

APPLICATION FOR LISTING AN IMPROVED FOREST MANAGEMENT U.S. FOREST OFFSET PROJECT				
<b>OPR Staff Use Only</b>	Date Application Received:	OPR Tracking Number:	Date Application Reviewed:	<b>OPR Staff Use Only</b>
<b>PART I. ENTITY APPLYING FOR LISTING</b>				
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 <i>Designation of Authorized Project Designee</i> simultaneously.				<input checked="checked" type="checkbox"/> <b>OPO</b> <input type="checkbox"/> <b>APD</b>
Name of Person Completing Form: Mike Pruett		Organization, if applicable: Green Diamond Resource Company		
Date Form Completed: 09/10/2015		Phone Number: 206-224-5815	Email Address: mpruett@greendiamond.com	
<b>PART II. OFFSET PROJECT INFORMATION</b>				
Offset Project Name: Green Diamond Resource Company - Klamath West IFM				
Offset Project Commencement Date: 09/29/2014		First Reporting Period Start Date: 09/29/2014	First Reporting Period End Date: 9/28/2016	
Provide an explanation and justification for the commencement date. Specify the action(s) that identify the offset project commencement date. The discrete, verifiable action that denotes the project commencement date is the date the title of the property was transferred to Green Diamond Resource Company and the deeds recorded their respective counties.				
<b>PART III. OPO/APD INFORMATION</b>				
<b>A. OPO</b>				
OPO Name: Green Diamond Resource Company			OPO's CITSS ID#: CA 1965	
Mailing Address: 1301 Fifth Avenue, Suite 2700		City: Seattle	State: WA	Zip: 98101-2613
Contact Person: Mike Pruett	Phone Number: 206-224-5815	Email Address: mpruett@greendiamond.com		
<b>B. APD (if applicable)</b>			<input checked="checked" type="checkbox"/> <b>No APD/Not Applicable</b>	
APD Name:			APD's CITSS ID#: CA _ _ _ _	
Mailing Address:		City:	State:	Zip:
Contact Person:	Phone Number:	Email Address:		
<b>PART IV. LAND OWNERSHIP</b>				
<b>A. Is the Offset Project Operator (OPO) the owner in fee for the Project Area?</b> 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.				<input checked="checked" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>

<b>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.).</b> Green Diamond Resource Company is the fee owner of all lands included in the Project Area. For some parcels in the Project Area, geothermal and mineral rights are held by other parties as demonstrated in the property deed documents that will be provided for verification purposes.		
<b>C. Does the offset project occur on public or private lands?</b> 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.		<input checked="checked" type="checkbox"/> <b>Private</b> <input type="checkbox"/> <b>Public</b>
<b>1. Describe the public process that has been used to approve forest management activities and baseline.</b> N/A		
<b>2. Describe the documentation being submitted with this listing document demonstrating approval of planned forest management activities and baseline.</b> N/A		
<b>D. Will the project employ a Qualified Conservation Easement (QCE)?</b> 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.		<input type="checkbox"/> <b>QCE</b> <input type="checkbox"/> <b>Public Ownership</b>
<b>1. Date that the QCE was or will be recorded.</b> N/A		
<b>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?</b>		<input type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>
<b>3. Provide the terms within the easement that affect forest management.</b> N/A		
<b>E. Does the offset project occur on any of the following categories of land? (check all that apply)</b> <input type="checkbox"/> Land that is owned by, or subject to, an ownership of possessory interest of a Tribe <input type="checkbox"/> Land that is "Indian lands" of a Tribe as defined by 25 U.S.C. §81(a)(1) <input type="checkbox"/> Land that is owned by any person, entity, or Tribe, within the external borders of such Indian lands <input checked="checked" type="checkbox"/> 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.		
<b>1. Does a limited waiver of sovereign immunity between ARB and the governing body of the Tribe exist?</b>		<input type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>
<b>2. Describe how the land within the Project Area is owned.</b> N/A		
<b>PART V. OFFSET PROJECT AREA</b>		
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.		
<b>Latitude of Offset Project Location:</b> 42° 06' 17.6" N	<b>Longitude of Offset Project Location:</b> -122° 08' 29.0" W	<b>Project Area Total Acreage:</b> 185,140 acres
<b>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.</b> Northwest Cascades - Northwest Cascade High Elevation Conifer (3,324 acres); Northwest Cascades - Northwest Cascade Mixed Conifer (3,276 acres); Southern Cascades - Southern Cascade High Elevation Conifer (27,363 acres); Southern Cascades - Southern Cascade Mixed Conifer (150,988 acres), and Southern Cascades - Southern Cascade Mixed Oak Woodland (189 acres).		
<b>B. Identify the governing jurisdiction(s) applicable to the Project Area.</b> Oregon Department of Forestry (ODF) and is in Jackson and Klamath counties, Oregon and the California Department of Forestry and Fire Protection (CALFIRE) and is Siskiyou county, California.		
<b>C. Describe how the Project Area was determined.</b> The Project Area was determined by identifying all fee simple commercial forestland under management within the Northwest Cascades and Southern Cascades supersections. Other Green Diamond Resource Company fee simple commercial forestland under management adjacent to the forestland located in this Project Area is included in a separate ARB IFM project listing application		

(Green Diamond Resource Company Klamath East IFM). The adjacent forestland is not allowed to be included in this Project Area as it is located within other supersections, and as per Section 4 of the Compliance Offset Protocol U.S. Forest Projects (November 14, 2014) - a Project Area may not cross more than two adjacent supersection boundaries.

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

The Project Area's existing land cover is forest. The existing land use is timber production. There is limited grazing and sport hunting within the Project Area.

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

The Project Area contains a range of conifer species depending on elevation. Ponderosa pine and associated species are well represented in the lower elevations, while mixed conifer stands exist throughout mid to higher elevations.

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

The Project Area is classified as all low site classes in all Assessment Areas based on NRCS soils site productivity data.

**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 because of its rural and remote location and the very small population within the surrounding area. Jackson and Klamath counties include just over 8,725 square miles with a population of 275,742 people or less than seven percent of the state of Oregon's population. All the land in the Project Area is zoned as commercial forestland. The land is not suitable for agriculture. The Project Area lies between the 6a and 7b climate zones as mapped by the USDA. The Project Area is within both Climate Division 5 (High Plateau) and Climate Division 7 (South Central Oregon) established by the National Climatic Data Center.

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

The historical land use within the Project Area and surrounding lands has been timber production and limited grazing compatible with timber production. The Project Area is zoned as commercial forestland. The projected land use within the Project Area and surrounding areas is likely to be timber production, with the potential to increase biomass utilization for energy production.

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

In general, the forest is in a healthy condition; however many stands are stocked well below the current FIA common practice statistic. Current forest stands are made up of even-aged ponderosa pine plantations (111,744 acres) and uneven-aged stands of mixed conifers (73,396 acres). Past owners intensively managed about 60% of the stands by clear cutting and replanting with ponderosa pine during the 1970s through the early 1990s. Other mixed conifer stands were generally high-graded to extract value from the Project Area and currently meet the minimum stocking requirements under the Oregon forest practices rules. The species composition is:

PP	OC	DF	LP	HW
44%	34%	17%	4%	1%

PP: Ponderosa Pine; OC: Other Conifer; DF: Douglas-fir; LP: Lodgepole Pine; HW: Hardwoods

No more than 40% of the Project Area is in age classes younger than 20 years old: 0-20 years (38%, 70,353 acres) 20+ years (62%, 114,787 acres).

**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, November 14, 2014:****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?

☒ Yes  
☐ No

If "no," proceed to question 1b. Otherwise, skip to question B2.

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

N/A

**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?

☒ Yes  
☐ No

If "no," proceed to questions 2b and 2c. Otherwise skip to question B3.

- 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.

N/A

- 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 meet this requirement?

☒ Yes  
☐ No

If "no," proceed to question 3c. Otherwise, skip to question B4.

- 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?

Project activities do not include the active harvest or removal of standing or lying dead wood unless such structures present a fire or safety hazard. Green Diamond Resource Company will monitor standing dead wood through its forest inventory, and when necessary, implement management practices that will identify and recruit future standing dead wood sufficient to meet the requirements for Structural Elements in Table 3.2 of the Compliance Offset Protocol U.S. Forest Projects (November 14, 2014).

<b>C. Describe the management activities that will lead to increased carbon stocks in the Project Area, compared to the baseline.</b> Management activities that will lead to increased carbon stocks as compared to the baseline include forest thinning and plantings to return and maintain optimal stocking levels across the Project Area, as well as extending the length of harvest rotations.	
<b>D. Is this project being implemented and conducted as the result of any law, statute, regulation, court order, or other legally binding mandate?</b> If "yes," explain:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>E. Will the offset project employ broadcast fertilization?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>F. Does the offset project take place on land that was part of a previously listed and verified Forest Offset Project?</b> <i>If "yes," proceed to questions E1 and E2. Otherwise, skip to Part VII.</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>1. Was the previous Forest Offset Project terminated due to an Unintentional Reversal?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Is the project transitioning to the Compliance Offset Protocol U.S. Forest Projects, November 14, 2014, after previously being listed as an early action offset project?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> 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, November 14, 2014.**

**IFM-1 Standing Live:**

A new forest inventory will be completed because the property was purchased in September 2014 and the forest inventory records provided as part of the purchase are not complete and do not meet the requirements of the Compliance Offset U.S. Forest Projects, November 14, 2014 (COP).

The purpose of the new forest inventory will be to directly estimate the onsite carbon stocks in the IFM-1 and IFM-3 pools, as well as indirectly estimate the additional carbon pools required by the COP and listed in this section. A detailed inventory methodology will be made available to the verifier and will be submitted with the initial Offset Project Data Report (OPDR).

The forest will be stratified by forest type and plots will be distributed across each stratum using a random grid created in GIS. Each plot center will be located via GPS and permanently monumented, including reference trees, to facilitate field visits by verifiers and re-inventorying at least every 12 years during the Project Life.

The forest inventory may use variable-radius plot sampling or a combination of variable-radius plot and fixed radius plot sampling to gather required tree measurements. The actual BAF prism to be used for variable-radius plots will depend on stand density and tree size, and will be assigned before the cruiser goes to the field to collect tree data.

Standard Operating Procedures (SOPs) will be developed and provided to the cruisers implementing the forest inventory to ensure quality assurance and quality control. SOPs will include check cruising during the field data collection process to verify data collection procedures, ensure all measurements are within error tolerances, and necessary corrective actions are implemented to maintain consistent and quality data.

At each plot, the following data will be collected for trees determined to be within the plot: species, dbh, trunk or bole height, and an estimated deduction for missing biomass (defect deduction). The sample plot data will be used to generate inventory estimates of cubic foot volume and biomass following the procedures and guidance listed in ARB's website and within the COP.

**IFM-3 Standing Dead:**

At each plot, the following data will be collected for standing dead trees determined to be within the plot: species, dbh, trunk or bole height  $\geq 15$  feet, and an estimated deduction for missing biomass. The sample plot data will be used to generate inventory estimates of cubic foot volume and biomass following the procedures and guidance listed in ARB's website and within the COP.

**IFM-6 Soil (if applicable):**

The carbon stocks for this pool are excluded because the conditions listed in Table 5.2 IFM-6 of the COP are not planned - deep ripping, furrowing, or plowing where soil disturbance exceeds 25% of the Project Area over the Project Life or mechanical site preparation activities are not conducted on contours.

**IFM-7 Carbon in in-use forest products:**

Annual harvest records will be collected, reported, and stored by the Offset Project Operator. Annual harvest volumes will be used to calculate carbon using conversion factors published or referenced in the Forest Offset Protocol Resources (FOPR) section of ARB's website.

**IFM-8 Forest product carbon in landfills (if applicable):**

Annual harvest records will be collected, reported, and stored by the Offset Project Operator. Annual harvest volumes will be used to calculate carbon using conversion factors published or referenced on the ARB FOPR website.

**IFM- 9 Biological emissions from site preparation:**

The carbon stocks for this pool are excluded because SSR#IFM-6 is not included as conditions listed in Table 5.2 IFM-6 of the COP are not planned.

**IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area:**

The project will use the protocol default of 20% "leakage" factor applied to the difference in actual harvest volume and the averaged harvest volume in the baseline scenario.

**IFM-17 Biological emissions from decomposition of forest products:**

This is quantified as a component of calculating carbon stored for 100 years in wood products (SSR#IFM-7) and landfills (SSR#IFM-8), as per Appendix C of the COP.

**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:**

Using data collected through a new forest inventory, each tree's carbon will be calculated using the U.S. Forest Service FIA National Program biomass equations, summed across strata and averaged for the project area. The biomass equations will be used in conjunction with the volume equation references and coefficients by species for projects located in CA, OR, and WA, as referenced in the FOPR section of ARB's website. The Cairn's model (Cairns, Brown, Helmer, & Baumgardner, 1997) will be used to estimate below ground biomass density. Carbon will be estimated as 50% of the dry biomass. Carbon will be converted to CO<sub>2</sub>e using 3.664.

**IFM-3 Standing Dead:**

Using data collected through a new forest inventory, each standing dead trees' carbon will be calculated as if it were a standing live tree as per IFM-1 above. Adjustments to sound biomass volumes will be made by applying density factors by decay class from Harmon et al. (2001) to estimate density in standing dead trees. The Cairn's model (Cairs, Brown, Helmer, & Baumgardner, 1997) will be used to estimate below-ground biomass density. Carbon will be estimated as 50% of the dry biomass. Carbon will be converted to CO<sub>2</sub>e using 3.664.

**IFM-6 Soil (if applicable):**

N/A (see section A IFM-6 above)

**IFM-7 Carbon in in-use forest products:**

The project will use regional mill efficiencies and 100-year default storage factors.

**IFM-8 Forest product carbon in landfills (if applicable):**

The project will use regional mill efficiencies and 100-year default storage factors.

**IFM- 9 Biological emissions from site preparation:**

N/A (see section A IFM-9 above)

**IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area:**

The project will use the protocol default of 20% "leakage" factor applied to the difference in actual harvest volume and the averaged harvest volume in the baseline scenario.

**IFM-17 Biological emissions from decomposition of forest products:**

This is quantified as a component of calculating carbon stored for 100 years in wood products (SSR#IFM-7) and landfills (SSR#IFM-8), as per Appendix C of the COP.

**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:**

30 tCO<sub>2</sub>e/acre (preliminary estimate)

**IFM-3 Standing Dead:**

3 tCO<sub>2</sub>e/acre (preliminary estimate)

**IFM-6 Soil (if applicable):**

N/A (see section A IFM-6 above)

**IFM-7 Carbon in in-use forest products:**

0 tCO<sub>2</sub>e

**IFM-8 Forest product carbon in landfills (if applicable):**

0 tCO<sub>2</sub>e

**IFM- 9 Biological emissions from site preparation:**

N/A

**IFM-14 Biological emissions/removals from change in harvesting on forestland outside project area:**

0 tCO<sub>2</sub>e

**IFM-17 Biological emissions from decomposition of forest products:**

0 tCO<sub>2</sub>e

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

The preliminary estimate of the total onsite carbon stocks final sampling error is 5% based on a 90% confidence interval.

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

The preliminary estimate of the project's reversal rating and expected annual contribution to the Forest Buffer Account is 19.24%, as per ARB formula contained in Appendix D of the Compliance Offset Protocol U.S. Forest Projects (November 14, 2014).

Risk Category	Contribution from Risk (Score)	(1-Score)
Financial	Default Risk 5.0%	95.00%
Management		
- Illegal Removals of Forest Biomass	Default Risk 0.0%	100.00%
- Conversion to Alternative Land Use	Default Risk 2.0%	98.00%
- Over-Harvesting	Default Risk 2.0%	98.00%
Social	Default Risk 2.0%	98.00%
Natural Disturbance		
- Wildfire	Default Risk 4.0%	96.00%
- Disease or Insect Outbreak	Default Risk 3.0%	97.00%
- Other Catastrophic Events	Default Risk 3.0%	97.00%

$$1-((1-0.05) \times (1-0) \times (1-0.02) \times (1-0.02) \times (1-0.04) \times (1-0.03) \times (1-0.03)) = 19.24\%$$



## **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, November 14, 2014.**

#### **1. Silvicultural Methods**

The silvicultural prescriptions used for the model are differentiated by forest type and whether the stand is a plantation or mixed age natural stand. The prescription used for the plantations includes a chipper thin from below once stand volume reaches 3 Mbf/acre with a residual target of 120 trees/acre. The next entry is a sawlog harvest done 15 years later. The third entry is a shelterwood cut done 15 years after the sawlog harvest followed by a supplemental planting of 70% ponderosa pine and 30% Douglas-fir at a planting density of 300 trees/acre. The final entry is an overstory removal done 10 years after the shelterwood cut. The harvest cycle then restarts once the stand reaches a volume of 3 Mbf/acre.

The silvicultural prescription used on the mixed age natural stands includes uneven aged management through commercial thinning. A stand will be eligible for thinning once it reaches 3 Mbf/acre. Thinning will occur from below, with a 7" DBH lower diameter cut limit. The stand will also be thinned from above, with a lower diameter cut limit of 16" DBH. The objective of thinning entries is to reduce stocking to about 40 square feet of basal area per acre. Natural regeneration will occur at 75 trees/acre after each thinning with a species mix of 70% ponderosa pine, 10% Douglas-fir and 20% other conifers. Once thinned, a stand will not be eligible for thinning for at least 15 year.

#### **2. Legal Constraints**

The legal constraints affecting forest management activities in the Oregon portion of the project area are contained in the Oregon Department of Forestry Forest Practices Administrative Rules that implements the Oregon Forest Practices Act. The project modeling plan meets the requirements of these rules by utilizing silvicultural methods that conform to leave-tree and reforestation requirements following an entry. Riparian rules, including vegetation retention along designated streams, are met by not allowing the model to simulate any entry into those stands.

The legal constraints affecting forest management activities in the California portion of the project area are contained in the California Forest Practices Rules that implement the Z'berg-Nejedly Forest Practice Act. The key constraints affecting forest management activities include minimum stocking standards, adjacency constraints, and required protection zones - mostly along streams.

#### **3. Site Indexes & Source of Index Values**

Site index will be based off of measured dominant and codominant trees' diameters and heights as outlined in the project's new inventory design and procedures. These measurements will be used along with the appropriate site index reference curve for use in the growth and yield modeling described below in Section VIII.A.1.4.

#### **4. Model Used & Calibration**

The project will use the South Central Oregon and Northeast California (SO) Variant of the US Forest Service's Forest Vegetation Simulator (FVS) to develop estimates of growth and yield for input into the forest planning process. FVS will be parameterized to represent the above noted silvicultural prescriptions and site productivity metrics. When inventory plots are revisited the resulting data can be used to calibrate the model to represent local conditions. Forest planning in



<p>the form of silvicultural prescription adoption and harvest scheduling will be accomplished using a linear programming model based on the project carbon inventory and FVS growth and yield results.</p>	
<p><b>2. Describe and estimate the project's baseline onsite carbon stocks. Explain any annual changes in baseline carbon stocks over time.</b>          The modeling of preliminary above-ground live tree carbon stocks in the baseline scenario average 24 tCO<sub>2</sub>/acre over the 100-year modeling time horizon. Annual changes in baseline carbon stocks are the result of considering all legal and financial constraints in the model.  <i>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.</i></p>	
<p><b>3. Identify the approved growth model that will be used for the project.</b>          The South Central Oregon and Northeast California (SO) Variant of the US Forest Service's Forest Vegetation Simulator (FVS) will be used as the growth model for the project.</p>	
<p><b>4. Harvest Planning</b></p>	
<p><b>a. Is harvesting planned in the Project Area?</b>  <i>If "yes," proceed to question 4b. Otherwise, skip to question A5.</i></p>	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>
<p><b>b. Will the project use a harvest schedule model?</b>  <i>If "yes," proceed to question 4c. Otherwise, skip to question A5.</i></p>	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>
<p><b>c. How do you plan to address age class and stratification as part of your harvest scheduling?</b>          Harvest scheduling will be constrained so that no more than 40% of the Project Area is in age classes less than 20 years old. Harvest unit age class and stratum will be updated post harvest based on the silvicultural prescriptions utilized (even-aged versus uneven-aged).</p>	
<p><b>5. Provide an estimate of carbon that will be stored long-term in harvested wood products in the baseline.</b>          The preliminary estimate of average carbon that will be stored long-term in harvested wood products in the baseline (including landfill) is 1.8tCO<sub>2</sub>e per acre.</p>	
<p><b>B. Required for Improved Forest Management Projects on Private Lands ONLY</b></p>	
<p><b>1. Provide the estimated initial above ground standing live carbon stock per acre for the project, if known.</b>          The preliminary estimate for the initial above ground standing live tree carbon stock is 24 tCO<sub>2</sub>e per acre.</p>	
<p><b>2. Provide the estimated adjusted above ground standing live carb stock per acre, if known.</b>          The preliminary estimate for the adjusted above ground standing live carbon stock is 25 tCO<sub>2</sub>e per acre.</p>	
<p><b>3. Provide the Common Practice statistic associated with the Project Area.</b>          The preliminary estimate for the Common Practice Statistic associated with the Project Area is 84.0 tCO<sub>2</sub>e per acre.</p>	
<p><b>4. Are the Project Area's initial above-ground standing live carbon stocks per acre above or below Common Practice?</b>  <b>If below Common Practice, what is the High Stocking Reference for the Project Area?</b>          The Project Area was heavily harvested as outlined in Section V.I. with inventory levels growing over the prior 10-year period. Attachment I uses Equation 6.6. of the COP to determining the Minimum Baseline Level (MBL) where initial stocks are equal to or below Common Practice as they are in this case as well as a graph of past stocking levels.  <i>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.</i></p>	<input type="checkbox"/> <b>Above</b> <input checked="" type="checkbox"/> <b>Below</b>
<p><b>5. Does the Forest Owner(s) and its affiliate(s) own land in fee or hold timber rights on land outside the Project Area?</b>  <i>If "no," skip to question B.6.</i></p>	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>
<p><b>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)?</b>  <i>If "no," skip to question B.6.</i></p>	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>
<p><b>If "yes," is inventory data available for the LMU or will the OPO use a stratified vegetation analysis?</b></p>	<input checked="" type="checkbox"/> <b>Data available for LMU</b> <input type="checkbox"/> <b>Stratified Vegetation Analysis</b>

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 Oregon, the legal constraints affecting forest management activities in the Project Area are contained in the Oregon Department of Forestry Forest Practices Administrative Rules that implement the Oregon Forest Practices Act statute. The key constraints affecting forest management activities include limits on the size of clearcuts, reforestation requirements, and vegetation retention along certain streams.

In California, the legal constraints affecting forest management activities in the project area are contained in the California Forest Practices Rules that implement the Z'berg-Nejedly Forest Practice Act. The key constraints affecting forest management activities include minimum stocking standards, adjacency constraints, and required protection zones - mostly along streams.

7. Provide a description of the modeling techniques used to simulate the effects of the constraint.

The project modeling plan meets the requirements of these rules by utilizing silvicultural methods that conform to leave-tree and reforestation requirements following an entry. Riparian rules, including vegetation retention along designated streams, are met by not allowing the model to simulate any entry into those stands.

8. How does 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

Supporting documentation is required. Submit as attachment labeled "Attachment J." See Part X of this listing document for more information.

**C. Required for Improved Forest Management Projects on Public Lands ONLY**

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.

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.

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:

N/A

Reporting Period(s):

N/A

Vintage(s):

N/A

Number of Credits Issued:



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.

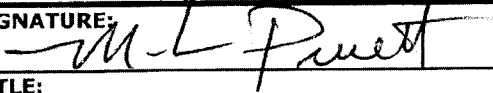
- B. If the answer to Part IV.C is "public," provide documentation demonstrating explicit approval of the offset project's management activities and baseline including any public vetting processes necessary to evaluate management and policy decisions concerning the offset project. ☒ N/A
- C. If a Qualified 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, November 14, 2014 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 (4<sup>th</sup> 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<sub>2</sub>e depicted on the y-axis.
- H. Attach a diagram of the baseline incorporating all required carbon stocks.
- I. For projects on private lands ONLY: 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
- J. For projects on private lands ONLY: Provide a description and supporting evidence, if applicable, that the growth and harvesting regime assumed for the baseline is financially feasible based on the qualifications in Section 6.2.1.3 of the Protocol. ☐ N/A

#### PART XI. ATTESTATIONS AND OPO SIGNATURE

 MSP 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:		Crediting Period Start Date:	Crediting Period End Date:
	Green Diamond Resource Company - Klamath West		09/29/2014	09/28/2039
	IFM	from	to	
will be measured in accordance with the Compliance Offset Protocol U.S. Forest Projects, November 14, 2014, and all information required to be submitted to ARB is true, accurate, and complete.				
 MSP 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.			
	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 and regulations 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:



PRINTED NAME:

Mike Pruett

TITLE:

VP of Land Management and Business  
Development

DATE:

9/22/15

Revised  
9/26/15

## 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, November 14, 2014, for listing an offset project. The U.S. Forest protocol 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

This form is protected with restricted editing to facilitate completing the form. If the applicant wishes to unprotect the form, the password is "form".

### 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, November 14, 2014.
- 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, November 14, 2014.
- Details on the Natural Forest Management criteria can be found in Table 3.2 in the Compliance Offset Protocol U.S. Forest Project, November 14, 2014.

**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, November 14, 2014 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, November 14, 2014 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, November 14, 2014 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, November 14, 2014.
- 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 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.
- Amendments adopted in April 2014 to section 95975(d) require the attestations "be provided to an Offset Project Registry with the listing information, if being listed with an Offset Project Registry."
- The individual signing the document must be registered in CITSS as the OPO's Primary Account Representative or Alternate Account Representative. The individual signing the document may be an APD employee and/or representative; but to sign the document, the individual must be an Account Representative on the OPO's CITSS account.
- Please provide the person's signature, printed name, corporate title, and date signed.

Please contact your Offset Project Registry with any questions.