Issues Log was submitted to the OPO. Prior to completion of the verification, all identified non-conformances were required to be addressed, and correctable errors were required to be corrected. The OPO submitted additional evidence for S&A’s evaluation for conformance. The OPO corrected all correctable issues. The Issues Log and the Verification Report are shared with the OPO, the S&A verification team, and the OPR.

Specific details regarding document delivery dates, general descriptions and associated file names are found in Appendix A of this report. Some of these documents have been revised during the course of the verification; only the final versions are listed in Appendix A.

3 Summary of Reporting Period ROC’s

During the verification process, the S&A verification team gathered evidence to evaluate the project design, the project implementation, and assess the accuracy of the GHG assertion associated with the reporting period.

After review of all project information, procedures, calculations, and supporting documentation, S&A confirms that the project reporting is accurate and consistent with all aforementioned criteria and requirements in the COP and the Regulation. S&A confirms all verification activities, including objectives, scope and criteria, level of assurance, and project documentation adhere to the COP. S&A concludes without any qualifications or limiting conditions that the Project (CAR1139/CAFR5281) meets the requirements of the ARB COP and Regulation.

S&A has verified the OPO’s GHG assertion of **256,015 tCO₂e** for the Reporting Period of 1/1/2022 – 12/31/2022.

	Total ROCs (Q _{ry}) (tCO ₂ e)	Total ROCs to Buffer Pool (tCO ₂ e)	ROCs net (Q _{ry after buffer}) (tCO ₂ e)
Total for RP8	256,015	49,248	206,767

4 Verification Methodology

4.1 Verification Team

Role	Name
Lead Verifier	Alexa Kandarlis
Independent Reviewer	Kyle Silon
Biometrician	Elizabeth McGarrigle
California RPF	Thomas Blair (CA RPF #2607)

4.2 Description of the Verification Process

S&A submitted a proposal to USFC for the ARB verification of the Project on 1/23/2023. The OPO selected S&A as the Verification Body. Notice of Verification Services and Conflict of Interest (NOVS/COI) forms were initially filed with the OPR (CAR) and ARB on 3/27/2023. The COI and NOVS forms were approved on 3/30/2023. Verification activities began on 4/7/2023.

A kick off conference call was held on 4/7/2023. Attendees of the meeting included members of the OPO, TCs (USFC & NCRM), and the verification team. The project team and verifiers discussed high-level questions related to the reporting period after submission of initial documents, targeting aspects of the OPDR that might affect the desk review.

The verifiers reviewed the initial documents submitted by the OPO to prepare the Issues Log. The verifiers also assessed the eligibility criteria required to design, measure, and monitor the Project to the requirements of the COP and the Regulation (See §95977.1(b)(3)(D)(2)(a)-(e), and §95977.1(b)(3)(D) (2)(f)-(i)). Verifiers confirmed that these eligibility requirements were met. The Verification Plan was completed.

A draft Sampling Plan was prepared based on information available from the OPO. The Sampling Plan considers the requirements of §95977.1(b)(3)(G)(1)) and evaluates the credibility and rigor of these methodology items. A risk evaluation was conducted assessing the size (both in area and carbon storage) of the GHG reservoirs. The final Sampling Plan summarizes the results of the sampling and the data checks performed on the sampled data.

As required by §95077.1(b)(3)(K), the Sampling Plan will be retained by S&A for a period of not less than 15 years following the submission of the Offset Verification Statement. All material received, reviewed, and generated by the provision of offset verification services will be retained by S&A for the same period.

The verification process included exchanges between S&A and the OPO, in order to gather additional information for review and examination. These exchanges included two rounds of an Issues Log by S&A to which the OPO was required to respond. The Issues Log is a confidential document, available under separate cover. With responses to the issues as well as supplementary information, S&A was able to close all issues and render a positive verification opinion. Verifiers confirmed in an email dated 6/27/2023 to the OPO that all remaining issues were satisfied in the responses to the final Issues Log.

S&A auditors drafted the Verification Statement and Verification Report and presented it for Independent Review, which determined the Verification Statement to be justified based on the project documentation and verification assessment. The Verification Report and Verification Statement were then presented to the OPO for review and comment on 6/30/2023. A final call to close the verification was held 6/30/2023. Members of the verification body and the OPO were present on the call. Upon approval from the OPO, S&A uploaded the Verification Report and Verification Statement to the OPR website for registry review.

5 Verification Findings

Please note, non-conformances or observations identified during the verification are included in the Issues Log. All findings related to the verification team's review of evidence submitted by the OPO are included within this verification report and the final Issues Log. Data checks for many items are available in the verifier's data check log.

5.1 Project Eligibility and GHG Assessment Boundary

COP § 2.1.2, 2.2

The Usal Redwood Forest IFM is an Improved Forest Management project consisting of 47,982 acres in Mendocino County, California. The Project is owned by the Usal Redwood Forest Company LLC, and is an Early Action project that was initially registered under the Climate Action Reserve's Forest Project Protocol Version 3.2. The Usal Redwood Forest IFM Project has since transitioned to the Compliance Protocol.

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projected harvest scenario includes harvest levels significantly lower than those forecasted under the baseline harvest scenario described herein.

Verifiers confirmed the project ownership based on reviewing the project deeds, conducting interviews with the OPO about land ownership; and reviewing publicly available data online. Verifiers also georeferenced the project area shapefile with PLSS spatial data to assess the accuracy of the GIS project boundary. Verifiers confirmed that the project area correlates reasonably well with the delineated GIS project boundary.

Sources used by the verifiers to assess the percentage of tree canopy included reviewing the latest, publicly available aerial imagery (NAIP 2022 orthophotographs) and project documents (maps and geospatial data), as well as onsite observations from the previous full verification. Imagery used by verifiers is comparable to a map submitted by the OPO. Based on this imagery and previous site visit observations, the verifiers confirm that the project property exhibits greater than 10% tree canopy.

The forest types are native to the area and are comprised of multiple ages and mixed species. The Sustainable Harvesting Practices criteria are met through the first option in the COP- the property maintains a Forest Stewardship Council (FSC) certification, and has since Project commencement. Based on discussions with the OPO/TC, and onsite observations from the previous full verification, the project does not use broadcast fertilization. The OPO attests that no broadcast fertilization has been or is being employed.

This project transitioned to the COP from CAR730 (CAR IFM protocol 3.2). Verifiers confirmed that credits listed in the OPDR and issued prior to the transition agree with information submitted as part of the voluntary project verification.

According to the OPDR, management activities that will lead to increased carbon stocks in the project area compared to the common practice baseline scenario include, but are not limited to, uneven-aged silvicultural practices, and limiting harvest volumes. The OPO has, since purchase, transferred a conservation easement, become FSC certified, and developed management plans to restore historic levels of conifer stocking. These are eligible activities under COP §2.1.2.

The OPO attested that all project documentation and reports that reference carbon stocks have been reviewed by a Professional Forester, in this case, a staff member of the TC (Jim Clark), who is a CA RPF (#2528). Verifiers confirmed the good standing of this individual's certification through a check of Certified Foresters on the Government of California Forestry/Fire Protection website.

The verifiers uncovered no evidence that the Project was previously listed as an Early Action project or as a forest project under any other voluntary or compliance protocol by checking the following registries:

- VERRA (<http://www.vcsprojectdatabase.org/>)
- American Carbon Registry (<https://acr2.apx.com/myModule/rpt/myrpt.asp>)
- Climate Action Reserve (<https://thereserve2.apx.com/myModule/rpt/myrpt.asp>)
- Clean Development Mechanism (<http://cdm.unfccc.int/>)

Verifiers also checked these registries for evidence of any ARB compliance offset projects that occurred within this same project area. The Climate Action Reserve is the only registry that lists the current project (CAR1139/CAFR5281). No evidence of double counting was found.

COP § 3.1, 3.1.1, 3.1.2

The Project is not mandated by any law, statute, or regulation, and verifiers found no evidence to the contrary. The verifiers conclude with reasonable assurance that the Project offset credits generated are additional to any laws and regulations and exceed a conservative baseline scenario.

An Improved Forest Management Project automatically satisfies the performance test.

COP § 3.2

The Early Action Offset Project commencement date was 6/13/2007, which is the date when the underlying property was purchased by the OPO. The OPO provided evidence of a Title Insurance Policy dated 10/27/2011, a date which is coincident with the transfer of a Conservation Easement on the project property to The Conservation Fund, subsequently transferred to the State of California.

COP § 3.3, 3.4

The Project Crediting Period for offset projects using the COP is 25 years. The crediting period is coincident with the start of the initial compliance reporting period, 1/1/2015, and ends no later than 12/31/2039. This eighth reporting period includes 1/1/2022– 12/31/2022. The OPO will monitor the forest carbon stocks for a period of 100 years following the last year of the issuance of any offset credits. These assertions are made in the listing and OPDR documents.

COP § 3.5

No Qualified Conservation Easement is in place on this property. This was confirmed by the OPO in the OPDR. The Conservation Easement applicable to the project area was reviewed by verifiers and is not considered a qualified conservation easement.

COP § 3.6

The project land is privately owned and located within the jurisdiction of Mendocino County, in the State of California, and in the United States of America. According to the OPDR no tribal interests or land ownership are documented within the project area; Centroid latitude and longitude coordinates are approximately 39.9108° and –123.8599°, respectively. The Usal Redwood Forest IFM Project Area as well as much of the surrounding land is utilized for timber production, recreation, agriculture, and rural residential uses. Land pressures associated with these uses are typically conversion of timberland to home sites and fragmentation of larger blocks into smaller tracts. With recordation of the Conservation Easement the Usal Redwood Forest ownership has been merged into a single parcel, cannot be subdivided, and the residential development rights have been extinguished. The Project Area consists of both Maritime & Mediterranean climates influenced by the proximity to the Pacific Ocean and topography. Summers are mild and winters are mild and wet. Temperatures range from an average of low of 32° F in January to an average high of 85° F in August. Average annual rainfall for the property is approximately 60" per year.

COP § 3.7

In the listing document and OPDR, the OPO attests that the project is in compliance with all applicable laws.

The following laws and regulations were reviewed with the OPO/TC during the verification and with stakeholder contacts as part of the desk review:

- National Wild and Scenic Rivers Act

- Endangered Species Act (ESA)
- Clean Water Act
- California Z'berg-Nejedly Forest Practice Act (1978) (FPA)
- California Forest Practice Rules (FPR)
- California Environmental Quality Act
- Porter-Cologne Water Quality Control Act
- California Endangered Species Act
- California Timberland Productivity Act (1982)

The verifiers confirm that the project is compliance with these local, state and federal laws, requirements and regulations for the reporting period in question.

COP § 3.8.1, 3.8.2

Native Species

The OPDR states the project area is comprised of 100% native species. Based on the OPO's supporting calculations for the percentage of standing live basal area by species, for the 2014 inventory, approximately 100% of the species in the project area are native to the region (confirmed by the team Registered Professional Forester). The verifiers calculated similar values using the individual tree data provided confirming the percentage of native species is meets the 95% or greater COP criteria.

The OPDR's calculations show that composition of the native species within the project area is mixed; no single species exceeds the species diversity index for the assessment areas. The verifiers reviewed the calculations for relative species distribution and confirmed that no species exceeds 60% depending on strata, by basal area. The maximum concentration is in tanoak at 36.5%.

Sustainable Harvesting Practices

The Usal Redwood Forest is Forest Stewardship Council (FSC) certified as of April 2014. FSC certification is a third-party forest management program that will be used to meet the sustainable long-term harvesting requirements per the Forest Project Protocol for this initial and future reporting periods. The Forest Owner owns no other forestland within the Assessment Area covered by the Project Area. After confirming that the property remains under FSC certification for RP8 the verifier team can be reasonably assured that the Usal Redwood Forest Project has met the requirement for sustainable long-term harvesting for the reporting period by satisfying the first option under Section 3.8.1 of the Compliance Offset Protocol.

Age-class distribution

As the Project Area is larger than 10,000 acres, the Project Area has been split by CALWATER planning watersheds in order to determine compliance with the COP requirement. The Project is located within 20 CALWATER planning watersheds comprising of the South Fork Eel River and Usal Creek watersheds with a relatively small area drained by Cottaneva and Jackass Creeks. According to the OPDR and the associated supporting calculations, currently no more than 40% of the forested area in each watershed described above is less than 20 years in age. This is the primary basis for the OPO's assertion that the Project is in conformance with the age class distribution requirements of the COP. This was further supported through verifier review of the Project area using recent aerial photographs, and through forest age class observations made during the site visit for the previous full verification.

Structural Elements

The natural forest management criteria require structural elements, in the form of standing and lying deadwood, are retained in ecologically sufficient quantities in the project area. The COP requires projects to demonstrate the higher of either: 1) at least 1% of standing live carbon stocks in standing deadwood or 2) at least one metric ton, on average, of deadwood per acre, or progress towards that goal.

At the end of the reporting period (12/31/2021), the OPO's value for the actual onsite carbon for standing dead wood within the entire forested project area was 235,369 tons of CO₂e, or 1.34 metric tons of carbon per acre (equivalent to 1.6% of standing live carbon). The verifiers calculated similar values.

Both the OPO and verifiers found the standing dead wood quantities, both in terms of metric tons of carbon or percent of standing live carbon, meets the required threshold values established in the COP §3.8.2.

Requirements of COP §3.8.1/3.8.2 are satisfied.

COP § 3.8.3

Since the Project start date, the OPO's Project monitoring worksheet shows no decrease in standing live carbon stocks. Verifiers confirmed that these calculations are correct.

COP § 3.8.4

The intent of this section of the COP is to limit the regeneration harvests in even-aged management systems to stands no greater than 40 acres. Harvested stands must also meet certain criteria for age or regeneration height in adjacent stands. Based on GIS information provided by the OPO, none of the approved treatments are classified as even aged, and as confirmed by verifiers' review of public CALTREES data (Timber Harvest Plans). Verifiers onsite observations for the previous full verification were also confirmed by the team RPF to be consistent with the treatment description. Verifiers can thus be reasonably assured that the project complies with the intent of COP §3.8.4.

COP § 4

The OPO has submitted OPDR map appendices for the Project area. Geographical coordinates are included in Part V of the OPDR. A description of the assessment areas encompassing the project is included in OPDR Part V (A) as well as the determination of the project area in section B. Present and historical land cover/land use, forest vegetation type, land pressures, climate zone descriptions, site class, zoning and project land use are also described in this section (as addendums) of the OPDR. GIS shape files were provided. See Section 5.2 (below) for the verifiers review for the determination of site class for the project area. The verifiers confirmed that the information provided above complies with the requirements of the COP (§4 & §9.1.1.1 (15) (a-l)).

Verifiers conducted a cursory review of the depictions of physical boundaries and stand typing (stratification) of the project area by overlaying the associated shapefiles with recent aerial photography. All verifier checks against both property boundaries and stand typing confirmed the accuracy of these data.

COP § 5.2

The following SSRs (OPDR Table 8) were reviewed for inclusion in the Offset Project Boundary:

Project: IFM-1, IFM-3, IFM-7, IFM-8, IFM-14, IFM-17
Baseline: IFM-1, IFM-3, IFM-7, IFM-8, IFM-17

All appropriate SSRs are included. IFM-6 is excluded from the project and baseline because the conditions in Table 5.2 (COP) that would require inclusion of this pool (deep ripping, furrowing, or plowing where soil disturbance exceeds 25% of the Project Area, or mechanical site preparation that is not conducted on contours) are not planned. Likewise, IFM-9 is excluded as site preparation is not expected to occur on more than 25% of the project area over the project life, nor is mechanical site preparation expected to be conducted on contours.

5.2 Inventory Methodology

COP Appendix A.1

The forest types and land use patterns within the project area are described in the OPDR, Addendum A, V (F-H)

A check against the ARB assessment area map confirms that the entire project area is in the Northern California Coast Supersection. The species evident on the property and in the inventory confirm appropriateness of the choice of the assessment areas. The site class calculations for each assessment area are based on an analysis of Douglas fir site index. The site class calculations area described more fully below. Soils data were retrieved from the USDA NRCS site and support site class values. The common practice calculation for the project remains unchanged since the initial verification.

Finding for COP Appendix A.3, item 2

The OPO conducted a full forest carbon inventory within the project area in 2015, and revisits a subset of plots each year, including any plots falling in areas that have been impacted by harvesting activities. The reasonableness of the stratification scheme was confirmed, and found to be based on a combination of composition and biomass, both relatively simple to implement and representative of the supersection. The categories were found to also allow for acres by strata to change as stand grow and/or are harvested. The method of assigning biomass break points using ArcGIS quartiles (natural breaks) was found to be reasonable and balanced acres across the classes.

According to documentation provided for by the OPO, several additional steps were taken to update Usal Redwood Forest's carbon project GIS stratum layer and inventory database to account for timber harvests that occurred during URFC's IFM RP8. Verifiers performed checks on the maps, shapefile, and intersects of the procedures used to update the Inventory/Stratification for RP8 due to harvesting in 2022 and found them to be in conformance with the procedures described in the original inventory specs provided for the verification. These can be found in the verifier's data check log. The area was stratified into 8 types:

- Conifer High
- Conifer Medium High
- Conifer Medium Low
- Conifer Low
- Hardwood High
- Hardwood Medium High
- Hardwood Medium Low
- Hardwood Low

As part of the desk review, verifiers reviewed tree lists, plot data, aerial imagery, GIS stand/strata assignments, and carbon plot summaries. The strata assignments were additionally confirmed by the verifiers during the previous full verification site visit for those plots verified and during travels throughout the project area. The verification team RPF confirmed that the strata assignments are reasonable and correspond to the assessment area descriptions noted for the specified supersection.

Detailed inventory procedures and specifications are described in the URFC Inventory Methodology document. Verifiers confirmed that these processes were a) in conformance with USFS and other generally accepted professional standards; and b) effectively followed by the inventory crews during the previous full site visit verification.

The inventory consisted of the installation of 354 plots across the project area, with plot locations having been determined from a random selection of plots from a 5 chain by 5 chain grid that uniformly covers the entire Project Area which is described in the Inventory Methodology document. Verifiers found the inventory design met the intent of the requirements for this section of the COP.

Finding for COP Appendix A.3, item 3

Attachment K of the OPDR contains details about the modeling process and also the methods used to calculate live and standing dead carbon stocks. The processing methods are thorough, systematic, and follow the COP guidance for projects within California, Washington and Oregon. Verifiers performed numerous data checks on the OPO's application of these techniques, including the calculation of carbons stocks from inventory data as required by the protocol. The verifier calculations agree with the OPO calculations within a close tolerance.

Finding for COP Appendix A.3, items 4-8

Original inventory data were collected by Campbell Global using field sheets/plot cards and data recorders and then processed with proprietary software by NCRM (carbon stock calculations/reporting). Additional check cruising and inventory updates for harvest and growth throughout RP1-8 were conducted by NCRM.

During the site visit held for the full verification of RP7, verifiers had various discussions with NCRM staff regarding the inventory process including measurements, procedures, data management, processing and tracking and reporting. Verifiers also asked NCRM staff to provide descriptions of the sampling methodologies for specific situations at plots along with requests to measure tree diameters and/or heights in order to assess the contractors' understanding of the inventory specifications and technical competency. Verifiers acknowledge that NCRM staff were highly experienced, familiar with the region's forests and management, and understood the inventory protocol.

NCRM performed check cruising during the commencement of data collection to evaluate the cruisers' compliance with all protocols of the cruise; to ensure data was collected accurately and consistently; and to identify and resolve any issues relating to missing data, misunderstandings, or inconsistencies/bias. All inventory plot data collected was proofed and the check cruising occurred systematically throughout data collection. No systematic errors were reported.

The processing of inventory measurements into estimates of volume and carbon occurs in a sophisticated, custom system developed by NCRM, primarily in an MS Access database. NCRM validates, processes, and maintains inventory data. These systems were found to be sufficiently detailed, with appropriate internal controls, to meet the standards set forth by the protocol and by

the profession of forestry. Details of the data management and analytical systems are provided in Attachment K and M of the OPDR. All procedures described in various process documents were confirmed to have been followed. A change log has been provided that documents changes to inventory procedures and data processing throughout the Project. Procedures for updating the inventory and estimates of future period stocks are provided in an Addendum to the Annual OPDRs.

The verifiers concluded the data management and processing systems are adequate to ensure the integrity, accuracy, and transparency of the GHG data. These systems are also appropriate for maintaining and storing forest management records and has the management policies in place to provide accurate information effectively and efficiently for project reporting. The TCs and OPO back up data on a regular basis. The OPO attests to having systems and procedures in place that will ensure retention of required documents for a period of at least 15 years.

The entire inventory data set (grown forward to the end of reporting period 8) was also analyzed using the verifier's carbon calculation tool. The total estimate of IFM1+IFM3 for the inventory calculated by the OPO/TC was lower than the verifiers' calculation using that same inventory data by 458 tCO₂e, over a total of 15,142,587 tCO₂e (approximately -0.003% difference).

Based on these assessments, the verifiers conclude the procedures for inventory methodology, data processing, and data management for on-site carbon stocks are sound. Supporting documentation on the data checks performed in this section is available in the verifiers' data check log and within the Issues Log.

Finding for COP Appendix A.4

The sampling error was recalculated based on the verifier calculations and was identical to the OPO's calculation (OPO: 3.73%; VB: 3.73%). The appropriate confidence deduction is calculated as 0.0% and applied correctly in the Carbon Estimate Calculation worksheet.

5.3 Project Carbon Stocks

COP §6.2.4

Since the project start date, previous project monitoring and verification reports suggest no decrease in standing live carbon stocks. The verifier team also reviewed recent aerial imagery that confirms no recent harvesting, reversals, or natural disturbance are evident that might suggest a decrease in standing live stocks.

The full carbon inventory grown to the end of RP8, and the verified biomass equations were used to calculate the onsite carbon stocks for the end of the reporting period. Average carbon stock by strata was used to produce weighted total Onsite Carbon Stocks. The two primary carbon pools for the initial and the reporting period stocks, IFM 1 and IFM 3, are reported in the OPDR, respectively. The verification can also confirm, as reported in Section 2 above, that the OPO conducted all calculations according to the protocol and found close agreement with the OPO estimates of initial stocks. OPDR reporting is consistent with the estimates shown in the supporting workbooks.

Additional information supporting the OPO's compliance with the COP's Appendix A.3, items 4-7 has been included in the inventory methodology section of this report (above).

Verifier data checks confirm: (1) the appropriate use of these equations; (2) the appropriate tree and plot level data was utilized; and (3) that the ICS estimates, in total, are very similar to verifier calculations. OPDR reporting is consistent with the estimates shown in the OPDR workbook. Additional review of the methods and results of the carbon stock inventory are provided above.

COP § 6.2.5

The process of determining actual carbon in harvested wood products is described in OPDR, and the actual carbon in harvested wood products was verified to agree with the values given in the harvest settlements and mill slips provided by the OPO. The OPO filled out the HWP calculation worksheet to determine the storage rates for baseline and project harvested wood products and used actual product proportions, based on ARB default values. These calculations were checked and confirmed.

COP § 6.2.6

Equation 6.10 of the COP was used correctly to quantify the secondary effects of the project. Twenty percent of the difference between the actual onsite carbon harvested and the baseline carbon harvested is noted in the OPDR. The verifier checked the calculation of the built-in equations in the OPO/TC's Carbon Estimate Workbook and confirm that it is correct.

5.4 Calculation of GHG Reductions and Removals

COP § 6

The OPO/TC's Carbon Estimate Calculation worksheet serves as the implementation of COP equation 6.1. This document accounts for project and baseline stocks, project and baseline HWP, HWP storage, secondary effects, buffer pools and any reversals. All data entered by the user into this workbook is consistent with supporting documents. Calculations embedded in the worksheet were recalculated and checked by the verifier. These checks are available in the verifier's data check log.

5.5 Reversal Risk Rating

Finding for COP Appendix D

The table below presents the verifiers' findings pertaining to the Project's Reversal Risk Rating, following the guidance in the COP Appendix D. The verifiers concur with the assessment offered in the OPDR section VII(E) and found that it complies with the protocol guidance for each risk type. The table summarizes the evidence used to support each risk level.

Risk Type	Conform	Finding	OPDR	Verif. Check
Financial	Y	Default	5%	5%
Management: Illegal removal of forest biomass	Y	Default	0%	0%
Management: Conversion of project area to alternate land use	Y	Default (No QCE)	2%	2%
Management: Over-harvesting	Y	Default (No QCE)	2%	2%
Social	Y	Default	2%	2%
Natural disturbance: Wildfire	Y	Default	4%	4%
Natural disturbance: Disease or insect outbreak	Y	Default	3%	3%

Risk Type	Conform	Finding	OPDR	Verif. Check
Natural disturbance: Other episodic catastrophic even	Y	Default	3%	3%
Cumulative Risk	Y		19.24%	19.24%

6 Summary Table of Data Checks -- § 95977.1(b)(3)(L)

A summary of selected data checks for project are provided below. The assigned ranking reflects both the size and uncertainty associated with these SSRs. These and other data checks performed along with narrative details of the check and results are included in the verifiers data check log.

SSR (rank)	Data reviewed	Reported (OPO) tCO ₂ e	Calculated (VB) tCO ₂ e	Discrepancy tCO ₂ e	Impact on misstatement/conformance
	Checks performed				
Rank 1 Project stocks IFM1, IFM3 inventory & grown ahead; end of RP8 (AC _{onsite, end RP})	Inventory, volume and biomass estimates, grown modeling results, grown tree list. Carbon calculations on inventory. Model appropriateness and use. Data systems.	15,142,587	15,143,045	(458)	Impact on OMM
	Model performance against independent benchmarks. Checks of accumulations and correct transfer to OPDR				
Comment: Discrepancy due to slight difference in strata means and rounding values.					
Rank 2 Project stocks IFM1, IFM3 inventory & grown ahead; beginning of RP8 (AC _{onsite, end RP})	Inventory, volume and biomass estimates, grown modeling results, grown tree list. Carbon calculations on inventory. Model appropriateness and use. Data systems.	14,833,452	14,833,452	0	No impact on OMM
	Model performance against independent benchmarks. Checks of accumulations and correct transfer to OPDR				
Comment: NA					
Rank 3 Baseline stocks IFM1, IFM3 (BC _{onsite, end RP})	OPDR and supporting modeling documents, web-based review of methods. Model appropriateness and use. Data systems.	9,984,928	9,984,928	0	No impact on OMM
	Model calibration. Model performance against independent benchmarks. Checks of accumulations and correct transfer to OPDR				

Comment: NA					
Rank 4 Quantified GHG removal enhance- ments (QR _{end RP})	OPDR, supporting worksheets	256,015	256,015	0	No impact on OMM
	Checks that all OPO entries are correct. Check sources. Checks that calculations within the worksheet are correct. Calculation check uses OPO values.				
Comment: NA					
Rank 5 IFM7 Project HWPs, end RP8 (AC _{wp,end} RP)	OPDR, supporting worksheets	1,534	1,534	0	No impact on OMM
	Trip Tickets and Mill Receipts, HWP worksheet Confirm model projections and sums. Correct use of HWP worksheet				
Comment: NA					
Rank 6 IFM7, IFM8 Baseline, end RP8 (BC _{wp,end} RP)	OPDR, supporting worksheets	35,999	35,999	0	No impact on OMM
	Model results, HWP worksheet Confirm model projections and sums. Correct use of HWP worksheet.				
Comment: NA					
Rank 7 Secondary Effects (SE _v)	OPDR, supporting worksheets	(25,868)	(25,868)	0	No impact on OMM
	Confirm model projections and sums. Correct use of HWP worksheet				
Comment: NA					
Rank 8 Confidence Deduction (CD _{end RP})	OPDR, supporting worksheets	0.0%	0.0%	0	No impact on OMM
	Use OPO data for initial stocks; checks the calculation of CD was done correctly. Recalculated from initial inventory.				
Comment: NA					
Rank 9 Buffer Pool and Risk Rating	OPDR, calculation workbooks, supporting documents.	49,248	49,248	0	No impact on OMM
	Checks that all OPO entries are correct. Check risk rating and calculations have been calculated correctly.	19.24%	19.24%		
Comment: NA					

7 Offset Material Misstatement -- § 99577.1(b)(3)(O)

The verification team must state with reasonable assurance that the percent overstatement of the OPO's total reported GHG emission reductions and removal enhancements is no more than a 5.00% overstatement of the "true" GHG emission reductions and removal enhancements, as calculated by the verifier using the equation below (§99577.1(b)(3)(Q)). The analysis must consider all discrepancies, omissions, or misreporting, for the subset of data included in the data checks. Any omissions, discrepancies, and misreporting errors are identified separately in the table above.

$$\text{Percent error} = \frac{[\sum \text{Discrepancies} + \sum \text{Omissions} + \sum \text{Misreporting}] \times 100\%}{\text{Total Reported Emission Reductions and Removal Enhancements}}$$

$$\text{Percent error (OMM)} = \frac{[-458+0+0] \times 100\%}{256,015} = -0.18\%$$

Total discrepancies, omissions and misreporting*	Total RP emission reductions (before buffer pool) $QR_{\text{end RP}}$	Calculated OMM %
(458)	256,015	(0.18%)

*Note: In this column, a positive value represents *over-reporting* by the OPO.

The percent OMM is 0.18%, *under-reporting*. Therefore, the project is less than the threshold of 5.00% over-reporting for the offset material misstatement.

Appendix A: Reference List

OPO Documents

Document Description		Filename
OPDR	Annual	Usal Redwood Forest Annual OPDR RP8 V1.1.2.1_signed.pdf
	Initial	Usal Redwood Forest IFM Initial OPDR V1.3 11_14_2016.pdf
Calculation Workbooks	Monitoring Calculations	Usal Carbon Estimate Verification RP8 V1.1.2.xlsx
Inventory	Inventory Methodology	URFC Inventory Methodology 08_16_2022 Data Collection Procedures.pdf
	QAQC	Usal Redwood Forest Carbon Inventory QA_QC Procedures.pdf
	Change Log	URFC Inventory Methodology 8_16_2022_Inventory_Change_Log.pdf
Modeling		Usal Database Guide RP8.pdf Usal_Carbon_RP7_V2_FSE.accdb Usal_Carbon_RP8_Grown_FSE.accdb Usal_Carbon_RP8_V1_1_CAR31v11B.accdb Usal_Carbon_RP8_V1_FSE.accdb UsalCarbonCruise_2015UsalCarbonCruise_01-35_03112015_DMMerged.accdb
Spatial Data	Project Area/Stratification	Project_2022.shp
	Plot Grid	Plots_5x5_strata.shp

		Plots_5x5_TSI_2022.shp
	Harvesting	Project_2021_Harvest_Intersect.shp urfc_thp.shp Plots_5x5_strata_2021_harvest.shp
	Roads	Roads.shp
	Watercourses	Streams.shp
Harvested Wood Products		2022Q3_Q4_URFC-ScaleTicketTracking.xlsx Scale Tickets.zip
Conservation Easement		Usal-CE(SIGNED FINAL)-101111.pdf
Forest Management Plan		Usal_Forest_Management_Plan_2015.pdf

Verifier Documents

Document Description	Filename
COI	CAFR5281-RP8_COI.docx
Data Check Log	CAFR5281-RP8_datachecklog.xlsx
Issues Log	CAFR5281-RP8_Issues Log_v2.0-20230627-Closed.docx
NOVS	CAFR5281-RP8_NOVS.docx
Sampling Plan	CAFR5281-RP8_SamplingPlan.docx
Verification Plan	CAFR5281-RP8_VerificationPlan.docx

Interviews

The following is a list of the people interviewed as part of the verification. The interviewees included those people directly, and in some cases indirectly, involved and/or affected by the project activities. The training and qualifications of the OPO and TCs was confirmed by referencing bios for the team on the respective company websites: <https://www.usalredwoodforestcompany.com/>, <http://www.usforestcapital.com/>, www.ncrm.com. The verification team also confirmed these qualifications during interviews with the team on the site visit.

Date	Name	Title
Throughout verification	Jim Clark	President, NCRM
Throughout verification	Tom Tuchmann	President, USFC
Throughout verification	Linwood Gill	Chief Forester, Usal Redwood Forest Company
8/8/2022*	Al Klem	CALFIRE, Conservation Easement monitoring
7/7/2022*	Brendan Grady	SCS Global, FSC auditor

**Interviews took place during the previous reporting period, and are still considered relevant to this current reporting period.*

ARB and OPR Conferences and Communication

Date	Name	Description
None		

Appendix B: Organization Details

Contact Information

OPO	TC	TC	VB
Kathleen Moxon Usal Redwood Forest Company	Tom Tuchmann US Forest Capital	James D. Clark NCRM	Kyle Silon S&A Carbon
90 W. Redwood Avenue Fort Bragg, CA 95437	1130 SE Morrison St #300 Portland, OR 97205	PO Box 537 Calpella, CA 95418	705 SE 55 th Ave Portland, OR, 97215
(707) 498-9502; kathleen.moxon@gmail.com	(503) 220-8103; tuchmann@usforestcapital.com	(707) 485-7211; jimclark@ncrm.com	(971) 235-7835; kyle.silon@saacarbon.com

Appendix C: Project Team

Verification Team	Qualifications
Alexa Kandarlis	Alexa Kandarlis has been with S&A since 2016 and brings experience in carbon auditing and climate change mitigation policy. She is accredited by ARB as a lead verifier under their US Forests protocol and the Ozone Depleting Substances protocol, and by the Climate Action Reserve (CAR) as a lead verifier. Alexa has participated in verifications of carbon offset projects and corporate inventories under a variety of GHG programs, including the Air Resources Board, Climate Action Reserve, American Carbon Registry, Verified Carbon Standard/Climate Community & Biodiversity Standard/Sustainable Development Verified Impact Standard, and Carbon Disclosure Project. In addition to validation/verification, she developed tracking systems for a program registered under the Clean Development Mechanism and registered with the Gold Standard. Alexa is currently responsible for implementation of S&A's corporate management system to ensure ongoing improvement and compliance with ISO requirements. Alexa has field experience with Forestry (AFOLU), Ozone Depleting Substances, and Livestock project types. She holds a Bachelor of Arts in Economics with a focus on natural resource and environmental Economics.
Kyle Silon	Kyle Silon holds an M.S. in Energy and Environmental Economics. He has ten years' experience in climate change mitigation strategies and carbon reduction projects. Prior to founding S&A, he worked for a leading international certification company, specializing in validation and verification of small-scale household energy demand projects (such as cook stove and water filter projects), primarily located in South America, Asia, and Africa. He has participated in numerous verifications of forestry, landfill, and livestock projects, and has worked across all major GHG programs, including the Air Resources Board, Verra, Climate Action Reserve, American Carbon Registry, Gold Standard, and Clean Development Mechanism (CDM).
Elizabeth McGarrigle	Elizabeth McGarrigle holds three forestry degrees (BScF, MScF, PhD). Her work has focused on forest inventory, growth and yield, and forest management planning. Her research focused on examining the impact of uncertainties in the inputs to long term forest management plans when optimization models are employed during the Master's program. While completing her PhD, she was part of the team developing a regional growth and yield model for the Acadian forest in the Northeastern United States and Canada. She developed a stand level model that is used to predict survivor growth, ingrowth, and mortality in the region. As part of her dissertation, she focused on several variants of the Forest Vegetation Simulator and several regional growth and yield models from across Canada and the United States. Dr. McGarrigle is currently working with the provincial government in Nova Scotia Canada as a Forest Inventory Data Analyst where she is responsible for the design and analyses of permanent sample plots. In addition to her work as a biometrician on several ARB forest projects, she has also been involved in research at

Verification Team	Qualifications
	Natural Resources Canada using a fine scale forestry model to assess the impact of climate change on species composition in forest types across Canada.
Thomas Blair	Thomas Blair holds a BS from Humboldt State University, graduating in 1993. He worked with Western Timber Services from 1994 – 1999, which preceded his foundation of Blair Forestry Consulting in 2000. Blair Forestry Consulting is primarily focused on timber cruising and timber harvest plan layout. Thomas has been involved in many carbon projects both as a California RPF (#2607) as well as has worked on carbon projects outside of the state of California.