DEPARTMENT OF FORESTRY AND FIRE PROTECTION
NORTHERN REGION HEADQUARTERS
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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: 2-22-00136-SIS

SUBMITTER: FWS Forestry

COUNTY: Siskiyou and Shasta

END OF PUBLIC COMMENT PERIOD: November 25, 2022

DATE OF OFFICIAL RESPONSE/DATE OF APPROVAL: December 2, 2022

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,

DocuSigned by:
AE5E25725914422...

Adam Deem, RPF #2759
Forester II
Review Team Chair

cc: Unit Chief
RPF
Plan Submitter
Dept. of Fish & Wildlife, Reg. 1
Water Quality, Reg. 5
Public Comment Writers

Table of Contents

Summary of Review Process

Common Forest Practice Abbreviations

AB 32	Assembly Bill 32
ARB	Air Resources Board
BOF	Board of Forestry
CAA	Confidential Archaeological Addendum
CAL FIRE	Department of Forestry & Fire Protection
CAPCOA	Calif. Air Pollution Control Officers Assoc.
CCR	Calif. Code of Regulations
CDFW/DFW	California Dept. of Fish & Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CGS	California Geological Survey
CIA	Cumulative Impacts Assessment
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
CSO	California Spotted Owl
DBH/dbh	Diameter Breast Height
DPR	Department of Pesticide Regulation
EPA	Environmental Protection Agency
FPA	Forest Practice Act
FPR	Forest Practice Rules
GHG	Greenhouse Gas
ha^{-1}	per hectare
LBM	Live Tree Biomass
LTO	Licensed Timber Operator
LTSY	Long Term Sustained Yield
m^{-2}	per square meter
MAI	Mean Annual Increment
MMBF	Million Board Feet
$MMTCO_2E$	Million Metric Tons CO_2 equivalent
NEP	Net Ecosystem Production
NEPA	National Environ. Policy Act
NMFS	National Marine Fisheries Service
NPP	Net Primary Production
NSO	Northern Spotted Owl
NTMP	NonIndust. Timb. Manag. Plan
OPR	Govrn's Office of Plan. & Res.
PCA	Pest Control Advisor
Pg	Petagram = 10^{15} grams
PHI	Pre-Harvest Inspection
PNW	Pacific NorthWest
PRC	Public Resources Code
RPA	Resource Plan. and Assess.
RPF	Registered Professional Forester
[SIC]	Word used verbatim as originally printed in another document
SPI	Sierra Pacific Industries
SYP	Sustained Yield Plan
tC	tonnes of carbon
Tg	Teragram = 10^{12} grams
THP	Timber Harvest Plan
TPZ	Timber Production Zone
USFS	United States Forest Service
USFWS	U.S. Fish & Wildlife Service
WAA	Watershed Assessment Area
WLPZ	Watercourse. & Lake Prot. Zone
WQ	California Regional Water Quality Control Board
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 Cascade Area office in Redding. (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))

Plan 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.

General Discussion and Background

The following summary is provided for some of the over-arching concerns expressed in public comment. Specific issues raised within comments will be addressed in the next section.

CEQA Analysis

A CEQA analysis is not required to be perfect, but it must be accurate and adequately describe the proposed project in a manner that allows for informed decision-making. It must include an assessment of impacts based upon information that was “reasonably available before submission of the plan.” (Technical Rule Addendum #2)

CEQA clearly establishes that the Lead Agency has a duty to minimize harm to the environment while balancing Competing Public Objectives (14 CCR §15021)[1]. These duties are further refined in the

[1] Duty to Minimize Environmental Damage and Balance Competing Public Objectives

Z'berg-Nejedly Forest Practice Act (PRC §4512(c)[2]) and PRC §4513(b)[3] for how the mandate to provide "maximum sustained production of high quality timber products" is to be balanced with other environmental considerations. The term "while giving consideration to" is further defined in 14 CCR §895.1 as follows:

> ***While Giving Consideration*** *means the selection of those feasible silvicultural systems, operating methods and procedures which substantially lessen significant adverse Impact on the environment and which best achieve long-term, maximum sustained production of forest products, while protecting soil, air, fish and wildlife, and water resources from unreasonable degradation, and which evaluate and make allowance for values relating to range and forage resources, recreation and aesthetics, and regional economic vitality and employment.*

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible.

(1) In regulating public or private activities, agencies are required to give major consideration to preventing environmental damage.
(2) A public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment.

(b) In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors.

(c) The duty to prevent or minimize environmental damage is implemented through the findings required by Section 15091.

(d) CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian. An agency shall prepare a statement of overriding considerations as described in Section 15093 to reflect the ultimate balancing of competing public objectives when the agency decides to approve a project that will cause one or more significant effects on the environment.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Public Resources Code Sections 21000, 21001, 21002, 21002.1, and 21081; San Francisco Ecology Center v. City and County of San Francisco, (1975) 48 Cal. App. 3d 584; Laurel Hills Homeowners Association v. City Council, (1978) 83 Cal. App. 3d 515.

Discussion: Section 15021 brings together the many separate elements that apply to the duty to minimize environmental damage. These duties appear in the policy sections of CEQA, in the findings requirement in Section 21081, and in a number of court decisions that have built up a body of case law that is not immediately reflected in the statutory language. This section is also necessary to provide one place to explain how the ultimate balancing of the merits of the project relates to the search for feasible alternatives or mitigation measures to avoid or reduce the environmental damage.

The placement of this section early in the article on general responsibilities helps highlight this duty to prevent environmental damage. This section is an effort to provide a careful statement of the duty with its limitations and its relationship to other essential public goals.

[2] (c) The Legislature thus declares that it is the policy of this state to encourage prudent and responsible forest resource management calculated to serve the public's need for timber and other forest products, while giving consideration to the public's need for watershed protection, fisheries and wildlife, sequestration of carbon dioxide, and recreational opportunities alike in this and future generations.

[3] (b) The goal of maximum sustained production of high-quality timber products is achieved while giving consideration to values relating to sequestration of carbon dioxide, recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment.

What is missing from the Act, Rules or CEQA Guidelines is the weight that is to be applied to the evaluation of the other resources specified. Clearly, there are certain legal restrictions on the degradation of specific values (e.g. water quality standards) but many of the elements that must be considered have a qualitative, not quantitative mandate for evaluation. This allows the Plan Submitter and the Lead Agency to exercise "professional judgement[4]" when preparing and evaluating plans.

What is also evident from an examination of the entire record (i.e. information provided by the Plan Submitter, submitted as public comment and information supplemented to the record by CAL FIRE) is that there is disagreement amongst experts about what the appropriate course of action is or what the feasible alternatives to the project may be. Again, CEQA provides guidance on this topic, with respect to both the adequacy of the record, and on differences of opinion, even between recognized experts:

15151. Standards for Adequacy of an EIR

An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

Note: Authority cited: Section 21083, Public Resources Code; Reference: Sections 21061 and 21100, Public Resources Code; San Francisco Ecology Center v. City and County of San Francisco, (1975) 48 Cal. App. 3d 584.

Discussion: This section is a codification of case law dealing with the standards for adequacy of an EIR. In Concerned Citizens

[4] *14CCR §897(d) Due to the variety of individual circumstances of timber harvesting in California and the subsequent inability to adopt site-specific standards and regulations, these Rules use judgmental terms in describing the standards that will apply in certain situations. By necessity, the RPF shall exercise professional judgment in applying these judgmental terms and in determining which of a range of feasible (see definition 14 CCR 895.1) silvicultural systems, operating methods and procedures contained in the Rules shall be proposed in the plan to substantially lessen significant adverse Impacts in the environment from timber harvesting. The Director also shall exercise professional judgment in applying these judgmental terms in determining whether a particular plan complies with the Rules adopted by the Board and, accordingly, whether he or she should approve or disapprove a plan. The Director shall use these Rules to identify the nature he limits to the professional judgment to be exercised by him or her in administering these Rules.*

of Costa Mesa, Inc. v. 32nd District Agricultural Assoc. (1986) 42 Cal. 3d 929, the court held that "the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions." In Browning-Ferris Industries of California, Inc. v. San Jose (1986) 181 Cal. App. 3d 852, the court reasserted that an EIR is a disclosure document and as such an agency may choose among differing expert opinions when those arguments are correctly identified in a responsive manner. Further, the state Supreme Court in its 1988 Laurel Heights decision held that the purpose of CEQA is to compel government at all levels to make decisions with environmental consequences in mind. CEQA does not, indeed cannot, guarantee that these decisions will always be those which favor environmental considerations, nor does it require absolute perfection in an EIR.

CAL FIRE has an obligation to explain the rationale for approving a plan. This is often done in the presence of contradicting information and results in different parties being displeased with the results. A competent CEQA analysis is not required to make the “best” choice, but the choice made must be supported by information contained within the record. This is where Lead Agency discretion comes into play. CAL FIRE ultimately bears the responsibility for making a decision and, when presented with public comments, is expected to provide an answer to significant questions raised.

Another expressed concern is over the extent to which the plan, and by extension CAL FIRE, discusses effects that are not deemed to be significant. CEQA provides guidance on how to address impacts within 14 CCR §15130:

15130. DISCUSSION OF CUMULATIVE IMPACTS

(a) An EIR shall discuss cumulative impacts of a project when the project’s incremental effect is cumulatively considerable, as defined in section 15065 (a)(3). Where a lead agency is examining a project with an incremental effect that is not “cumulatively considerable,” a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

(1) As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR

should not discuss impacts which do not result in part from the project evaluated in the EIR.

(2) When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. A lead agency shall identify facts and analysis supporting the lead agency's conclusion that the cumulative impact is less than significant.

(3) An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.

(b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact. The following elements are necessary to an adequate discussion of significant cumulative impacts:

(1) Either:

(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

(B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such

projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

(2) When utilizing a list, as suggested in paragraph (1) of subdivision (b), factors to consider when determining whether to include a related project should include the nature of each environmental resource being examined, the location of the project and its type. Location may be important, for example, when water quality impacts are at issue since projects outside the watershed would probably not contribute to a cumulative effect. Project type may be important, for example, when the impact is specialized, such as a particular air pollutant or mode of traffic.

(3) Lead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used.

(4) A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and

(5) A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

(c) With some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by- project basis.

(d) Previously approved land use documents, including, but not limited to, general plans, specific plans, regional transportation plans, plans for the reduction of greenhouse gas emissions, and local coastal plans may be used in cumulative impact analysis. A pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference pursuant to the provisions for tiering and program EIRs. No further cumulative impacts analysis is required when a project is consistent with a general, specific, master or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed

project have already been adequately addressed, as defined in section 15152(f), in a certified EIR for that plan.

(e) If a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then an EIR for such a project should not further analyze that cumulative impact, as provided in Section 15183(j).

Note: Authority cited: Sections 21083, 21083.05, Public Resources Code. Reference: Sections 21003(d), 21083(b), 21093, 21094 and 21100, Public Resources Code; Whitman v. Board of Supervisors, (1979) 88 Cal. App. 3d 397; San Franciscans for Reasonable Growth v. City and County of San Francisco (1984) 151 Cal.App.3d 61; Kings County Farm Bureau v. City of Hanford (1990) 221 Cal.App.3d 692; Laurel Heights Homeowners Association v. Regents of the University of California (1988) 47 Cal.3d 376; Sierra Club v. Gilroy (1990) 220 Cal.App.3d 30; Citizens to Preserve the Ojai v. County of Ventura (1985) 176 Cal.App.3d 421; Concerned Citizens of South Cent. Los Angeles v. Los Angeles Unified Sch. Dist. (1994) 24 Cal.App.4th 826; Las Virgenes Homeowners Fed'n v. County of Los Angeles (1986) 177 Cal.App.3d 300; San Joaquin Raptor/Wildlife Rescue Ctr v. County of Stanislaus (1994) 27 Cal.App.4th 713; Fort Mojave Indian Tribe v. Cal. Dept. Of Health Services (1995) 38 Cal.App.4th 1574; Santa Monica Chamber of Commerce v. City of Santa Monica (2002) 101 Cal.App.4th 786; Communities for a Better Environment v. California Resources Agency (2002) 103 Cal.App.4th 98; and Ass'n of Irritated Residents v. County of Madera (2003) 107 Cal.App.4th 1383.

When an analysis has determined that the impacts are less than significant, a detailed discussion is not required and an abbreviated explanation is acceptable.

About Agency “Activism” (Agency Prohibited from creating “underground regulations”)

Another theme is that CAL FIRE should take an activist role in steering plan submitters towards, or in this case away from, certain actions that the comment writer deems deleterious to the natural environment. To do so would be contrary to our purpose and entirely outside of our jurisdictional authority. The plan submitter is responsible for proposing plans consistent with their objectives and CAL FIRE is responsible for determining whether or not the operations as proposed would cause a significant adverse effect on the environment. How an individual THP may or may not align with state goals or other non-regulatory targets is not a factor we can consider when making such a determination.

In fact, if CAL FIRE was to impose a standard not required by regulation, we would likely be found to have created an “underground regulation[5]” and would be open to legal challenge.

Requirement to augment the record

In addition to information provided by the Plan Submitter and Public Commenters, CAL FIRE is also responsible for considering additional information and adding it to the plan record. This requirement is specified in 14 CCR §898 ”*The Director shall supplement the information provided by the RPF and the plan submitter when necessary to ensure that all relevant information is considered.*“ Sometimes this information is discovered while reviewing submitted literature and other information is added when the reviewer believes it is relevant to the discussion.

All Concerns Are Treated Equal

From CAL FIRE’s perspective, one concern expressed is as good as a thousand. Every concern, no matter who it comes from, is given careful consideration. It is our responsibility to the public and to those we regulate to provide a fair and unbiased review. This Official Response is written with that in mind.

[5] https://oal.ca.gov/underground_regulations/

Fire Hazard Risk and Assessment

> From the appointment of the first State Board of Forestry in 1885, to the creation of the first State Forester position in 1905, and the organization of the original California Division of Forestry in 1927, the Department of Forestry and Fire Protection (CAL FIRE) has protected the people, property, and natural resources of California. The Department's diverse programs work together to plan protection strategies for over 31 million acres of privately-owned wildlands, and to provide emergency services of all kinds throughout California.
>
> -CAL FIRE 2019 Strategic Plan

As an agency, CAL FIRE fulfills many roles to protect both the public and natural resources of our state. When it comes to operations that can impact both the natural environment and the public, CAL FIRE must review these proposals with an eye towards these two responsibilities. When it comes to a decision of whether to approve a plan, CAL FIRE must exercise professional discretion:

> 14 CCR § 897 Implementation of Act Intent
>
> (d) Due to the variety of individual circumstances of timber harvesting in California and the subsequent inability to adopt site-specific standards and regulations, these Rules use judgmental terms in describing the standards that will apply in certain situations. By necessity, the RPF shall exercise professional judgment in applying these judgmental terms and in determining which of a range of feasible (see definition 14 CCR 895.1) silvicultural systems, operating methods and procedures contained in the Rules shall be proposed in the plan to substantially lessen significant adverse Impacts in the environment from timber harvesting. <u>The Director also shall exercise professional judgment in applying these judgmental terms in determining whether a particular plan complies with the Rules adopted by the Board and, accordingly, whether he or she should approve or disapprove a plan.</u> The Director shall use these Rules to identify the nature of and the limits to the professional judgment to be exercised by him or her in administering these Rules.

Requirements of Evaluation included in the Rules

The Forest Practice Rules recognize that Timber Operations have the potential to cause and contribute to the severity of fires. The need to protect property and natural resources from fire goes back to the founding of the original Board of Forestry in 1885. Fire prevention laws were the first regulations governing forestry in our state.

Current Forest Practice Laws contain significant detail on how operations are to be conducted to reduce or eliminate the chance that logging will cause a fire. Article 7 of the Rules cover the various methods of reducing fire risk and hazard, collectively called “Hazard Reduction”:

- 917, 937, 957 Hazard Reduction
  - 917.2, 937.2, 957.2 Treatment of *[Logging]* Slash to Reduce Fire Hazard
  - 917.3 Prescribed Broadcast Burning of Slash [Coast]
  - 937.3 Prescribed Broadcast Burning of Slash [Northern]
  - 957.3 Prescribed Broadcast Burning of Slash [Southern]
  - 917.4 Treatment of Logging Slash in the Southern Subdistrict
  - 957.4 Treatment of Logging Slash in the High Use Subdistrict
  - 917.5, 937.5, 957.5 Burning of Piles and Concentrations of Slash
  - 917.6, 937.6, 957.6 Notification of Burning
  - 917.7, 937.7, 957.7 Protection of Residual Trees
  - 917.9, 937.9, 957.9 Prevention Practices

A primary concern addressed in the Hazard Reduction Rules deals with logging debris left over after trees are harvested. Branches, leaves, and other materials not taken to a sawmill (called “slash”) must be treated in such a way that an increase in fire hazard does not occur, and to prevent the spread of forest-based insects and diseases. For example, the following standard practices shall be followed within the THP area to treat slash:

> 917.2, 937.2, 957.2 Treatment of Slash to Reduce Fire Hazard [All Districts]
>
> Except in the [High-Use Subdistrict of the Southern Forest District,] Southern Subdistrict of the Coast Forest District and Coastal Commission Special Treatment Areas of the Coast Forest District, the following standards shall apply to the treatment of Slash created by Timber Operations within the plan area and on roads adjacent to the

plan area. Lopping for fire hazard reduction is defined in 14 CCR 895.1.

(a) Slash to be treated by piling and burning shall be treated as follows:
    (1) Piles created prior to September 1 shall be treated not later than April 1 of the year following its creation, or within 30 days following climatic access after April 1 of the year following its creation.
    (2) Piles created on or after September 1 shall be treated not later than April 1 of the second year following its creation, or within 30 days following climatic access after April 1 of the second year following its creation.

(b) Within 100 feet of the edge of the traveled surface of public roads, … and seasonal] private roads open for public use where permission to pass is not required, Slash created and trees knocked down by road construction or Timber Operations shall be treated by lopping for fire hazard reduction, piling and burning, chipping, burying or removal from the zone.

(c) All woody debris created by Timber Operations greater than one inch but less than eight inches in diameter within 100 feet of permanently located structures maintained for human habitation shall be removed or piled and burned; all Slash created between 100-200 feet of permanently located structures maintained for human habitation shall be lopped for fire hazard reduction, removed, chipped or piled and burned

This plan has no public roads that would require slash treatment adjacent to it and does not propose to use slash pile burning for hazard reduction.

This proposal was reviewed by CAL FIRE and determined to be appropriate and in conformance with the Rules. For this plan, there are no structures requiring hazard reduction near the plan area,

No matter where Timber Operations are located, every Licensed Timber Operator is required to submit to CAL FIRE a Fire Suppression Resource Inventory that contains emergency contact information for

each Licensed Timber Operator along with the number of personnel and types of equipment that can be used to suppress any fire. These operators can be called upon to assist CAL FIRE with emergency fire suppression in the area where they are operating, further adding to the resources that can be used during a fire.

In addition to the hazard reduction rules, operations proposed in this plan have additional benefits expected to reduce fire danger.

- Road brushing and maintenance: As part of the Timber Operations, existing roads will receive maintenance to allow for access for logging equipment. These operations ensure that roads used for operations are free of obstruction and can be used during the operations and in the future in the event they are required for fire suppression:

  > 923.1, 943.1, 963.1 Planning for Logging Roads and Landings. [All Districts]
  >
  > Logging Roads and Landings shall be planned and located within the context of a systematic layout pattern that considers 14 CCR § 923(b), uses existing Logging Roads and Landings where feasible and appropriate, and provides access for fire and resource protection activities.

  Additionally, any time that burning permits are required (e.g. during the declared fire season), all roads and landings within the harvest plan area must be passable for use during an emergency:

  > 923.6, 943.6, 963.6 (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.

Maintaining access within the harvest plan area is consistent with the Siskiyou Unit Strategic Fire Plan to allow for rapid extinguishment of fires within CAL FIRE responsibility areas.

When it comes to evaluating the potential for the proposed plan to negatively impact wildfire risk and hazard, the Rules contain the following guidelines:

Excerpt from Technical Rule Addendum #2:

WILDFIRE RISK AND HAZARD

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 following elements may be considered in the assessment of potential Cumulative Impacts:

1. Fire hazard severity zoning.
2. Existing and probable future fuel conditions including vertical and horizontal continuity of live and dead fuels.
3. Location of known existing public and private Fuelbreaks and fuel hazard reduction activities.
4. Road access for fire suppression resources.

The Rules specify that an RPF must evaluate potential impacts that could be caused by the project. Timber harvesting is not required to lower wildfire risk and hazard, although this is common from properly designed and implemented operations.

The complete assessment is located on pages 126-127:

AFFECTED ENVIRONMENT

The project area is in a Very High Fire Hazard Severity Zone based on the 2020 mapping project completed by CalFire. The assessment area contains 1 home, off of Soda Creek Road. The home is within a quarter mile of harvest unit 2903. Unit 2903 is approximately 180 feet from a building (based on aerial imagery). A no-harvest HRA has been placed in Unit 2903 so that no harvesting will occur within the 200 foot zone surrounding the building. Harvesting and its associated slash will not occur within this area. Harvesting within the quarter mile assessment area is above the home. There have been no other impacts, such as catastrophic blow down or insect mortality, in the assessment area which could have created a cumulative increase in wildfire risk and hazard.

Slopes are moderate to steep (30-85%). The assessment area is

situated in the Soda Creek drainage and includes some small ridges. There ridges do not appear to be affected by frequent wind events. No signs of mass blow down were noted.

POTENTIAL IMPACTS

Potential impacts to fire suppression efforts, public safety and property loss from the project were evaluated based on the expected changes to fire risks and hazards from the project within the assessment area. The inherent risks within the wildland urban interface (WUI) cannot be eliminated but measures to reduce or manage risk are proposed within the fuel modifications and access improvements in the project.

Wildfire risks within the assessment area come from both within and outside of the project area. The potential for a fire to start along the interstate 5 corridor and travel into the wildlands is very high. The risks vary from vehicle fires to intentional arson. This portion of the assessment area is below the project area and fire could spread rapidly into the wildlands due to topography. Within the project area a small increase in the risk of ignition during the logging operation will occur depending on the season of operations.

Wildfire hazard within the assessment area is variable. Within the project area fuel types are primarily dense, mature conifer forests with light understory vegetation with dead and downed logs and litter. Ladder fuels are variable within the project area but mostly concentrated within small openings. Crown Bulk Density (CBD) is high and tree density indicates the potential for increased tree mortality, especially during drought cycles.

IMPACTS EVALUATION

The project is not expected to significantly change the fire risk. The proposed project will create a short-term increase in the risk of ignition during logging operations, but this risk will be mitigated by the required fire protection regulation followed by loggers and forest workers.

The residential building within 200 feet of Unit 2903 is buffered by a no harvest HRA.

Road maintenance will continue to ensure access for forest fire initial attack. The proposed new road construction and landings allow for efficient and rapid transport of fire fighters and equipment before a fire becomes too large for initial attach efforts to be successful. Landings also create safety zones for fire fighters.

The proposed project will modify the fuel hazard by creating gaps and removing the continuity of crown and ladder fuels, while creating a short-term increase in surface fuels. The proposed project will modify the vertical and horizontal arrangement of fuels and eliminate the crown bulk density (CBD) within each harvest unit. CBD along with surface fuel loading has been shown to be a significant indicator of the potential for a crown fire to develop (Cram et al, 2006, Peterson et al, 2005). CBD will be reduced or eliminated in all of the ALTE units. The first few years after harvesting when slash still contains needles and fines there will be a short term increase in expected flame length.

Long-term, this project will create diversity in the fuel types. Young plantations may suffer severe damage from a wildfire but will not be susceptible to crown fires until the young forest develops and CBD is increased. The diversity of fuel types reduces the potential for a large fire to develop when burning conditions are optimum for one specific type.

After considering any continuing impacts within the assessment area and the potential impacts of the proposed project on Wildfire Risk and Hazard, no significant cumulative impacts to fire risk and hazard should result from the proposed project.

The complete assessment notes the presence of one structure in the vicinity of the plan and proposes a no harvest retention area within 200 feet of this building. The plan also correctly discloses that the area is designated as being within a Very High Fire Hazard Severity Zone. This designation was made by CAL FIRE as part of a statewide assessment. Additional detail and information can be found on the CAL FIRE website[6]

> *The Fire Hazard Severity Zone maps are developed using a science-based and field-tested model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Many factors are considered such as fire history, existing and potential fuel (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for the area. There are three levels of hazard in the State Responsibility Areas: moderate, high and very high. Urban and wildland areas are treated differently in the model, but the model does recognize the influence of burning embers traveling into urban areas, which is a major cause of fire spread.*

For Siskiyou County, most lands are classified as being within the “Very High” category.

Responsibility Area	Percent of Total Acres
Federal	62%
Local	4%
State	34%

[6] https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildfire-prevention-engineering/fire-hazard-severity-zones

	Responsibility Areas		
Hazard Class	**Federal**	**Local**	**State**
Non-Wildland/Non-Urban	5%	65%	0%
Moderate	6%	25%	14%
High	7%	4%	13%
Very High	82%	6%	73%

CAL FIRE has determined that the assessment of potential hazards is reasonable based upon the characteristics of the assessment area and the proposed operations. While the plan notes the small potential for an increase in ignition due to logging operations, this is a known risk. As described above, the Rules have been developed to mitigate risks associated with logging-caused fires.

Evenage Management and Plantations Impact on Fire Hazard

This plan as approved will harvest 541 acres using the Alternative Prescription silviculture, which will most closely resemble Clearcutting. There will be some retention of the original stand elements as described on page 65:

> Within ALTE prescription units, at least 5% of the total harvest area will be retained within Habitat Retention Areas (HRAs) or as dispersed leave trees. This retention is being done as an enhancement for wildlife. HRAs can preserve habitat features such as green culls, snags, hardwoods, deformed trees, downed logs and woody debris (LWD) and other unique habitat features. Operations are excluded from HRAs to the maximum extent feasible with the exception of where necessary for the re-use of existing infrastructure such as roads, skid trails and cable corridors. There shall be no timber harvested from within HRAs under this project except where needed to ensure operational safety and for new cable corridors.

The plan also describes that this area will be planted with enough tree to meet the minimum stocking standard of 125 point count (which would be at least 125 trees per acre).

The comment letter expressed concern with the potential fire risk associated with plantation management. Several research papers and experts have been cited to support this concern. As one would expect, CAL FIRE has concerns about responsible forest management as well as protecting lives and property. If there is a significant increase in risks associated with plantations, CAL FIRE needs to ensure that those risks are mitigated to protect life and property. Not only must we be concerned with protecting the public, but our employees as well which must go into these forested landscapes to fulfill their mission.

All CAL FIRE employees, no matter where they serve, are available to assist with emergency assignments at any time. For example, the CAL FIRE Inspector for the Dunsmuir area as well as the Siskiyou Unit Forester are also emergency responders who are often some of the first people to arrive on scene to a fire. They fill a variety of roles as part of an emergency response and are well aware that their duties as foresters can impact the safety of other emergency responders. Proposed harvesting plans are reviewed with both natural resources and public safety in mind.

The public is justified in being concerned about how logging operations can impact fire danger, and it is appropriate that CAL FIRE respond adequately to these concerns. The first concern related to fire hazard is the one posed by tree plantations, and their potential to cause fires to burn hotter and faster.

While there is literature studying the effects that plantations have on fire behavior, a clear cause and effect relationship between plantations and fire danger has not been established. This is primarily because there is a great deal of variability in how plantations are managed. This is especially true with private California timberlands as described below.

CAL FIRE has reviewed many studies on how fires burn within managed and unmanaged landscapes. Often, concerns related to fire behavior and plantations are added as public comment, referring to one of more of these studies. A brief discussion of those studies is provided below for context.

- Wildfire Effects Evaluation Project – Umpqua National Forest (Morrison, Marshall, Minor, & Davis, 2003)

> Fire burned most plantation areas with high intensity and spread rapidly through the canopy of these young stands. However, surface-fire intensity was moderated because fuel accumulations on the ground were relatively light. Thus, many plantations experienced moderate-fire severity (high intensity, low heat).
>
> Fifty-five percent of the plantation areas within the 2002 fire perimeter burned as stand-replacement fires (Appendix A). Plantation mortality is disproportionately high compared to the total area that plantations occupied within the fire perimeter. In fact, mortality in plantations accounted for 41 percent of all mortality on the fires, while the plantation area represented only 22 percent of the total area within the fire perimeter. Younger-age plantations were damaged more than the older plantations and the unmanaged forest (Figure 17: Stand Replacement Mortality in Managed (Regen) and Unmanaged Stands). In fact, 74 percent of plantations 20 years old or less experienced stand replacement mortality. By comparison, mortality was only 40 to 50 percent in stand 21 to 50 years old. (Page 19-20)
>
> Research in the moderate-severity fire regime of the mixed-evergreen forest of northern California showed a strong relationship of 1987 fire damage in plantations to fire damage levels in adjacent stands (Skinner and Weatherspoon, 1996). Data suggest that fuel treatments within dispersed locations alone may not reduce fire hazard. (Page 20)

> Fuel Model 5 best represents the early-seral vegetation including shrub communities and even-aged young plantations. As noted previously, these early-seral stands cover a greater portion of the landscape today than occurred historically. Crown fire spreads readily through these young stands: rates of fire spread can be high, and significant areas of mortality can occur in and adjacent to these stands. (page 25)

When CAL FIRE reviewed this study, it was noticed that the plantations were classified under fuel (Anderson, 1982). Anderson described these fuels as follows:

> “Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. The fires are generally not very intense because surface fuel loads are light, the shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area. Young, green stands with no dead wood would qualify: laurel, vine maple, alder, or even chaparral, manzanita, or chamise.”

An examination of representative photos included in the Morrison study showed conifer plantations with a continuous shrub understory. Fuel loading appeared to be high and there was no apparent break in either the vertical or horizontal continuity of fuels. Under these conditions, it is not surprising that young plantations suffered a high degree of mortality. It must be pointed out, in contrast, that plantations on private timberland in California receive a degree of post- harvest cultural treatments (either via mechanical, fire or herbicide treatment) that prevents the level of shrub and fine fuel buildup noted in the Morrison study. As a result of this important difference, CAL FIRE cannot draw a reasonable cause and effect conclusion between the conditions found in the Morrison report and the THP area.

- Southwest Oregon Biscuit Fire: An Analysis of Forest Resources and Fire Severity (Azuma, Donnegan, & Gedney, 2004)

  In this study of burn severity following the Biscuit Fire, the Forest Service found that the areas with the highest fire severity were most closely correlated with low site (i.e. Poor growing conditions - Site Class IV, V, and VI), and non-stocked areas (areas that are brush dominated). Table 11., from the report appendix shows that 74% of the non stocked (brush) areas burned with high and moderate severity while 100% of the stands classified as seedling/sapling (<5" DBH) burned with low severity. Results of another study in the same area (Thompson, Spies, & Ganio, 2007) on stands logged and planted after a 1987 fire indicated an increase in fire behavior and mortality in logged stands but noted that these stands had lower conifer densities and more brush than typical plantations. Other studies in the area (Raymond & Peterson, 2005) did not have a statistically valid sample of stands necessary upon which to validate the accuracy of fire behavior in stands they had previously harvested. From an examination of these studies, a direct causal link between plantations and increased fire danger could not be established.

  What was apparent from an examination of the literature was the difference between the plantations evaluated in those studies and those that are managed in California. For the most part, plantation density is managed below densities required to sustain independent crown fire (Peterson, et al., 2009). These stands are also managed during the early successional period to remove or restrict the growth of competing vegetation that can carry fire from the fine fuels into the crowns of the trees.

- Effects of Timber Harvest Following Wildfire in Western North America (Peterson, et al., 2009)

  > The forest developing after wildfire or postfire logging may, over time, also constitute a fire hazard because trees can act as part of the

> understory fuelbed. As crowns emerge from the shrub layer, the low canopy base height creates torching potential (cf. Scott and Reinhardt 2003). If the stand is dense (e.g., 10-cm d.b.h. trees at a density of >1200 per ha), canopy bulk density may be high enough (>0.12 kg/m3) to carry independent crown fire under severe fire weather. Canopy base height will eventually increase, reducing torching potential. Fuel dynamics can also be affected by site productivity. For example, in the Olympic Mountains (Washington), fine fuel mass following fire at a productive site (Agee and Huff 1987) was higher than short-term fine fuel mass following fire on drier sites (table 2). In southwestern Oregon, sites burned with high-severity fire had lower fine fuel loads than unburned sites, but on the Olympic site, fuel mass in the first year postfire was twice that of unburned forest primarily owing to branch fall caused by a windstorm during the first postfire winter.

The fire hazard mentioned in the Scott and Reinhardt study appears to be for plantations where competing vegetation has not been treated, thereby providing a ladder of fuels to carry fire into the crowns. When the hazard is reduced (If the competing vegetation was treated and not present) it stands to reason that the early hazard would be mitigated. The study also says that it would require approximately 485 trees per acre of higher density to carry independent crown fire, under severe fire weather conditions. Most plantations are planted at an initial density lower than this, with the new stocking standards allowing for as little as 125 trees per acre. As will be shown below, this results in a significant reduction in both vertical and horizontal continuity. Also, the number of days where severe fire weather would occur is low, relative to the number of days in a year, further lowering the risk.

- Fire-Silviculture Relationships in Sierra Forests (Weatherspoon, 1996)

Weatherspoon, studying the effects of fire damage on managed and unmanaged stands, noted that plantations were damaged at a higher rate than the unmanaged stands, but also noted the shift in management technique that the forest service had used in the recent past, which took the evaluated stands on a trajectory that differs significantly from those on private timberlands:

> "In recent years, however, concerns over air pollution from burning and adequate retention of soil cover and large woody debris have led managers to forego site preparation and plant through untreated slash on some units. Depending on the site, clearcut units generally have been planted either with ponderosa pine (Pinus ponderosa Doug. ex Laws.) or Douglas-fir (Pseudotsuga menziesii [Mirb.] Franco) seedlings, or combinations of the two species. **Until the early 1980s, plantations routinely were sprayed with herbicides to release conifer seedlings from a wide variety of competing plant species. Since then, restrictions on use of herbicides have led to fewer plantations being released, and those mostly with hand tools. No recorded precommercial thinning was done in plantations affected by the 1987 fires**." [Emphasis added]

In the study area, hazard reduction, site preparation, competing vegetation treatment and precommercial thinning (all common on private forestlands) were not applied. Further in his study, Weatherspoon noted that the increased damage to plantations was more due to the size of the trees and their position in relationship to fine fuels, the primary driver of fire behavior. What Weatherspoon identified as the single biggest indicator of fire danger, as noted above, was the method chosen for site preparation:

> "**Site preparation method (as represented by dummy variables) was the only factor related to uniformity of damage, and it was highly significant. Untreated plantations burned quite uniformly (and severely), and differed markedly from treated units in terms of uniformity of damage.** Broadcast burned units showed the greatest tendency for fire damage to decrease from the edge of the unit inward-i.e., for the plantation apparently to retard the spread and intensity of the fire. They differed significantly from machine piled units, which tended more towards a spotty burn pattern. **No instances were observed in which fire damage increased from the edge of the plantation inward.** Further Quantification of results related to uniformity of damage probably is not warranted, given the subjective nature of this variable." [Emphasis Added]

Also noted above was the observed decrease in damage to plantations the further the observation was made from the adjacent stand, suggesting that damage to the plantation was influenced by the fire behavior of the non-evenage stand. This could be because radiant heat damage from the adjacent stand created an increase in crown scorch near the edge of the plantation, but that as the fire moved into the fine fuels of the plantation, intensity and crown scorch decreased. As has been stated above, CAL FIRE

could find no direct nexus between evenage management, in and of itself, and an increase in fire danger.

- Reburn severity in managed and unmanaged vegetation in a large wildfire (Thompson, Spies, & Ganio, 2007)

> *The Biscuit Fire tended to burn at relatively high severity in young naturally regenerated stands and even more severely in young conifer plantations of comparable age and fire history. This suggests that young forests, whether naturally or artificially regenerated, may be vulnerable to positive feedback cycles of high severity fire, creating more early-successional vegetation and delaying or precluding the return of historical mature-forest composition and structure.*
>
> It should be noted, however, that many of the plantations examined in this analysis had lower conifer densities and a larger component of shrubs and hardwoods than would be found in typical intensively managed plantations of the same age (11–14 years).

This is consistent with the findings of the Azuma, Donnegan, & Gedney, 2004 report where it disclosed a disproportionate number of low site acres in the fire area (IV and lower). It was these low site acres that burned the hottest, presumedly due to the presence of brush that created a continuous and receptive ladder to carry fire into the tree canopy.

> Reducing connectivity of surface fuels at landscape scales is likely the only way to

> decrease the size and severity of reburns until vertical diversification and fire resistance is achieved

The process of breaking up the horizontal and vertical continuity of fuel within plantations is achieved through the control of competing vegetation (e.g. brush) and controlling the density of trees in the plantation (through precommercial of commercial thinning).

- Severe fire weather and intensive forest management increase fire severity in a multi-ownership landscape (Zald & Dunn, 2018)

As with other studies reviewed above, there are myriad differences between California and Oregon forestry practices that must be considered. The primary author of the study (Zald) was contacted on April 8, 2019 to inquire about applicability of this study to areas in California. The author was cautious about applying the study results outside of the geographic region and context of the study. The study itself provides numerous caveats that must also be considered when determining how applicable the results are to a particular area. For example, the plantations on the O&C lands mentioned in the study are typically managed on a 30-50 year harvest rotation. The harvest rotation ages in the study area are well below those found in California, by as much as half the minimum age for Site 1 timberland. Also, precommercial and commercial thinning is not a common practice in plantations in the Pacific Northwest. California plantations receive both pre-commercial and commercial thinning treatments in addition to other vegetation management treatments (e.g. site preparation, herbicide treatments) that appear to be lacking in the study area. These practices align with the authors descriptions of measures that would reduce fire severity and further differentiate the study area from California forests. For example, the author provides suggestions on measures that would reduce fire severity, one being, “increasing the age (and therefore size) of trees and promoting spatial heterogeneity of stands and fuels is a likely means to reducing fire severity, as are fuel reduction treatments in plantations.” When compared to the study area, California plantations are grown to an older age and receive fuel reduction treatments in the form of precommercial thinning and commercial thinning.

Visual Comparison of Plantation Density

The differences in management between Oregon and California (and between federal and private lands) cannot be understated. Most of the studies discussed above were from plantations on Federal lands, or on lands in Oregon that were managed much differently in California.

For example, the Shasta Cascade Timberlands LLC, demonstration of Maximum Sustained Production on file with CAL FIRE describes their plantation strategy:

> *The planting density varies by site but, in general, approximately 350 trees per acre (TPA) are planted on an 11-foot by 11 -foot spacing. This may vary slightly and the regimes used in our modeling exercise are given in Table 9. Our goal is to have 300 well established seedlings within two growing seasons 11 after planting. Where survival is expected to be difficult, even with carefully targeted seedlings, we may plant more trees initially. If there is insufficient survival, we will replant or interplant the area to achieve our goal. In the event that we have excessive in-growth, we will use pre-commercial thinning to reduce the stocking to a level which will allow us to carry the stand to either rotation or a commercial thin.*

• Table 9. Planted numbers of trees per acre and species distribution used in modeling future planted forests.

Regime	Tract	Elevation	Site Class	TPA	Species Mix
1	All Tracts	<3,000 ft	I and II	350	80%PP, 20%DF
2	All Tracts	<3,000 ft	III and IV	350	100%PP
3	All Tracts	>=3,000 ft	I and II	350	40%PP, 35%WF, 25%DF
4	All Tracts	>=3,000 ft	III and IV	350	50%PP, 25%WF, 25%DF
5	Miller Mountain	All	all	400	50%PP, 25%WF, 25%DF
6	Yreka	All	all	400	40%PP, 25%WF, 35%DF

This demonstration of MSP was approved before changes were made to the stocking standards for timberlands. At the time of the preparation of this document, planting to at least 300 trees per acre was common, with follow up precommercial thinning to reduce density over time. The new standard is to plant at least 125 trees

per acre, and the THP states that this standard is to be used on the proposed evenage stands.

Below is a visual demonstration of the difference in plantation stocking between lands similar to what was described in (Zald & Dunn, 2018) and those that will be planted for this THP. The stands on the left are planted at 400 trees per acre and those on the right are planted at 125 trees per acre. The top picture is the stand at 30 years of age and the bottom is 10 years. Visually you can see the crowns on the left side of the screen are much closer, allowing fire to carry easier from tree to tree.

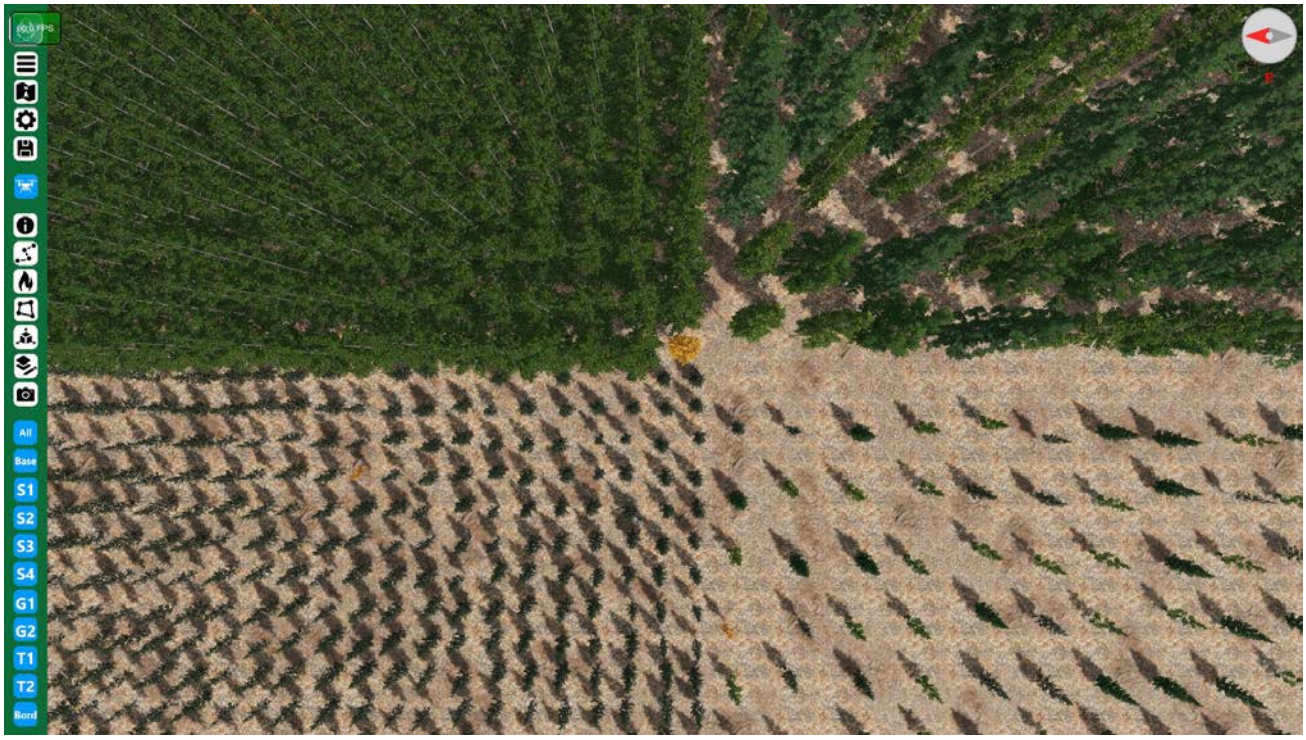

Figure 1. Top-down view of planting density (400 on the left and 125 on the right). Images on top are the stand at 30 years and the bottom is 10 years of age. Image generated using Visual Stand Designer (https://visualforester.com/)

If trees are planted at a lower density, and competing vegetation is controlled to the point where there is little to no horizontal or vertical continuity, the fire danger within the plantation is minimized until the point where the crowns are well above the surface fuels.

Figure 2. Side view of a 10 year old plantation with 400 trees per acre. Image generated using Visual Stand Designer (https://visualforester.com/)

Figure 3. Side view of a 30 year old plantation with 400 trees per acre. Image generated using Visual Stand Designer (https://visualforester.com/)

Figure 4. Side view of a 10 year old plantation with 125 trees per acre. Image generated using Visual Stand Designer (https://visualforester.com/)

Figure 5. Side view of 30 year old plantation with 125 trees per acre, Image generated using Visual Stand Designer (https://visualforester.com/)

Beyond the stand level one must look to the larger landscape in order to understand the context of individual stands. 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). The variability of vegetation types can alter and moderate fire behavior. What we see in recent catastrophic fires is the combination of extremely dry fuels, aligned with terrain and driven by winds.

CEQA Thresholds of Concern (TOC) and Quantitative Versus Qualitative Assessments

The Board's rules do not require a specific method of cumulative impacts assessment, because the Board determined that no single, available procedure adequately addresses the wide range of site conditions and THP activities found in California. Technical Rule Addendum No. 2 provides the framework of what should be considered and what to look for with respect to conditions that may be at or near some level of concern. As stated in the Addendum, "The watershed impacts of past upstream and on-site projects are often reflected in the condition of stream channels on the project area." This is a critical element as it guides the RPF to focus on areas where cumulative watershed effects are known to accumulate. The Addendum then describes factors that can be used to evaluate the potential project impacts. Such factors include gravel embeddedness, pool filling, stream aggrading, bank cutting, bank mass wasting, downcutting, scouring, organic debris, stream-side vegetation, and recent floods. Taken together, they help inform the RPF about the status of the Environmental Setting (14 CCR §15125[7]) with respect to the impacts of past projects, and will form the basis of a determination on the impacts of the proposed project.

[7] **15125. ENVIRONMENTAL SETTING**
(a) An EIR must include a description of the physical environmental conditions in the vicinity of the project. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. The description of the environmental setting shall be no longer than is necessary to provide an understanding of the significant effects of the proposed project and its alternatives. The purpose of this requirement is to give the public and decision makers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts.

(1) Generally, the lead agency should describe physical environmental conditions as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. Where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project's impacts, a lead agency may define existing conditions by referencing historic conditions, or conditions expected when the project becomes operational, or both, that are supported with substantial evidence. In addition, a lead agency may also use baselines consisting of both existing conditions and projected future conditions that are supported by reliable projections based on substantial evidence in the record.

(2) A lead agency may use projected future conditions (beyond the date of project operations) baseline as the sole baseline for analysis o.nly if it demonstrates with substantial evidence that use of existing conditions would be either misleading or without informative value to decision-makers and the public. Use of projected future conditions as the only baseline must be supported by reliable projections based on substantial evidence in the record.

(3) An existing conditions baseline shall not include hypothetical conditions, such as those that might be allowed, but have never actually occurred, under existing permits or plans, as the baseline.

(b) When preparing an EIR for a plan for the reuse of a military base, lead agencies should refer to the special application of the principle of baseline conditions for determining significant impacts contained in Section 15229.

Comment writers take exception to the assessment produced by the Registered Professional Foresters claiming it to be subjective and not sufficient upon which to make determinations on potential plan impacts. Additionally, commenters propose alternative methods that quantify impacts based upon the expected change to vegetation. Attempts to codify statewide, quantitative standards for determining thresholds of concern for impacts have consistently proved problematic due to the wide variety of conditions found in California.

Faced with similar comments, the Board of Forestry addressed this issue during the rulemaking for Technical Rule Addendum #2 in 1991:

> Final Statement of Reasons (FSOR) for Technical Rule Addendum #2 (1/18/91)
>
> Pages 56-57 (In response to concerns on the need for Quantitative Data for establishing baselines):
>
> Response - The Board reviewed several drafts of regulations before noticing the proposed language. One of the drafts offered to the Board by the Department contained a set of required measurements which could be reproduced as suggested.

(c) Knowledge of the regional setting is critical to the assessment of environmental impacts. Special emphasis should be placed on environmental resources that are rare or unique to that region and would be affected by the project. The EIR must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context.

(d) The EIR shall discuss any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans. Such regional plans include, but are not limited to, the applicable air quality attainment or maintenance plan or State Implementation Plan, area-wide waste treatment and water quality control plans, regional transportation plans, regional housing allocation plans, regional blueprint plans, plans for the reduction of greenhouse gas emissions, habitat conservation plans, natural community conservation plans and regional land use plans for the protection of the Coastal Zone, Lake Tahoe Basin, San Francisco Bay, and Santa Monica Mountains.

(e) Where a proposed project is compared with an adopted plan, the analysis shall examine the existing physical conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced as well as the potential future conditions discussed in the plan.

Public comment received by the Board from the agencies and public convinced the Board that there is not a set of quantitative values which can withstand peer review in all areas which are affected by cumulative effects. The breadth of this expertise ranges from geologists, hydrologists, soils scientists, and various biologists.

Given this, the Board relied upon the experience of others in the field of cumulative effects and decided that a qualitative method would be most reliable for the decision maker. Most other agencies currently use the qualitative method which means that an independent analysis is conducted on each project. In this method available data is collected and evaluated to determine that defined topic and issue areas (i.e. stream bank or bed condition) are considered and a condition identified. There then are certain conditions which can be identified. One example is a lack of certain stream biota which indicate the threshold of significant cumulative effects has been reached.

To date, the quantitative methods identified by the Board rely upon numbers which are assigned on the basis of professional judgment. This means that it is only a modified qualitative analysis at best. An example of this is the Chatoian Method of Equivalent Roaded Acres being developed for use by the United States Forest Service. Recent field evaluations have shown that there is little relationship between Equivalent Roaded Acres and the conditions of the water quality in a watershed.

For these reasons the Board did not believe it could require a standardized set of data measurements in the THP regulations. Further, the data collected would have to be entered into a common data base if any analytical value is to be gained. This would be a costly proposition for the

State. The Board believes that such a data base will ultimately be developed and will be invaluable but it should be sought at this time in a nonregulatory manner.

Proceeding with the development of a data base in this manner will allow the necessary data to be identified, the analysis process to be developed, the funding to be identified, and most of all the necessary peer acceptance of such a system to be nurtured.

Also page 70

Response - Refer to response No. 1 in the letter dated August 1, 1990 by Mr. Benjamin Kor, Northcoast Regional Water Quality Control Board. Further, the Board conducted an extensive review of cumulative effects methodologies during 1988 and 1989 most recently and has had at least two previous reports prepared on the topic. The Board in developing this proposal released several draft cumulative effects methodologies for peer review. These methods were originally quantitative to the extent numerical values were assigned to professional judgments. Those values were then totaled and used to estimate whether a cumulative effects threshold had been crossed. The peer review always resulted in criticism of the time required to develop determinations which still relied upon best professional judgment. In response the Board chose to pursue development of the adopted proposal which relies on an independent analysis which provides guidance on what measures must be considered when judging if a cumulative impact will occur. This method as is now currently used by most planning departments and other lead agencies. Use of this method requires information of sufficient detail to support a record of decision.

The CEQA Guidelines encourage agencies to develop specific Thresholds of Concern that can be applied to environmental review, but this is not required (14 CCR §15064.7(b)). For CAL FIRE, the establishment of Thresholds of Concern rest with the Board of Forestry and they will make the final determination on if, when and where these thresholds should be applied.

What is (and is not) Answered in an Official Response

In its simplest form, the Official Response (OR) is an apologia, which is latin for "speaking in defense." This involves CAL FIRE providing an explanation for why the plan was approved within the context of the comments received. Usually, this is why the plan was approved over comments that it should be denied or modified. The OR is limited to only substantial environmental concerns (PRC §21080.5(d)(2)(D)[8], 14 CCR §1037.8[9], §1090.22[10], §1094.21[10]) and does not address issues that are outside of CAL FIRE jurisdiction, involve points of law, or policy.

Public Comment

Public comment for this plan came in the form of one email with an attached letter listing concerns. The discussion preceding this section provides responses to broader questions received through public comment, and information below provides specific responses to individual questions responded to separately.

[8] (d) To qualify for certification pursuant to this section, a regulatory program shall require the utilization of an interdisciplinary approach that will ensure the integrated use of the natural and social sciences in decision making and that shall meet all of the following criteria:… 2) The rules and regulations adopted by the administering agency for the regulatory program do all of the following: … (D) Require that final action on the proposed activity include the written responses of the issuing authority to significant environmental points raised during the evaluation process.

[9] At the time the Director notifies the plan submitter that the plan has been found in conformance, as described in 14 CCR 1037.7, the Director shall transmit a notice thereof to the agencies and persons referred to in 14 CCR 1037.3, and for posting at the places named in 14 CCR 1037.1. A copy of the notice shall be filed with the Secretary for Resources. The notice of conformance shall include a written response of the Director to significant environmental issues raised during the evaluation process.

[10] §1090.22 and §1094.21 contain the same language related to the Official Response as §1037.8

Response #1 (Fire Hazard Risk):

Most of the response to this concern is included above in the discussion titled “Fire Hazard Risk and Assessment”.

CAL FIRE notes that both the Zald and Dunn and Thompson, Spies and Ganio studies are discussed above in the larger context of plantations and fire hazard. The sited work from DellaSala is not from a peer-reviewed study, but rather was a form of public comment originally submitted to the Oregon Department of Forestry in 2018. CAL FIRE believes that the plan as approved adequately discloses and mitigates against any potential increase in fire hazard that could occur from the result of proposed operations, and that no significant adverse cumulative effect will occur as a result of the project.

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.

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