DEPARTMENT OF FORESTRY AND FIRE PROTECTION
SOUTHERN REGION HEADQUARTERS
1234 East Shaw Avenue
Fresno, CA 93710-7899
(559) 243-4100
Website: www.fire.ca.gov

OFFICIAL RESPONSE OF THE DIRECTOR OF THE CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION TO SIGNIFICANT ENVIRONMENTAL POINTS RAISED DURING THE TIMBER HARVESTING PLAN EVALUATION PROCESS

THP NUMBER: 4-20-00017-ELD

SUBMITTER: Sierra Pacific Industries

COUNTY: El Dorado

END OF PUBLIC COMMENT PERIOD: September 2, 2020

DATE OF OFFICIAL RESPONSE/DATE OF APPROVAL: October 27, 2020

The California Department of Forestry and Fire Protection has prepared the following response to significant environmental points raised during the evaluation of the above-referenced plan. Comments made on like topics were grouped together and addressed in a single response. Where a comment raised a unique topic, a separate response is made. Remarks concerning the validity of the review process for timber operations, questions of law, or topics or concerns so remote or speculative that they could not be reasonably assessed or related to the outcome of a timber operation, have not been addressed.

Sincerely,

John Ramaley, RPF #2504
Forester III
Cascade, Sierra & Southern Regions

cc: Unit Chief
RPF, Sierra Pacific Industries, Plan Submitter
Dept. of Fish & Wildlife, Reg. 2, Water Quality, Reg. 5A
Pete Sarellana
Hannah Bartholomew

COMMON FOREST PRACTICE ABBREVIATIONS

CAL FIRE	Department of Forestry & Fire Protection	FPR	Forest Practice Rules
CAA	Confidential Archaeological Addendum	LTO	Licensed Timber Operator
CESA	California Endangered Species Act	NMFS	National Marine Fisheries Service
CEQA	California Environmental Quality Act	PHI	Pre-Harvest Inspection
CIA	Cumulative Impacts Assessment	RPF	Registered Professional Forester
CGS	California Geological Survey	THP	Timber Harvest Plan
CSO	California Spotted Owl	USFS	United States Forest Service
DBH	Diameter at Breast Height	WLPZ	Watercourse/Lake Protection Zone
DFG	Department of Fish & Game	WQ	California Regional Water Quality Control Board
DPR	Department of Pesticide Regulation	PCA	Pest Control Advisor
NSO	Northern Spotted Owl	*[SIC]*	Word used verbatim as originally printed in another document. May indicate a misspelling or uncommon word usage.
CDFW/DFW	California Dept. of Fish & Wildlife		

AB 32	Assembly Bill 32	ARB	Air Resources Board
NPP	Net Primary Production	BOF	Board of Forestry
NEPA	National Environ. Policy Act	CAPCOA	Calif. Air Pollution Control Officers Assoc.
NEP	Net Ecosystem Production	CCR	Calif. Code of Regulations
NTMP	NonIndust. Timb. Manag. Plan	CESA	Calif. Endangered Species Act
OPR	Govrn's Office of Plan. & Res.		
Pg	Petagram = 10^{15} grams		
PNW	Pacific NorthWest		
CO_2	Carbon Dioxide	PRC	Public Resources Code
CO_2e	Carbon Dioxide equivalent	RPA	Resource Plan. and Assess.
DBH/dbh	Diameter Breast Height	RPF	Registered Professional Forester
DFG	Calif. Department of Fish and Game	SPI	Sierra Pacific Industries
EPA	Environmental Protection Agency	SYP	Sustained Yield Plan
FPA	Forest Practice Act	tC	tonnes of carbon
FPR	Forest Practice Rules	Tg	Teragram = 10^{12} grams
GHG	Greenhouse Gas	THP	Timber Harvesting Plan
ha^{-1}	per hectare	LBM	Live Tree Biomass
LTSY	Long Term Sustained Yield	TPZ	Timber Production Zone
m^{-2}	per square meter	USFWS	U.S. Fish & Wildlife Service
MAI	Mean Annual Increment	WAA	Watershed Assessment Area
MMBF	Million Board Feet	WLPZ	Watercourse. & Lake Prot. Zone
$MMTCO_2E$	Million Metric Tons CO_2 equivalent	yr^{-1}	per year

NOTIFICATION PROCESS

In order to notify the public of the proposed timber harvesting, and to ascertain whether there are any concerns with the plan, the following actions are automatically taken on each THP submitted to CAL FIRE:

- Notice of the timber operation is sent to all adjacent landowners if the boundary is within 300 feet of the proposed harvesting, (As per 14 CCR § 1032.7(e))
- Notice of the Plan is submitted to the county clerk for posting with the other environmental notices. (14 CCR § 1032.8(a))
- Notice of the plan is posted at the Department's local office and in Southern-Sierra office in Fresno. (14 CCR § 1032))
- Notice is posted with the Secretary for Resources in Sacramento. (14 CCR § 1032.8(c))
- Notice of the THP is sent to those organizations and individuals on the Department's current list for notification of the plans in the county. (14 CCR § 1032.9(b))
- A notice of the proposed timber operation is posted at a conspicuous location on the public road nearest the plan site. (14 CCR § 1032.7(g))

THP REVIEW PROCESS

The laws and regulations that govern the timber harvesting plan (THP) review process are found in Statute law in the form of the Forest Practice Act which is contained in the Public Resources Code (PRC), and Administrative law in the rules of the Board of Forestry (rules) which are contained in the California Code of Regulations (CCR).

The rules are lengthy in scope and detail and provide explicit instructions for permissible and prohibited actions that govern the conduct of timber operations in the field. The major categories covered by the rules include:

*THP contents and the THP review process
*Silvicultural methods
*Harvesting practices and erosion control
*Site preparation
*Watercourse and Lake Protection
*Hazard Reduction
*Fire Protection
*Forest insect and disease protection practices
*Logging roads and landing

When a THP is submitted to the California Department of Forestry and Fire Protection (CAL FIRE) a multidisciplinary review team conducts the first review team meeting to assess the THP. The review team normally consists of, but is not necessarily limited to, representatives of CAL FIRE, the Department of Fish and Game (DFW), and the Regional

Water Quality Control Board (WQ). The California Geological Survey (CGS) also reviews THP's for indications of potential slope instability. The purpose of the first review team meeting is to assess the logging plan and determine on a preliminary basis whether it conforms to the

rules of the Board of Forestry. Additionally, questions are formulated which are to be answered by a field inspection team.

Next, a preharvest inspection (PHI) is normally conducted to examine the THP area and the logging plan. All review team members may attend, as well as other experts and agency personnel whom CAL FIRE may request. As a result of the PHI, additional recommendations may be formulated to provide greater environmental protection.

After a PHI, a second review team meeting is conducted to examine the field inspection reports and to finalize any additional recommendations or changes in the THP. The review team transmits these recommendations to the RPF, who must respond to each one. The director's representative considers public comment, the adequacy of the registered professional forester's (RPF's) response, and the recommendations of the review team chair before reaching a decision to approve or deny a THP. If a THP is approved, logging may commence. The THP is valid for up to five years, and may be extended under special circumstances for a maximum of 2 years more for a total of 7 years.

Before commencing operations, the plan submitter must notify CAL FIRE. During operations, CAL FIRE periodically inspects the logging area for THP and rule compliance. The number of the inspections will depend upon the plan size, duration, complexity, regeneration method, and the potential for impacts. The contents of the THP and the rules provide the criteria CAL FIRE inspectors use to determine compliance. While CAL FIRE cannot guarantee that a violation will not occur, it is CAL FIRE's policy to pursue vigorously the prompt and positive enforcement of the Forest Practice Act, the forest practice rules, related laws and regulations, and environmental protection measures applying to timber operations on the timberlands of the State. This enforcement policy is directed primarily at preventing and deterring forest practice violations, and secondarily at prompt and appropriate correction of violations when they occur.

The general means of enforcement of the Forest Practice Act, forest practice rules, and the other related regulations range from the use of violation notices which may require corrective actions, to criminal proceedings through the court system. Civil, administrative civil penalty, Timber operator licensing, and RPF licensing actions can also be taken.

THP review and assessment is based on the assumption that there will be no violations that will adversely affect water quality or watershed values significantly. Most forest practice violations are correctable and CAL FIRE's enforcement program seeks to assure correction. Where non-correctable violations occur, civil or criminal action may be taken against the offender. Depending on the outcome of the case and the court in which the case is heard, some sort of supplemental environmental corrective work may be required. This is intended to offset non-correctable adverse impacts. Once a THP is completed, a completion report must be submitted certifying that the area meets the requirements of the rules. CAL FIRE inspects the completed area to verify that all the rules have been followed including erosion control work.

Depending on the silvicultural system used, the stocking standards of the rules must be met immediately or in certain cases within five years. A stocking report must be filed to certify that the requirements have been met. If the stocking standards have not been met, the area must be planted annually until it is restored. If the landowner fails to restock the land, CAL FIRE may hire a contractor to complete the work and seek recovery of the cost from the landowner.

The following issues/concerns were raised during the public comment period and are addressed as follows:

Concern #1:

My name is Peter & Sharon Sarellana and we are the owners of Parcel # 040-230-024-000, physical address 6781 Omo Ranch Road, Somerset, CA 95684, composed of forty (40) acres.

It is our understanding Sierra Pacific Land & Timber (SPL&T) will be harvesting timber to the north of our property on property owned by them. To access (SPL&T) at that location they must drive down Mill Road, then Little Mountain Road which ends when reaching our 40 acres. They then drive on our private road to Pl & P3, thru a gate located at the property line, and onto their property. Enclosed are maps showing those roads.

This letter is to advise you that the Little Mountain continuation road located on our property is in terrible shape and condition and will require extensive grading, etc. if they wish to drive there logging trucks and equipment on the road to access there property.

As a matter of information, back in November 2015, my son-in-law Patrick Crawley had a discussion concerning road improvements with Eric Ferrell of the U.S. Forest Service and Gary Blanc & Craig of Sierra Pacific. Nothing ever happened following that discussion.

We would ask that the road repairs be looked into and considered. As a matter of information many, many years ago Otto Fancher, owner of Fancher Tree Farm and our property, had an agreement with the mill owners Oviatt-Wetsel, that they would maintain the road on my property if they were granted permission to use the private road to access there timber property. This was agreed upon.

Response #1: On August 14, 2020 the Sierra pacific Industries Martell District Manager Jay Francis provided a response to the letter of concern. The response indicated that Sierra Pacific Land and Timber does own land beyond 6781 Omo Ranch Road on Little Mountain Road, but harvesting activities associated with the Go-4-Gold THP, #4-20-00017-ELD will not occur on this road. This road will not be used for log hauling associated with this THP.

The Department has the jurisdiction to require road maintenance on roads which are appurtenant to the THP. Appurtenant road means a Logging Road under the ownership or control of the Timber Owner, Timberland Owner, Timber Operator, or plan submitter that will be used for log hauling. The Department confirmed that Little Mountain Road through 6781 Omo Ranch Road is not appurtenant to the THP. The Department can’t require maintenance to occur on this road. Maintenance issues on non-appurtenant roads are civil matters to be resolved between the users of the road.

Concern #2

I am commenting on the Timber Harvest Plan (THP) Number 4-20-00017-ELD to voice my concerns for the impacts that this plan could cause. Upon my review, I have noted many areas that cause concern and I do not believe that this plan would mitigate the cumulative impacts caused from timber harvest operations and associated impacts. This plan from Sierra Pacific Industries (SPI) includes 1096 acres of Harvest Area, however it also includes a total of 1606 acres of total Logging Area. This plan is within and in close proximity to Sopiago Creek and there are many concerns related to impacts to water quality both from sediment from logging areas, roads, and skid trails, and the impacts, which are not addressed in this plan from the use of herbicides.

This plan will transform a diverse mixed forest that has douglas fir, white fir, ponderosa pine, sugar pine and incense cedar forests into an even aged managed forest stand of one tree species. This directly alters the ecology of the forest and will not make it more fire safe, it will do the opposite. This THP does not acknowledge the significant effects on fire severity and of increased fire danger from logging old large trees and replacing them with tree plantations. The high fire risk in this area should not be increased by SPI's actions.

This plan does not state that SPI plans to use herbicides, rather it states that "SPI has used herbicides in the past for vegetation management in certain even-aged management units. If herbicides are used, their use and application will be prescribed on a site-specific basis by a licensed PCA". This is unacceptable, as the environmental impacts from every component of this THP must be disclosed and evaluated in this plan. There is a potential to impact water quality and wildlife by the use of herbicides in this THP. In other watersheds (Battle Creek) where water quality monitoring has occurred downstream of herbicide use have found impacts from this use. Additional details must be included in this THP that include the type of herbicide, quantities and application methods, time of year and frequency, and if residents will be notified prior to application. Cumulative impacts from herbicide use need to be included in this THP and should include all past herbicide applications to other plans or adjacent properties (USFS) for the past 10 years within this watershed.

There are many steep slopes and at least one area that is unstable and these areas should be avoided by all timber operations. This plan includes that "on slopes over 40% and on slopes over 30% that lead without flattening to course II watercourses, less than 50% of the soil surface shall be disturbed during mechanical site prep operations." Additionally, slopes steeper than 50% where the erosion hazard rating is high will have ground based equipment used in this THP. This is not protective and does not seem adequate to ensure sediment is not increased to the nearby Sopiago Creek. I strongly recommend that requirements for turbidity monitoring be included in this THP to prove that sedimentation is not increased and that this plan is not impacting water quality. Baseline water quality data should be collected prior to harvesting, during, and after harvesting for a period of time to ensure that sediment is not being increased to meet the California Regional Water Quality Control Board's requirements for antidegradation of water quality. For soil stabilization straw mulch is proposed to be used, will this be certified weed free? Strongly recommend using a

certified weed free mulch to ensure that invasive weeds are not being accidentally planted. I also oppose granting these exceptions in this plan.

The impacts to wildlife have not been fully evaluated or mitigated. In 2019, a Northern Goshawk was reported within .25 miles of the THP area in section 18 (1998) and in 2002, a California Red Legged Frog was reported within .25 miles of the THP area in section 21. There are 8 California spotted owl nest territories within 1.3 miles of this THP area. This plan does not include details to adequately protect critical habitat for many areas that are needed for wildlife protection. Preoperational surveys should be required within and around the proposed harvest area in each location where previous sightings have been identified to ensure that any nesting California spotted owl and Northern Goshawk in the harvest area are not disturbed. Additional measures to protect wildlife should be included in this plan to ensure that there are no impacts to wildlife as part of this THP.

There appears to be many roads and culverts that require maintenance, which leads to concerns with past timber operations in this and surrounding areas that may have led to impacts from sedimentation. How will this plan ensure that the roads will be maintained and appropriate Best Management Practices (BMPs) will be in place prior to a rain event or during winter operations? How will the temporary class III water crossings be evaluated to ensure that they will not increase sediment delivery to Sopiago Creek?

I strongly urge you to restrict timber harvest operations on steep and unstable slopes, to include water quality monitoring within this watershed, to include additional measures to protect wildlife and the mature forest stands in these areas of this THP. I urge you to increase buffers along class I and II watercourses and to ensure protection of riparian and sensitive areas. I urge you to include additional protective measures for wildlife that are in this THP area and to better evaluate the cumulative impacts to wildlife. Additional cumulative impact assessment is needed to fully evaluate the impacts from this THP as currently the assessment is inadequate.

Response #2:

Wildfire Risk and Hazard:

The even-aged Alternative Prescription units will be regenerated with trees species found in the pre-harvest stand which are Sugar Pine, Ponderosa Pine, Douglas-fir, Incense Cedar, and White Fir. Starting on page 240 the THP does include an evaluation regarding the Wildfire Risk and Hazard Assessment. Per the Board of Forestry and Fire Protection Technical Rule Addendum Number 2 (TRA #2), Timber Harvesting Plans must evaluate for significant impacts associated with wildfire risk and hazard. As stated in the BOF TRA#2, “cumulative increase in wildfire risk and hazard can occur when the Effects of two or more activities from one or more Projects combine to produce a significant increase in forest fuel loading in the vicinity of residential dwellings and communities.”

The THP will utilize the fuelbreak prescription on over 50% of the THP area. The fuelbreak approved within this THP is considered a community fuelbreak area which can have a direct benefit to the community and forest ecosystem in the event of a wildland fire. Within shaded fuelbreaks horizontal and vertical continuity of fuels are treated with the purpose of reducing

the amount of combustible material so that when a fire burns through the shaded fuelbreak it will decrease in intensity, cool down, and drop from the canopy to the ground. Typically, within shaded fuelbreaks trees are thinned so the crowns of the residual trees do not touch. Spacing trees assists in keeping a fire on the forest floor where fire intensity can be decreased. Low fire intensity in a shaded fuelbreak allows firefighters to fight fire more effectively and directly. Hand and dozer fire lines and fire retardant drops are more effective when wildfires burn at low intensities.

Starting on page 240 the THP does discuss the effects of forest management in relation to wildfire risk and hazard. Page 240 and 241 state:

> *"Within the defined wildfire risk and hazard assessment area the THP proposes the use of the Fuelbreak silvicultural prescription (591 acres, about 53% of the THP acres). The intent of the proposed Fuelbreak treatment is to reduce the level of surface and ladder fuels, lower canopy bulk density, lower tree density, reduce the horizontal and vertical continuity of forest fuels, provide a high representation of larger diameter classes and reduce the threat of potential crown fires. These characteristics are consistent with the application of the proposed Fuelbreak treatment and will help regulate fire behavior and provide a defensible area for firefighting resources. The wildfire risk and hazard assessment area will experience a significant reduction in fuels and the vertical and horizontal continuity of live and dead fuels.*
>
> *The proposed THP Fuelbreak will implement a significant and strategic fuelbreak specifically designed to help protect adjacent communities and potential resources at risk in the region. Objectives of the Fuelbreak include but are not limited to the following:*
>
> - *Provide defensible space along the western boundary of the plan area along Omo Ranch Road. Road supported ridgetop shaded fuel break conditions have the potential to slow or impede the progress of a wildfire and provide an area where firefighting resources can effectively stage and backfire, go direct on the fire if feasible, and/or initiate aerial retardant drops that can penetrate to the ground surface.*
> - *Provide defensible space along the eastern boundary of the plan area along USFS North South Road. This area bisects across the approximate mid-point of Sopiago Creek and the road supported shaded fuelbreak will compartmentalize a geographic area that will have the potential to slow or impede the progress of a wildfire and provide an area where firefighting resources can effectively stage and backfire, go direct on the fire if feasible, and/or initiate aerial retardant drops that can penetrate to the ground surface.*
> - *Provide continuity between roads critical for wildfire prevention making them more accessible and safer to travel in the event of catastrophic wildfire. Several roads throughout the project area are tangent to fuelbreak ridges and run along secondary ridges that are east-west oriented and help to further bisect the watershed in several areas."*

In addition to the reduction of fuel loading that will be achieved using the fuelbreak prescription, the THP does address fire severity and probability within even aged stands on pages 241 and 242. The THP describes a mosaic of biomass and tree densities across the

landscape which are present in areas treated utilizing even-aged management. On page 242 the THP states, "*each generation of such stands can then combine with other differently aged stands to form the heterogeneity of fuel types across the landscape that make it more resilient to fire and afford suppression opportunities should that need arise*." The assessment describes a landscape and stand level assessment on pages 241 and 242:

> *"Within the even-aged management silviculture's (Commercial Thinning & Alternative), the levels of tree stocking are controlled throughout the life of the stand, with those levels kept no higher than needed for optimal stand growth. Individual trees grow up together with adjacent trees, and as the stand develops, the bottom of the live crowns lift and natural limb pruning occurs. No new trees are added to the understory of the stand, and in fact tree densities decrease with applications of periodic thinning.*
>
> *By contrast, under all-aged management with the frequent stand entries, there is essentially no control over stocking levels. Each entry in a stand results in new soil disturbance and the establishment of a new generation of trees (generally shade tolerant and persistent) in the understory. Over the span of several entries the resultant stand contains several (as many as five or six) generations of stocking, all combining to form horizontally uninterrupted and vertically continuous ladder fuels.*
>
> *SPI's management results in even-aged harvest entries of once in ten years in any given planning watershed. Over time, across the landscape, this results in a mosaic of stands with varying levels of biomass and live crown height. For instance, a younger stand may contain a very low level of biomass close to ground level, while an adjacent older stand has a higher biomass density but has outgrown the issue of low crown heights. The important point is that in the context of landscape level analysis, this management results in a great deal of heterogeneity in terms of the level of fire hazard. Moreover, this landscape is increasingly receiving fuel reduction treatments (generally linear shaded fuel breaks) further adding to the discontinuity of higher fuel level stands.*
>
> *This mosaic across the landscape of distinct areas 20 acres or less in size, wherein the spatial density of the biomass present is dramatically reduced, has aided firefighting efforts on several large fires in recent history as crews have successfully tied these areas together with fire line construction or aerial retardant drops. In addition, fire-line construction in a plantation is quicker and more efficient than an older or unevenly sized forest stand.*
>
> *In contrast, all-aged silviculture, as it has widely and historically been practiced on many ownerships in the Sierra Nevada, generally was applied frequently and continuously. That is, harvest entry return intervals were typically 10 to 15 years or less, but harvest units were typically hundreds or thousands of acres of contiguous area. This persistent creation of a new and receptive seedbed over large areas with every entry, combined with the shade tolerant residual overstory, most often resulted in a prolific new generation of trees in the understory whose age and height would become bracketed by a similar regeneration pulse a decade older, and one to come a decade hence. Given that this phenomenon was the norm across widespread landscapes in the Sierra Nevada for most of the period of 1940 through*

2000, with a concurrent exclusion of fire, it is reasonable to assume that the widespread practice of all-aged management has had a significant contribution in creating the overstocked forests with hazardous ladder fuel levels we are so concerned with today.

A better strategy is to continue even-aged treatments creating stands wherein stocking is kept at levels that promote rapid individual tree and stand growth that results in a quickly rising canopy height, an understory with low fuel loads, and a vigorous resistance to harmful insects and disease. Each generation of such stands can then combine with other differently aged stands to form the heterogeneity of fuel types across the landscape that make it more resilient to fire and afford suppression opportunities should that need arise.

Arguments that even-aged management should be avoided or somehow disallowed because distinct and relatively small stands scattered across the landscape may have a very temporal susceptibility to fire severity due to age or a treatment (such as pre-commercial thinning) simply do not stand up to reason. Indeed, Starrs.et. al. found that average annual fire probability was nearly always higher and more closely correlated to areas with federal ownership, federal fire protection, and reserve status ("reserved forest land" being defined as land permanently reserved from wood products utilization through statute or administrative designation). Starrs goes on to say that their results revealed a relatively minor effect of climate variables on fire probability compared to ownership, firefighting, and reserve status: with private ownership, state responsibility for fire protection, and unreserved (I.e. "managed") status having a lower average annual fire probability. The literature repeatedly asserts that altering the forest fuels through conversion, reduction and isolation is the only' proactive option available that can help reduce the potential rate of spread and intensity of large wildfires.

At the landscape level, the assessment describes a mosaic of conditions that will each respond differently to wildfire and suppression efforts. Guided by TRA #2, risk and hazard is assessed within areas in the vicinity of residential dwellings and communities. The THP addresses the risk in the vicinity of residential dwellings and communities by primarily utilizing the fuelbreak prescription adjacent to public roads which will specifically reduce the hazard by treating forest fuel loading in these areas through the implementation of the fuelbreak silviculture.

The issue of plantations being more or less “flammable” than other areas is highly dependent on the vegetation and stand conditions, along with myriad of other factors which cannot be simply attributed to these areas without examining the site specific conditions.

In the past, numerous studies have examined the fire hazard to a variety of harvested and unharvested landscapes. What appears universal from all of these studies is that no forest is free from fire risk. Forests are comprised of flammable materials and there is hardly a point in time where some component of the forest will not burn, provided the right conditions. Proper application of established silvicultural methods, combined with prescribed hazard reduction measures leads CAL FIRE to determine that the potential risk associated with private forestland management has been reduced to below the level of significance.

Beyond the actual area proposed for harvest, one must look to the larger landscape in order to understand the context that individual stands have in regards to overall fire hazard. Concerns relative to fire danger typically do not fully appreciate the diversity of stand conditions that exist across the landscape. Variability in fuel loading, composition and moisture greatly impact fire behavior. It is important to remember that areas proposed for evenage management are small in size, from a landscape perspective (20-30 acres depending on yarding method). As a result, even if a particular stand has a higher fire danger than a surrounding one, the area upon which that stand could impact overall fire hazard is very low. Except for instances where a fire has reached a plume-dominated or wind-driven state, rapid changes in vegetation types have the ability to significantly alter fire behavior. For instance, a fire that is moving through the crowns of a mature timber stand can move into a ground fire, when it reaches a plantation where spacing and competing vegetation is managed (as occurs on private timberlands). Recently completed evenage units can even act as impromptu fire breaks, stopping or slowing the progress of fire, similar to the Spatially Placed Area Fuel Treatments (SPLATs) being experimented with by the US Forest Service (Finney 2001). As a result, it is improper for CAL FIRE to conclude that any one silvicultural practice creates a significant fire risk.

Where even-aged management is utilized, the practice of clear-cutting followed by pile and burn addresses forest fuels from the current operation and previous harvest entries. The landscape level patchwork of different forest structure and age class does not increase fire hazard. With such a wide variety of forest types it is difficult to say that fire is going to travel through these stands at extreme or rapid rates of spread. On a temporal basis clearcutting has periods where the possibility of fire spread can be extreme. SPI manages their clearcut areas, with post-harvest site preparation and the retention of islands of non-treated areas to provide both visual and wildlife habitat qualities.

A clear cut before site preparation and piling is a worst case condition capable of dangerous rates of fire spread. However, once the site is prepared after piling and burning is completed the area will remain resistant to extreme fire behavior for at least 10 years. Just because a stand is even in height or age does not mean it has to be more prone to extreme fire behavior. Many of the older plantation harvest have an even-aged and even height forest structure that is unlikely to have high or extreme rates of fire spread.

Continuous forest cover of unmanaged stands is perhaps the worst forest condition present in California. The RIM Fire burned nearly 400 square miles of forest structure that most of the federally managed area was probably closest to Selection harvest or no harvest stand types. The continued use of selection silviculture or no management over wide areas of forest cover results in an uneven aged stand structure but it is continuous cover at the larger landscape level and is more prone to wild-fire and extreme rates of fire spread because there are no breaks in the canopy and the stands contain large amounts of ladder fuels that can convey a ground fire into the canopy. The 2014 King Fire had a single day in which close to 50,000 acres burned. A large plume dominated fire like this consumes every kind of forest stand in its path due to the intense level of heat within the plume.

Recent inspections of SPIs lands within the area burned in the King Fire shows variable post fire stand conditions. In areas where trees were thinned and whole tree logged, and the topography and aspect were favorable, the plantations suffered very little mortality due to the fire, whereas other plantation areas that had not been thinned or were located next to other forests that burned intensely, were almost entirely burned.

SPI develops and uses a fire plan that is updated each year for operations on timberlands it owns. Each operation employs the use of weather stations and describes acceptable activity levels depending on weather conditions. The Forest Practice Rules require certain practices and suppression equipment is located on site for all motorized equipment operations on forest land, brush land, or grass land in the state of California PRC 4427. For forest operations, there are additional restrictions regarding patrol, cable blocks, and equipment reporting practices required by Licensed Timber Operators. 14 CCR 958.

CAL FIRE finds that the fuel break prescription within the wildfire risk and hazard assessment area will reduce fuel loading in the vicinity of residential dwellings and communities. Due to the myriad of site specific conditions it is improper for CAL FIRE to conclude that any one silvicultural practice creates a significant fire risk.

Herbicide Use:

Herbicide use may be necessary within the THP area to ensure successful regeneration of commercial timber species. CAL FIRE finds that the plan contains the evaluation of the most likely herbicides that could be used on the project and for which there are approved and labeled uses as regulated by the EPA, CALEPA and the Department of Pesticide Regulation. The plan lists the herbicides currently utilized on the ownership for vegetation management. These are Imazapyr, Hexazinone, Glyphosate, Triclopyr, and Atrazine. The RPF has thoroughly addressed the potential use of herbicides under *CEQA Analysis of the Potential Use of Herbicides Associated With Evenaged Regeneration of This THP,* pages 243 through 254 of the THP. Should herbicides be used, SPI will be restricted to using approved forest application chemicals under the direction of a Pest Control Advisor permitted by the El Dorado County Agricultural Commissioner. At this time, the quantity of herbicide which may be used is speculative and unknown.

The U.S. Environmental Protection Agency regulates pesticide use nationwide and has exclusive authority over pesticide labeling. Use of a pesticide is limited to the applications and restrictions on the label, and the label restrictions are legally enforceable. The California Department of Pesticide Regulation (DPR) regulates pesticides within the State of California and has legal authority to adopt restrictions on pesticide use going beyond the regulations of the U.S. Environmental Protection Agency. 7 U.S.C.A. Sec. 136v. DPR operates with extensive authority in the California Food and Agricultural Code and in the California Code of Regulations.

Under California law, pesticide products must be registered by DPR to be sold and used in California. Before a substance is registered as a pesticide for the first time, DPR conducts a thorough evaluation. If DPR determines that further restrictions need to be placed on the use of a pesticide product to mitigate potential adverse effects including human health effects and environmental effects, DPR classifies the pesticide as a restricted pesticide, and individual applications need a permit from the county agricultural commissioner. After a pesticide is registered for use in this state, DPR has an ongoing obligation to review new information received about the pesticide that might show new problems beyond those identified in the registration process. Where the review of new information shows that a significant adverse impact has occurred or is likely to occur, DPR is required to reevaluate the registration.

DPR operates a statewide program of regulating pesticides and is the lead agency for regulating herbicide use under CEQA. DPR has the greatest authority of any state agency for analyzing and regulating herbicide use. Further, DPR acts before any other state or local agency can act because a herbicide product must be registered by DPR before it can be used at all. This lead agency role was confirmed in *City of Sacramento v. State Water Resources Control Board* (3d Dist, 1992) 2 Cal.App.4th 960, for DPR's predecessor in regulating pesticides.

DPR's program for regulating pesticides was certified by the Secretary of the Resources Agency as a functional equivalent program under Public Resources Code section 21080.5 in the same manner as CAL FIRE's program of regulating timber harvesting was certified. 14 C.C.R. Sec. 15251(i). Because the program is certified, DPR does not prepare environmental impact reports (EIRs) but prepares other documents in the place of EIRs. P.R.C. sec. 21080.5(d)(3). DPR's registration process takes into consideration that most herbicides will be used statewide. Because the registration evaluation process considers use of a herbicide in a broad area and in a variety of conditions, the documents are the functional equivalent of a program EIR for each pesticide. Site specific application and use of restricted pesticides is evaluated by the county agricultural commissioner during its review of applications for restricted materials permits. Not all pesticides are restricted, and only restricted pesticides require a permit from the county agricultural commissioner. Except for a pesticide that DPR has not designated as restricted, the commissioner can require a permit for its use if the commissioner makes a finding that the pesticide will present an undue hazard when used under local conditions.

When posting for public comment its proposed decision to register a new pesticide product and in approving the Public Notice for registration of a pesticide, DPR makes a finding as to whether the pesticide would cause a significant effect on the environment. Because DPR is the CEQA lead agency, this determination is binding on CAL FIRE. P.R.C. sec. 21080.1, 14 C.C.R. 15050. Accordingly, if a DPR-registered herbicide will be used in accordance with the directions and restrictions on the pesticide product label and any other restrictions established by DPR, CAL FIRE is required to find that the use will not have a significant effect on the environment unless there is new information showing significant or potentially significant effects not analyzed by DPR. As a responsible agency, CAL FIRE is barred from repeating the environmental analysis conducted by the lead agency.

Herbicide use in the general location of a THP may be either a part of the THP or a separate but related activity that is not controlled by the THP. Where the herbicide use is described in the THP as an integral part of the timber operations, CAL FIRE will need to review the herbicide use and its possible environmental effects. CAL FIRE will determine whether the proposed use would be consistent with the label and the registration limitations and whether DPR's lead agency determination of significance will still apply. CAL FIRE will also need to check for significant new information showing changes in circumstances or available information that would require new environmental analysis. Significant new information should be referred to DPR for that department's analysis as part of its ongoing evaluation program. CAL FIRE reviewers should look for simple and practical ways to avoid or mitigate potential new significant effects on the environment. Effects of herbicides proposed as part of the THP would be considered direct effects of the THP.

CAL FIRE believes that where herbicide use is related to the THP but not a part of the THP itself, the environmental effects would be regarded as indirect effects of the THP. The landowners may have ongoing management activities that may occur before a THP is approved, during operation of the THP, and after expiration of the THP when CAL FIRE's inspection authority has lapsed. The use is subject to independent, intervening decisions of the timberland owner, a pest control advisor, and in the case of restricted herbicides, the county agricultural commissioner, and these independent decisions may lead to no herbicide use at all or a use differing from predictions in a THP. CAL FIRE would not know whether in fact the timberland owner would use herbicides at all, which ones the owner may use if any, what restrictions the pest control advisor may recommend, and, in the case of restricted herbicides, what conditions the county agricultural commissioner may impose, however the THP does list and discuss the most often used herbicides in the forested landscape of industrial timberland owners. Even if the timberland owner provides herbicide use plans to CAL FIRE with a THP, the use plans may well be changed by the county agricultural commissioner if the timberland owner intends to use a restricted herbicide.

The effects are generally not cumulative impacts because herbicide uses related to different THPs are separated in time and distance so that their individual effects do not reinforce or interact with each other. Use may occur a year or two before a THP begins, then possibly two to five years after operations are complete to reduce competition with small seedlings, or later to release the young trees from competition with brush.

Food and Agricultural Code section 13152(c) requires DPR to maintain a statewide database of wells sampled for pesticide active ingredients. State of California agencies are required to submit results of well sampling to DPR. DPR also conducts well sampling for pesticide residues. To date, the database contains information on 272 individual wells that were sampled and found to have residues of atrazine. DPR investigations of these reports indicate that the residues appear not to be associated with silvicultural activities. DPR has not conducted, nor has it received reports of, systematic investigations of wells used for production of forest products.

The project proponent has proposed use of herbicides in accordance with Federal and State labeling and under the CEQA certified regulatory program administered in California by the Department of Pesticide Regulation (DPR). The County's agricultural commissioner oversees portions of the DPR's functional equivalent program and is designated as a state agency for the purposes of certification (3 CCR 6100(a)(7)). Detailed records are kept on any pesticide application. This information is tracked by DPR and is available to the public.

Prior to commercial application of any herbicides proposed in the plan, SPI must comply with California's DPR process that requires additional site specific analysis. The analysis takes the form of a written recommendation for herbicide use prepared by a licensed Pest Control Advisor (PCA). SPI must use contractors that are supervised by Licensed Qualified Applicators. SPI works with all contractors to ensure applications are conducted in a professional manner that strictly follows all regulatory and licensing requirements.

Steep Slopes:

When exceptions to the standards rules are proposed, the exception must be explained, justified, and approved. The Department relies heavily on the site-specific evaluation of the inter-disciplinary review team during pre-consultations and/or pre-harvest inspections. The

exceptions to use heavy equipment on steep slopes and unstable areas was evaluated during pre-consultations and during the pre-harvest inspection. Page 4 of the Pre-harvest Inspection report from Forest Practice Inspector Steve DeBenedet states,

> *"Under THP Item 14(I), the RPF proposed an exception to 14 CCR 954.2(j)(1) and (j)(2) in order to operate site preparation equipment on slopes over 40% and slopes over 30% that lead without flattening to a Class I or Class II watercourse. The RPF's proposal to operate on slopes up to 50% and on slopes up to 40% where the erosion hazard rating is high is acceptable if "site preparation" operations are in conformance with the definition of "site preparation" described in 14 CCR 895.1.*
>
> *Under THP item 19(b), the RPF proposed an exception to 14 CCR 954.3(e), which prohibits the use of ground based equipment in cable areas unless for one of the reasons specified in the rule. In addition to yarding logs from areas with low deflection, swing yarding, and providing tail holds, the RPF proposed to construct equipment settings for cable yarding equipment and use existing tractor roads on slopes between 50% and 65%. Equipment settings are limited to ridge tops and the proposed use should not have a detrimental effect on slope stability or water quality. During the PHI, I walked a portion of Unit 5831, where the exception is proposed, and saw wide, stable skid trails that were created in past entries. The use of these skid trails should not have a detrimental effect on slope stability or water quality if the soil stabilization methods prescribed in THP Item 18 are adhered to.*
>
> *Under THP item 19(g), the RPF proposed to operate ground based equipment on an unstable area. This proposal was reviewed by CAL FIRE and CGS during a pre-consultation on October 4, 2019. The proposal, as described in THP item 19(g) was agreed upon by CAL FIRE and CGS during the pre-consultation process. No additional recommendations were made because of this PHI.*
>
> *In Unit 5831, skid trails between 50% and 65%, where the EHR is High, were evaluated during the PHI. The skid trails were made from previous logging entries and were wide and stable. The use of these skid trails should not have a detrimental effect on slope stability or water quality if the soil stabilization methods prescribed in THP Item 18 are adhered to."*

Specific potential impacts were not identified during plan review. Following site specific inspections of the areas where exceptions are proposed, the review team found the exceptions to the standard rules should not have a detrimental effect on slope stability or water quality.

The use of the phrase "visible increase in turbidity" was designed by the BOF fairly recently to make it easier for a timber operator to determine when it was inappropriate to continue with operations without needing to use measuring instrumentation.

14 CCR 895.1 Significant Sediment Discharge *means soil erosion that is currently, or, as determined based upon visible physical conditions, may be in the future, discharged to watercourses or lakes in quantities that violate Water Quality Requirements or result in significant individual or cumulative adverse impacts to the beneficial uses of water. One*

indicator of a Significant Sediment Discharge is a visible increase in turbidity to receiving Class I, II, III, or IV waters.

The intent and purpose of the Watercourse and Lake Project Rules, "*is to ensure that Timber Operations do not potentially cause significant adverse site-specific and cumulative Impacts to the beneficial uses of water, native aquatic and Riparian-associated species, and the beneficial functions of Riparian zones; or result in an unauthorized take of listed aquatic species; or threaten to cause violation of any applicable legal requirements. This article also provides protection measures for application in watersheds with listed anadromous salmonids and watersheds listed as water quality limited under Section 303(d) of the Federal Clean Water Act."* [14 CCR 956]

The rules are designed to avoid impacts to water quality by limiting Timber Operations near watercourses, lakes, marshes, meadows, and other wet areas. An approved THP must follow strict mitigations to avoid impacts to water quality, turbidity standards, basin plans or the beneficial uses of water. All the following rules in this regard are in effect:

> **914.5, 934.5, 954.5 Servicing of Logging Equipment, Disposal of Refuse, Litter, Trash and Debris [All Districts]**
> The following standards shall be adhered to in servicing logging equipment and disposing of refuse, litter, trash and debris:
> **(a)** Equipment used in timber operations shall not be serviced in locations where servicing will allow grease, oil, or fuel to pass into lakes or watercourses.
> **(b)** Non-biodegradable refuse, litter, trash, and debris resulting from timber operations, and other activity in connection with the operations shall be disposed of concurrently with the conduct of timber operations.
>
> **914.6, 934.6, 954.6 Waterbreaks [All Districts, with variation]**
> The following standards are applicable to the construction of waterbreaks:
> **(a)** except as otherwise provided for in the rules:
> **(1)** All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations.
> **(2)** Installation of drainage facilities and structures is required from October 15 to November 15 and from April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours.
> **(b)** Waterbreaks shall be constructed concurrently with the construction of firebreaks and immediately upon conclusion of use of tractor roads, roads, layouts, and landings which do not have permanent and adequate drainage facilities, or drainage structures.
> **(c)** Distances between waterbreaks shall not exceed the following standards:

MAXIMUM DISTANCE BETWEEN WATERBREAKS

Estimated Hazard Road Rating	U.S. Equivalent Measure or Trail Gradient (in percent)				Metric Measure Road or Trail Gradient (in percent)			
10 or Less	11-25	26-50	>50		10 or less	11-25	26-50	>50
	Feet	Feet	Feet	Feet	Meters	Meters	Meters	Meters
Extreme	100	75	50	50	30.48	22.86	15.24	15.24
High	150	100	75	50	45.72	30.48	22.35	15.24
Moderate	200	150	100	75	60.96	45.72	30.48	22.35
Low	300	200	150	100	91.44	60.96	45.72	30.48

The appropriate waterbreak spacing shall be based upon the erosion hazard rating and road or trail gradient.

(d) Cable roads that are so deeply cut as to divert and carry water away from natural drainage patterns for more than 100 feet shall have waterbreaks installed on them at 100 feet intervals, or other appropriate erosion control measure may be applied if specified in the plan.
(e) Waterbreaks shall be installed at all natural watercourses on tractor roads and firebreaks regardless of the maximum distances specified in this section, except where permanent drainage facilities are provided.
(f) Waterbreaks shall be located to allow water to be discharged into some form of vegetative cover, duff, slash, rocks, or less erodible material wherever possible, and shall be constructed to provide for unrestricted discharge at the lower end of the waterbreak so that water will be discharged and spread in such a manner that erosion shall be minimized. Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks on roads and skid trail cause surface run-off to be concentrated on downslopes, roads or skid trails, other erosion controls shall be installed as needed to comply with Title 14 CCR 914 [934, 954].
(g) Waterbreaks shall be cut diagonally a minimum of 15.2 cm (6 inches) into the firm roadbed, cable road, skid trail or firebreak surface and shall have a continuous firm embankment of at least 15.2 cm (6 in.) in height immediately adjacent to the lower edge of the waterbreak cut.
(h) Waterbreaks or any other erosion controls on skid trails, cable roads, layouts, firebreaks, abandoned roads, and site preparation areas shall be maintained during the prescribed maintenance period and during timber operations as defined in PRC Sections 4527 and 4551.5 so that they continue to function in a manner which minimizes soil erosion and slope instability and which prevents degradation of the quality and beneficial uses of water. The method and timing of waterbreak repair and other erosion control maintenance shall be selected with due consideration given to the protection of residual trees and reproduction and the intent of 14 CCR 914 [934, 954].
(i) The prescribed maintenance period for waterbreaks and any other erosion control facilities on skid trails, cable roads, layouts, firebreaks, abandoned roads, and site preparation areas, shall be at least one year.
The Director may prescribe a maintenance period extending as much as three years after filing of the work completion report in accordance with 14 CCR 1050.

914.8, 934.8, 954.8 Tractor Road Watercourse Crossing [All Districts]
Watercourse crossing facilities on tractor roads shall be planned, constructed, maintained, and removed according to the following standards:
(a) The number of crossings shall be kept to a minimum. Existing crossing locations shall be used wherever feasible.

(b) A prepared watercourse crossing using a structure such as a bridge, culvert, or temporary log culvert shall be used to protect the watercourse from siltation where tractor roads cross a watercourse in which water may be present during the life of the crossing.
(c) Crossing facilities on watercourses that support fish shall allow for unrestricted passage of all life stages of fish that may be present, and for unrestricted passage of water. Such crossing facilities shall be fully described in sufficient clarity and detail to allow evaluation by the review team and the public, provide direction to the LTO for implementation, and provide enforceable standards for the inspector.
(d) Tractor road watercourse crossing facilities shall be removed and stabilized before the beginning of the winter period to the standards of 14 CCR § 923.9 [943.9, 963.9], subsections (p)(1)-(4), or as specified in the winter period operating plan. The RPF may propose an exception if explained and justified in the plan. The exception may be approved if found by the Director to be in conformance with this article.
(e) If the watercourse crossing involves a culvert, the minimum diameter shall be stated in the THP and the culvert shall be of a sufficient length to extend beyond the fill material.
(f) Consistent with the protection of water quality, exceptions may be provided through the Fish and Game Code and shall be indicated in the plan.

916.3, 936.3, 956.3 General Limitations Near Watercourses, Lakes, Marshes, Meadows and Other Wet Areas [All Districts]
The quality and beneficial uses of water shall not be unreasonably degraded by timber operations. During timber operations, the timber operator shall not place, discharge, or dispose of or deposit in such a manner as to permit to pass into the water of this state, any substances or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, or the quality and beneficial uses of water. All provisions of this article shall be applied in a manner which complies with this standard.
(a) When there is reasonable expectation that slash, debris, soil, or other material resulting from timber operations, falling or associated activities, will be deposited in Class I and Class II waters below the watercourse or lake transition line or in watercourses which contain or conduct Class IV water, those harvest activities shall be deferred until equipment is available for its removal, or another procedure and schedule for completion of corrective work is approved by the Director.
(b) Accidental depositions of soil or other debris in lakes or below the watercourse or lake transition line in waters classed I, II, and IV shall be removed immediately after the deposition or as approved by the Director.
(c) The timber operator shall not construct or reconstruct roads, construct or use tractor roads or landings in Class I, II, III or IV watercourses, in the WLPZ, marshes, wet meadows, and other wet areas unless when explained and justified in the THP by the RPF, and approved by the Director, except as follows:
(1) At prepared tractor road crossings as described in 914.8(b) [934.8(b), 954.8(b)].
(2) Crossings of Class III watercourses which are dry at the time of timber operations.
(3) At existing road crossings.
(4) At new tractor and road crossings approved as part of the Fish and Game Code process (F&GC 1600 et seq.).
Use of existing roads is addressed in 916.4(a) [936.4(a), 956.4(a)].
(d) Vegetation, other than commercial species, bordering and covering meadows and wet areas shall be retained and protected during timber operations unless explained and justified in the THP and approved by the Director. Soil within the meadows and wet areas shall be protected to the maximum extent possible.
(e) Trees cut within the WLPZ shall be felled away from the watercourse by pulling or other mechanical methods if necessary, in order to protect the residual vegetation in the WLPZ. Exceptions may be proposed in the THP and used when approved by the Director.
(f) Where less than 50% canopy exists in the WLPZs of Class I and II waters before timber operations, only sanitation salvage which protects the values described in 14 CCR 916.4(b) [936.4(b), 956.4(b)] shall be allowed.

(g) Recruitment of large woody debris for instream habitat shall be provided by retaining at least two living conifers per acre at least 16 inches diameter breast high and 50 ft. tall within 50 ft. of all Class I and II watercourses.

916.4, 936.4, 956.4 Watercourse and Lake Protection [All Districts]
(a) The RPF or supervised designee shall conduct a field examination of all lakes and watercourses and shall map all lakes and watercourses which contain or conduct Class I, II, III or IV waters.
(1) As part of this field examination, the RPF or supervised designee shall evaluate areas near, and areas with the potential to directly impact, watercourses and lakes for sensitive conditions including, but not limited to, existing and proposed roads, skidtrails and landings, unstable and erodible watercourse banks, unstable upslope areas, debris, jam potential, inadequate flow capacity, changeable channels, overflow channels, flood prone areas, and riparian zones wherein the values set forth in 14 CCR §§ 916.4(b) [936.4(b), 956.4(b)] are impaired. The RPF shall consider these conditions, and those measures needed to maintain, and restore to the extent feasible, the functions set forth in 14 CCR §§ 916.4(b) [936.4(b), 956.4(b)], when proposing WLPZ widths and protection measures. The plan shall identify such conditions, including where they may interact with proposed timber operations, that individually or cumulatively significantly and adversely affect the beneficial uses of water, and shall describe measures to protect and restore to the extent feasible, the beneficial uses of water. In proposing, reviewing, and approving such measures, preference shall be given to measures that are on-site, or to offsite measures where sites are located to maximize the benefits to the impacted portion of a watercourse or lake.
(2) As part of this field examination, the RPF or supervised designee shall map the location of spawning and rearing habitat for anadromous salmonids, and the condition of the habitat shall be evaluated using habitat typing that at a minimum identifies the pool, flatwater, and riffle percentages. The opportunity for habitat restoration shall be described within the plan for each Class I watercourse, and for each Class II watercourse that can be feasibly restored to a Class I.
(3) The mapping of conditions identified in subsection (a)(1) and (a)(2) above, and their protective measures, shall be sufficiently clear and detailed to permit the Director and the other review team representatives to evaluate the potential environmental impacts of timber operations, the proposed mitigation measures and the proposed restoration measures.
(4) The mapping of conditions identified in subsection (a)(1) and (a)(2) above, and their protective measures, shall be sufficiently clear and detailed to provide direction and clear guidance to the timber operator.
(5) The mapping of conditions identified in 14 CCR § 916.4 [936.4, 956.4] subsections (a)(1) and (a)(2), and their protective and restoration measures, should be done at a scale of 1:2,400. In site-specific cases, the mapping of critical locations of corrective work and logging operation impacts shall be done at a scale of at least 1:240 when the Director determines it is necessary to evaluate the plan.
(6) One set of photocopies of recent stereo aerial photographs of the plan area may be required by the Director.
(b) The standard width of the WLPZ and/or the associated basic protection measures shall be determined from Table I (14 CCR 916.5 [936.5, 956.5]) or Section 916.4(c) [956.4(c), 956.4(c)], and shall be stated in the plan. A combination of the rules, the plan, and mitigation measures shall provide protection for the following:
a. Water temperature control.
b. Streambed and flow modification by large woody debris.
c. Filtration of organic and inorganic material.
d. Upslope stability.
e. Bank and channel stabilization.
f. Spawning and rearing habitat for salmonids
g. Vegetation structure diversity for fish and wildlife habitat, possibly including but not limited to:
1. Vertical diversity
2. Migration corridor
3. Nesting, roosting, and escape

4. Food abundance
5. Microclimate modification
6. Snags
7. Surface cover

(1) Measures and the appropriate zone widths for the protection of the State's waters which have been taken from Table I (14 CCR 916.5 [936.5, 956.5]) or developed under Section 916.4(c) [936.4(c), 956.4(c)] shall be stated in the THP.
(2) All timber operations shall conform to the marking, flagging and other identification of protective measures specified in CCR 916.4 [936.4, 956.4] and 916.5 [936.5, 956.5] and the THP. Conformance shall be determined based on the evaluation of no less than a 200 foot lineal segment of each watercourse or lake.
(3) The width of the WLPZ shall be measured along the surface of the ground from the watercourse or lake transition line or in the absence of riparian vegetation from the top edge of the watercourse bank.
(4) Slopes shall be measured in percent for the proposed WLPZ. If topography within the proposed WLPZ is variable, segments of the proposed WLPZ should be segregated by slope class as indicated in Table I, 14 CCR 916.5 [936.5, 956.5].
(5) If requested by either party, and after on-the-ground inspection, the RPF and the Director may increase or decrease the width of a proposed WLPZ. A decrease shall not exceed 25 percent of the width as determined by the procedure prescribed in Sections 14 CCR 916.4(c) [936.4(c), 956.4(c)], and 916.5 [936.5, 956.5]. Such changes in zone width shall be based on considerations of soil, slope, climatic factors, biologic, hydrologic, and geologic values listed in Section 14 CCR 916.4(b) [936.4(b), 956.4(b)], silvicultural methods, yarding systems, road location, and site preparation activities. In no case shall the width be adjusted to less than 50 feet for Class I and II waters. Where soil surfaced roads exist within the standard WLPZ, no in-lieu reduction of WLPZ width shall be approved.
(6) Within the WLPZ, at least 75% surface cover and undisturbed area shall be retained to act as a filter strip for raindrop energy dissipation, and for wildlife habitat. This percentage may be adjusted to meet site specific conditions when proposed by the RPF and approved by the Director or where broadcast burning is conducted under the terms of a project type burning permit and in compliance with 14 CCR 915.2(b) [935.2(b), 955.2(b)].
(c) The protection and WLPZ widths for Class III and Class IV waters shall prevent the degradation of the downstream beneficial use of water and shall be determined on a site-specific basis.
(1) Where operations occur adjacent to Class III watercourses, the RPF shall designate in the THP an equipment limitation zone (ELZ) of at least 25 feet where sideslope steepness is less than 30% and at least 50 feet where sideslope steepness is 30% or greater unless explained and justified otherwise in the THP and approved by the Director. Class III watercourses within logging areas where the EHR is Low and the slopes are less than 30% shall not require an ELZ unless proposed by the RPF or required by the Director. The RPF shall describe the limitations on the use of heavy equipment in the THP. Where appropriate to protect the beneficial uses of water the RPF shall describe additional protection measures which may include surface cover retention, vegetation protection and timber falling limitations. The location of the areas of heavy equipment use in any ELZ shall be clearly described in the plan, or flagged or marked on the ground before the preharvest inspection. When necessary to protect the beneficial use of water, the RPF shall designate and the Director may require a WLPZ for Class III and Class IV waters or an ELZ for Class IV waters.
(2) The width of the WLPZ for Class III and IV waters shall be determined from on-site inspection. Minimum protective measures required when Class III and Class IV protection zones are necessary are contained in Table I 14 CCR 916.5 [936.5, 956.5].
(3) Soil deposited during timber operations in a Class III watercourse other than at a temporary crossing shall be removed and debris deposited during timber operations shall be removed or stabilized before the conclusion of timber operations, or before October 15. Temporary crossings shall be removed before the winter period, or as approved by the Director.
(4) When approved by the Director on an individual plan basis as provided in Section 14 CCR 916.4(c)(1) [936.4(c)(1), 956.4(c)(1)] Class IV waters shall be exempted from required protection

when such protection is inconsistent with the management objectives of the owner of the manmade watercourse. **(d)** Heavy equipment shall not be used in timber falling, yarding, or site preparation within the WLPZ unless such use is explained and justified in the THP and approved by the Director. **(e)** Flagging for heavy equipment use within the WLPZ adjacent to Class I waters and for all tractor road watercourse crossings of all watercourses must be completed before the preharvest inspection if one is conducted or start of operations, whichever comes first. Flagging for heavy equipment use within the WLPZ adjacent to Class II, III and IV waters may be done at the option of the RPF or as required by the Director on a site-specific basis.
(f) Subsection (d) does not apply to (1)-(4) below. Subsection (e) does not apply to (2)-(4) below.
(1) At prepared tractor road crossings as described in 914.8(b) [934.6(b), 954.8(b)].
(2) Crossings of Class III watercourses which are dry at the time of timber operations.
(3) At existing road crossings.
(4) At new tractor and road crossings approved as part of the Fish and Game Code Process (F&GC 1600 et seq.).

916.7, 936.7, 956.7 Reduction of Soil Loss [All Districts]
Within the watercourse and lake protection zone adjacent to Class I and Class II waters, areas where mineral soil exceeding 800 continuous square feet in size, exposed by timber operations, shall be treated for reduction of soil loss. Treatment shall be done prior to October 15th except that such bare areas created after October 15th shall be so treated within 10 days, or as agreed to by the Director. Stabilization measures shall be included and explained in the THP or other required notices. Stabilization measures shall be selected that will prevent significant movement of soil into Class I and II waters and may include, but need not be limited to, mulching, rip-rapping, grass seeding, or chemical soil stabilizers.
(a) This section does not apply to the traveled surface of roads. Erosion control measures on road surfaces are specified in 14 CCR 923 [943, 963].
(b) Where mineral soil has been exposed by timber operations on approaches to watercourse crossings of Class I or II waters, or Class III waters if an ELZ or WLPZ is required, the disturbed area shall be stabilized to the extent necessary to prevent the discharge of soil into watercourses or lakes in amounts deleterious to the quality and beneficial uses of water.
(c) Where necessary to protect beneficial uses of water from timber operations, protection measures, such as seeding, mulching, or replanting, shall be specified to retain and improve the natural ability of the ground cover within the standard width of the WLPZ to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes.

The Forest Practice Rules include a myriad of rules designed to protect water quality and the beneficial uses of water. Rules specific to the protection of water quality are found under Article 4 Harvesting Practices and Erosion Control, Article 5 Site Preparation, Article 6 Watercourse and Lake Protection, and Article 12 Logging, Roads, Landings, and Logging Road Watercourse Crossings. The Department evaluated this THP for conformance with these rules and found the THP to be in conformance. After approval of the THP, CAL FIRE conducts inspections of the logging area before, during and after timber operations to determine if the timber operations are conducted pursuant to the Forest Practice Rules and the THP. If issues are found, appropriate enforcement action is taken to address the issue and prevent it from occurring again. The numerous rules and regulations designed to prevent impacts to water quality are in effect during the implementation of this THP, therefore impacts to water quality are not expected.

Wildlife Protection:

The THP describes appropriate scoping for species which may occur within the biological assessment area. Surveys and protection measures are described on pages 69-76. The Department finds the RPF did his due diligence in scoping for wildlife species.

In the instance of requiring pre-operational surveys, it is important to reference what the RPF wrote on page 196 for contextual purposes. The plan states:

> *"Harvest plan development includes a number of actions that provide significant protections for raptors. Existing databases (NDDB, SPI, NSO, CSO, Forest Service, DFW, and CDF) are checked for locations of known raptor activity centers within 1 mile of proposed activities. Known raptor sites are provided protection, within the design of the harvest plan, based upon the current legal status (T&E, Board listed, or other non-listed raptor) and the current status of the activity center. Cal Fire, DFW and FWS are consulted as required by the State and Federal ESAs, FPA, and CEQA. Harvest plan design features that provide for raptor protection include unit location, amount of harvest, type of silviculture, and timing of management activities. For listed species, specific surveys are conducted as required by law, regulation, or SPI internal needs.*
>
> *In addition to the harvest plan design protection measures, SPI foresters, biologists, botanists, and contractors have been trained in the identification of raptor species likely to be using SPI land. This training includes office and field identification of individual species, and well as knowledge of other indicators of raptor use, such as plucking posts, prey remains, and nest structures. Over the last two decades, this type of training has allowed individuals to identify and document the majority of the raptor sites that are currently known to exist on or adjacent to SPI land. This discovery and documentation generally occurs during the normal processes of forest inventory and harvest plan preparation. This information provides an important feedback loop, since these discoveries are included, at a minimum, as an entry into SPI's database assuring the information is available to any new THP planning work."*

SPI has conducted all the appropriate database searches to determine if known raptors are located within the plan area and within the biological assessment area. The plan also elaborates about the protection measures given to listed and non-listed raptors and a detailed discussion is on page 197 of the THP:

Page 197

> *"**Listed Raptors***
> ***Listed Raptors Known Nest Sites***
> *It is SPI policy to visit all known active nest sites of listed raptors within 1/4 mile of harvest operations, if allowed by the landowner, to determine if operations could negatively impact specific raptor activities. Northern Goshawk, a BOF Sensitive species is within)1/4 of Harvest Areas proposed for this THP.*
>
> ***Listed Raptor Protection Measures***
> *When an occupied nest of any raptor is discovered it is SPI policy to conduct consultation with appropriate experts, and institute appropriate protection measures. For listed species, this process is described in Section II, item 32."*

Page 199

> *"**Non-listed Raptors***
> ***Non-listed raptor safeguard measures***
> ***Non-listed Raptors - Known Nest Sites***

Sierra Pacific Industries timberlands are managed to provide a broad range of diverse forest habitats important to raptor species. Unoccupied nest sites of non-listed species will generally not receive additional special consideration during THP preparation as there is neither evidence of a scarcity of available nesting sites in SPI forests nor an indication that raptors would be unable to find materials they could use to construct nests which would rise to a level of significant adverse impact. Historical nest sites located within harvest units or within 1/4 mile of harvest units will be visited during the year of harvest to determine occupancy status. If any nest site is determined to be currently occupied, protection measures shall be instituted as described below.

Non-listed Raptors - Nest Sites Discovered Prior to, or During, Operations
If an occupied nest of a non-listed raptor is discovered during timber operations, the timber operator will suspend all vegetation disturbing activities within 0.25 mile of the occupied nest until an SPI forester (or designee) with the advice of a biologist has designated the nest tree, perch trees(s), screening tree(s), and replacement trees(s), which shall be left standing and unharmed These and potentially other voluntary safeguard measures will be established to minimize disturbance and provide the birds a reasonable opportunity to achieve a successful nesting attempt. Since SPI can designate and not cut any trees it so chooses, no amendment to the THP is necessary. If the RPF decides to file an amendment it shall be considered a minor amendment to the timber harvesting plan and shall reflect the voluntary. safeguard measures implemented.

The most recent studies of Northern Spotted Owls (genetically very similar to California Spotted Owls, and whose prey and habitat uses are also very similar) demonstrate that forest edge habitat for the prey base is an integral component in spotted owl habitat (Meyer et al. 1998, Franklin et al. 2000, Zabel et al. 2003, Olsen et al. 2004). This is especially relevant in low to mid elevation, hardwood, hardwood conifer mixed, and pine I mixed conifer forest types. If there is adequate nesting habitat then food becomes the constraining influence on owl success. Harvesting creates edge that in turn causes the development of habitat types known to produce prey.

Because SPI's land contains adequate nesting and roosting habitat, and th rough management necessary prey producing "edge" habitat, SPI provides habitat for owls. Additionally, good silviculture practiced over time will increase the average tree diameter on SPl land from 17 inches to 32 inches. So that if we assume that more stands with large trees are better for owls, forest management on private timber lands will improve owl habitat. As explained in the alternative silviculture section of this THP (given the current condition of SPI forests after years of selective logging) cutting and re-growing trees will have the end effect of increasing average tree diameter. But the more important consideration is that enough nest sites already exist and will continue to exist so that increased edge will increase prey, which is expected to improve or maintain owl density. In addition, given that spotted owls can disperse through a wide range of forested landscapes, including highly fragmented landscapes, continued management in this manner will insure that diverse forest landscapes continue to exist on SPI land, allowing dispersal by juvenile and adult spotted owls to successfully occur (Forsman et al. 2002). Therefore, active silviculture is expected to enhance owl habitat across the Sierras. According to government projections viable populations will persist without

benefit from private lands and hence we anticipate only a potential positive effect from SPI's activities when analyzed on landscape or a Sierra wide basis.
In the biological opinion from the USFWS and in the Framework decision it is assumed that private land will not contribute to long term habitat for the California spotted owl. (USDI, 2001, USDI(A) 2003, USDA 2001, USDA 2004, USDI 2003) As can be clearly seen in the California spotted owl discussion in this THP, SPI not only contributes to the habitat, but improves the habitat through its management practices. This is acknowledged in the USFWS decisions not list the California spotted owl (USDI 2003, USDI 2006). We believe the current research supports our conclusion that we will improve habitats for the California spotted owl. This is presented in this THP under the California spotted owl and our consideration of feasible silviculture alternatives discussion. Because we are doing significantly more to create and preserve habitat than is contemplated in the Federal Documents we conclude that at the scale of the Sierra Nevada and in context with all available federal plans, that our THP, taken together with all of our reasonably foreseeable future THPs, is not likely to have a long term significant adverse effect on the California spotted owl.

While at this large scale, we are persuaded that there are no adverse impacts, we will continue our analysis at the local THP planning watershed scale. Below we begin this analysis by describing the large tree dense forest habitats found on SPI lands and how we used data from a number of species to describe and define such habitats.

Specific Non-Listed Raptor Species - Discussion
During the scoping process, it was determined that one non-listed raptor specie warranted specific discussion. This is the California spotted owl. Discussion is limited to the California spotted owl due to its perceived potential sensitivity to forest operations. All other non-listed raptor species that are typically found in forested areas similar to that in this THP, are widespread, common and are not particularly habitat sensitive within a variable forested environment. However, please note that all non-listed raptors nest sites will be protected as previously described."

In addition, the THP has protection measures for raptors in Section II, page 73.

"It is SPI policy to visit all known active nest sites of listed raptors within ¼ mile of harvest operations, if allowed by the landowner, to determine if operations could negatively impact specific raptor activities. Known nest sites or activity centers located within harvest units or areas with 0.25 miles of harvest units will be visited during the year of harvest to determine occupancy status.

Procedures upon Discovery of Raptors or Raptor Nests
Upon the discovery of any unknown large bird or an occupied nest of any raptor. personnel involved with the harvest operation will suspend vegetation-disturbing activities within 0.25 mile of the nest. Activities may resume after the species using the nest is identified, the appropriate measures below and any specified in the California Forest Practice Rules to protect the nest are determined and implemented on the ground.

Listed Raptors
In accordance with Forest Practices Rules. if an occupied nest of a listed bird (ESA. CESA. or Board of Forestry "Sensitive Species") is discovered during timber operations. the timber operator shall protect the nest tree. screening trees, perch trees, and replacement trees. Until any consultation required under Forest Practice Rules occurs, (1) vegetation disturbing activities will be suspended within ¼ mile of the nest, (2) all operations (per Public Resources Code §4527) will be suspended within a 375-foot radius buffer of the occupied nest, and (3) the Department of Fish and Wildlife and Department of Forestry and Fire Protection will be immediately notified. A minor amendment to the timber harvest plan shall be filed reflecting the protection agreed to between SPI and the Director of the Department of Forestry and Fire Protection after any consultation with the appropriate wildlife agency.

The 375-foot radius buffer is equivalent to a 10-acre area. which is the minimum buffer size for a bald eagle in 14 California Code of Regulations §919.3, §939.3, and §959.3. All other Forest Practice Rules listed species have smaller minimum buffer sizes. The 10-acre buffer was chosen since it is the largest default protection area. A radius of this size is also supported by a Biological Opinion of the US Fish and Wildlife Service regarding sight and noise disturbance distances for northern spotted owls and marbled murrelets."

The THP mentions a number of historic locations for California Spotted Owl (CASPO). Species protection and identification for CASPO and other listed and non-listed raptors is discussed in the plan. The THP discusses general survey efforts that will be made for raptor species. At this time, there is no provision within the rules of the BOF to provide restoration of habitat for CASPO. The species is not currently listed under either the federal or state endangered species acts. The plan contains protections for habitat for any non-listed raptor species, which includes CASPO, and these procedures are in excess of BOF rule requirements. CAL FIRE supports these measures as a preventative way to keep the species from being adversely impacted. The THP contains a map showing distribution of over 2,000 nesting pairs of the species that occur on a variety of public and private lands in the Sierra Nevada. The plan on pages 200-207 contains analysis of how the long-range program as outlined in the SPI Option "a" will increase nesting and foraging habitat for CASPO from an average of 20% to over 50% of SPI lands over the planning horizon. This particular plan retains multi-storied canopy layers in WLPZ's. A review of the aerial photography identified adjacent SPI lands within the assessment area where there is a habitat for CASPO and other raptor species. Adjacent harvest plans by SPI conducted commercial thinning and selection, and these areas provide interconnected forest cover with good canopy conditions conducive for CASPO.

Northern Goshawk: As described above, known sites will be visited the year of operations described within Section II, the plan of operations, for this THP. Page 198 provides a discussion pertaining to Northern Goshawk:

Page 198: "Northern Goshawk
Listing: The Northern Goshawk is listed as a "sensitive species" by the California Board of Forestry. It has no other listing status.

Range: The northern goshawk is an extremely successful and abundant predator, with a widespread range on a global scale. Northern goshawks are present and abundant on every continent in the northern hemisphere, across wide ranges of northern latitude.

Feeding: Hunts in wooded areas. Uses snags and dead-topped trees for observation and prey-plucking perches. Feeds mostly on birds, from robin to grouse in size. Small mammals, of squirrel and rabbit size, are often taken. Rarely eats carrion and insects. Prey caught in air, on ground, or in vegetation, using fast searching flight, or rapid dash from a perch.

Cover: Uses mature and old growth stands of conifer and deciduous habitats.

Reproductive: Usually nests on north slopes, near water in densest part of stands, but close to openings. Uses large live trees for nesting with mean dbh of 11 in. Uses old nests, and maintains alternate sites.

Pattern: Dense, mature conifer and deciduous forest, interspersed with meadows, other openings, and riparian areas required. Nesting habitat includes north facing slopes near water.

Northern Goshawk Habitat and Nest Sites within the BAA of this THP: There are two known northern goshawk sightings within one mile of the THP boundaries. (THP Item 32(a)). High probability goshawk habitat exists within and adjacent to the THP. Further surveys for Northern Goshawk will be conducted within the BAA boundary."

The Department finds the protection measures for listed and non-listed raptors are consistent with the Forest Practice Rules.

Page 69 and 70 of the THP includes a discussion and protection measures for California Red-Legged Frog. The THP states:

If CRLF frogs are discovered during the life of the plan, the following shall apply:

•To offer further protections to individual frogs which may be away from the relatively humid aquatic habitats in the arid Sierra Nevada, timing of harvest within 200 feet of known, historical, or newly discovered sites occupied by the CRLF will be such that no harvest will occur between November 15 and April 15 (winter period).
•Felling guidelines, for the summer period will be those of the FPR associated with WLPZs.
•Herbicide use will be restricted to areas outside the 200-foot buffer during the winter period. During the summer period the buffer will be that of the FPR for WLPZs widths.
•No pile or broadcast burning will occur within 200 feet of occupied and un-surveyed habitat.
•Water drafting from occupied or un-surveyed habitat must be done with a hose placed in a bucket in a deep pool. The bucket must be covered with <1 inch mesh and the mouth of the hose must be covered by ¼-inch mesh.
•No additional restrictions to protect the upland dispersal habitat of the CRLF will be necessary as the CRLF does not have any habitat preferences for dispersal habitat.

PROTECTION: Measures for WLPZs are expected to provide sufficient safeguards for potential habitat. Class I and Class II streams and wet areas will receive the required Watercourse and Lake Protection Zone treatment according to sections 14 CCR§§ 956.4 and 956.5, thereby adequately protecting the beneficial uses of water. WLPZs ensure that riparian habitats are not significantly altered or fragmented. WLPZs also function as sediment filters, which are designed to eliminate significant increases of in-stream silt loads.

The protection measures listed on page 69 and 70 were reviewed by the California Department of Fish and Wildlife. Additionally, the THP is located outside the current and historic range of CRLF. With avoidance measures and watercourse and lake protection measures, impacts to CRLF and associated habitat are not expected.

Road Maintenance

There are numerous rules which ensure that roads are maintained and erosion control measures are in place prior to a rain event. Also, note that as of January 1, 2015, all roads within Timber Harvest Plans must be hydrologically disconnected to the extent feasible. The 2015 Road Rules package contains a set of comprehensive revisions to the construction, reconstruction, maintenance and use of logging roads, and are designed with stringent water quality protections. Applicable rules are listed below:

923.5, 943.5, 963.5. Erosion Control for Logging Roads and Landings. [All Districts]

The following erosion control standards shall apply to Logging Roads and Landings:

(a) All Logging Road and Landing surfaces shall be adequately drained through the use of Logging Road and Landing surface shaping in combination with the installation of drainage structures or facilities and shall be hydrologically disconnected from Watercourses and lakes to the extent feasible. Guidance on methods for hydrologic disconnection may be found in "Board of Forestry Technical Rule Addendum Number 5: Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk Crossings" (1st Edition, revised 04/21/15), hereby incorporated by reference.

(b) Drainage facilities and structures shall be installed along all Logging Roads and all Landings that are used for Timber Operations in sufficient number to minimize soil erosion and sediment transport and to prevent significant sediment discharge.

(c) Ditch drains, associated necessary protective structures, and other features associated with the ditch drain shall:

(1) Be adequately sized to convey runoff.
(2) Minimize erosion of Logging Road and Landing surfaces.
(3) Avoid discharge onto unprotected fill.
(4) Discharge to erosion resistant material.
(5) Minimize potential adverse Impacts to slope stability.

(d) Waterbreaks and rolling dips installed across Logging Roads and Landings shall be of sufficient size and number and be located to avoid collecting and discharging concentrated runoff onto fills, erodible soils, unstable areas, and connected headwall swales.

(e) Where Logging Roads or Landings do not have permanent and adequate drainage, and where waterbreaks are to be used to control surface runoff, the waterbreaks shall be cut diagonally a minimum of six inches into the firm roadbed and shall have a continuous firm embankment of at least six inches in height immediately adjacent to the lower edge of the waterbreak cut. On Logging Roads that have firmly compacted surfaces, waterbreaks may be installed by hand methods and need not provide the additional six-inch embankment provided the waterbreak ditch is constructed so that it is at least six inches deep and six inches wide on the bottom and provided there is ample evidence based on slope, material, amount of rainfall, and period of use that the waterbreaks so constructed will be effective in diverting water flow from the Logging Road surface without the embankment.

(f) Distances between waterbreaks shall not exceed the following standards and consider erosion hazard rating and road gradient:

MAXIMUM DISTANCE BETWEEN WATERBREAKS

Estimated Hazard Rating	**Logging Road Gradient in Percent**		
	10 or less	**11-25**	**>25**
	Feet	Feet	Feet
Extreme	100	75	50
High	150	100	75
Moderate	200	150	100
Low	300	200	150

(g) Where outsloping and rolling dips are used to control surface runoff, the dip in the Logging Road grade shall be sufficient to capture runoff from the Logging Road surface. The steepness of cross-slope gradient in conjunction with the Logging Road or Landing gradient and the estimated soil erosion hazard rating shall be used to determine the rolling dip spacing in order to minimize soil erosion and sediment transport and to prevent significant sediment discharge. Guidance on rolling dip spacing may be found in "Board of Forestry Technical Rule Addendum Number 5: Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk Crossings" (1st Edition, revised 04/21/15), hereby incorporated by reference.

(h) Drainage facilities and structures shall discharge into vegetation, woody debris, or rock wherever possible. Where erosion-resistant material is not present, Slash, rock, or other energy dissipating material shall be installed below the drainage facility or drainage structure outlet as necessary to minimize soil erosion and sediment transport and to prevent significant sediment discharge. Guidance on energy dissipaters for drainage structures may be found in "Board of Forestry Technical Rule Addendum Number 5: Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk Crossings" (1st Edition, revised 04/21/15), hereby incorporated by reference.

(i) Where Logging Road and Landing surfaces, road approaches, inside ditches and drainage structures cannot be hydrologically disconnected, and where there is existing or the potential for significant sediment discharge, necessary and feasible treatments to prevent the discharge shall be described in the plan.

(j) All Logging Roads and Landings used for Timber Operations shall have adequate drainage upon completion of use for the year or by October 15, whichever is earlier. An exception is that drainage facilities and drainage structures do not need to be constructed on Logging Roads and Landings in use during the extended wet weather period provided that all such drainage facilities and drainage structures are installed prior to the start of rain that generates overland flow.

(k) Where Logging Road or Landing construction or reconstruction takes place during the extended wet weather period, drainage facilities and drainage structures shall be installed concurrent with construction or reconstruction operations.

(l) Bare soil on Logging Road or Landing cuts, fills, transported spoils, or sidecast that is created or exposed by Timber Operations shall be stabilized to the extent necessary to minimize soil erosion and sediment transport and to prevent significant sediment discharge. Sites to be stabilized include, but are not limited to:

(1) Sidecast or fill exceeding 20 feet in slope distance from the outside edge of a Logging Road or a Landing that has access to a Watercourse or lake.

(2) Cut and fills associated with approaches to Logging Road Watercourse crossings of Class I or II waters or Class III waters where an ELZ, EEZ, or a WLPZ is required.

(3) Bare areas exceeding 800 continuous square feet within a WLPZ.

(m) Soil stabilization measures shall be described in the plan pursuant to 14 CCR § 923.5(l) [943.5(l),963.5(l)], and may include, but are not limited to, removal, armoring with rip-rap, replanting, mulching, seeding, installing commercial erosion control devices to manufacturer's specifications, or chemical stabilizers.

(n) Where the natural ability of ground cover within a WLPZ is inadequate to protect the beneficial uses of water by minimizing soil erosion or by filtering sediments, the plan shall specify protection measures to retain

and improve the natural ability of the ground cover to filter sediment and minimize soil erosion.

(o) Soil stabilization treatments shall be in place upon completion of operations for the year of use or prior to the extended wet weather period, whichever comes first. An exception is that bare areas created during the extended wet weather period shall be treated prior to the start of rain that generates overland flow, or within 10 days of the creation of the bare area(s), whichever is sooner, or as agreed to by the Director.

(p) Overhanging or unstable concentrations of Slash, woody debris or soil along the downslope edge or face of Landings shall be removed or stabilized when it is located on slopes greater than 65 percent, within 100 feet of the boundary of a WLPZ on slopes greater than 50 percent that drain toward the zoned Watercourse or lake, or when it may result in significant sediment discharge. Removed materials shall not be placed at disposal sites that could result in a significant sediment discharge.

(q) In watersheds with listed anadromous salmonids and in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids, the following shall apply:

(1) Constructed and Reconstructed Logging Roads shall be outsloped where feasible and drained with waterbreaks or rolling dips.

(2) In addition to the provisions listed under 14 CCR § 923.2(d)(2) [943.2(d)(2), 963.2(d)(2)], all permanent and seasonal Logging Roads with a grade of 15 percent or greater that extend 500 continuous feet or more shall have specific erosion control measures stated in the plan.

(3) Within the WLPZ, and within any ELZ or EEZ designated for Watercourse or lake protection, treatments to stabilize soils, minimize soil erosion, and prevent significant sediment discharge shall be described in the plan as follows:

(A) In addition to the requirements of subsections (l)-(o), soil stabilization is required for the following areas:

1. Areas exceeding 100 continuous square feet where Timber Operations have exposed bare soil, and

2. Disturbed Logging Road and Landing cut banks and fills, and

3. Any other area of disturbed soil that threatens to cause significant sediment discharge.

(B) Where straw mulch is used, the minimum straw coverage shall be 90 percent, and any treated area that has been reused or has less than 90 percent surface cover shall be treated again by the end of Timber Operations.

(C) Where Slash mulch is applied, a minimum of 75% of the area shall be covered by Slash in contact with the ground.

(D) For areas disturbed outside of the extended wet weather period, treatment shall be completed prior to the start of any rain that causes overland flow across or along the disturbed surface that could result in significant sediment discharge.

(E) For areas disturbed during the extended wet weather period, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days of disturbance, whichever is earlier.

(F) Where the natural ability of ground cover is inadequate to protect the beneficial uses of water by minimizing soil erosion or by filtering sediments within any ELZ or EEZ designated for Watercourse or lake protection, the plan shall specify protection measures to retain and improve the natural ability of the ground cover to filter sediment and minimize soil erosion.

923.6, 943.6, 963.6. Use of Logging Roads and Landings. [All Districts]

The following use standards shall apply to Logging Roads and Landings:

(a) Logging Roads and Landings shall be used in a manner that is consistent with their design and construction specifications.

(b) Logging Roads and Landings shall not be used during any time of the year when operations may result in significant sediment discharge to Watercourse or lakes, except in emergencies to protect the road, to reduce erosion, to protect water quality, or in response to public safety needs.

(c) During the extended wet weather period, log hauling or other heavy equipment uses shall be limited to Logging Roads and Landings that exhibit a stable operating surface in conformance with (b) above. Routine use of Logging Roads and Landings shall not occur when equipment cannot operate under its own power.

(d) When burning permits are required pursuant to PRC § 4423, Logging Roads and Landings that are in use shall be kept in passable condition for fire trucks.

(e) Roadside berms that impede Logging Road drainage, concentrate Logging Road surface flow, or lead to hydrologic connection shall be removed or breached before the beginning of the winter period, with the exception of berms needed for erosion control.

(f) Temporary roads shall be blocked or otherwise closed to standard production four-wheel drive highway vehicles prior to the winter period, or upon completion of use as specified in an approved winter period operating plan pursuant to 14 CCR § 914.7(b) [934.7(b), 954.7(b)].

(g) Logging Roads and Landings used for log hauling or other heavy equipment uses during the winter period shall occur on a stable operating surface and, where necessary, be surfaced with rock to a depth and quantity sufficient to maintain such a surface. Use is prohibited on roads that are not hydrologically disconnected and exhibit saturated soil conditions. Exceptions may be proposed by the RPF when locations are disclosed and justified in the THP, consistent with 14 CCR § 923(c). Exceptions must be approved by the Director.

(h) In watersheds with listed anadromous salmonids and in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids, the following shall apply:

(1) Existing Logging Roads or Landings shall not be used within the CMZ of a Class I Watercourse except as listed in 14 CCR § 916.9 [936.9, 956.9] subsection (e)(1)(A)-(F) or pursuant to 14 CCR § 916.9(v) [936.9(v), 956.9(v)].

(2) When feasible, minimize use of existing Logging Roads and Landings located within Inner Zones A and B of flood prone areas. Exceptions include the use of roads and Landings to accomplish actions to improve salmonid habitat conditions stated in 14 CCR § 916.9(f)(3)(E)1. [936.9(f)(3)(E)1., 956.9(f)(3)(E)1.].

(3) Log hauling on Logging Roads and Landings shall be limited to those which are hydrologically disconnected from Watercourses to the extent feasible, and exhibit a stable operating surface in conformance with (b) above. Exceptions may be proposed by the RPF when locations are disclosed and justified in the THP, consistent with 14 CCR § 923(c). Exceptions must be approved by the Director.

(4) Concurrent with use for log hauling, all road approaches to Logging Road Watercourse crossings shall be treated for erosion control as needed to minimize soil erosion and sediment transport and to prevent significant sediment discharge to Watercourses or lakes.

(5) Concurrent with use for log hauling, all traveled surfaces of Logging Roads in a WLPZ, and ELZ or EEZ designated for Watercourse or lake protection, shall be treated for erosion control as needed to minimize soil erosion and sediment transport and to prevent significant sediment discharge to Watercourses or lakes.

(6) No Timber Operations shall take place during the extended wet weather period unless the approved plan incorporates a complete winter period operating plan pursuant to 14 CCR § 914.7(b) [934.7(b), 954.7(b)] that specifically addresses, where applicable, proposed Logging Road or Landing use.

923.7, 943.7, 963.7. Maintenance and Monitoring of Logging Roads and Landings. [All Districts]

The following maintenance and monitoring standards shall apply to Logging Roads and Landings:

(a) Logging Road and Landing surfaces shall be monitored and maintained during Timber Operations and throughout the prescribed maintenance period to ensure hydrologic disconnection from Watercourses and lakes to the extent feasible, minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(b) Logging Roads that are used in connection with stocking activities shall be maintained throughout such use, even if this extends beyond the prescribed maintenance period.

(c) During Timber Operations, road running surfaces in the logging area shall be treated as necessary to prevent excessive loss of road surface materials by methods including, but not limited to, rocking, watering, paving, chemically treating, or installing commercial erosion control devices to manufacturer's specifications.

(d) Grading of Logging Roads or Landings to obtain a drier running surface more than one time before reincorporation of any resulting berms back into the road surface is prohibited.

(e) Drainage facilities and drainage structures, including associated necessary protective structures, shall be maintained to allow free flow of water, and minimize soil erosion and slope instability. Drainage facilities and structures shall be repaired, replaced, or installed as needed to protect the quality and beneficial uses of water.

(f) Soil stabilization treatments on Logging Road or Landing cuts, fills, and sidecast shall be maintained as needed to reduce the potential for slope instability, minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(g) Heavy equipment shall not be used in a WLPZ for maintenance during wet weather, except in emergencies to protect the road, to reduce erosion, to protect water quality, or in response to public safety needs.

(h) Where there is evidence of significant sediment discharge along a Logging Road or Landing used for Timber Operations, additional measures shall be implemented to minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(i) The prescribed maintenance period for erosion controls on Logging Roads and associated Landings and drainage structures, including appurtenant, abandoned, and deactivated Logging Roads and Landings, shall be at least one year. The Director may prescribe a maintenance period extending up to three years in accordance with 14 CCR § 1050.

(j) In watersheds with listed anadromous salmonids and in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids, the prescribed maintenance period for deactivated or abandoned roads shall be one year unless otherwise prescribed by the Director pursuant to 14 CCR § 1050. The prescribed maintenance period for Logging Roads and associated Landings, including appurtenant roads, shall be three years.

(k) All Logging Roads, including abandoned, deactivated, and appurtenant roads, Landings, and associated drainage structures used for Timber Operations shall be monitored as needed to comply with 14 CCR § 1050. Monitoring inspections shall be conducted, when access is feasible during the prescribed maintenance period, a sufficient number of times during the extended wet weather period, particularly after large winter storm events and at least once annually, to evaluate the function of drainage facilities and structures. The Department shall also conduct monitoring inspections at least once during the prescribed maintenance period to assess Logging Road and Landing conditions.

(1) Inspections shall include checking drainage facilities and structures for evidence of downcutting, plugging, overtopping, loss of function, and sediment delivery to Class I, II, or III Watercourses and lakes. If evidence of sediment delivery or potential sediment delivery is present, and the implementation of feasible corrective measures could reduce the potential for significant sediment discharge, such additional measures shall be implemented when feasible.

(2) Inspections conducted pursuant to California Regional Water Quality Control Board requirements may be used to satisfy the inspection requirements of this section.

(l) In watersheds with listed anadromous salmonids, water drafting for Timber Operations shall:

(1) Comply with Fish and Game Code Section 1600, et seq. Timber Operations conducted under a Fish and Game Code Section 1600 Master Agreement for Timber Operations that includes water drafting may provide proof of such coverage for compliance with 14 CCR § 923.7(l).

(2) Describe the water drafting site conditions and proposed water drafting activity in the plan, including:

(A) A general description of the conditions and proposed water drafting;

(B) The Watercourse classification;

(C) The drafting parameters including the months the site is proposed for use; estimated total volume needed per day; estimated maximum instantaneous drafting rate and filling time; and disclosure of other water drafting activities in the same watershed;

(D) The estimated drainage area (acres) above the point of diversion;

(E) The estimated unimpeded streamflow, pumping rate, and drafting duration;

(F) A discussion of the effects on aquatic habitat downstream from the drafting site(s) of single pumping operations, or multiple pumping operations at the same location, and at other locations in the same watershed;

(G) A discussion of proposed alternatives and measures to prevent adverse effects to fish and wildlife resources, such as reducing hose diameter; using gravity-fed tanks instead of truck pumping; reducing the instantaneous or daily intake at one location; describing allowances for recharge time; using other dust palliatives; and drafting water at alternative sites; and

(H) The methods that will be used to measure source streamflow prior to the water drafting operation and the conditions that will trigger streamflow to be measured during the operation.

(3) All water drafting for Timber Operations are subject to each requirement below unless the Department of Fish and Wildlife modifies the requirement in the Lake or Streambed Alteration agreement that authorized the drafting operation, or unless otherwise specified below:

(A) All intakes shall be screened to prevent impingement of juvenile fish against the screen. The following requirements apply to screens and water drafting on Class I waters:

1. Openings in perforated plate or woven wire mesh screens shall not exceed 3/32 inches (2.38 millimeters). Slot openings in wedge wire screens shall not exceed 1/16 inches (1.75 millimeters).

2. The screen surface shall have at least 2.5 square feet of openings submerged in water.

3. The drafting operator shall regularly inspect, clean, and maintain screens to ensure proper operation whenever water is drafted.

4. The approach velocity (water moving through the screen) shall not exceed 0.3 feet/second.

5. The diversion rate shall not exceed 350 gallons per minute.

(B) Approaches and associated drainage features to drafting locations within a WLPZ or Channel Zone shall be surfaced with rock or other suitable material to minimize generation of sediment.

(C) Barriers to sediment transport, such as straw wattles, logs, straw bales or sediment fences, shall be installed outside the normal high water mark to prevent sediment delivery to the Watercourse and limit truck encroachment.

(D) Water drafting trucks parked on streambeds, floodplains, or within a WLPZ shall use drip pans or other devices such as adsorbent or absorbent blankets, sheet barriers or other materials as needed to prevent soil and water contamination from motor oil or hydraulic fluid leaks.

(E) Bypass flows for Class I Watercourses shall be provided in volume sufficient to avoid dewatering the Watercourse and maintain aquatic life downstream, and shall conform to the following standard:

1. Bypass flows in the source Stream during drafting shall be at least 2 cubic feet per second.

2. Diversion rate shall not exceed 10 percent of the surface flow.

3. Pool volume reduction shall not exceed 10 percent.

(F) The drafting operator shall keep a log that records, for each time water is drafted: the date, total pumping time, pump rate, starting time, ending time, and volume diverted. Logs shall be filed with the Department of Forestry and Fire Protection at the end of seasonal operations and maintained with the plan record. This requirement may be modified in the approved plan that covers the water drafting, but only with concurrence from the Department of Fish and Wildlife.

(G) Before commencing any water drafting operation, the RPF and the drafting operator shall conduct a pre-operations field review to discuss the water drafting measures in the plan and/or Lake or Streambed Alteration Agreement.

(p) All Logging Road Watercourse crossings that are proposed by the plan submitter to be removed, including temporary crossings and those along abandoned or deactivated roads, shall be removed as described in the plan and shall apply the following standards:

(1) Fills shall be excavated to form a channel that is as close as feasible to the natural Watercourse grade and orientation, and that is wider than the natural channel as observed upstream and downstream of the Logging Road Watercourse crossing to be removed.

(2) The excavated material and any resulting cut bank shall be no greater than 65 percent (1.5:1, horizontal to vertical) from the outside edge of the constructed channel to prevent slumping, to minimize soil erosion and sediment transport, and to prevent significant sediment discharge. Exposed soil located between the Watercourse crossing and the nearest adjacent drainage facility or hydrologic divide, whichever is closer, including cut banks and excavated material, shall be stabilized by seeding, mulching, rock armoring,

replanting, or other suitable treatment to prevent soil erosion and significant sediment discharge.

(3) Where it is not feasible to remove a Logging Road Watercourse crossing or its associated fill to the above standards, the plan shall identify how soil erosion and significant sediment discharge will be prevented.

(4) All Logging Road Watercourse crossings proposed for removal shall be removed upon completion of use, prior to the winter period or as specified in the applicable CDFW 1600 agreement, whichever is earlier, or as otherwise specified in the plan.

The Licensed Timber Operator (LTO) is required to operate in accordance with the Forest Practice Rules and THP. The Winter Period Operating Plan on page 33 indicates when erosion control facilities need to be installed. Page 33 states,

> *"Erosion control structures and facilities shall be installed on all constructed skid trails and tractor roads prior to the end of the day if the U.S. Weather Service forecasts a "chance" (30%) of rain before the next day, and prior to the weekend or other shutdown periods. Drainage facilities removed or rendered non-functional by road preparation and grading operations to make roads suitable for haul or administrative use shall be reinstalled prior to October 15th of the year of operations. For those roads in use after October 15th, road drainage facilities shall be reinstalled immediately upon completion of use or prior to the end of any day when there is a forecast of a "chance" (30%) of rain. Waterbreaks shall be constructed concurrently with and upon conclusion of use of tractor roads, roads, and landings which do not have permanent and adequate drainage facilities or drainage structures."*

Page 33 describes how and when temporary class III watercourse crossings will be removed. Page 33 states,

> *"These temporary crossings shall be removed per the standards for roads under CCR963.9(p)(1)-(4), and stabilized per THP Item 18 upon completion of use, prior to the end of any day, when there is a forecast of a "chance" of rain (Item 5 below), or prior to potential for water flow within the watercourse channel, whichever is earlier*."

The Department evaluates compliance with the rules and the THP through inspections. Temporary class III watercourse crossings will be evaluated per the standards of 14 CCR 963.9(p)(1)-(4). Additionally, erosion control will be evaluated per the stabilization measures described in the THP on pages 21 through 26. The standards of the rules are designed to prevent significant sediment discharge. If the standards of the rules are not met, the Department has enforcement options to bring operations in conformance with the rules and to mitigate for potential impacts.

The Department finds that significant impacts are not expected to water quality, wildlife, and riparian areas.

SUMMARY AND CONCLUSIONS

The Department recognizes its responsibility under the Forest Practice Act (FPA) and CEQA to determine whether environmental impacts will be significant and adverse. In the case of the management regime which is part of the THP, significant adverse impacts associated with the proposed application are not anticipated.

CAL FIRE has reviewed the potential impacts from the harvest and reviewed concerns from the public and finds that there will be no expected significant adverse environmental impacts from timber harvesting as described in the Official Response above. Mitigation measures contained in the plan and in the Forest Practice Rules adequately address potential significant adverse environmental effects.

CAL FIRE has considered all pertinent evidence and has determined that no significant adverse cumulative impacts are likely to result from implementing this THP. Pertinent evidence includes, but is not limited to the assessment done by the plan submitter in the watershed and biological assessment area and the knowledge that CAL FIRE has regarding activities that have occurred in the assessment area and surrounding areas where activities could potentially combine to create a significant cumulative impact. This determination is based on the framework provided by the FPA, CCR's, and additional mitigation measures specific to this THP.

CAL FIRE has supplemented the information contained in this THP in conformance with Title 14 CCR § 898, by considering and making known the data and reports which have been submitted from other agencies that reviewed the plan; by considering pertinent information from other timber harvesting documents including THP's, emergency notices, exemption notices, management plans, etc. and including project review documents from other non-CAL FIRE state, local and federal agencies where appropriate; by considering information from aerial photos and GIS databases and by considering information from the CAL FIRE maintained timber harvesting database; by technical knowledge of unit foresters who have reviewed numerous other timber harvesting operations; by reviewing technical publications and participating in research gathering efforts, and participating in training related to the effects of timber harvesting on forest values; by considering and making available to the RPF who prepares THP's, information submitted by the public.

CAL FIRE further finds that all pertinent issues and substantial questions raised by the public and submitted in writing are addressed in this Official Response. Copies of this response are mailed to those who submitted comments in writing with a return address.

ALL CONCERNS RAISED WERE REVIEWED AND ADDRESSED. ALONG WITH THE FRAMEWORK PROVIDED BY THE FOREST PRACTICE ACT AND THE RULES OF THE BOARD OF FORESTRY, AND THE ADDITION OF THE MITIGATION MEASURES SPECIFIC TO THIS THP, THE DEPARTMENT HAS DETERMINED THAT THERE WILL BE NO SIGNIFICANT ADVERSE IMPACTS RESULTING FROM THE IMPLEMENTATION OF THIS THP.