APPLICATION FOR LISTING AN IMPROVED FOREST MANAGEMENT U.S. FOREST OFFSET PROJECT

OPR Staff Use Only	Date Application Received:	OPR Tracking Number:	Date Application Reviewed:	OPR Staff Use Only

PART I. ENTITY APPLYING FOR LISTING

Is this form being submitted by the Offset Project Operator (OPO) or by the Authorized Project Designee (APD)?

Notes:
1. The person completing this form should be an OPO/APD employee.
2. If the APD is submitting this form, the OPO should submit the form *Designation of Authorized Project Designee* simultaneously.

☒ OPO
☐ APD

Name of Person Completing Form:	Organization, if applicable:	
Edward C. Murphy	Sierra Pacific Industries	
Date Form Completed:	**Phone Number:**	**Email Address:**
4/07/2014	(530) 378-8131	emurphy@spi-ind.com

PART II. OFFSET PROJECT INFORMATION

Offset Project Name:
Buck Mountain ARB002

Offset Project Commencement Date:	First Reporting Period Start Date:	First Reporting Period End Date:
4/1/2012	4/1/2012	3/31/2014

Provide an explanation and justification for the commencement date. Specify the action(s) that identify the offset project commencement date.

In June 2010, SPI's cruising manual requires monumenting two bearing trees for each inventory plot within Forest Projects. The monumented plots shall aid in plot center re-establishment for inventory verification purposes, as well as to support ARB's statistical "paired" plot test. Generally, Buck Mountain's inventory dates back to 2005, and we used those plots and newer plots to model the baseline starting with the growing season of 2012, thus the action was boots on the ground for inventory that led to the action of baseline modeling with a start date of 4/1/2012, thus once baseline modeling is complete that becomes the value upon which SPI can determine how the annual actions in the form of investments in forest thinning, pre-commercial thinning and planting to return and maintain optimum stocking creates a net increase in the rate of sequestration. These actions/investments are matched by the annual management decision and investment in the form of holding otherwise merchantable timber to maintain this increased stocking of carbon on the project area when it is legally permissible to reduce that stock as evidenced by the baseline scenario.

PART III. OPO/APD INFORMATION

A. OPO

OPO Name:			OPO's CITSS ID#:
Sierra Pacific Industries (SPI)			CA 1 5 5 5
Mailing Address:	**City:**	**State:**	**Zip:**
PO Box 496014	Redding	CA	96049-6014
Contact Person:	**Phone Number:**	**Email Address:**	
Edward C. Murphy	(530) 378-8000	emurphy@spi-ind.com	

B. APD (if applicable)

☒ No APD/Not Applicable

APD Name:	APD's CITSS ID#:
	CA _ _ _ _

Submit the information in this form to the appropriate Offset Project Registry

Mailing Address:	City:	State:	Zip:

Contact Person:	Phone Number:	Email Address:

PART IV. LAND OWNERSHIP

A. Is the Offset Project Operator (OPO) the owner in fee for the Project Area?
Further documentation is required for all projects. Submit as attachment labeled "Attachment A." See Part X of this listing document for more information.
If "no," explain how the entity identified as the OPO has the right to undertake and list the project.
N/A

☒ Yes
☐ No

B. List all Forest Owners. This includes owners in fee as well as third parties with existing property interests within the Project Area that affect the trees and standing timber located in the Project Area (e.g. mineral rights, timber rights, easements, rights of way, leases, etc.).
SPI is the fee owner of all lands included in the Forest Project

C. Does the offset project occur on public or private lands?
If the project occurs on public lands, proceed to questions C1 and C2. Otherwise, skip to question D.
Further documentation is required if project occurs on public lands. Submit as attachment labeled "Attachment B." See Part X of this listing document for more information.

☒ Private
☐ Public

1. **Describe the public process that has been used to approve forest management activities and baseline.**
   N/A
2. **Describe the documentation being submitted with this listing document demonstrating approval of planned forest management activities and baseline.**
   N/A

D. Will the project employ a Qualified Conservation Easement (QCE)?
If employing a QCE, proceed to questions D1, D2, and D3. Otherwise, skip to question E.
Supporting documentation for a QCE is required. Submit as attachment labeled "Attachment C." See Part X of this listing document for more information.

☐ QCE
☐ Public Ownership

1. **Date that the QCE was or will be recorded.**
   N/A
2. **Will the project take place in a state that requires third-party beneficiaries to sign the easement (i.e., to "accept and record that acceptance"), such as Arizona, Pennsylvania, or West Virginia?**
   ☐ Yes
   ☐ No
3. **Provide the terms within the easement that affect forest management.**
   N/A

E. Does the offset project occur on any of the following categories of land? (check all that apply)

☐ **Land that is owned by, or subject to, an ownership of possessory interest of a Tribe**
☐ **Land that is "Indian lands" of a Tribe as defined by 25 U.S.C. §81(a)(1)**
☐ **Land that is owned by any person, entity, or Tribe, within the external borders of such Indian lands**
☒ **None of the above**

If "none of the above," skip to Part V. Otherwise, proceed to questions E1 and E2.
Further documentation is required for projects occurring on land listed in the first three categories. Submit supporting documents as attachments labeled "Attachment D." See Part X of this listing document for more information.

1. **Does a limited waiver of sovereign immunity between ARB and the governing body of the Tribe exist?**
   ☐ Yes
   ☐ No
2. **Describe how the land within the Project Area is owned.**
   N/A

PART V. OFFSET PROJECT AREA

Maps depicting specific elements of the Project Area are required for all projects. Submit supporting documentation as attachments labeled "Attachment E." See Part X of this listing document for more information.

Latitude of Offset Project Location:	Longitude of Offset Project Location:	Project Area Total Acreage:
41.377218	-121.848186	12,486.79

A. Identify the assessment area (or assessment areas, if project crosses more than one) that contain Project Area lands and list the acreage of project lands within each assessment area.
The 12,486.79 acres in this project is entirely located within the Southern Cascade Mixed Conifer Assessment Area. (High Site Class)

B. Identify the governing jurisdiction(s) applicable to the Project Area.
California Department of Forestry and Fire Protection (CALFIRE) and is in Siskiyou County

C. Describe how the Project Area was determined.

SPI included all commercial forest lands, that can meet the permanence requirement protocol, in this logical management unit within the state planning watersheds and road systems that access them. The acreage was determined from SPIs' proprietary GIS.

D. Describe the existing land cover, and land use of the Project Area.

The Forest Project area is forested and the associated land use is managed as commercial forestland.

E. Describe the forest vegetation types within the Project Area boundary.

Mixed conifer forests (see answer to Part V (I). for percent distribution by species basal area at project initiation)

F. Describe the site classes within the Project Area boundary.

Relative to high and low sites, this project is considered high site. Strata level site will be provided to the verifier.

G. Describe the land pressures and climate zone/classification applicable to the Project Area.

There are no significant development pressures applicable to the Project Area and the land is zoned Timber Production Zone (TPZ) under California law. The Forest Project is a mountainous and forested landscape within the Sierra-Cascade Biotic Province. The climate is semiarid and mostly cool, but seasonal changes are well defined with snow common in the winter and warm temperatures in the summer. Mean annual precipitation is about 60 inches of rain and snow with 90% of this occurring between the months of November and April.

H. Describe the historical land uses, current zoning, and projected land use within the Project Area and surrounding areas.

The historic, current, and the reasonably forseeable future is commercial forest land. In California the project area is zoned Timber Production Zone (TPZ). It is surround by other private commercial timber lands and forest lands managed by the United States Forest Service.

I. Describe generally the forest conditions within the Project Area, including species composition, age class distribution, and management history.

The project consists primarily of young growth, unevenaged timber stands (approximately 65% of the area). Some evenaged stands exists and are diverse in age with majority less than 20 years old at Forest Project's commencement date. Severe wildfires in the 1930s created the existing 80 years old stands that are predominant today. The currently merchantable stands have been selectively logged for over 80 years. Shown below is the % distribution by basal area of the listed native species.

PP	SP	WF	RF	DF	IC	MC	HW
6.24	3.14%	72.12%	14.04%	0.12%	2.11%	1.79%	0.42%

PART VI. OFFSET PROJECT ELIGIBILITY

A. Does the project take place on land that has greater than 10 percent tree canopy cover?
Supporting documentation is required. Submit as attachment labeled "Attachment F." See Part X of this listing document for more information.

☒ **Yes**
☐ **No**

B. Indicate how the offset project meets (or will meet) the definition of Natural Forest Management per Table 3.2 in the Compliance Offset Protocol US Forest Offset Projects, October 20, 2011:

1. Native species:

a) Will the project consist of at least 95% native species based on the estimated sum of carbon in the standing live carbon pool?
If "no," proceed to question 1b. Otherwise, skip to question B2.

☒ **Yes**
☐ **No**

b) Describe how the project will meet this requirement. (Improved Forest Management Projects will be assessed using estimates of basal area per acre.)

Forest Project's species composition contains the 95% threshold of native species based on live basal area per acre at Project Commencement, and throughout the minimum time commitment of 100-yrs based on the modeled results. Shown below is the % distribution by basal area of the listed native species.

PP	SP	WF	RF	DF	IC	MC	HW
6.24	3.14%	72.12%	14.04%	0.12%	2.11%	1.79%	0.42%

2. Composition of native species: **a) Does the Project Area naturally consist of a mixed species distribution where no single species' prevalence, measured as the percent of basal area of all live trees in the Project Area, exceeds the percentage value of standing live carbon shown under the heading 'Species Diversity Index' in the Assessment Area Data File?** *If "no," proceed to questions 2b and 2c. Otherwise skip to question B3.*	☐ **Yes** ☒ **No**
b) Explain how the project will demonstrate a trend toward achieving the Species Diversity Index of native species and meet this requirement within 25 years. The Forest Project is mixed species. The percentage of White Fir exceeds ARB's maximum percentage threshold for Natural Forest Management at Project Commencement. However, by yr-20, the percentage of White Fir is managed below this threshold and throughout the remaining time commitment of 100-yrs based on the modeled results. The primary reason is SPIpast and future planting is designed to bring Ponderosa pine back into a more normal percentage for this project site. Above in Part V (I), is the % distribution by basal area of the listed native species. This noted explaination is why 2C is marked as "No".	
c) If the Project Area does not naturally consist of a mixed species distribution: Will or have you provided a written statement from the government agency in charge of forestry regulation in the state where the project is located stipulating that the Project site is not capable of meeting the requirement of mixed species distribution.	☐ **Yes** ☒ **No**
3. Distribution of age classes/sustainable management: **a) Indicate how the project will meet the requirement for sustainable management if commercial harvesting is either planned or ongoing within the Project Area demonstrating sustainable long term harvesting practices. This applies to all forest landholdings of the Forest Owner(s)** (check one of the boxes). ☐ **Not applicable; no commercial harvesting is occurring within the Project Area.** ☒ **Third party certification under the Forest Stewardship Council, Sustainable Forestry Initiative, or Tree Farm System, whose certification standards require adherence to and verification of harvest levels which can be permanently sustained over time.** ☐ **Adherence to a renewable long-term management plan that demonstrates harvest levels which can be permanently sustained over time and that is sanctioned and monitored by a state or federal agency.** ☐ **Employ uneven-aged silvicultural practices and maintain canopy retention averaging at least 40% across the forest, as measured on any 20 acres within the entire forestland owned by the Forest Owner, including land within and outside of the Project Area (areas impacted by Significant Disturbance may be excluded from this test).**	
b) On a watershed scale up to 10,000 acres (or the Project Area, whichever is smaller), projects must maintain, or make progress toward maintaining, a maximum of 40% of the project's forest lands in ages that are less than 20 years old. (Areas impacted by Significant Disturbance are exempt from this test until 20 years after reforestation of such areas.) Does the acreage within this project does meet this requirement? *If "no," proceed to question 3c. Otherwise, skip to question B4.*	☒ **Yes** ☐ **No**
c) Explain how the project intends to show continuous progress toward meeting this requirement within the next 25 years. N/A	
4. Structural elements (standing and lying dead wood): **How will the project ensure that structural elements are retained in sufficient quantities throughout the project life?** SPI has management policies and practices for maintenance and protection of existing standing and lying dead wood as well as specific silvicultural practices that maintain the processes that cause mortality (standing dead wood) over time. As part of SPIs' habitat retention polices in its evenaged units, SPI provides sites where the natural process of density induced moratlity is allowed to continue, thus providing the one controlable causitive agent for future standing dead wood recruitment to continue to produce standing dead wood. These forest elements are very difficult to model (very poor predictive power), but we will continue to monitor these structural elements with our continuing forest inventory over time and report them to the verfier to show continued meeting of the required amounts. SPI does not plan or intend to remove lying dead wood in any of its commercial activities, in fact SPI requires that when snags must be felled for safety and operational needs, that the resulting lying dead wood be retained on site.	
C. Describe the management activities that will lead to increased carbon stocks in the Project Area, compared to the baseline. Annual management actions in the form of investments in forest thinning, pre-commercial thinning	

and planting to return and maintain optimum stocking creates a net increase in the rate of sequestration. These actions/investments are matched by the annual management decision and investment in the form of holding otherwise merchantible timber to maintain this increased stocking of carbon on the project area when it is legally permisible to reduce that stock as evidenced by the baseline scenario.

D.	**Is this project being implemented and conducted as the result of any law, statute, regulation, court order, or other legally binding mandate?** **If "yes," explain:** N/A	☐ **Yes** ☒ **No**
E.	**Will the offset project employ broadcast fertilization?**	☐ **Yes** ☒ **No**
F.	**Does the offset project take place on land that was part of a previously listed and verified Forest Offset Project?** *If "yes," proceed to questions E1 and E2. Otherwise, skip to Part VII.*	☐ **Yes** ☒ **No**
	1. Was the previous Forest Offset Project terminated due to an Unintentional Reversal?	☐ **Yes** ☐ **No**
	2. Is the project transitioning to the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011, after previously being listed as an early action offset project?	☐ **Yes** ☐ **No**

PART VII. CARBON STOCK INVENTORY

A. Provide a general description of the inventory methodology to be used to quantify carbon stocks for each required carbon pool in the forest project's offset boundary. The inventory methodology must describe the information required in Appendix A.3 of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011.

IFM-1 Standing Live: The following is a general description of the inventory methodology for each carbon pool. A detailed inventory manual including all information required in Appendix A.3 of the Compliance Offset Protocol U.S. Forest Projects will be provided to the verifier. This is the inventory methodology that was utilized across this project's offset boundary as described in Section V of this document, mapped in Attachment E maps, and in the legal description in Attachment A of this listing document.

The Inventory methodology followed a systematic 4 by 10 chain systematic grid of variable radius plots. With this system, approximately one plot is alocated per 4 acres of timbered land. The first plot in each section is established by traveling the appropriate distance from known positions. The position of each succeeding point depends on the first point in each section. Lines of plots 4 chains apart on the line and 10 chains between lines are oriented north/south or east/west to cross creeks and ridges (cross topography).

The inventory cruise is designed exclusively to utilize variable-radius plot sampling. The variable-radius plot cruise was used to sample all trees that break the prism regardless of tree size and merchantability. (Thus all trees down to 2" dbh if on the plot will be recorded) Variable plot sampling was conducted at each point using Basal Area Factor (BAF) of 20 or 40. The actual BAF depends on stand density and tree size and is assigned before cruiser goes to the field.

The collected inventory data from these plots involves both cruised and measured trees. At each plot, all trees are cruised (cruise trees). Additionally, the first and third trees on the plot are measured (measured trees) in greater detail, which includes DBH to the nearest tenth of an inch and total height to the nearest foot. All inventory data is stored and updated into our specialized resource data base, Resource Information System (RIS). Below, but not limited to, is a list of collected inventory data, which most are specific to the inventory of on site Carbon Pools:

Cruise Trees	Measure Trees (2-trees/plot)
Tree Species	Tree Species
DBH (nearest 2-inch class)	DBH (1/10th of an-inch)
Crown Ratio	Crown Ratio
Crown Class (Live & Snag Classes)	Crown Class (Live & Snag Classes)
	Total Tree Height
	Height to Live Crown
	* 10-yr radial growth (in 20th)*

NOTE: starting in June of 2010 in recognition of ARB verifier needs, each inventory plot now has two bearing trees monumented so as to allow plot center re-establishment by the check cruiser. SPI policy is to remeasure its point sample inventory plots on an approximate 10 year schedule, but in all IFM project areas listed, SPI will assure that all plots are remeasured no less often than every 12 years as required in the protocol.

IFM-3 Standing Dead: same as standing live, all dead trees are cruised as if alive. Accounting for decay classes and missing segments to allow net standing carbon to be estimated.

IFM-6 Soil (if applicable): N/A

IFM-7 Carbon in in-use forest products: This will be calculated from the weight of annual harvested wood and following the protocol methodology. Baseline IFM-7 will be calculated from the Average Baseline Harvest following the protocol methodology.

IFM-8 Forest product carbon in landfills (if applicable): This will be calculated from the weight of annual harvested wood and following the protocol methodology. For Baseline, it will be calculated from the Averaged Baseline Harvest following the protocol methodology.

IFM- 9 Biological emissions from site preparation: N/A - Site preparation contour tilling that disturbs greater than 25% of soil surface is not employed by SPI.

IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area: No such changes will occur SPI forestlands outside the project area as a result of the independent 3rd-party certification process identified in VI B(3) above, but the protocol provides for using a standarized 20% leakage factor applied to the difference in actual harvest volume and the averaged harvest volume in the basline scenario. So we will calculate this value when annual harvest values are available.

IFM-17 Biological emissions from decomposition of forest products: The process/methodology followed for IFM-7 already takes into account the net carbon remaining after decomposition is considered and therefore it could be reported.

B. Describe the calculation methodologies to be used to determine metric tons per acre for each of the carbon pools included in the Offset Project Data Report.

IFM-1 Standing Live: Based on inventory methodology above, each tree's carbon is calculated using the US Forest Service FIA National Program biomass equations, summed across strata and averaged for the project area. These are the equations described in the Forest Offset Protocol Resources section of ARB's webpage. These gross average carbon values are then adjusted for missing segments and defect according to the CAR Quatification Quidance for use with Forest Carbon Projects dated 11/15/2012. The Cairn's equation (Cairns, Brown, Helmer, & Baumgardner, 1997) will be used to calculate CO2e in the below-ground portion.

IFM-3 Standing Dead: Based on inventory methodology above, each snags carbon is calculated using

the US Forest Service FIA National Program biomass equations, summed across strata and averaged for the project area. These are the equations described in the Forest Offset Protocol Resources section of ARB's webpage. These average gross carbon values are then adjusted for missing segments and decay class according to the CAR Quatification Quidance for use with Forest Carbon Projects dated 11/15/2012. The Cairn's equation (Cairns, Brown, Helmer, & Baumgardner, 1997) will be used to calculate CO2e in the below-ground portion.

IFM-6 Soil (if applicable): N/A

IFM-7 Carbon in in-use forest products: Actual annual harvest will be weighted and the percent by product category will be determined from SPI mills or the regional table and then the carbon remaining in use will be calculated based upon the protocol methodolgy.

IFM-8 Forest product carbon in landfills (if applicable): This will be calculated from the weight of annual harvested wood and following the protocol methodology. For Baseline, it will be calculated from the Averaged Baseline Harvest following the protocol methodology.

IFM- 9 Biological emissions from site preparation: N/A. Site preparation contour tilling that disturbs greater than 25% of soil is not employed by SPI.

IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area: No such changes will occur SPI forestlands outside the project area as a result of the indepndent 3rd party certification process identified in VI B(3) above, but the protocol provides for using a standarized 20% leakage factor applied to the difference in actual harvest volume and the averaged harvest volume in the basline scenario. So we will calculate this value when annual harvest values are available.

IFM-17 Biological emissions from decomposition of forest products: The process/methodology followed for IFM-7 already takes into account the net carbon remaining after decomposition is considered and therefore it could be reported.

C. Provide a summary of the inventory of carbon stocks for each carbon pool (or approach used, if inventory is not applicable).

IFM-1 Standing Live: 178.47 metric tons CO2e/acre in above and below ground standing live carbon dioxide equivalents

IFM-3 Standing Dead: 3.23 metric tons CO2e/acre in standing dead carbon dioxide equivalents(above and below ground)

IFM-6 Soil (if applicable): N/A

IFM-7 Carbon in in-use forest products: Actual annual harvest will be weighed and the percent by product category will be determined from SPI mills or the regional table and then the carbon remaining in use will be calculated based upon the protocol methodolgy. Modeled baseline average harvest is 4.25 metric tons CO2e/acre/year and following the protocol methodology carbon in in-use forest products for the Baseline calculates out to a project area total of 10,301.16 MTC02e per year.

IFM-8 Forest product carbon in landfills (if applicable): This will be calculated from the weight of annual harvested wood and following the protocol methodology. Baseline IFM-8 will be calculated from the Average Baseline Harvest following the protocol methodology. Following the protocol methodology carbon in landfills for the baseline calculates out to a project area total of 6,569.78 MTCO2e per year.

IFM- 9 Biological emissions from site preparation: N/A - Site preparation contour tilling that disturbs greater than 25% of soil surface is not employed by SPI.

IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area: No such changes will occur on SPI forestlands outside the project area as a result of the indepndent 3rd party certification process identified in VI B(3) above, but the protocol provides for using a standarized 20% leakage factor applied to the difference in actual harvest volume and the averaged harvest volume in the basline scenario. Thus it can only be calculated with actual harvest volumes

each year. For Baseline, average harvests following the protocol methodology this calculatess to a project total of 6,619.75 MTCO2e per year.

IFM-17 Biological emissions from decomposition of forest products: The process/methodology followed for IFM-7 already takes into account the net carbon remaining after decomposition is considered and therefore it will be reported in any year when actual harvest occurs. For Baseline, average harvests following the protocol methodology this calculates to a project total of 5,470.72 MTCO2e per year.

D. Provide a summary of the estimated inventory confidence statistics.

Forest Project Confidence Statisics

SE% = 1.20% SE% (90% Confid.) = 1.97%

E. Provide the calculation of the offset project's reversal risk rating and expected contribution to the Forest Buffer Account.

Project Contribution to the Buffer Account Based on risk for the Forest Project.

Risk Category	Contribution from Risk	
Financial Failure	Default Risk	5%
Illegal Forest Biomass Removal	Default Risk	0%
Conversion	Default Risk	2%
Over-Harvesting	Default Risk	2%
Social	Default Risk	2%
Wildfire	Calculated Risk from worksheet	4%
Disease or Insect Outbreak	Default Risk	3%
Other Catastrophic Events	Default Risk	3%

(per ARB formula) Total Reversal Risk% (100% - 80.76%)

So the estimated expected contribution to the Forest Buffer Account will be 19.24% of annual offsets.

PART VIII. OFFSET PROJECT BASELINE

A. Required for ALL Improved Forest Management Projects

1. Describe the project's modeling plan, following the requirements and methods in Appendix B, Section B.3 of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011.

This is a general description of SPIs' project modeling plan. Specific details complying with US forests project protocol section B.3 will be provided to the verifier.

SPI utilizes the Graphical Planning Interface (GPI), a proprietary planning model. GPI inherently manages all modeled results from scenarios consisting of prescribed harvesting and growth events. A scenario has a minimum of 20 growth events for the 100-year planning period (period represents a 5-year interval). However, for some scenarios, there may be up to 30 or more events (including growth, harvesting, ingrowth events).

Treelists, comprised of strata level plots, were prepared for each stratum. Stratum Level Scenarios (a set of timing events) were designed and evaluated in GPI. Stratum inventory data (the gridded plots) is altered by each scenario's events. In the modeling effort, GPI manages the inventory, harvest, and growth results for each scenario. CACTOS, the primary model called

within GPI, has been designed to simulate stand and tree-growth changes, including mortality. Hundreds of scenarios are created in GPI and then assigned to landclasses (one or more landclasses are contained within a logical logging unit).

Each logging unit was manually-created, as well as manually timed, in a GIS that is based on criteria such as topography, logging system (e.g. cable, tractor), and water protection. Under the baseline management, all forested stands outside of non-commercial forest stratums were part of the modeling plan. Management timing is first based on recognizing outstanding Approved THPs before commencement/modeling date, and then modeled unevenage management for the remaining area starting at year 0. Management in the remaining periods is then limited by legal constraints. Protection areas are timed with entries of the upslope portion of unit. Management and silviculture timing was based on stand conditions. A detailed summary of silviculture by decade, in addition, periodic growth and harvest by decade will be provided to the verification entity.

2. Describe and estimate the project's baseline onsite carbon stocks. Explain any annual changes in baseline carbon stocks over time.

181.70 metric tons CO2e/acre is the starting baseline above and below ground live and dead standing carbon stocks. As shown in Attachment G the actual baseline stocks vary overtime as the common practice harvest and growth scenarios are applied, once averaged, there are no annual changes that need explaination.

A graph portraying the baseline onsite carbon stocks, labeled "Attachment G," and a diagram of the baseline incorporating all required carbon stocks, labeled "Attachment H," are required. See Part X of this listing document for more information.

3. Identify the approved growth model that will be used for the project.

SPI utilizes the UC Berkely Coop growth and yield model CACTOS

4. Harvest Planning

a. Is harvesting planned in the Project Area? *If "yes," proceed to question 4b. Otherwise, skip to question A5.*	☒ **Yes** ☐ **No**
b. Will the project use a harvest schedule model? *If "yes," proceed to question 4c. Otherwise, skip to question A5.*	☐ **Yes** ☒ **No**

c. How do you plan to address age class and stratification as part of your harvest scheduling?

Since all potential future harvest units are designed manually and then scheduled manually with many considerations, the first being SPIs' own 10 year planning adjacency constraint and SPI attempts to produce larger future stands of similar ages by putting next decade units adjacent to the previous decadal harvests. In concert with our long term effort to move towards an 80 year rotation, we verify and report that we do not exceed the 40% in age classes under 20 years old at any point in the 100 year planning horizon. We also place our harvest units across all the project area, therefore unlike linear programming harvest schedulers we do not harvest any single strata in any greater percentage than it is represented on the project area, thus avoiding potential bias of harvest scheduling models.

5. Provide an estimate of carbon that will be stored long-term in harvested wood products in the baseline.

4.25 metric tons CO2e/acre is the baseline average annual onsite harvest, which following the protocol methodology carbon in in-use forest products for the baseline calculates out to a project area total of 10,301.16 MTCO2e per year.

B. Required for Improved Forest Management Projects on <u>Private Lands ONLY</u>

1. Provide the estimated initial above ground standing live carbon stock per acre for the project, if known.

142.80 metric tons CO2e/acre in above ground live carbon stocks.

2. Provide the estimated adjusted above ground standing live carb stock per acre, if known.

142.80 metric tons CO2e/acre as our confidence estimate is below the value that would require any adjustment.

3. Provide the Common Practice statistic associated with the Project Area.

128 metric tons CO2e/acre in above ground live carbon stocks.

4. Are the Project Area's initial above-ground standing live carbon stocks per acre above or below Common Practice? **If below Common Practice, what is the High Stocking Reference for the Project Area?** N/A *Further documentation is required if project below Common Practice. Submit supporting documents as attachments labeled "Attachment I." See Part X of this listing document for more information.*	☒ **Above** ☐ **Below**
5. Does the Forest Owner(s) and its affiliate(s) own land in fee or hold timber rights on land outside the Project Area? *If "no," skip to question B.6.*	☒ **Yes** ☐ **No**
If "yes" does the Protocol require the use of a weighted average carbon stock on lands in the same Logical Management Unit (LMU, as defined in Section 6.2.1.1)? *If "no," skip to question B.6.*	☐ **Yes** ☒ **No**
If "yes," is inventory data available for the LMU or will the OPO use a stratified vegetation analysis?	☐ **Data available for LMU** ☐ **Stratified Vegetation Analysis**
6. Provide a general description of the legal constraints affecting forest management activities in the Project Area; include a description of each constraint (referring to Section 6.2.1.2 in the Protocol) as well as a narrative those constraints have on forest management. In California, generally the constraints affecting forest management activities are embodied in the minimum stocking standards, adjacency constraints and required protections zones (mostly water course zones). As detailed in SPIs' demonstration of maximum sustained production these constraints reduce long term sustained yield approximately 32%.	
7. Provide a description of the modeling techniques used to simulate the effects of the constraint. Each scenario applied to each strata and logging unit was modeled to meet the required Forest Practice Rule constraints including minimum required stocking, WLPZ canopy retention requirements and buffer widths, and in even age management unit timing SPI employs its own 10 year adjacency planning constraint, to clearly meet the State's 5 year requirement. Since this is a physical layout of timing, adjoing WLPZ buffer units are scheduled for harvest entry at the same time as the adjacent evenaged unit. For unevenaged management units and in the baseline harvest scheduling in any particular unit is generally timed with 10 year reentry schedules.	
8. How will the OPO demonstrate financial feasibility of the growth and harvesting regime assumed for the baseline? (check one of the boxes) ☐ **Conducting a financial analysis of the anticipated growth and harvesting regime that captures all relevant costs and returns, taking into consideration all legal, physical, and biological constraints, using regional norms or documented costs and returns for the project area or other properties in the Forest Project's Assessment Area** ☒ **Providing evidence that activities similar to the proposed baseline growth and harvesting regime have taken place on other properties within the Forest Project's Assessment Area within the past 15 years**	
C. Required for Improved Forest Management Projects on <u>Public Lands ONLY</u>	
1. Has an initial forest carbon inventory been conducted for the Project Area?	☐ **Yes** ☐ **No**
2. Provide a projection of future changes to Project Area forest carbon stocks extrapolating from historical trends. N/A	
3. Explain how current public policy will affect onsite carbon stocks and how the baseline modeling incorporates constraints imposed by all applicable statutes, regulations, policies, plans, and activity-based funding. N/A	
4. Have carbon stocks in the Project Area been increasing or declining over the preceding ten-year period?	☐ **Increasing** ☐ **Declining**

PART IX. ADDITIONAL QUESTIONS

A. Have any lands within the Project Area ever been listed or registered with an offset project registry or program in the past? *If "yes," identify the registry or program and provide details on the issued credits below.*	☐ **Yes** ☒ **No**
B. Have greenhouse gas emission reductions or removal enhancements associated with lands within the Project Area been credited or claimed for the purpose of greenhouse gas mitigation or reduction goals, whether in a voluntary or regulatory context? *If "yes," identify the registry or program and provide details on the issued credits below.*	☐ **Yes** ☒ **No**

Registry/Program:	Reporting Period(s):	Vintage(s):	Number of Credits Issued:
N/A	N/A	N/A	N/A

PART X. ATTACHMENTS

A. **If the answer to Part IV.A is "yes," provide documentation (e.g., deed of trust, title report, etc.) showing the OPO's ownership interest in the property and its interest in the trees and standing timber on the property.**
If the answer to Part IV.A is "no," provide documentation supporting the explanation of the OPO's right to undertake and list the project.

B. **If the answer to Part IV.C is "public," provide documentation demonstrating explicit approval of the offset project's management activities and baseline including any public vetting processes necessary to evaluate management and policy decisions concerning the offset project.** ☒ **N/A**

C. **If a Qualified Conservation Easement (QCE) has been recorded, provide a copy. The listing information contained in this form and the documents attached to it will eventually be submitted to ARB so submitting a copy of the QCE as an attachment to this listing document fulfills the requirement in 9.1.1.1(18)(a) of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 to provide ARB with a copy.** ☒ **N/A**

D. **If the project is located on one of the categories of Tribal land listed in Part IV.E, provide documentation demonstrating that the land within the Project Area is owned by a tribe or private entity. Also provide documentation that demonstrates the existence of a limited waiver of sovereign immunity between ARB and the governing body of the Tribe entered into pursuant to section 95975(l) of the Cap-and-Trade Regulation.** ☒ **N/A**

E. **Attach map(s) of the Project Area including:**
1. **Public and private roads**
2. **Towns**
3. **Major watercourses (4th order or greater), water bodies, and watersheds**
4. **Topography**
5. **Townships, ranges, and sections or latitude and longitude**
6. **Existing land cover and land use (optional)**
7. **Forest vegetation types (optional)**
8. **Site classes (optional)**
9. **Land pressures and climate zone/classification (optional)**
10. **Historical land uses, current zoning, and projected land use within the Project Area (optional)**
11. **A georeferenced shape file (or other electronic file that can be read in a geographic information system) that clearly identifies the Project Area and boundaries.** *Note that the georeferenced shape file may constitute the required map if it includes the required map information listed above.*

F. **Provide supporting documentation demonstrating that the offset project takes places on land that has greater than 10 percent tree canopy cover.**

G. **Attach a graph portraying the baseline onsite carbon stocks with time depicted on the x-axis and metric tons CO_2e depicted on the y-axis.**

H. **Attach a diagram of the baseline incorporating all required carbon stocks.**

I. **For projects on <u>private lands ONLY</u>: If the Project Area's initial above-ground standing live carbon stocks are below Common Practice, submit an affidavit testifying that the inventory depicted over the past 10 years (used to determine the High Stocking Reference for the Project Area) is reasonably accurate and a summary of volume harvested over the past 10 years.** ☒ **N/A**

PART XI. ATTESTATIONS AND OPO/APD SIGNATURE

Em _____ Initial	**I certify under penalty of perjury under the laws of the State of California the GHG reductions and/or GHG removal enhancements for**				
	Project Name: Buck Mountain ARB002	**from**	Crediting Period Start Date: 4/1/2012	**to**	Crediting Period End Date: 3/31/2037
	will be measured in accordance with the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011, and all information required to be submitted to ARB is true, accurate, and complete.				
Em _____ Initial	**I understand I am voluntarily participating in the California Greenhouse Gas Cap-and-Trade Program under title 17, article 5, and by doing so, I am now subject to all regulatory requirements and enforcement mechanisms of this program and subject myself to the jurisdiction of California as the exclusive venue to resolve any and all disputes arising from the enforcement of provisions in this article.**				

ecm _____ Initial	**I understand that the offset project activity and implementation of the offset project must be in accordance with all applicable local, regional, and national environmental and health and safety laws that apply to the offset project location. I understand that offset projects are not eligible to receive ARB or registry offset credits for GHG reductions and GHG removal enhancements that are not in compliance with the requirements of the cap-and-trade program.**

In signing this form, I certify under penalty of perjury of the laws of California that the information contained in this form is true, accurate, and complete. I further certify that I am an Account Representative of the Offset Project Operator (OPO).

SIGNATURE: Edward C Murphy	**PRINTED NAME:** Edward C. Murphy
TITLE: Manager, Resource Inventory Systems for Sierra Pacific Industries	**DATE:** 4/07/2014

Submit the information in this form to the appropriate Offset Project Registry

Background for Application of Listing an Improved Forest Management U.S. Forest Offset Project

Section 95975 of the Cap-and-Trade Regulation describes the requirements and process for an Offset Project Operator (OPO) or Authorized Project Designee (APD) to list an offset project with an approved Offset Project Registry. This form is designed to help an OPO or APD fulfill the requirements of Section 95975 of the Cap-and-Trade Regulation and of Section 9.1.1 of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011, for listing an offset project. The Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 designates three project types: Avoided Conversion, Improved Forest Management, and Reforestation. This form is designed for Improved Forest Management projects only. The information in the completed form should be submitted to the approved Offset Project Registry with which the OPO or APD would like their offset project listed.

Where to Submit Information Contained in This Form

Please complete the information on the form using your computer. Then print, sign, and scan the form. The completed and signed information and all supporting documentation should be submitted to the appropriate Offset Project Registry.

Copies of this form can be downloaded from the ARB website at: http://www.arb.ca.gov/cc/capandtrade/offsets/forms/forms.htm

Detailed Instructions for Application for Listing an Improved Forest Management U.S. Forest Offset Project

Part I. Entity Applying for Listing:

- Indicate whether the Offset Project Operator (OPO) or Authorized Project Designee (APD) is submitting the information for project listing. Section 95975(a) of the Cap-and-Trade Regulation requires that the OPO and, if applicable, the APD must register with ARB for the Cap-and-Trade Program prior to listing a project. It also requires that neither the OPO nor APD be subject to any Holding Account restrictions imposed as part of an enforcement action. To register with ARB, please visit the website for Compliance Instrument Tracking System Services (CITSS): https://www.wci-citss.org/
- List the name, organization, phone number, and email address of the person submitting the information. This person should be an employee of the OPO or APD, whichever entity is making the submission. The person submitting the information need not be the same person as the contact person listed for the OPO or APD in Part III and also need not be the person signing the form in Part XI.
- The person submitting the information should indicate the date the form is completed.

Part II. Offset Project Information:

- Provide the name for the offset project. Indicate the offset project commencement date and the start and end dates of the first reporting period; approximations are acceptable if precise dates are unknown.
- Project commencement for an Improved Forest Management Project must be linked to a discrete, verifiable action that delineates a change in practice that increases sequestration and/or decreases emissions relative to the forest project's baseline. This date could be when the Project Area is transferred to public ownership, when a conservation easement on the Project Area is recorded, or when submitting the offset project listing information.

Part III. OPO/APD Information:

- Enter contact information for the OPO and APD requesting the offset project listing. Every offset project will have an OPO. If an offset project does not have an APD, please mark the box indicating the Offset Project does not have an APD and leave the remaining fields blank.
- For both the OPO and, if applicable, the APD, enter the entity's name, its mailing address, and the name, phone number, and email address of a contact person for the entity. Also include its CITSS ID number. The CITSS ID is six characters in length, with two letters followed by four numbers (e.g., "CA1234"). **DO NOT PROVIDE THE CONFIDENTIAL CITSS ACCOUNT NUMBER**, which begins with the CITSS ID number followed by a hyphen and more numbers.

Part IV. Land Ownership:

- This part includes questions regarding land ownership and property interests.
- Further documentation is required based on the responses to some questions. See Part X of this listing form for more information on the precise requirements.

Part V. Offset Project Area:

- This part asks for qualitative descriptions of the offset Project Area.
- Maps are required to complement the descriptions provided in this part. See Part X of this listing form for more information on the precise requirements.
- The Project Area should be determined following the requirements of Section 4 of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011.
- Assessment areas shall be determined by referencing the Assessment Area Data File available at: http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm

Part VI. Offset Project Eligibility:

- The questions in this part are designed to facilitate the determination of project eligibility for Improved Forest Management Projects.
- Further documentation is required based on the responses to some questions. See Part X of this listing form for more information on the precise requirements.
- Details on the eligibility requirements for Improved Forest Management Projects can be found in Sections 2.1.2, 3.1, and 3.8 of the Compliance Offset Protocol U.S. Forest Project, October 20, 2011.
- Details on the Natural Forest Management criteria can be found in Table 3.2 in the Compliance Offset Protocol U.S. Forest Project, October 20, 2011.

Part VII. Carbon Stock Inventory:

- Projects are not required to have completed a full carbon stock inventory at the time of listing, but OPOs/APDs should be familiar with Appendix A and have a plan for how they will meet the requirements therein. Therefore, a general description of the project's inventory methods and procedures, consistent with the requirements in Appendix A.3, is required at the time of listing. ARB recognizes that some information provided will be preliminary and based on best estimates. If the project's inventory methodology changes between the time of listing and submission of the first OPDR, this should be reported as a change to the information submitted at project listing when submitting the first OPDR.
- Section 6.2 of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 outlines the approved quantification methodologies for Improved Forest Management Projects. Further details on completing a forest project carbon inventory can be found in Appendix A of the Protocol.
- Follow the steps in Appendix D of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 to quantify the project's reversal risk rating.
- The project's expected contribution to the Forest Buffer Account is determined annually based upon the project's risk of reversal and is calculated by multiplying the project specific reversal risk rating by the total net GHG reductions/removals achieved by the project. An approximation of the contribution to the Forest Buffer Account is acceptable.

Part VIII. Offset Project Baseline:

- Projects are not required to have a finalized baseline at the time of listing, but OPOs/APDs should be familiar with Appendix B and have a plan for how they will meet the requirements therein. A complete modeling plan reflecting the requirements in Appendix B.3 is therefore required at the time of listing. ARB recognizes that some information provided will be preliminary or based on best estimates. If the project's modeling plan or baseline estimates change between the time of listing and submission of the first OPDR, this should be reported as a change to the information submitted at project listing when submitting the first OPDR.
- Note that IFM projects located on public land must present documentation demonstrating explicit approval of the offset project's management activities and baseline. These projects may report changes to the baseline within the initial OPDR if the changes have gone through a public review process and meet the Protocol requirements regarding explicit approval of the project's baseline.
- This part is divided into three sections: questions required for all Improved Forest Management Projects; questions for Improved Forest Management Projects on private lands; and questions for Improved Forest Management Projects on public lands. Answer the questions applicable to the project.
- Section 6.2 of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011 outlines the approved quantification methodologies for Improved Forest Management Projects. Instructions for

considering legal and financial constraints can be found in Sections 6.2.1.2 and 6.2.1.3, respectively. Further details on modeling carbon stocks can be found in Appendix B of the Protocol.

- ARB approved growth models can be found in Appendix B, Section B.1 of the Compliance Offset Protocol U.S. Forest Projects, October 20, 2011.
- When a requirement is not applicable to the project being listed, please select the "N/A" (Not Applicable) checkbox next to the requirement so that it is clear that the question was not inadvertently left unanswered.

Part IX. Additional Questions:

- Answer both questions. If the answer to either question is "yes," identify the registry or program and provide details on the issued credits in the space provided.

Part X. Attachments:

- Provide each attachment on a separate sheet of paper and submit along with the completed application for listing.
- To aid with tracking each attachment, it is recommended that the attachments are labeled to correspond with the letter in Part X that they refer to (e.g. "Attachment B").
- When an attachment is not applicable to the project being listed, please select the "N/A" (Not Applicable) checkbox next to the requirement so that it is clear that the attachment was not inadvertently left off.

Part XI. Attestations and OPO/APD Signature:

- Section 95975(c) of the Cap-and-Trade Regulation requires three attestations for listing an offset project. The required attestations are provided in this section. Each attestation should be initialed by the person signing the form.
- The first attestation requires the applicant to provide the offset project name and the start and end dates of the crediting period to complete the statement. The offset project name should match the name entered in Part II. The dates for the offset project's crediting period must also be provided. Please note that the dates provided in the attestation are for the crediting period, not for the first reporting period provided in Part II. The crediting period dates may be approximate if precise dates are not known.
- The attestations must be submitted to ARB but need not be submitted to ARB until requesting issuance of ARB offset credits. A request for issuance of ARB offset credits requires a copy of the offset project listing information, and providing the attestations on this form will satisfy this regulatory requirement.
- The individual signing the document must be registered in CITSS as the Primary Account Representative or Alternate Account Representative for the OPO.
- Please provide the person's signature, printed name, corporate title, and date signed.

Please contact your Offset Project Registry with any questions.