United States Department of Agriculture | Forest Service | Cleveland National Forest Trabuco Ranger District | 1147 E 6th Street Corona, CA 92879-1616 (909) 736-1811-1812 (909) 736-3002 Fax CRS (800) 735-2922 Voice

File Code: 1950 Date: November 19, 2003
Route To:

Subject: Project Initiation Letter (PIL): North Main Divide Fuel Breaks

To: Interdisciplinary Team

REPLY DUE DECEMBER 5, 2003

The Forest proposes to burn portions of the North Main Divide fuel break system. The North Main Divide fuel break system consists of approximately 10 miles of fuel breaks running from Bald Peak to Sierra Peak and includes the ridges running northeast above Bedford, Eagle, Manning, Main Street, Hagador and Wardlow canyons: S5, S6, S7, S8, T5S, R6W; S1, S2, T5S, R7W; S30, S31, S32, T4S, R6W; S5, S6, S7, S9, S10, S14, S15, S16, S20, S22, S24, S25, S26, S27, S28, S35, T4S, R7W, S.B.M., Orange and Riverside Counties..

This proposed action will be analyzed and considered under the requirements of the Forest Land and Resources Management Plan (LRMP), the National Environmental Policy Act (NEPA) and other pertinent federal laws. It will also conform to Forest Standards and Guidelines and Best Management Practices standards.

Purpose & Need

The purpose of this proposed action is to maintain the district's system of fuel breaks in a condition which can limit the spread of wildfire. Portions of the North Main Divide Fuel Break System have not been burned in more than 10 years. The fuel breaks on the district must be burned at approximately 5 year intervals in order to maintain their effectiveness. This project proposes to burn portions of the fuel break system on a rotational basis. No new construction of fuel breaks is planned under this project.

Public Participation

In addition to publication in the Forest's quarterly Schedule of Proposed Actions (SOPA) which is mailed to approximately 1000 interested parties and is on the Forest website. Information will also be available in public use areas, such as Visitor Centers, Trail Heads and the Ranger District Office.

Tribal Participation

The following tribes will be contacted: Juaneno Band of Mission Indians, Pechanga Indian Reservation, Pechanga Band of Mission Indians, Indian Council of San Juan Capistrano, Pala Band of Mission Indians, Pauma & Yuima Band of Mission Indians, Juaneno Band of Mission Indians, Gabrielino-Tongva Tribal Council, Gabrielino Tongva Indians, Pechanga Band of Luiseno Mission Indians.

Interdisciplinary Team
The Interdisciplinary Team (IDT) will consist of Gordon Martin (District Fuels)(Team leader), Donna Leffler-Harloff (Landscape Architect), Dan Ford (Hydrology), Craig Wentworth (Biology), Kirsten Winter (Botany), Lee Digregorio (Archeology), Jake Rodriguez (Lands) and Virgil Mink (Recreation Residences).

Timeline for Completion

Project Initiation Letter (PIL)	November 2003
IDT/Initial Meeting	December 2003
Decision Document Complete	February 2004

for Gloria G Peper
KEITH W. FLETCHER
District Ranger

Cc: Fuels Plan Contacts

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File Code: 2670 **Date:** March 31, 2004
Route To: Gordon Martin, Fuels Specialist

Subject: North Main Divide Fuelbreaks

To: Keith Fletcher, Trabuco District Ranger

Introduction and Project Description

The Cleveland National Forest, Trabuco Ranger District, proposes to maintain portions of the North Main Divide fuelbreak system. The fuelbreaks would be maintained by burning them. There are approximately 25 miles of fuelbreaks between Bald Peak and Sierra Peak; fuelbreaks include the ridges running northeast above Bedford, Eagle, Manning, Main Street, Hagador, and Wardlow Canyons. The average width of the fuelbreaks is approximately 300 feet, and the North Main Divide fuelbreak system occupies a total of 989 acres. The fuelbreaks will be maintained approximately every 5 years for at least the next 10-20 years. The district intends to maintain about 200 acres of the fuelbreak per year. The fuelbreaks are located in Orange and Riverside counties (see attached map), in the northeastern section of the Santa Ana Mountains. When maintaining the fuelbreak south of Sierra Peak, the group of about 20 Tecate Cypress trees that occurs just south of the peak will be protected, and will not be burned.

This document is prepared to comply with the legal requirements set forth under Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1536(c), 50 CFR 402), and policy and standards set forth in Forest Service Manual (FSM) 2672.4 through 2672.42. The effects of fuelbreaks on federally-listed species were addressed in a previous consultation (USDA Forest Service 2000, USDI Fish and Wildlife Service 2001). According to the biological opinion, the effects of fire and fuels management on **Nevin's barberry** ***(Berberis nevinii)*** are nonexistent due to the absence of fuelbreaks in key habitat and a negligible amount in modeled habitat (< 0.2 percent). This species is not expected to be affected by fuelbreak maintenance (USDI FWS 2001, pg 261). According to the biological opinion, the effects of fire and fuels management on **oval-leaved dudleya** ***(Dudleya cymosa* spp. *ovatifolia)*** are non-existent due to the absence of fuelbreaks in occupied oval-leaved dudleya habitat and a negligible amount in within modeled habitat (<1.0 percent). This species is not expected to be affected by fuelbreak maintenance (USDI FWS 2001, pg 263). According to the biological opinion, the effects of fire and fuels management on **Encinitas baccharis** ***(Baccharis vanessae)*** are non-existent due to the absence of fuelbreaks in occupied Encinitas baccharis habitat and a negligible amount in within modeled habitat (<0.5 percent). There is only one known occurrence on the Cleveland National Forest in the San Mateo Wilderness (USDA 2000). This species is not expected to be affected by fuelbreak maintenance (USDI FWS 2001, pg 267). Federally-listed species will not be revisited in this evaluation. This document will address the effects of the fuelbreaks on Regional Forester's Sensitive list species.

Regional Forester's Sensitive list species that are known to occur, or that have the potential to occur within the fuelbreaks are Heart-leaved Pitcher Sage (*Lepechinia cardiophylla*), Santiago Peak Phacelia (*Phacelia suaveolens keckii*), and Tecate Cypress (*Cupressus forbesii*). See attached map. No other Regional Forester's sensitive list plant species are expected to occur at the sites.

Fuelbreak	Heart-leaved Pitcher Sage	Santiago Peak Phacelia	Tecate Cypress
Bedford	Potential		
Eagle	Potential		
Hagador	Potential		
Manning	Potential		
Main Street	Known (near top)		
North Main	Known – Sierra, Pleasants, Bald Pk	Known – Pleasant's Peak	Known – near Sierra Peak
Wardlow	Known (at 2600 feet)		

Existing Environment

The North Main Divide fuelbreak system was surveyed by Kirsten Winter, Forest Biologist, and Craig Wentworth, Assistant District Biologist, on March 12, 2004. The vegetation type along the fuelbreak is chamise chaparral at the northern end of the fuelbreak system, and mixed chaparral in the southern portions of the system. In a few areas there are clumps of pine trees.

In the chamise chaparral, the dominant shrub species is Chamise (*Adenostoma fasciculatum*). Other species that are present include Yerba Santa (*Eriodictyon crassifolium*), Hoary-leaf Ceanothus (*Ceanothus crassifolius*), Ceanothus (*Ceanothus tomentosus*), Manzanita (*Arctostaphylos glandulosa*), Yucca (*Yucca whipplei*), Buckwheat (*Eriogonum fasciculatum*), Sugarbush (*Rhus ovata*), Bush Poppy (*Dendromecon rigida*), Toyon (*Heteromeles arbutifolia*), Black Sage (*Salvia mellifera*), California Sage (*Artemisia californica*), and Mountain Mahogany (*Cercocarpus betuloides*). The subshrub and herbaceous layer includes Deerweed (*Lotus scoparius*), Rush-rose (*Helianthemum scoparium*), Golden Yarrow (*Eriodictyon confertiflorum*), Giant Wild Rye (*Elymus triticoides*), and needlegrass (*Nassella* sp.), and non-native mustard (*Brassica nigra*). There are relatively few weed species along the ridgeline of the Santa Ana Mountains and the weedy species are not abundant. Weedy species such as Red Brome (*Bromus madritensis rubens*) and Filaree (*Erodium cicutarium*) are more common on the fuelbreaks at lower elevations, along the eastern boundary of the Forest.

In the mixed chaparral, which occurs at higher elevations, the dominant shrub species are Scrub Oak (*Quercus berberidifolia*), Hoary-leaf Ceanothus (*Ceanothus crassifolius*), Chamise (*Adenostoma fasciculatum*), Buckwheat (*Eriogonum fasciculatum*), and Sugarbush (*Rhus ovata*). Additional species that are present include Toyon (*Heteromeles arbutifolia*), California Sage (*Artemisia californica*), Canyon Live Oak (*Quercus chrysolepis*), Holly-leaf Cherry (*Prunus ilicifolia*), California Bay (*Umbellularia californica*), Ash (*Fraxinus* sp.), Elderberry (*Sambucus mexicana*) and Silk-Tassel bush (*Garrya* sp).

The soils along the fuelbreak system are mapped as Blasingame stony loam, Calleguas clay loam, Cienaba sandy loam, Escondido fine sandy loam, Exchequer Rock outcrop complex, Friant fine sandy loam, Garretson gravelly fine sandy loam, Las Posas gravelly loam, and Yorba cobbly sandy loam (USDA Soil Conservation Service 1978).

Heart-leaved Pitcher Sage (*Lepechinia cardiophylla*)

Heart-leaved pitcher sage is found primarily in the Santa Ana Mountains of Orange and Riverside Counties (Averett 1993; CDFG 2002). It has also been reported from Iron Mountain, in San Diego County, and from Baja California, Mexico (CNPS 2001; CDFG 2002). There are 23 recorded occurrences of heart-leaved pitcher sage on the Cleveland National Forest, which occupy a total of 391 acres. Occurrences are recorded in the Santa Ana Mountains from Sierra Peak, Bald Mountain, on the ridge between Ladd Canyon and East Fork Canyon, along Indian Truck Trail toward Santiago Peak, on Trabuco Peak, along the Divide Road, along Horsethief Trail, near Pleasants Peak, and on the northwest facing slopes of Mayhew Canyon (CDFG 2002). No other *Lepechinia* species are known to occur in the Santa Ana Mountains (Averett 1993).

Heart-leaved pitcher sage is a perennial shrub with generally short stalked glands. Leaves are cordate to ovate, irregularly serrate, to nearly entire, generally with branched, non-glandular hairs and sessile to short-stalked glands. The corolla is 5-lobed, white with lavender tinge (pink to purple spots) and 2-lipped. Plants flower from April to June.

Heart-leaved pitcher sage occurs in closed-cone coniferous forests (Tecate Cypress), chaparral and cismontane woodlands at elevations of 1,785–4,453 feet (550–1,370 meters) (CDFG 2002; CNPS 2001). Plants have been found on Friant rocky fine sandy loam soils and Exchequer soils, and commonly occur with *Cupressus forbesii* and *Ceanothus* sp. (USDA Forest Service 1998a).

A few records of heart-leaved pitcher sage on the Cleveland National Forest Lands list show "disturbance by transmission line installation and fire break maintenance" as possible threats (CDFG 2002). In addition, several occurrences are located near roads and are subject to road maintenance activities. However, most populations on the Cleveland National Forest are well protected (USDA Forest Service 1998a). Populations on private lands are under threat of development (CNPS 2001).

Santiago Peak Phacelia (*Phacelia suaveolens keckii*)

Santiago Peak Phacelia is found in the Santa Ana Mountains in Orange and Riverside Counties (CNPS 2001). There are known occurrences near Santiago Peak, Modjeska Peak, and Pleasants Peak in the Santa Ana Mountains. The plant is also reported from Arroyo Seco Creek near Wild Horse Peak in the Agua Tibia Wilderness Area of the Cleveland National Forest in Riverside County (CDFG 2002). All of these occurrences are on the Cleveland National Forest. The mapped occurrences occupy a total of 52 acres although this is considerably exaggerated due to non-specific mapping of some occurrences.

Santiago Peak Phacelia (Hydrophyllaceae) is an annual herb that blooms May–June (CNPS 2001). It has an ascending or erect stem (5 to 40 cm), which is simple to branched at base, short to hairy, glandular to puberulent. Leaf blade (10 to 75 mm) generally longer that petiole, widely

elliptic to ovate, with toothed to slightly lobed margin. Flower pedicel 1 to 2 mm; calyx lobes 4 to 5 mm and 6 to 8 mm in fruit, oblanceolate (Wilken et al. 1993).

Populations occur along road margins, in recent alluvium, and following wildfire, which suggests that Santiago Peak Phacelia may be adapted to some forms of disturbance.

Santiago Peak Phacelia occurs on stream alluvium, volcanic soils, and other open sites within chaparral and Knobcone Pine stands and is seen in greatest abundance following fires. Populations are reported at elevations of 1,800–5,000 feet (545–1,600 meters) (CNPS 2001; CDFG 2002).

There are four recorded occurrences for *Phacelia suaveolens* var. *keckii* on National Forest System lands, all on the Cleveland National Forest. Population status is unknown for these occurrences. This species is difficult to locate in intervals between fires and is considered rare due to its restricted range.

Occurrences at Pleasant, Santiago, and Modjeska Peak may be threatened by development at electronic sites on and adjacent to the Cleveland National Forest (USDA Forest Service 1998c).

Tecate Cypress (*Cupressus forbesii*)

Tecate Cypress has a limited distribution in the United States, with only four populations known. Its distribution is centered in the southern Peninsular Ranges of Baja California Norte. The northernmost population occurs in a 960-acre (390-hectare) grove at Sierra Peak/Coal Canyon in the Santa Ana Mountains, Orange County. Other stands are located in San Diego County, including a 50-acre (20-hectare) grove on Guatay Mountain in the Laguna Mountains, a 5,000-acre (2,025-hectare) grove on Otay Mountain, and small groves east of Otay Mountain. Numerous groves of Tecate Cypress occur on the Mexico side of Otay and Tecate peaks and in the coastal mountains of Baja California Norte, extending about 150 miles (241 kilometers) down the peninsula (USDA Forest Service 1991; CDFG 2002). Most (85%) Tecate Cypress within the United States is located on public lands (CNPS 2001).

Tecate Cypress is an evergreen gymnosperm tree < 10 m tall with multiple trunks, generally without a terminal shoot. Bark peels to in thin plates to smooth, polished, cherry-red or mahogany-brown in color. Leaves are a rich light green to a dull green. Seed cones are closed, 20-32 mm, spheric with 6-10 scales (Bartel 1993).

Fire induces seed release from cones, while trees are killed. Post-fire environmental conditions induce seeds to germinate and reestablish the population. Trees require 10 years before cone production begins and 50 years to reach maximum cone production. Stands usually require 35-40 years of growth to reproduce sufficient seeds for stand replacement (Dunn 1987). Stands at least 52 years old produced a greater number of seedlings per pre-burn tree following a fire (Zedler 1977). Additionally these stands reestablished at densities several times higher than pre-fire densities (Zedler 1977). Keeley (1981) estimates a natural fire frequency of 50-100 years for Tecate Cypress stands. Although increasing mortality thins stands as trees age, individual trees

in more open stands produce more cones per tree than in dense stands, so that cone production per unit area remains relatively constant across a range of stand density and age (Dunn 1987).

Tecate Cypress occurs from elevations as low as 65 feet (20 meters) in Baja California Norte to 4,200 feet (1,280 meters) in the Laguna and Santa Ana Mountains. It is usually found on mesic east- or north-facing slopes. Tecate Cypress grows in alkaline, clay soils derived from ultramafic gabbroic rocks or metavolcanics.

Reduced stand densities are attributed mainly to increases in fire frequency. Data collected at both Tecate Peak and Otay Mountain suggest that some of the groves there are diminishing in size (Dunn 1989). Tecate Cypress groves experiencing fire frequencies of less than 30-year intervals will have reduced stand replacement survivorship. Stands require at lest 35-40 years to reproduce sufficient seeds for stand replacement (Dunn 1987). However, stands also require hot fire to release seeds from cones to replace decadent trees and stands. Excluding fire completely may have undesirable consequences. Tecate Cypress cones may gradually release seeds after several to many years in the absence of fire, but release of seeds is inefficient and viability is low. Seedling recruitment can occur in mature cypress stands, however, survivorship is reduced after the first year of establishment. Consequently, fire is necessary for population viability and must occur prior to tree senescence or reduced cone production.

Effects

Heart-leaved Pitcher Sage – The recorded occurrences of Heart-leaved Pitcher Sage on the Cleveland National Forest occupy a total of 391 acres. Portions of a few of the known occurrences are on fuelbreaks; the area of occupied habitat within fuelbreaks is 10 acres. This is about 2.5% of the occupied habitat. Individual shrubs could be cut and burned during fuelbreak construction. Like other mint species, this sage is expected to resprout and recruit from seed after fire. Several of the populations that the Forest has recorded are located on the existing fuelbreaks, indicating that this species is tolerant of fire. Fuelbreak maintenance is expected to have short-term direct adverse effects on this species due to cutting and burning of individual plants. This species is tolerant of fire, so no measurable long-term effect on populations is expected. There may be some indirect effects on the species due to a possible increase in weeds within the fuelbreak. The prevalence of weed species on the North Main Divide is fairly low along the ridgeline of the mountains, where Heart-leaved Pitcher Sage occurs.

Santiago Peak Phacelia - There are four recorded occurrences of this species on the Cleveland National Forest, totaling 52 acres. Some of the occurrences are not precisely mapped, so this acreage figure is exaggerated. One of the known occurrences, at Pleasant's Peak, lies entirely within the fuelbreak system. This occurrence occupies an area of about 1 acre. Santiago Peak Phacelia is considered to be a fire-follower, a species that depends on fire to stimulate germination. It is generally detected only in the first year or two after a fire. Between fires, and during the winter months, this species lies dormant in the seed bank. Fuelbreak maintenance may benefit this species, as frequent burning of fuelbreaks is expected to promote germination and flowering. Under normal conditions chaparral would burn at 25 year intervals or longer, allowing fewer opportunities for this species to emerge. Other fire-following Phacelia species are common on Forest fuelbreaks. There may be some indirect effects on the species due to a

possible increase in weeds within the fuelbreak. The prevalence of weed species on the North Main Divide is fairly low along the ridgeline of the mountains, where Santiago Peak Phacelia occurs.

Tecate Cypress - There is one major grove of Tecate Cypress on the Cleveland National Forest, at Guatay Mountain, which occupies about 50 acres. There is another large population at Coal Canyon, just west of Sierra Peak, which is probably the source of the population along the fuelbreak south of Sierra Peak. Tecate Cypress is often planted, so it is uncertain whether the population on the fuelbreak is naturally-occurring. Its proximity to the larger population at Coal Canyon suggests that it may have been recruited from that population. The population along the fuelbreak consists of about 20 trees which appear to be about 20 years old. The size of the population is less than 0.5 acres. During fuelbreak maintenance, this population will be avoided, and protected from fire. No effects on Tecate Cypress are expected.

Determinations

Based on the small percentage of known populations that will be affected by the fuelbreak project, the apparent tolerance of this species for fire, and the low incidence of weeds in areas where this species occurs, it is my determination that maintenance of the North Main Divide fuelbreaks may affect individuals, but is not expected to result in a trend toward federal listing nor a loss of viability for Heart-leaved Pitcher Sage.

Based on this species' life history, which indicates that it is a fire follower which is ordinarily seen only after a fire, and the low incidence of weeds in areas where this species occurs, it is my determination that maintenance of the North Main Divide fuelbreaks may affect individuals, but is not expected to result in a trend toward federal listing nor a loss of viability for Santiago Peak Phacelia.

Based on the protection of the Sierra Peak population from fire, ~~it is~~ my determination that maintenance of the North Main Divide fuelbreaks will have no effect on Tecate Cypress.

Recommendations

I recommend installing barriers or gates at points where the fuelbreaks meet Main Divide Road, to prevent off-road vehicle use of fuelbreaks. I recommend monitoring Heart-leaved Pitcher Sage and Santiago Peak Phacelia populations after fuelbreak treatment to gather further information on their responses to fire.

Kirsten Winter
Forest Biologist

Enclosures:

List of Threatened, Endangered, and Sensitive Plant Species that may occur
Map of fuelbreaks and sensitive plant locations

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THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE WILDLIFE AND PLANT SPECIES - CLEVELAND NATIONAL FOREST							
Common Name	Scientific Name	Federal E	Federal T	Federal P	Federal C	USFS Sensitive	State
Quino Checkerspot	Euphydryas editha quino	X					
Laguna Mountains Skipper	Pyrgus ruralis lagunae	X					
Arroyo Toad	Bufo californicus	X					
California Red-legged Frog	Rana aurora draytoni		X				
Mountain Yellow-legged Frog	Rana muscosa	X					
Southern Steelhead Trout	Oncorhynchus mykiss	X					
Southwestern Willow Flycatcher	Empidonax traillii extimus	X					
Bald Eagle	Haliaeetus leucocephalus		X				
California Gnatcatcher	Polioptila californica californica		X				
Least Bell's Vireo	Vireo bellii pusillus	X					
Western Yellow-billed Cuckoo	Coccyzus americanus occidentalis				X		
Stephen's Kangaroo Rat	Dipodomys stephensi	X					
San Diego Thornmint	Acanthomintha ilicifolia		X				
Munz's Onion	Allium munzii	X					
Braunton's Milkvetch	Astragalus brauntonii	X					
Encinitas Baccharis	Baccharis vanessae		X				
Nevin's Barberry	Berberis nevinii	X					
Thread-leaved Brodiaea	Brodiaea filifolia		X				
Vail Lake Ceanothus	Ceanothus ophiochilus		X				
Slender-horned Spineflower	Dodecahema leptoceras	X					
Oval-leaved Dudleya	Dudleya cymosa ssp. ovatifolia		X				
San Bernardino Bluegrass	Poa atropurpurea	X					

THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND SENSITIVE WILDLIFE SPECIES - CLEVELAND NATIONAL FOREST							
Common Name	Scientific Name	Federal E	Federal T	Federal P	Federal C	USFS Sens	State
Quino Checkerspot	Euphydryas editha quino	X					
Laguna Mountains Skipper	Pyrgus ruralis lagunae	X					
Arroyo Toad	Bufo californicus	X					
California Red-legged Frog	Rana aurora draytoni		X				
Mountain Yellow-legged Frog	Rana muscosa	X					
Large-blotched Salamander	Ensatina eschscholtzii klauberi					X	
Southern Steelhead Trout	Onchorhynchus mykiss	X					
Arroyo Chub	Gila orcuttii					X	
Santa Ana Speckled Dace	Rhinichthys osculus spp 8					X	
Southwestern Willow Flycatcher	Empidonax traillii extimus	X					
Bald Eagle	Haliaeetus leucocephalus		X				
California Gnatcatcher	Polioptila californica californica		X				
Least Bell's Vireo	Vireo bellii pusillus	X					
California Spotted Owl	Strix occidentalis occidentalis					X	
San Diego Cactus Wren	Campylorhynchus brunneicapillus					X	
	sandiegensis						
Western Yellow-billed Cuckoo	Coccyzus americanus occidentalis				X	X	
Stephen's Kangaroo Rat	Dipodomys stephensi	X					
Pallid Bat	Antrozous pallidus					X	
Townsend's Big-eared Bat	Corynorhinus townsendii					X	
Western Red Bat	Lasiurus blossevillii					X	
California Leaf-nosed Bat	Macrotus californicus					X	
Los Angeles Pocket Mouse	Perognathus longimembris brevinasus					X	
Southwestern Pond Turtle	Clemmys marmorata pallida					X	
San Diego Horned Lizard	Phrynosoma coronatum blainvillii					X	
California Legless Lizard	Anniella pulchra					X	
San Diego Ringneck Snake	Diadophis punctatus similis					X	
Coastal Rosy Boa	Lichanura trivirgata roseofusca					X	
San Diego Mountain Kingsnake	Lampropeltis zonata pulchra					X	
Two-striped Garter Snake	Thamnophis hammondii					X	

THREATENED, ENDANGERED, PROPOSED, CANDIDATE, AND SENSITIVE PLANT SPECIES - CLEVELAND NATIONAL FOREST							
Common Name	Scientific Name	Federal E	Federal T	Federal P	Federal C	USFS Sen	State
San Diego Thornmint	Acanthomintha ilicifolia		X				E
Munz's Onion	Allium munzii	X					T
Braunton's Milkvetch	Astragalus brauntonii	X					
Encinitas Baccharis	Baccharis vanessae		X				E
Nevin's Barberry	Berberis nevinii	X					E
Thread-leaved Brodiaea	Brodiaea filifolia		X				E
Vail Lake Ceanothus	Ceanothus ophiochilus		X				E
Slender-horned Spineflower	Dodecahema leptoceras	X					E
Oval-leaved Dudleya	Dudleya cymosa ssp. ovatifolia		X				
San Bernardino Bluegrass	Poa atropurpurea	X					
Rainbow Manzanita	Arctostaphylos rainbowensis					X	
Dean's Milkvetch	Astragalus deanei					X	
Jacumba Milkvetch	Astragalus douglasii v. perstrictus					X	
San Diego Milkvetch	Astragalus oocarpus					X	
Jaeger's Milkvetch	Astragalus pachypus v. jaegeri					X	
Orcutt's Brodiaea	Brodiaea orcuttii					X	
Dunn's Mariposa Lily	Calochortus dunnii					X	R
Intermediate Mariposa Lily	Calochortus weedii v. intermedius					X	
San Bernardino Mts. Owls' Clover	Castilleja lasiorhyncha					X	
Payson's Jewelflower	Caulanthus simulans					X	
Lakeside Ceanothus	Ceanothus cyaneus					X	
Long-spined Spineflower	Chorizanthe polygonoides v longispina					X	
Delicate Clarkia	Clarkia delicata					X	
Tecate Cypress	Cupressus forbesii					X	
Cuyamaca Cypress	Cupressus stephensonii					X	R
Cuyamaca Larkspur	Delphinium hesperium ssp,cuyamacae					X	
Many-stemmed Dudleya	Dudleya multicaulis					X	
Sticky Dudleya	Dudleya viscida					X	
Mission Canyon Bluecup	Githopsis diffusa ssp. Filicaulis					X	
Tecate Tarplant	Hemizonia floribunda					X	
Mojave Tarplant	Hemizonia mohavensis					X	
Ramona Horkelia	Horkelia truncata					X	
Heart-leaved Pitcher Sage	Lepechinia cardiophylla					X	
Warner Springs Lessingia	Lessingia glandulifera v. tomentosa					X	

Lemon Lily	Lilium parryi					X	
Parish's Meadowfoam	Limnanthes gracilis v. parishii					X	E
Orcutt's Linanthus	Linanthus orcuttii					X	
Laguna Mountains Aster	Machaeranthera asteroides v. lagunensis					X	R
Felt-leaved Monardella	Monardella hypoleuca v. lanata					X	
Hall's Monardella	Monardella macrantha v. hallii					X	
San Felipe Monardella	Monardella nana v. leptosiphon					X	
Baja Navarretia	Navarretia peninsularis					X	
Chaparral Beargrass	Nolina cismontana					X	
California Beardtongue	Penstemon californicus					X	
Santiago Peak Phacelia	Phacelia suaveolens ssp. Keckii					X	
Moreno Currant	Ribes canthariforme					X	
San Miguel Savory	Satureja chandleri					X	
Southern Skullcap	Scutellaria bolanderi ssp. austromontana					X	
Gander's Butterwort	Senecio ganderi					X	R
Hammitt's Claycress	Sibaropsis hammittii					X	
Laguna Mountains Jewelflower	Streptanthus bernardinus					X	
Parry's Tetracoccus	Tetracoccus dioicus					X	
Velvety False-lupine	Thermopsis californica v. semota					X	

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File Code: 5140 Date: April 22, 2004
Route To: Trabuco Ranger District

Subject: Watershed Report for North Main Divide Fuel Break Prescribed Burn

To: Gordon Martin, Fuels Specialist

WATERSHED REPORT FOR THE North Main Divide Fuel Break Prescribed BURN

Summary of the Proposed Action

RESOURCE MANAGEMENT GOALS & OBJECTIVES
GOALS:

- Reduce hazardous fuel conditions that exist in the area due to age of vegetation.
- Re-establish fire into a fire dependent ecosystem to promote forest health.
- Reduce the spread and intensity of wild land fire to adjacent wilderness and private lands.
- Protect Sycamore trees as key bird habitat and Oak trees (Acorn as wildlife food supply).
- Protect Private land from seasonal run off.
- Create wildlife corridors and promote wildlife movement with mosaic patterns.

OBJECTIVES:

- Burn 25-45% of the chaparral and approximately 5-15% of the Oak/Sycamore stands.
- Create an age class mosaics in 5-50 acres plots. Have no more then 10% mortality in Oaks and Sycamore stands above 8" DBH.
- Use low intensity backing or flanking fire on slopes greater than 60% adjacent to private lands.

A site specific tour of the proposal area was made with Gordon Martin on March 12, 2004. He identified the areas along the road where the proposed fuel break would be burned.

Soils

The slope percents along the road in the project area range between 30-70%. There are rock outcrops, boulders and the soils have moderate to very high erosion hazard ratings. Soil repellency can affect soil infiltration rates after a burn and increase the runoff/erosion potential during storm events.

Watershed Location

The project is located southwest of Corona in Riverside and Orange Counties. The northwestern project boundary point is Sierra Peak and follows the Main Divide Road (on ridge tops) to the southeastern boundary at Bald Peak. {T 4S - R 7W - SEC 4, 5, 6, 7, 9, 10, 14, 15, 16, 17, 18, 20, 21, 22, 24, 25, 26, 27, 28, 29, 35. T 4S – R 6W – SEC 30, 31, 32. T 5S –.R 6W – SEC 6, 7, 8. T 5S –.R 7W – SEC 1, 2.} The project area covers the upper reaches of several perennial/intermittent drainages. Vegetation in the project area is predominantly old chaparral with small areas of oak and sycamore stands.

Watershed Effects of Proposed Action

The project area will be divided into a number of units which are scheduled to be burned in 3 separate entries, approximately 1-2 years apart. The initial entry is to be on the east side of the project area along the forest boundary. Initial firing of this area will be under low to moderate burning conditions and consist of hand firing of the constructed hand line.

Under these burn conditions approximately 50-60% of the soils will be bare and susceptible to sheet and rill erosion. The greatest potential for soil loss/productivity will occur the first year after the burn. The second year's soil loss potential would be reduce by at least half. Under normal rainfall years, the soil stability levels return to pre-burn conditions within 5-7 years. The amount of soils erosion and sediment transported off the burn area will depend on the number and intensity of rainfall events during the first 2-years following the fire.

The following rainfall events are above the normal storm intensities, but they can occur at any time. Under the proposed prescribed burn, the following potential soil losses could occur during the following storm events. During a 2-year/6 hour storm event the USLE (Universal Soil Loss Equation) predicted soil loss between 10-15 tons per acre. With a 5-year 6 hour storm event the predicted soil loss is 25-35 tons per acre.

The proposed mosaic pattern of unburned vegetation will act to slow down and stop overland flow (sheet erosion). The low to moderated burn intensities insure that ground cover material such as a lightly burned organic layer plus burned twigs and leaves remain. The majority of surface roots will remain intact to hold the soil in place and promote new vegetative growth quickly. Live surface roots and ground cover material reduce the rain-drop splash effect and reduce soil erosion.

A riparian buffer zone receiving low intensity burn conditions along with unburned areas will reduce sediment flow into perennial streams. The ephemeral drainages will produce high amounts of sediment into the perennial streams if burned completely under moderate intensity fires. These ephemeral drainages contain live vegetation and dead organic material that store loose sediments. When the drainages are burned completely under high/moderate fire intensities, the sediment can be released into perennial streams during storm events. Therefore, it is important to burn these areas under low intensity burn conditions with mosaic patterns of unburned vegetation throughout the drainage area.

<u>Beneficial and adverse impacts of the proposed action</u>

Adverse impacts that may be generated by the proposed action will depend on the size and number of storm events within two years after the burn. These storms will determine the potential risk for soil loss/erosion and stream sedimentation that may affect aquatic habitat downstream of the burned area. There is also the possibility that the burn could escape and become a wildfire, creating even higher levels of watershed damage.

The beneficial impacts of this burn on the watershed would be in protecting this area and adjoining areas from potential high intensity wildfires that may create losses to life, property, wildlife, plants, water quality and soil resources. The long term effects of a large high intensity wildfire on the soil and aquatic resources in the area would be much greater than the short term impacts of the proposed action. A high intensity wildfire in the proposed area would have the potential of producing the following soil loss amounts using the USLE prediction. During a 2-

year, 6-hour storm event the soil loss could be 30-40 tons/acre. And a 5-year, 6-hour event could result in 70-80 tons/acre of soil loss. Under high intensity wildfires the upland shrub species along with riparian areas are usually left with low amount of ground cover to slow down sheet/rill erosion flows and sediment movement into streams.

Monitoring of Burn

The Prescribed Fire BMPEP (F25) is an R5 requirement. The burn boss must complete the implementation portion of this monitoring report after the burn is completed. One year after the fire the watershed specialist or resource specialist must complete the effectiveness portion of the F25 report. The F25 will be part of the official project report.

Recommendations

- Under 15a of the Burn Plan, the Burn Boss/Incident Commander determines when the fire exceeds the maximum limits of the prescription and calls for suppression activities at the district level or declares it a wildfire. If the fire is suppressed at the district level and not declared a wildfire, the following should be done to protect the watershed resources. Three days after the fire is extinguished, a copy of the "fire escape report" will be sent to the district or SO resource officer. With this information the watershed staff can survey the burn severity and suppression efforts. This will determine any mitigations measures that might be required to protect the watershed resources.

(The reason for this concern is the following; under a normal wildfire designation, suppression funding and possibly BAER funding would address any watershed damages. A fire that is out of control, but still remains within the containment lines that were designated in the prescribed burn is still considered a wildfire where watershed issues are concerned. Just because the fire is not declared an" official wildfire" there are probably resource issues that need to be surveyed.)

- Avoid lighting fires in ephemeral drainages, light fires 50 feet or more from these areas and allow the fire to work its way back into the drainage. This may allow some mosaic patterns of unburned fuel to remain in the drainage, thus reducing sediment flows. Probably will require the use of helicopter for this lighting method.
- Impacts to oak woodlands will be minimized by cutting ladder fuels in combination with low intensity spot burning to remove ground fuels without causing crown fires. The watershed will be protected by a mosaic pattern of unburned or low intensity burned live vegetation that will cover 30-40% of the burn area. Live vegetation areas within this mosaic pattern will act as barriers and buffer strips to help protect the watershed from potentially high levels of erosion and sedimentation often caused by wildfires.
- Use lighting methods (helicopter, etc.) that will improve the random distribution of mosaic patterns throughout the burn area. Avoid the large patches of burned and unburned areas; these do not meet the prescription intent for "mosaic patterns". If the proposed action cannot be accomplished without the use of a helicopter, the work should not be attempted.
- If more than 50% of the burn does not meet the fire mosaic pattern prescription (30% mosaic of unburned vegetation), the watershed specialist/resource officer should be contacted to determine if mitigation measures will be required to protect soil and water resources.

Dan Ford, Watershed Specialist

Cleveland NF

Biological Evaluation / Assessment
Wildlife
North Main Divide Fuel Break System
Maintenance Burn Project

Trabuco Ranger District, Cleveland National Forest

April 2004

Craig S. Wentworth — 4/14/04

Prepared by: Craig S. Wentworth, Assistant Wildlife Biologist, TRD, CNF — **Date**

Kirsten Winter — 4/12/04

Reviewed by: Kirsten Winter, Forest Biologist, CNF — **Date**

Keith W. Fletcher — April 27, 2004

Concurs mitigation measures stated in BE/BA Can be implemented: Keith W. Fletcher, District Ranger, TRD, CNF — **Date**

I. INTRODUCTION

The purpose of this document is to analyze the potential biological effects of The North Main Divide Fuel Break System Maintenance Burn Project. The analysis of effects in this document will determine whether the proposed project will result in a trend toward a sensitive species becoming federally listed as threatened or endangered. This document will also analyze the potential effects on proposed, threatened and endangered species and whether formal consultation with U.S. Fish and Wildlife Service is required. This document conforms to the legal requirements set forth under section 7 of the Endangered Species Act (19 U.S.C. 1536 (c), 50 CFR 40.12 (f), and 402.14 (c) and the direction given in the Forest Service Manual (FM 2672.40-42).

The Trabuco District of the Cleveland National Forest (CNF) proposes to maintain the preexisting North Main Divide fuel break system by burning to limit the spread of wildfire. The fuel break system runs from Bald Peak to Sierra Peak and includes the ridges running northeast above Bedford, Eagle, Manning, Main Street, Hagador and Wardlow canyons: S5, S6, S7, S8, T5S, R6W; S1, S2, T5S, R7W; S30, S31, S32, T4S, R6W; S5, S6, S7, S9, S10, S14, S15, S16, S20, S22, S24, S25, S26, S27, S28, S35, T4S, R7W, S.B.M., Orange and Riverside Counties.

Only Federally threatened or endangered or Regional Forester's Sensitive Species, which are known to occur or have the potential to occur within or adjacent to The North Main Divide Fuel Break System Maintenance Burn Project on the CNF, will be addressed. Modeled habitat exists within the fuel break system for the California gnatcatcher (Table 1). Suitable habitat for Regional Forester's Sensitive Species within the fuel break system exists for the San Diego horned lizard, coastal rosy boa (Table 1).

II. CURRENT MANAGEMENT DIRECTION

Land and Resources Management Plan (1986) Standards and Guidelines

-Identify critical habitat for threatened and endangered species and prescribe measures to prevent the destruction or adverse modification of such habitat. Apply management prescriptions that will provide high and medium capable habitat sufficient for recovery of threatened and endangered species. (Wildlife S&G #4, pg. 4-32).

-Emphasize both fuels treatments and an effective organization to minimize wildfire losses. (Fire and Fuels S&G #1, pg. 4-21).

-Plan for adequate protection from wildfire to life, property, and natural resources. (Fire and Fuels S&G #2, pg. 4-21)

Water Quality Management for Forest System Lands in California
Best Management Practices fire and fuel management activities will be implemented during this project (USDA Forest Service 2000, pg. 121-126).

III. DESCRIPTION OF PROPOSED ACTION

The Trabuco Ranger District of the Cleveland National Forest proposes to maintain the pre-existing North Main Divide Fuel break system in a condition, which can limit the spread of wildfire by burning and hand cutting of vegetation. Portions of the North Main Divide Fuel Break system have not been burned in more than 10 years. The fuel break system runs approximately 26 miles along ridgelines and consists of approximately 989 total acres. The average width of the fuel break system is 300 feet but varies in some areas. The fuel breaks must be burned at approximately five-year intervals in order to maintain their effectiveness. The prescribed burn objectives are:

- Burn approximately 200 acres of fuel break per year on a rotational basis.
- Burn 60-80% of the standing broadleaf chaparral. The desired result is type conversion of chaparral to an annual grass or sub-shrub dominated plant community with low fuel volume (USDA 1999)
- Burn 80-100% of all fine fuels within the existing perimeter.
- Use moderate to high intensity fire. Burn during the cooler spring months.
- Best Management Practices will be applied to this project.

Hand lines will be constructed on either side of the fuel break area to be burned. Vegetation will be cut at or just above the soil level leaving root systems in place. Vegetation cut during line construction will be placed within the fuel break area. Ignition methods will be drip torch, fusee and terra torch. Fuel breaks will be burned from the top down, allowing fire to burn up to the road or ridge. The fuel break system contains several topographical ridge "saddles" that will be used as stopping points for burning to assess burn progress, allow holding crews to catch

up or to stop the burn if conditions warrant. Preferred burning months are April, May or June as conditions allow.

IV. EXISTING ENVIRONMENT

The fuel break system was surveyed on March 12, 2004 by Craig Wentworth, Kirsten Winter and Dan Ford. They were accompanied by Gordon Martin, Fuels Battalion Chief, Trabuco Ranger District.

Vegetation consists primarily of chamise *(Adenostoma fasciculatum)* chaparral interspersed with ceanothus (*Ceanothus* spp.), black sage (*Salvia mellifera)* and manzanita (*Arctosaphylos* spp. p*arryana)* on the perimeter of the fuel break system. Younger age class, low growing representatives of these species occur within the fuel break system. Open patches of un-vegetated areas occur throughout. Within the perimeter, exotic grasses (*Bromus* spp.), mustard (*Brassica spp.)* and California buckwheat (*Eriogonum fasciculatum)* have become established in the more recently burned fuel breaks.

A biological assessment (USDA 1999) was prepared in 1999 to analyze the biological effects of implementing the management direction provided within the Cleveland National Forest Land and Resources Management Plan on proposed, threatened and endangered species under the Endangered Species Act of 1973. The analysis in this document was included in a consultation package prepared in 2000 (USDA 2000) for the four southern California forests (CNF, ANF, LPNF, and SBNF). This document focuses on programmatic consultation on the four current Forest Plan activities and programs. This package addressed sixty three currently listed proposed, threatened or endangered species known to occupy the four southern California forests and includes baseline species status and the potential effects of Forest Plan activities and programs.

In 2001 a biological opinion was prepared by the USDI Fish and Wildlife Service based on the information and analysis included in the USDA Forest Service consultation package. This document assesses the ongoing Forest Plan activities and programs for the four southern California forests. It also determines whether these activities and programs meet the requirements and obligations under the Endangered Species Act. Within this document, the effects of fire and fuels management on individual proposed, threatened and endangered species are discussed.

According to the biological opinion, the effects of fire and fuels management on the **California gnatcatcher (*Polioptila californica*)** are not likely to adversely affect the California gnatcatcher as less than 0.4 percent of key gnatcatcher habitat is within existing fuel breaks, so fuel break maintenance is not likely to adversely affect this species (USDI FWS 2001, pg 265).

V. SPECIES ACCOUNTS

Regional Forester's Sensitive Species

San Diego horned lizard (*Phrynosoma coronatum blainvillei*)
The San Diego horned lizard occurs throughout the Cleveland National Forest. Horned lizards require habitats characterized by loose, fine soils with a high sand fraction; an abundance of native ants or other insects; open areas with limited overstory for basking; and areas with low, dense shrubs for refuge. San Diego horned lizards can be found in a variety of habitats that support these components, including coastal sage scrub, grassland, chaparral, oak woodland, riparian woodland, and open coniferous forest. San Diego horned lizards occurring in foothill and mountain habitats dominated by dense brush or other vegetation are largely restricted to areas with pockets of open microhabitat created by natural events such as fire, floods, or anthropogenic disturbances such as livestock grazing, fire breaks, and roads (Jones and Stokes 2003).

San Diego horned lizards have an insectivorous diet that often consists almost entirely of native harvester ants (*Pogonmyrmex* spp.). Ants can comprise more than 90% of the diet. However, considerable variation in diet may occur between populations in different localities because the species is an opportunistic feeder and will feed on other insects (especially termites, beetles, flies, wasps, and grasshoppers) when they are more abundant.

San Diego horned lizards are reported to be declining, primarily due to loss of habitat in low-elevation coastal and inland valleys. National Forest System lands are becoming increasingly important to the conservation of this species. The most significant threat to horned lizards on public lands may be progressive elimination of its food base by nonnative undesirable ants, particularly in areas near human developments (Jennings and Hayes 1994).

Potential for occurrence within the North Main Divide Fuel break burn project
The potential for occurrence is high. Open areas, within the fuel break system provide areas for basking, burrowing and foraging.

Coastal rosy boa (*Charina trivirgata roseofusca*)
Coastal rosy boa inhabits coastal sage scrub and chaparral-dominated communities that contain large rocks and boulders for cover and refugia (Klauber 1931). Vegetation types associated with these habitats include California sage, buckwheat, chamise chaparral, and ceanothus/manzanita chaparral. Coastal rosy boas are often found near permanent or intermittent streams (Stebbins 1985).

The diet of coastal rosy boa consists of small rodents and birds, which are killed by constriction (Klauber 1931).

The range of coastal rosy boa lies within a largely urbanized region of southern California including the Cleveland National Forest. Although little is known on rosy boa abundance, quality and quantity of available suitable habitat for this subspecies is declining, especially in coastal areas (Lind 1998). Its continued survival may be threatened in part by a recent increase in poaching, precipitated by its popularity in the pet trade (Fisher 2000). Additional factors that may be leading to the decline of this subspecies in southern California include habitat loss, roads, increased fire frequency, and urban light pollution (Fisher and Case 1997).

Potential for occurrence within the North Main Divide Fuel break burn project
The potential for occurrence is high. Suitable habitat does exist within and adjacent to the project site. The general area surrounding the fuel break project area is primarily a chaparral dominated plant community with concentrations of large boulders that may provide refugia for this species.

VI. SPECIES EFFECTS

San Diego horned lizard (*Phrynosoma coronatum blainvillei*)
Direct effects include mortality or injury from fire or vehicles associated with the project. Horned lizards may burrow in sandy areas by "sand swimming". This behavior may make them susceptible to high soil temperatures created by fire. Whitford and Bryant (1979) observed horned lizards sitting in low shrubs during the hottest part of the day to regulate body temperature instead of sand swimming or utilizing existing burrows, which can contain unknown predators. This

behavior may give the horned lizard an advantage in escaping from oncoming fire. Additionally, direct mortality to eggs or newly hatched juveniles may occur. Juveniles are usually more active on the soil surface than adults throughout the day and may experience heavier mortality. Eggs are laid from early May through July which coincides with the preferred burn time frame. Information is lacking on oviposition habitat preferences.

Potential indirect effects include the alteration of soil temperature and chemistry through fire intensity and vegetation removal, affecting burrowing and foraging activities in fuel break areas. Additional indirect effects include possible increased OHV (off highway vehicle), foot traffic, mountain bike or equestrian use of newly burned fuel breaks causing accelerated erosion, possible mortality to individuals and the increased potential for exotic vegetation introduction (USDA 2000). The primary food resource of the horned lizard, the harvester ant (*Pogonmyrmex* spp.) may be directly affected in the short term by burning. McCoy (1989) observed that the resulting post burn temperature and humidity extremes after a recent fire severely restricted the above ground activities of experimental colonies of the southern species of the harvester ant (*Pogonomyrmex badius),* chiefly from the loss of ground cover.

Beneficial effects may be the increase or maintenance of suitable habitat for the San Diego horned lizard after the fuel breaks are burned. In chaparral, reptiles typically increase their abundance in recently burned areas in comparison to areas of mature, dense cover (Smith 2000)

Coastal rosy boa (*Charina trivirgata roseofusca*)
Direct effects include mortality or injury from fire or vehicles associated with the project. Coastal rosy boas are typically crepuscular in their activities, preferring to utilize refugia during the daylight hours. This behavior may decrease the potential for mortality directly related to burning activities, which are usually implemented during daylight hours.

Potential indirect effects include the alteration of soil temperature and chemistry through fire intensity and vegetation removal, affecting burrowing and foraging activities in fuel break areas. Additional indirect effects include possible increased OHV, foot traffic, mountain bike or equestrian use of newly burned fuel breaks causing accelerated erosion, possible mortality to individuals and the increased potential for exotic vegetation introduction (USDA 2000).

Cumulative Effects

As the human population in Southern California increases, development and urbanization has all but surrounded the Trabuco Ranger District of the CNF. The resulting loss of open space from urbanization has increased pressure for recreational usage (authorized and unauthorized) on the Forest. The need to protect homes and structures from wildfire has also increases the necessity of maintaining fuel breaks on a regular basis. The frequent burnings associated with fuel break maintenance eventually creates a type conversion from chaparral to areas dominated by non-native herbaceous species. Type conversion from chaparral to an exotic grass community creates the desired effect in fuel breaks by reducing combustible fuels and providing access to a defensible position for fire fighters.

Fuel breaks can be considered "invasive highways" and have the potential for introducing exotics into remote wildland areas. Reduced fuels in fuel breaks results in a lower fire intensity which can increase survivorship of exotic seed banks (Keeley 2002). Recently burned fuel breaks are inviting to un-authorized OHV or equestrian usage and this usage is increasing as the surrounding human population increases. This usage has the potential to expand existing exotic populations or introduce exotics previously unknown to the National Forest through seed dispersal. If established outside of fuel break boundaries, exotic grasses can out compete native plants for space and resources. Rapidly growing grasses are effective competitors for water and nutrients and can reduce light at the soil surface and reduce photosynthetic ability of native species (D'Antonio 1992).

VII. DETERMINATIONS

Threatened and Endangered species

It is my determination that the North Main Divide Fuel break System Maintenance Burn Project will not affect the **California gnatcatcher** or its designated critical habitat based on the following justifications:

-There are no documented occurrences within the project area. There is a negligible amount of key habitat affected (USDI FWS 2001).

Regional Forester's Sensitive Species

-It is my determination that the North Main Divide Fuel break System Maintenance Burn Project may affect individuals, but is not likely to result in a

trend toward Federal listing or loss of viability for the **San Diego horned lizard** and the **coastal rosy boa** based on the following justifications:

-No more than two miles a year will be burned at different intervals during the year. Burning will be contained within the closed boundary of the existing fuel break allowing individuals to potentially escape.

-The amount of habitat affected is small in comparison to the species range.

Table 1: Threatened, Endangered and Regional Forester's Sensitive Species on the Cleveland National Forest.

WILDLIFE SPECIES		Federal Listing[1]	State Listing[2]	Forest Service[3]	Documented in Project Area	Potential Occurrence in Project Area	Critical Habitat in Project Area	Modeled Habitat in General Area	Documented in General Area	Potential Occurrence in General Area[4]
BIRDS										
Bald Eagle	*Haliaeetus leucocephalus*	T	E		NO	NO	NO	NO	NO	NO
California Spotted Owl	*Strix occidentalis occidentalis*		C	S	NO	NO	NO	NO	NO	NO
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	E	E		NO	NO	NO	NO	NO	NO
Least Bell's Vireo	*Vireo bellii pusillus*	E	E		NO	NO	NO	NO	NO	NO
California Gnatcatcher	*Polioptila californica*	T	C		NO	NO	NO	YES	NO	NO
S. Diego Coastal Cactus Wren	*Campylorhynchus brunneicapillus*		C	S	NO	NO	NO	NO	NO	NO
W. Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*		E	S	NO	NO	NO	NO	NO	NO
MAMMALS										
California Leaf-nosed Bat	*Macrotus californicus*			S	NO	NO	NO	NO	NO	NO
Pallid Bat	*Antrozous pallidus*			S	NO	NO	NO	NO	NO	?
Townsend's Big-eared Bat	*Corynorhinus townsendii townsendii*		C	S	NO	NO	NO	NO	NO	?
Western Red Bat	*Lasiurus blossvillii*		C	S	NO	NO	NO	NO	NO	NO
Stephen's Kangaroo Rat	*Dipodomys stephensi*	E	E		NO	NO	NO	NO	NO	NO
L.A. Pocket Mouse	*Perognathus longimembris brevinasus*		C	S	NO	NO	NO	NO	NO	NO
FISH										
Southern Steelhead Trout	*Oncorhynchus mykiss*	E		S	NO	NO	NO	NO	NO	NO
Arroyo Chub	*Gila orcutti*		C	S	NO	NO	NO	NO	NO	NO
Santa Ana Speckle Dace	*Rhinichthys osculus*		C	S	NO	NO	NO	NO	NO	NO
Unarmored Threespine Stickleback	*G. aculeatus williamsoni*	E	E		NO	NO	NO	NO	NO	NO

[1]Threatened, E-Endangered
[2]T-Threatened, E-Endangered, C-Species of Special Concern
[3]S-Regional Forester's Sensitive Species
[4]General Area = within 1 mile

Table 1 (continued): Threatened and Endangered, Regional Forester's Sensitive Species on the Cleveland National Forest.

WILDLIFE SPECIES		Federal Listing[1]	State Listing[2]	Forest Service[3]	Documented in Project Area	Potential Occurrence in Project Area	Critical Habitat In Project Area	Modeled Habitat In General Area	Documented in General Area	Potential Occurrence In General Area[4]
REPTILES and AMPHIBIANS										
Two-striped Garter Snake	*Thamnophis hammondii*		C	S	NO	NO	NO	NO	NO	NO
San Diego Mountain Kingsnake	*Lampropeltis zonata pulchra*		C	S	NO	NO	NO	NO	NO	NO
San Diego Ringneck Snake	*Diadiphis punctatus similis*			S	NO	NO	NO	NO	NO	NO
San Bernardino Ringneck Snake	*Diadophis punctatus modestus*			S	NO	NO	NO	NO	NO	NO
Coastal Rosy Boa	*Charina trivirgata roseofusca*			S	NO	YES	NO	NO	NO	YES
Silvery Legless Lizard	*Anniella pulchra pulchra*		C	S	NO	NO	NO	NO	NO	NO
San Diego Horned Lizard	*Phrynosoma coronatum blainvillei*		C	S	NO	YES	NO	NO	NO	YES
Southwestern Pond Turtle	*Clemmys marmorata pallida*		C	S	NO	NO	NO	NO	NO	NO
Arroyo Southwestern Toad	*Bufo microscaphus californicus*	E	C		NO	NO	NO	NO	NO	NO
California Red-legged Frog *	*Rana aurora draytoni*	T	C		NO	NO	NO	NO	NO	NO
Mountain Yellow-legged Frog *	*Rana muscosa*	E	C	S	NO	NO	NO	NO	NO	NO
Large-blotched Salamander	*Ensatina eschscholtzii klauberi*		C	S	NO	NO	NO	NO	NO	NO
INSECTS										
Quino Checkerspot Butterfly	*Euphydryas editha quino*	E			NO	NO	NO	NO	NO	NO
Laguna Mountain Skipper	*Pyrgus ruralis lagunae*	E			NO	NO	NO	NO	NO	NO
CRUSTACEANS										
Vernal Pool Fairy Shrimp	*Branchinecta lynchi*	T			NO	NO	NO	NO	NO	NO
Riverside Fairy Shrimp	*Streptocephalus wootonii*	E			NO	NO	NO	NO	NO	NO

[1]Threatened, E-Endangered
[2]T-Threatened, E-Endangered, C-Species of Special Concern
[3]S-Regional Forester's Sensitive Species
[4]General Area = within 1 mile

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South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

December 30, 2005

Mr. Gordon Martin
Fuels Officer
U.S.D.A. Forest Service, Cleveland National Forest
1147 E. 6th Street
Corona, CA 92879

Subject: Trabuco Ranger District North Main Divide Fuel Break -SMP-2006

Dear Mr. Martin:

I have reviewed your Smoke Management Plan for the Trabuco Ranger District North Main Divide Fuel Break Prescribed Burn Project received on December 14, 2005. I have determined that your plan has met the requirements pursuant to SCAQMD Rule 444, Open Burning, and your smoke management plan is approved for the year 2006. Your permit number this project is **SMP 10/2006**. You may proceed according to your prescribed schedule.

It is your responsibility to be aware of residential and industrial neighborhoods that may be near and/or downwind of the burn area. These neighborhoods need to be considered to prevent possible nuisance problems such as smoke, odors and particulate matter. It is suggested that you review SCAQMD Rule 402, Public Nuisance (http://www.aqmd.gov/rules).

It is important to telephone the district at the telephone number listed below to determine if the burn day is permissive burn day. You may not burn unless you telephone and obtain authorization (control) number.

You are required to:

- **Call 1-800-CUT-SMOG (1-800-288-7664) on the day of the burn or after 2:00 PM the day before the burn to determine whether that day is a burn day or not.**
- **Call (909)396-3403 to obtain a burn authorization (control) number.**

If you have any questions, regarding AQMD's Open Burn Program, please do not hesitate to call me at (909)396-2357.

Sincerely,

Arun Kumar
Open Burn Program Coordinator

NMD

Short Form
SMOKE MANAGEMENT PLAN
APPLICATION FOR BURN PERMIT

In accordance with the Air District's Smoke Management Program, this Smoke Management Plan (SMP) serves as a permit application that is to be completed by the applicant and submitted to the Air District officials. This SMP application consists of a Project Description page and two sections – A and B. **ALL APPLICANTS MUST COMPLETE THE PROJECT DESCRIPTION PAGE (page 3).** Both sections A and B of the SMP are one page forms **(pages 4 and 5)** that may need to be completed depending on the burn's potential to impact smoke sensitive areas and the size of the burn. Once approved by the Air District, this SMP serves as a conditional permit to burn, when combined with the district's permit to burn.

General Information and Requirements regarding this SMP are provided on **page 1**. Terms used in this form have the same meaning as those defined in the Air District's open burning regulation definition or the California Code of Regulations, Title 17, Section 80101. Where differences occur, the Air District's definitions apply. **Emission Factors** to assist with calculating burn particulate matter emissions are provided on **pages 7 and 8**. Contact the Air District if you have questions or need assistance with making these calculations.

The **District Review (page 2)** is for Air District use only, but must be kept in tact with the Project Description section. The **Project Description Page (page 3)** requests general information and identifies conditions for all prescribed burn projects. It identifies the permittee and relevant contact information, who the land owner is, the project name, project location, burn size, purpose of the burn, type of fuel to be burned, and estimated emissions from the burn. It provides a checklist of additional sections of the SMP that may be filled out and attached. Finally, it requests the preparer's signature, the name of the permittee or authorized representative, and the permittee or authorized representative's signature.

Section A (page 4), is a one page form that must be completed and attached to the Project Description page if the burn has the potential to result in impacts to smoke sensitive areas. Smoke sensitive areas are defined as "populated areas and other areas where a district determines that smoke and air pollutants can adversely affect public health or welfare." Such areas can include, but are not limited to, towns and villages, campgrounds, trails, populated recreational areas, hospitals, nursing homes, schools, roads, airports, public events, shopping centers, and Class I Areas (areas that are mandatory visibility protection areas designated pursuant to section 169A of the federal Clean Air Act). The Air District can tell you if you are in a Class I Area.

Section B (page 5), is a one page form that must be completed and attached to the Project Description page if the burn will be greater than 100 acres or will produce more than ten tons of particulate matter. Section B identifies meteorological conditions necessary for ignition, contingency actions that will be taken if smoke impacts begin to occur from the burn, and information on consideration and use of alternatives to burning. A **Post-Burn Evaluation** form is provided on **page 6.** This form is to be used for burns greater than 250 acres or for burns that result in impacts to smoke sensitive areas. It should be filled out after the burn, as appropriate.

Information may need to be extracted from the project burn plan (if available) to supplement the SMP. Air District review of the burn plan is for informational purposes only. When the burn plan is reviewed, the Air District assumes no approval authority or liability for approving the burn plan. The permittee is responsible for assuring firefighter and public safety, which is not the intent of the information included on this form.

General Information and Requirements

SMP Conditions Must Be Met on the Day of the Burn (CCR section 80160(j))

The land manager or his/her designee conducting a prescribed burn is required to ensure that all conditions and requirements stated in the smoke management plan are met on the day of the burn event and prior to ignition. Ignition of a burn project will not occur unless the Air District has authorized the burn on the day of the burn.*

Conditions of Vegetative Material to be Burned (CCR section 80160 (m – p))

Material should be:

- in a condition that will minimize the smoke emitted during combustion when feasible, considering fire safety and other factors
- piled where possible, unless good silvicultural practices or ecological goals dictate otherwise
- prepared so that it will burn with a minimum of smoke

Description of Burn Types

Forest Management Burning is the use of open fires, as part of a forest management practice, to remove forest debris or for forest management practices which include timber operations, silvicultural practices, or forest protection practices.

Range Improvement Burning is the use of outdoor fires to:

- remove vegetation for wildlife or game habitat
- remove vegetation for livestock habitat
- remove vegetation for the initial establishment of an agricultural practice on previously uncultivated land

Wildland Vegetation Management Burning is the use of prescribed burning conducted by a public agency, or through a cooperative agreement with a private manager or contract involving a public agency, to burn land predominantly covered with chaparral (as defined in Title 14, California Code of Regulations, section 1561.1), trees, grass, or standing brush.

Determination of Smoke Sensitive Areas

Smoke sensitive areas are defined as "populated areas and other areas where an Air District determines that smoke and air pollutants can adversely affect public health or welfare." Such areas can include, but are not limited to, towns and villages, campgrounds, trails, populated recreational areas, hospitals, nursing homes, schools, roads, airports, public events, shopping centers, and Class I Areas (areas that are mandatory visibility protection areas designated pursuant to section 169A of the federal Clean Air Act. Your Air District can tell you if your burn is in a Class I Area. If a burn is near a populated area, has potential for substantial emissions, has a long duration, or has the potential for poor smoke dispersion, a smoke sensitive area could be impacted and Section A of the SMP should be completed. Burners may obtain Air District assistance in determining if Section A should be completed.

Procedures for Permittees to Report Public Smoke Complaints to Air Districts to Address Smoke Management Guidelines Section 80160(l)

1. The permittee shall immediately report any air quality smoke complaints received about this burn project to the Air District with jurisdiction over the burn. A phone call to the District during normal seasonal business hours will suffice. During non-business hours a fax or voicemail message will suffice.
2. The complaint report shall include the following: the location of the smoke impact, a short description of the smoke behavior including wind direction and speed, visibility, and public safety impacts if available from the complainant.
3. The permittee shall inform the complainant that he or she may also contact the District directly and shall provide the District name, telephone number and address.
4. The permittee shall, in coordination with the Air District, seek resolution for all complaints, as necessary.

Natural Ignition on a No-burn Day (CCR section 80160(h))

When a natural ignition occurs on a no-burn day, the initial "go/no-go" decision to manage the fire for resource benefit will be a "no-go" unless:

1. After consultation with your Air District, the Air District decides, for smoke management purposes, that the burn can be managed for resource benefit; or
2. For periods of less than 24 hours, a reasonable effort has been made to contact the Air District, or if the Air District is not available, the Air Resources Board (ARB); or
3. After 24 hours, the Air District has been contacted, or if the Air District is not available, the ARB has been contacted and concurs that the burn can be managed for resource benefit. A "no-go" decision does not necessarily mean that the fire must be extinguished, but that the fire cannot be considered as a prescribed fire.

* CCR 80120(e) provides that an Air District may, by special permit, authorize agricultural burning, including prescribed burning, on days designated by the ARB as no-burn days if the denial of such permit would threaten imminent and substantial economic loss.

DISTRICT REVIEW
(For District Use Only)

___ I have reviewed and approved this SMP as a conditional burn permit to be combined with agricultural burn/air pollution permit number _____ , which expires on _____.

___ This burn project is greater than 250 acres and/or is a multi-day burn which requires ARB consultation prior to final approval pursuant to CCR 80160(g)).
Date ARB Notified: _____ Date ARB approval received: _____

Smoke from this fire is expected to travel into the following non-attainment or maintenance areas:
_____
_____
_____

Name: _____
Signature: _____
Agency : _____
Date: _____

SMP Project Description
(Complete This Page for ALL PRESCRIBED BURNS)*

1.1 Project Name: Trabuco Ranger District North Main Divide Fuel Break Prescribed Burn	Project Location: (Report at least one of the following location descriptions. Provide attachment as needed.)
1.2 Permittee Name: U.S.D.A. Forest Service Cleveland N.F. Permittee Address: Street: 1147 E. 6th Street City: Corona State: CA Zip: 92879	1.8a Legal: T4S R7W S 5, 6, 7, 24, 25, 26 M&B San Bernardino 1.8b Lat/Long: Lat N 33 (deg.) 48 (min) 30 (sec) Long W 117 (deg.) 36 (min) 10 (sec) 1,8c UTM: Zone: ____ N_____m, E_____m
1.4 Permittee/Field Contact: Gordon Martin	1.9 Project Elevation (msl feet): Top: 4000 Bottom: 1000
1.5 24-hour Phone/Pager: (619) 557-5262	1.10 Land Owner Name: Same as Permittee
1.6 Project Location (Counties): Riverside/Orange Counties	Street:_____
1.7 Nearest Town: Tenaja, La Cresta, De Luz	City: _____State: ____ Zip: _____

1.11 Anticipated Time of Year for Burn (Month/Year): January 2006
1.12a Is the Primary Purpose of the Burn for Fire Hazard Reduction? Yes
1.12b Burn Type (Check one): ___ Forest Management: ____ Range Improvement _X_ Wildland Vegetation Management ____ Natural Ignition (see General Information on page 3 for description of these burn types)
1.13 For Range Improvement Burns, Check Vegetation Management Objective: ___ Wildlife or Game Habitat Improvement ____ Livestock Habitat Improvement ____ Initial Establishment of an Agricultural Practice on Previously Uncultivated Land
1.14 Vegetation Type (Percentage): 50 Brush 50 Grass ____ Timber Litter ____Timber Slash ____ Other (Describe): _____
1.15 Vegetation Condition: ____ Machine Pile Burn __ Hand Pile Burn ____ Understory ____ Landing Pile Burn _X_ Broadcast
1.16 Project Area: 200 (acres) 1.17 Number of Piles: _____ 1.18 Average Pile Size: _____
1.19 Total Project Fuel Loading: 3517 (tons vegetation) 1.20 Particulate Matter Emissions: 26.6 (tons PM10)
(Use Emissions Factors Tables on pages 7-8 for assistance with emissions calculation)
1.21 Emission Factor Table Used or EPA-Approved Calculation Method: Table 2
1.22 Preferred Ignition Hours for the Fire: 8 am. To 6 pm.
1.23 Expected Burn Duration (ignition to complete extinction): Total Time: 4 days (hours or days)
1.24 Fuel Drying Time and Conditions prior to ignition: _____
_____
1.25 Limitations on Pile Size, Pile Number, and/or Acreage Limitations to Minimize Smoke (complete as appropriate):
_____
_____
_____

It is the responsibility of the permittee to ensure that conditions of the SMP are met on the day of the burn. The permittee will obtain authorization to burn from the Air District contact listed below no more than 24 hours prior to ignition.**

1.26 Air District Name: South Coast	1.28 Contact: Arun Kumar
1.27 Address: 21865 E. Copley Drive	1.29 24-hour Telephone: (909) 396-2357 Burn Line: -3403
Diamond Bar, CA 91765-4182	1.30 Fax:
	1.31 Email:

The permittee will report public smoke complaints to the Air District per the procedures described in the General Information section of this SMP on page 1.

Check as Applicable:

☒ **This burn could have an impact on smoke sensitive areas – I have filled out and attached all of Section A.**

☒ **This burn could have an impact on smoke sensitive areas and Air District policies require that information on meteorological conditions for ignition and contingency planning be provided – I have filled out and attached line items B.1 and B.2 of Section B.**

☒ **This burn is greater than 100 acres (or is estimated to produce greater than 10 tons of particulate matter) – I have filled out and attached all of Section B.**

Preparer's Statement: To the best of my knowledge the information submitted in this application is complete and accurate.

SMP Preparation Date: 12/09/2005
Preparer's Name (print): Gordon P. Martin Title: Fuels Officer
Preparer's Phone: (951) 736-1811 x3276

Preparer's Signature: _____

Name of Authorized Representative in Control of the Property (if applicable): U.S.D.A. Forest Service

Permittee or Authorized Representative Signature: _____
Signature Date: 05/182005

* **If your burn is less than 10 acres with less than one ton particulate matter emissions, and your burn will not impact any smoke sensitive areas, you may complete only this page. Attach appropriate SMP sections for all other burns.**

** **Burner/Air District burn authorization coordination to be determined by the Air District.**

SECTION A: AS REQUIRED BY TITLE 17 AND AIR DISTRICT POLICIES, THIS SECTION APPLIES TO ALL BURNS WITH THE POTENTIAL TO IMPACT SMOKE SENSITIVE AREAS (SSAs) *

A.1. Describe locations of SSAs and distances from burn site (miles) – (Also the attached Map# 1 shows SSAs)
Corona – 1 mile, Silverado - 2-5 miles

A.2 The attached map# 1 provides smoke travel projections for: X Day _____ Night _____ Topographical

A.3 Has prescribed burning historically occurred in this area? X Yes ____ No ____ Don't Know

A.4 If yes, were there impacts to smoke sensitive areas? ____ Yes X No ____ Don't Know

A.5 If yes, please describe impacts: _____

A.6 For burns that will occur past daylight hours and/or for more than one day, please provide Air District contact information and a description of contact procedures that will be used to affirm that the burn project remains within the conditions specified in this SMP, and/or whether contingency actions are necessary. The permittee will follow any instructions by the Air District to communicate directly with ARB when necessary.
Air District contact (or designee) Gordon Martin

A.7a Telephone: (951) 415 - 8323 A.7b 24-hour Pager (951) 415 - 8323

A.7c Fax: (951) 736 - 3002 A.7d E-mail: gpmartin@fs.fed.us

A.8 The permittee will use the frequency and method of contact described below:

The permittee will monitor the burn project for meteorological conditions and smoke behavior before, during, and after the burn using the following techniques and timing:

A.9 Weather Observation (Wind Direction, Wind Speed, and Temperature):

Method	Location	Beginning	Interval	Ending
X Belt Weather Kit	At burn site	8:00 am	1 hr	8:00 pm
X RAWS	Corona near burn site	NA	NA	NA
____ Aircraft				
____ Other _____				

(Additional Description of Monitoring Requirements):

A.10 Smoke Behavior Observation:

Method	Location	Beginning	Interval	Ending
X Visual**	Above burn site	8:00 am	on going	5:00 pm
X Test Fire	At burn site	10:00 am	na	10:00 am
____ Balloon				
____ Aircraft				
____ PM Monitoring Inst.				
____ Other _____				

(Additional Description of Monitoring Requirements):

A.11a The permittee shall begin public notification before the day of burning. The notification shall be on-going until the end of burning. Check which of the following procedures will be used to notify and educate the public about this burn project.
___Television ___Radio X Newspaper X Posters/flyers X Telephone calls ___ Other (Explain in A.11b below)

A.11b The specifics of the notification procedure(s) checked above are as follows:
Burn Boss or Fire Prevention Officer will post signs and flyers. Land owners and local newspapers will be notified the week prior to burning. Fire Prevention Officer and/or Burn Boss will answer phone calls and keep a log.

A.12 The permittee will place appropriate signage at or near burn sites to identify the burn project to the public as noted on the attached map# 1 .

Adjacent Air Districts and neighboring state Air Districts which may be potentially impacted by smoke travel or which have previously been impacted by smoke from similar burn projects are listed below.

A.13 Air District Name: _____ A.14 Contact: _____
A.15 Address: _____ A.16 24-hour Telephone: _____
_____ A.17 Fax: _____
A.18 Air District Name: _____ A.19 Contact: _____
A.20 Address: _____ A.21 24-hour Telephone: _____
_____ A.22 Fax: _____

A.23 Neighboring State Air District Name: _____
A.24 Contact: _____
A.25 Address: _____ A.26 24-hour Telephone: _____
_____ A.27 Fax: _____

*** See General Information on page 3 for determining if your burn has the potential to impact a smoke sensitive area.**
**** Visual smoke observation refers to observations made through the eyes of designated individuals.**

SECTION B: AS REQUIRED BY TITLE 17 AND AIR DISTRICT POLICIES, THIS SECTION APPLIES TO ALL BURN PROJECTS GREATER THAN 100 ACRES OR PRODUCING MORE THAN 10 TONS OF PARTICULATE MATTER

B.1. Meteorological Conditions for Ignition

Source of Meteorological Information: Local RAWS station located near the burn site or belt weather kit
Surface Wind Direction: Ideal: Any Acceptable Range: _____ (degrees)
Surface Wind Speed: Ideal: 5-15 Maximum: 15 Minimum: Calm (mph)
Transport Wind Direction: Ideal: South Acceptable Range: Any (degrees)
Relative Humidity: Ideal: 25 Maximum: 40 Minimum: 15 (%)
Target Mixing Height Parameters: 1500'+ Acceptable Temperature Range: 60-85 (degrees)
Other Considerations to Assure Acceptable Smoke Dispersion: _____

B.2a Describe contingency actions/methods/procedures permittee will take in the event that serious smoke impacts begin to occur or meteorological conditions deviate from those specified in this SMP (for example: stop ignitions, initiate mop-up, conduct fire suppression – describe in detail):
Should smoke impacts or meteorlogical conditions become unacceptable the burn boss will stop ignition as soon as is practicable allowing for firefighter safety and control of the burn. Check lines will be installed where practicable to stop further fire spread. Fire suppression actions will be conducted as feasible and safe in order to minimize smoke impacts, this could include but is not limited to cnstruction of hand line, establishment of hoselays or aerial application of water or retardants. Once active fire spread is stopped mop-up will be initiated if smoke impacts or burn containment issues still exist.

B.2b Describe any applicable interior unit contingency cutoff lines (refer to map# 1 as appropriate): _____

B.3 An evaluation of alternatives to burning is described below:

X It is a part of the environmental documentation required for the burn project pursuant to the National Environmental Policy Act or the California Environmental Quality Act and is either attached to this SMP, is on file with the Air District, or is provided for as agreed to by the Air District. Document location: attached to this SMP

_____ Neither a National Environmental Policy Act or the California Environmental Quality Act assessment of alternatives has been performed. Alternatives to reduce fuel load are described in section B.4 – B.9 below.

B.4 Alternatives Considered:
The alternatives that were considered were 1. No action and 2. Mechanical treatment.

B.9 Alternatives Rejected and Reasons for Rejection:
The No action alternative was rejected due to the chance of wildfire with associated increase in air quality problems as well as property and resource damage. Mechanical treatment was rejected due to the nature of the topography and the difficulty of getting mechanical equipment in to the areas.

B.5 Alternatives Used and Tons of Vegetative Material Treated Using Each Alternative:
NA

B.6 Particulate Reduction for Each Alternative Used (tons):
NA

B.7 Total Particulate Reductions from Alternatives: NA

B.8 The Following Alternatives To Burning Were Considered, But Will Not Be Used:
1. No Action 2. Mechanical Treatment

B.10 If this project is greater than 250 acres or smoke impacts occur, the permittee will provide a completed Post Burn Evaluation Form (see page 6) to the Air District within 30 days of project completion.

B.11 For burns greater than 250 acres, Sections A.9 and A.10 describe the site monitoring requirements.

Post-Burn Evaluation
For Burns Greater Than 250 Acres
or Burns For Which Smoke Impacts Occurred*

Section A. General Information:

Date of Burn: _____ Burn Location: _____
Number of Acres Burned: _____ Estimated Actual PM Emissions: _____ (tons)
Burner Name: _____
Burner Address: _____
_____
Burner Phone Number: _____
Burner Email: _____

1. Did the burn remain within the conditions specified in the Smoke Management Plan? _____
2. Were there substantial complaints or adverse smoke impacts? _____ If so, proceed to Section B below.
3. Lessons learned (Optional) (Provide attachment if desired):
_____
_____

Section B. For Burns That Had Complaints or Smoke Impacts, Complete The Following:

1. Describe adverse smoke impacts below (add attachment if needed):
_____
_____
2. Were there substantial complaints from the public? _____ If so, how many and from whom (add attachment if needed):_____
_____
_____
3. What Air Districts were Notified (who, when, and at what phone number(s))?
_____
_____
4. Lessons learned (add attachment if needed):
_____
_____
_____
_____
_____
5. Attach all smoke observation and weather data collected before, during, and after the burn. See collection methods checked in sections A.9 and A.10 of the burn plan for relevant data.

* As required by title 17 and air district policies.

Table 1
PM-10 EMISSIONS CALCULATIONS FOR PILES

1. Choose the pile size most representative of the piles on your burn site.
2. Multiply the number of piles in your project with the corresponding "Tons of PM10/Pile" value to get the total PM-10 tonnage.

PM10 EMISSIONS FOR SPECIFIED PILE SIZES		
PILE SIZE (in feet)	**Pile Tonnage**	**TONS OF PM10/PILE**
4' diameter x 3' height	0.056	0.0005
5' diameter x 4' height	0.12	0.001
6' diameter x 5' height	0.21	0.002
8' diameter x 6' height	0.45	0.004
10' diameter x 6' height	0.71	0.007
12' diameter x 8' height	1.3	0.01
15' diameter x 8' height	2.1	0.02
20' diameter x 10' height	4.7	0.04
25' diameter x 10' height	7.4	0.07
50' diameter x 10' height	29	0.3
Pile Tonnage calculated using paraboloid volume formula[a] multiplied by 30 lbs/cu.ft, multiplied by 0.2 packing ratio[b]		
U.S. Forest Service's Conformity Handbook, Table 6 -- PM10 Emissions Factor of 19.0 pounds/ton of fuel burned - average pile and burn slash		
Revised 2/13/2001		

a. Formula used for Paraboloid Volume (cu.ft.) = 3.1416 x [height x (diameter)^2]/8 (see Refernce b. below).
b. USDA (2/1996). Forest Service General Technical Report. Report Number: PNW-GTR-364.

Table 2
PM 10 EMISSION CALCULATION FOR BURNING OF MULTIPLE FUEL TYPES[1,2]

Section 80160 (b) of Subchapter 2 Smoke Management Guidelines for Agricultural and Prescribe Burning, Title 17, California Administrative Code states, "requires the submittal of smoke management plans for all burn projects greater than 10 acres in size or estimated to produce more than 1 ton of particulate matter". To determine what the particulate matter (PM 10) amount is of your burn project please use the equation below and review the following examples.

Information needed for PM 10 Calculations:

a. VT = Vegetation type
b. ACRES VT = Estimated number of acres for VT
c. FL est. = Estimated fuel loading in VT TONS per ACRE
d. EV = PM10 emission/ton of fuel

Calculating PM10 Emissions from Prescribed Burning of multiple vegetation types:

PM10 ton(s) emissions per VT = (number of acres VT) (FL tons per acre) (Emission Value (EV)) = _____ ton(s)/VT
PM10 ton(s) emissions per VT = (number of acres VT) (FL tons per acre) (Emission Value (EV)) = _____ ton(s)/VT
Sum Total is the Estimated PM 10 for the project = _____ **ton(s)/project**

VEGETATION TYPE(S)	ACRES (VT)	x	FL est.	x	EV[1]		PM10 EMISSIONS (ton(s))
Basing Sage/Low Sage	(_____)	x	(_____)	x	(0.010)	=	_____
Ceanothus	(_____)	x	(_____)	x	(0.010)	=	_____
Chamise	(_____)	x	(_____)	x	(0.009)	=	_____
Giant Sequoia	(_____)	x	(_____)	x	(0.007)	=	_____
Grass/Forb	(100)	x	(15)	x	(0.007)	=	10.5
Hackberry Oak	(_____)	x	(_____)	x	(0.005)	=	_____
Hardwood (Stocked)	(_____)	x	(_____)	x	(0.003)	=	_____
Hardwood (Non-stocked)	(_____)	x	(_____)	x	(0.003)	=	_____
Jeffrey Pine/Knobcone	(_____)	x	(_____)	x	(0.007)	=	_____
Live Oak (Canyon)	(_____)	x	(_____)	x	(0.007)	=	_____
Live Oak (Interior)	(_____)	x	(_____)	x	(0.007)	=	_____
Lodgepole Pine	(_____)	x	(_____)	x	(0.007)	=	_____
Manzanita (Productive Brush)	(_____)	x	(_____)	x	(0.009)	=	_____
Mixed Chaparral/Montane	(100)	x	(20.17)	x	(0.008)	=	16.1
Mixed Conifer	(_____)	x	(_____)	x	(0.006)	=	_____
Oak (Black)	(_____)	x	(_____)	x	(0.005)	=	_____
Oak (Blue)	(_____)	x	(_____)	x	(0.003)	=	_____
Oak (White)	(_____)	x	(_____)	x	(0.003)	=	_____
Pinyon Pine	(_____)	x	(_____)	x	(0.007)	=	_____
Ponderosa Pine, Gray Pine	(_____)	x	(_____)	x	(0.007)	=	_____
Red Fir	(_____)	x	(_____)	x	(0.007)	=	_____
Wet Meadow	(_____)	x	(_____)	x	(0.004)	=	_____
Willow	(_____)	x	(_____)	x	(0.007)	=	_____
Sum Total of the Estimated PM10 for the project in tons/project =							26.6

1. See Table 3 on next page for values used to calculate EVs.
2. For vegetation types not listed, contact Air District for assistance with determining appropriate emission factors.

Table 3
EMISSION VALUES (EV) FOR PRESCRIBED BURNS OF VARIOUS VEGETATION TYPES*

Estimated PM10 emission values for various vegetation types = (% combustion) x (PM10 emission lbs/ton) x (1 ton/2000 lbs)*

VEGETATION	%Combustion		PM Emissions (lbs/ton fuel)		Coversion Factor	PM10 EMISSION VALUE (PM10 tons emissions/ton fuel)
Basing Sage/Low Sage	= (1.0)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	= 0.010
Ceanothus	= (1.0)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	= 0.010
Chamise	= (0.9)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	= 0.009
Giant Sequoia	= (0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Grass/Forb	= (1.0)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Hackberry Oak	= (0.4)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.005
Hardwood (Stocked)	= (0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	= 0.003
Hardwood (Non-stocked)	= (0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	= 0.003
Jeffrey Pine/Knobcone	= (0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Live Oak (Canyon)	= (0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Live Oak (Interior)	= (0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Lodgepole Pine	= (0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Manzanita (Productive Brush)	= (0.9)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	= 0.009
Mixed Chaparral/Montane	= (0.8)	x	(20.17 lbs/ton)	x	(1 ton/2000 lbs)	= 0.008
Mixed Conifer	= (0.6)	x	(20.5 lbs/ton)	x	(1 ton/2000 lbs)	= 0.006
Oak (Black)	= (0.4)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.005
Oak (Blue)	= (0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	= 0.003
Oak (White)	= (0.4)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	= 0.003
Pinyon Pine	= (0.6)	x	(22 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Ponderosa Pine, Gray Pine	= (0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Red Fir	= (0.6)	x	(23.1 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007
Wet Meadow	= (0.6)	x	(15 lbs/ton)	x	(1 ton/2000 lbs)	= 0.004
Willow	= (0.6)	x	(25 lbs/ton)	x	(1 ton/2000 lbs)	= 0.007

* **Percent combustion and PM10 emission factors for various fuel types derived from Table 8, Section 6, "Air Quality Conformity Handbook" from the USDA-Forest Service Air Resources / Fire Management Pacific Southwest Region dated November 1995.**

** **These are the vegetation's estimated emissions values(EV) from the vegetation type as determined above to be use when the burn operator provides the vegetation's fuel loading estimate per acre.**

*** **For additional information on emissions factors, see EPA document AP-42: "Compilation of Air Pollutant Emission Factors. Volume 1: Stationary Point and Area Sources," Fifth Edition, AP-42, January 1995, U.S. EPA. Table 2.5-5.**

U.S. Forest Service - Pacific Southwest Region

PRESCRIBED FIRE BURN PLAN

FOR THE NORTH MAIN DIVIDE FUEL BREAK SYSTEM BURN ON

THE TRABUCO DISTRICT

2005 THRU 2009

SIGNATURES:
APPROVED BY: _____
FOREST SUPERVISOR or delegated official

TECHNICAL REVIEW: _____

PREPARED BY: Gordon P. Martin

REVIEWED BY: _____ 5/11/05

REVIEWED BY: _____ May 16, 2005

REVIEWED BY: _____

NEPA DOCUMENTATION APPROVED BY & DATE _____ June 29, 2004

This approved plan constitutes authority to use prescribed fire, actions taken by approved personnel, acting within the scope of their authority.
Version 5, 10/25/02

PRESCRIBED FIRE BURN PLAN
U.S.FOREST SERVICE R-5

1. BURN ORGANIZATION

COMPLEXITY LEVEL
Moderate

APPROVING LINE OFFICER

FOREST SUPERVISOR

PRESCRIBED FIRE MANAGER

PRESCRIBED FIRE BURN BOSS
Any Qualified
(see Appendix J1 CNF 2004 Fire Management Plan)

IGNITION SPLST	HOLDING SPLST	MOP UP& PATROL	HELISPOT MGR
Any Qualified Appendix J1 2004 CNF FMP)	Any Qualified (see Appendix J1 2004 CNF FMP)	Any Qualified (see Appendix J1 2004 CNF FMP)	Any Qualified(see (see Appendix J1 2004 CNF FMP)
LIGHTER(S)	HOLDING CREW		
Minimum 2	2 Type 3 Engines		

2. PROJECT AREA & UNIT DESCRIPTION (VICINITY, PROJECT MAP ATTACHED)

LOCATION: T 4S - R 7W - SEC 4, 5, 6, 7, 9, 10, 14, 15, 16, 17, 18, 20, 21, 22, 24, 25, 26, 27, 28, 29, 35
T 4S – R 6W – SEC 30, 31, 32
T 5S –.R 6W – SEC 6, 7, 8
T 5S –.R 7W – SEC 1, 2
LONG W 117-35'-30"
LAT N 33 – 48' – 30"

TOTAL BURN AREA SIZE 1000 ACRES

TOPOGRAPHIC FEATURES

ELEVATION (FEET ABOVE M.S.L.):

TOP 4007 ft

BOTTOM 950 ft

SLOPE 45 - 60% ASPECT Variable

FUEL CHARACTERISTICS

VEGETATION TYPES: **Grass and light brush**

FUEL MODEL (SPECIFY SYSTEM): **NFFL fuel Model 2 or 5**

FUEL LOADING (TOTAL TONS/ACRE): **Approximately 9.5**

FUEL DISTRIBUTION (TONS/ACRE BY SIZE CLASS):

Size Class	Time Lag Fuel Class	Tons/Acre
0" – ¼"	1hr	4.0
¼" – 1"	10hr	2.0
1" – 3"	100hr	1.0
Live		2.5

FUEL ARRANGEMENT: **Mixed grass and young chaparral (less than 20 year age class)**

FUEL CONTINUITY: **Grass is continuous with scattered brush.**

SURFACE FUEL DEPTH: **Grass is 1' deep Brush averages 3' tall.**

DUFF DEPTH: **Little to no duff is present through out the area.**

DESCRIBE VEGETATION UNDER 12' TALL (INCLUDE LIVE & DEAD %): **Vegetation below 12' tall consists of Grass with scattered Sage, Chamise, and Ceanothus.**

DESCRIBE VEGETATION OVER 12' TALL: **Scattered Live Oak trees, a small patch of Tecate Cypress near Sierra Peak and a pine plantation near Pleasants Peak.**

3. RESOURCE MANAGEMENT GOALS & OBJECTIVES

GOALS:

1. **Maintain existing fuel break.**
2. **Provide protection for surrounding communities.**
3. **Create safer and more effective area for fire suppression activities.**

OBJECTIVES:

1. **Burn 40-80% of the standing broadleaf chaparral.**
2. **Burn 75-100% of the fine fuels.**
3. **Use moderate to high intensity fire to reduce encroaching vegetation.**
4. **Maintain visual quality by keeping an irregular edge varying the fuel break from 200-500 feet in width**

4. RANGE OF ACCEPTABLE RESULTS EXPECTED

Burn 40-80% of broadleaf chaparral and 75-100% of the fine fuels in area. Maintain large trees and scattered patches of chaparral.

5. PROTECTION OF SENSITIVE FEATURES

Electronic sites:
Electronic sites are located at Sierra, and Pleasants Peaks. Control lines will be constructed and engines placed so as to limit fire spread when burning in the vicinity of any electronic sites.

Tecate Cypress and pine plantations:
Construct hand line around plantations and adjust firing patterns so as to minimize heat impacts to the trees.

Private Property:
Private property is located in and adjacent to many of the fuel breaks. Care will be taken to prevent burning on private property without the permission of the landowner. Line will be constructed and engines placed to ensure the protection of private property.

6. PROJECT FINANCING:

ESTIMATED COST:	**$250,000**
Total cost, cost/acre	**$250 @ 1000ac**
SOURCE OF FUNDING:	WFHF52

REMARKS: **Project is designed as a multi-year project. Funding sources and amounts may vary over the life of the project.**

7. PRESCRIBED FIRE PRESCRIPTION

FUEL MODEL: 2 & 5

Relative Humidity %	**15-40%** actual 60 - 65%
Wind Speed (MFWS)	**Calm-15 mph**
Wind Direction	**Variable**
Temperature (Dry Bulb %)	**50-85°F**
Live Fuel Moisture %	**60-120%**
Dead Fuel Moisture % 1hr. T/L	**5-15%**
10hr. T/L	**7-20%**
100hr. T/L	**N/A**
1000 Hr. T/L	**N/A**
Soil / Duff Moisture %	**N/A**
Probability of Ignition	**20-80%**
Season/time of year:	**Spring**

PREDICTED FIRE BEHAVIOR

	Hot	Mid	Cool
Flame Length (ft)	12.5	7.7	3.6
Forward Spread Rate (chains/hour)	121	39	7.6
Backing Spread Rate (chains/hour)	2.3	1.4	0.7
Spotting Distance (miles)	0.6	0.3	0.0

FIRE BEHAVIOR OUTSIDE OF UNIT BOUNDARIES USING WORST CASE WEATHER

Flame length (feet)	21.4
Effective wind speed (MPH)	20
Forward spread rate (chains/hour)	354
Spotting distance (miles)	1.5

8. DATA COLLECTION & FORECASTS

Burn Boss will contact the Cleveland ECC for long range and spot weather forecast. Data to be collected and recorded on the burn days: Date & Time, Wet and Dry bulb, Relative Humidity, Wind Speed and Direction.

DATA COLLECTION

INSTRUMENT LOCATION (S)
1. **Corona Fire Station**
2. **Temescal Fire Station**
3. **On site.**

ELEVATION
900'

DATA TO BE COLLECTED
1. **Date and Time**
2. **Wet and Dry Bulb reading**
3. **Wind Speed and Direction**

SAMPLING PERIOD:
Live fuel moistures will be determined within 2 weeks prior to the burn. Weather data will be monitored one hour prior to ignition and each hour thereafter until completion of burning. Weather monitoring can be more frequent at the discretion of the burn boss.

FORECASTS

FORECAST CENTER: **Riverside fire weather office through Cleveland ECC**

FORECAST SPECIFICATIONS: Long-term weather forecast should reflect favorable weather outlook for at least one week after each section is completed with no wind event predicted.

9. SMOKE MANAGEMENT & AIR QUALTIY

The North Main Divide fuel break system has been determined to conform to the Clean Air Act (CAA) and the applicable State Implementation Plan (SIP). Predicted emissions are either less than the conformity thresholds or accounted for within the SIP emission inventories. Therefore the project meets the conformity requirements as specified in 40 CFR part 51 - subpart W and part 93 - subpart B. The application of proposed Best Available Control Measures (BACMs) will reduce the emissions and prevent adverse impacts to the fullest extent possible. The application of mitigation and BACMs would be monitored to assure effective utilization of these measures.

A. Mitigation and Monitoring

Mitigation and BACM monitoring will be conducted to assure that the emission reduction and project controls measures are properly implemented and effectively employed. The following monitoring shall be performed for the North Main Divide fuel break system Project.

1. Fuel moisture surveys of the proposed burn areas shall be performed and recorded by the Forest Service. These surveys shall be conducted according to guidelines discussed in the General Technical Report PSW-51 and current state of the art. Burning would not be scheduled or initiated unless fuel moisture content is measured to be within the parameters established in the burn prescription.

2. A residual Mop-up Plan shall be incorporated with the burn prescription with the objective to stop all visible smokes within 48 hours of the completion of the burning phase. The use of perimeter observers and an established command and control communications protocol to direct mop-up resources shall be used.

3. A Smoke Management Plan shall be prepared and made part of the burn prescription. Fire perimeter observers shall record smoke conditions during the burn. The communications that are conducted to establish the burn status prior to the burn shall be recorded and maintained. The deployment of posted signs and notices to the potentially impacted urban interface and general public shall be recorded, inspected, documented, and maintained to assure proper notification of the public.

B. Notification procedures

1, Contact S.C.A.Q.M.D. for burn dates of this project

2, Notify local residence, cooperating agencies and permittees

3, The deployment of posted signs and notices to the potentially impacted urban interface and general public shall be recorded, inspected, documented, and maintained to assure proper notification of the public.

C. Emissions estimates

Due to the variation in number of acres burned each year emissions estimates are given in pounds/acre. To obtain the emissions for each segment burned multiply the acres in that project by the pounds/acre.

	Emissions (lbs/ac)						
	PM_{10}	$PM_{2.5}$	CH_4	CO	CO_2	NO_X	SO_2
Flaming front	5	4	1	10.5	2776	5	2
Smoldering	53	45	29	600	2440	0	2.5
Total	58	49	30	610.5	5216	5	4.5

Calculations from FOFEM using 50% FCC 166-Grass and 50% FCC 173-Shrub fuel models

D. Description of smoke-sensitive areas and procedures to avoid impacting them

Location	Air miles from burn	Bearing from burn
Corona	2	NE
El Cerrito(Interstate 15)	3	E
Black Star Canyon	2	SW
Silverado Canyon	4	SSW
Prado Basin(Hwy 71)	5	N
Santa Ana River Cyn(Hwy 91)	5	NNW

An important component of a prescribed burn is smoke management. Wind and weather conditions would be monitored before and during the burn such that smoke would be directed away from urban areas. Conditions that would maximize the dispersion of air emissions are the objective. The California Air Resources Board (CARB) makes a burn /no burn day determination each day based on the State's telemetry system. This system provides air quality and weather dispersion parameters.

E. Desired wind speed and direction of transport winds.

5-15 mph variable direction, south preferred.

F. Complaint handling procedures

All calls should be referred to the Trabuco District office attention Fire Management

10. FIRING/IGNITION PROCEDURES

The project area is divided into a number of sections. One or more of the sections can be burned each year. The fuel break will be burned from the top down using various strip firing techniques, allowing the fire to burn up to the road or ridge. Short runs from the fuel break perimeter to previously blackened areas are acceptable. There are several topographic saddles located along the fuel break that can be used as stopping points to assess burn progress, allow holding crews to catch up or to stop the burn if conditions warrant. The Burn Boss has the authority to adjust his/her burn pattern as fuels; wind and topography change to achieving the desired effect of 40-80% fuel reduction in the broadleaf Chaparral, 75-100% reduction of the fine fuels and Resource Management Objectives outlined in this plan. The project boundary is surrounded by road system or hand line the can be defended if an escape should occur. The Burn Boss will be the only one that can declare the fire an escape. Once the burn has been declared escaped, the "Escaped Fire Procedures" (item 15a) will be followed.

STAFFING REQUIREMENTS

OPERATIONAL	HOLDING
Prescribed Fire Manager/Burn Boss 2	2-5 Engines Type III
Ignition Specialist	0-2 Hand crews
	1-2 Water tenders

EQUIPMENT

5	Drip torches
40	Gallons of drip torch mix
10	Cases of Fusses
	Other firing devices as available

11. PROVISIONS FOR TEST FIRE & RECORDING RESULTS

The Burn Boss and Ignition Specialist will conducted a test fire prior to any ignition activity to determine whether burn objectives will be met and to determine smoke impacts to smoke sensitive areas. The test fire will be conducted at or near the unit boundary and within parameters that can be controlled and extinguished easily.

a. Test burns must be in a representative location in the planned fire area to test key fire behavior characteristics prescribed to meet management objectives. Y/N
b. Smoke sufficient dispersal/lift Y/N
c. Smoke direction within prescription Y/N
d. Fuel consumption Y/N
e. Fire behavior Y/N
f. Within holding capabilities Y/N

12. HOLDING PROCEDURES

Engines should be placed along the roads and support the burnout operation. Turnouts along road are few and engine should space themselves to cover the area being fired. All engines should be prepared to lay hose if necessary. Water

tenders will follow the engines park in turnouts keeping the road open. Hand crews will follow the burners and construct hand line if needed.
Once the burn is in a patrol status the burned area will be patrolled on a daily basis, until the burn is declared out. The patrol consists of one to two engines equipped with hand tools and backpack pumps. During the patrol phase, weather observation will be taken the information recorded gathered and kept with the burn boss. During the patrol period any hot spots that have potential to spot outside the line will be extinguished or monitored until the threat of escape passes. The patrolling unit will immediately contact the burn boss on any spot fire or threat of escape and take action to contain and secure the treat. The burn boss will determine what level of patrol is warranted and what resources will be sent to assist.

PERSONNEL PLACEMENT:

All resources will work directly for the Holding Boss and positioned by his/her direction. The number and /or type of resources of each agency may vary during the length of this burn project. The Holding Boss and the Burn Boss will agree prior to burning if resources are adequate for that day's operation.

WATER (SOURCES, PUMP LOCATIONS, HOSELAYS, AND SO FORTH):

Due to the remote location water sources are few depending on seasonal rainfall. Water tenders will be available for use through the request of the Holding Boss.

LINE CONSTRUCTION:

Several identified sites have had line construction completed to protect sensitive plants and historical properties. Additional line construction around stands of trees still needs to be completed.

13. FIREFIGHTER, PUBLIC SAFETY & SPECIAL CONDITIONS

A. COMMUNICATIONS & RADIO NEEDS

An Incident Communication plan will be attached as part of the I.A.P.
Specific frequencies will be requested from Cleveland dispatch prior to any burning operations. At a minimum 1 command frequency, 1 tactical frequency will be requested.

Cleveland dispatcher notification requirements: Dispatcher will be notified of location, expected duration and actual time of firing prior to ignition. Dispatcher will notify affected agencies the morning of the burn.

B. PUBLIC SAFETY (SIGNING, NOTIFICATION)

Signing: All roads leading into or adjacent to the project will be posted with Prescribed Burn information signs

Traffic Control: Smoke dispersal will be monitored continuously to determine if any traffic control measures are needed.

C. MEDICAL FACILITY

Trauma Centers:

Inland Valley Regional Medical Center (951) 677-9712
Corona Regional Medical Center (951) 737-4343
Riverside County Regional Medical Center (909) 486-4000

Burn Center:

Loma Linda University Medical Center (909) 558-4000
Arrowhead Regional Medical Center (909) 580-1000
Grossman Burn Center (818) 907-4580

Air Medivac with helicopter on scene or Air Ambulance
Ground Ambulance will be ordered through Cleveland ECC for minor injuries.

D. SAFETY AND HEALTH/JOB HAZARD ANALYSIS

See attached Job Hazard Analysis. The project Job Hazard Analysis will be covered with all personnel participating on the project. All personnel will follow safety guidelines.

E. HELICOPTER OPERATIONS

No aerial ignition is planned for this project.

14. PUBLIC INFORMATION PRE BURN INFORMATION/COORDINATION

Public and effective agencies input has been reviewed, concerns have been identified and any mitigation procedures understood.

PRE-BURN INVOLVEMENT/COORDINATION:

WHEN	CONTACT	HOW	WHO WILL DO
1 Year	Local landowners	Mailings	ADFMO
1 Year	S.C.A.Q.M.D.	(909) 396-2000	ADFMO
1 Year	Orange Co. Fire	Phone	Cleveland Dispatch
1 Year	Riverside Co. Fire	Phone	Cleveland Dispatch

BURN DAY NOTIFICATION:

WHEN	CONTACT	HOW	WHO WILL DO
1 Week	Local Landowners	Mail/Phone	ADFMO
1 Week	Local Newspaper(s)	By Phone	PAO
	a, The Press-Enterprise	(951) 676-6188	
	b, The Californian	(951) 676-7550	
72 Hrs	Forest Dispatch	Phone	Burn Boss
48 Hrs	General public	Posted signs	Burn Boss
24 Hrs	S.C.A.Q.M.D.	(909) 396-2000	Burn Boss
24 Hrs	Forest Information Desk	Phone	Burn Boss

15. CONTINGENCY PLAN

The Burn Boss will activate the Contingency Plan when the burn has exceeded the maximum limits of the prescription and cannot be brought back into prescription with the holding forces on scene.

Actions shall be taken if smoke impacts a smoke sensitive area (Item 9D) and can be practically and safely implemented.

1) **Stop ignition, except as needed to maintain control of fire (allow fire to burn to contingency lines).**
2) **Initiate fire suppression actions so as to minimize smoke outputs.**
3) **Begin mop up with in 18-48 hrs.**
4) **Discontinue mop-up if favorable conditions return.**

In the event that the prescribed fire needs additional personnel and equipment for routine slop over(s) and small spots immediately to the planned fire area but still within the project area the Burn Boss will:

1) **Contact Cleveland Dispatch and order forces as needed to contain the event.**
2) **The following resources are considered to be minimum Contingency Forces. The Burn Boss may request additional resources prior or during ignition as he/she determines to be necessary for that burning period. The contingency resources should be able to respond to the project site in 2 hours or less of activation**

Contingency Level	HOT	OPTIMUM	COOL
Engines	7	5	3
Crews	3	2	1
Water Tenders	3	2	0
Helicopter	1	0	0

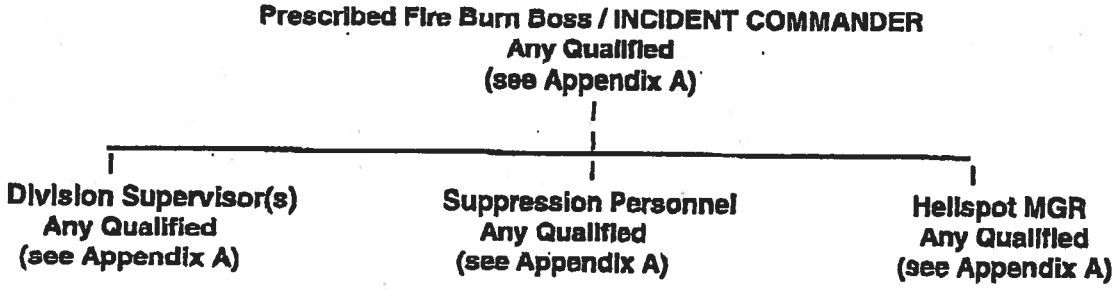
* Contingency for Burn only not mop up 3 Patrol

15a. ESCAPED FIRE PROCEDURES

If in the Burn Boss's opinion, there are not adequate resources on scene or in route to contain the burn, the Burn Boss will declare the prescribed fire a wildfire and will:

1) Notify ECC that the prescribed fire has become a wildfire.
2) ECC will notify Forest FMO/Deputy FMO or Acting and Line Officer and other agencies as appropriate.
3) Burn Boss will become the Incident Commander if qualified and manage the wildfire following standard procedures for wildfires. The I.C. will manage the planned prescribed fire and escape as one incident.
4) District Ranger or delegate will in initiate the WFSA process.

ICS organization and assignments for the escaped fire



16. **POST BURN SUMMARY AND DOCUMENTATION**

DOCUMENT BURN DAY CONDITIONS, FIRE BEHAVIOR, SMOKE DISPERSAL, FIRE EFFECTS, AND RESULTS. Were resource management objectives met? Were goals met?

A. **ATTAINMENT OF OBJECTIVES:**

Resource Goals & Objective	Not Met	Met
1. Maintain existing fuel break.	( )	( )
2. Provide protection for surrounding communities.	( )	( )
3. Create safer and more effective area for fire suppression activities.	( )	( )
RX Burn Objective		
1. Burn 40-80% of the standing broadleaf chaparral.	( )	( )
2. Burn 80-100% of the fine fuels.	( )	( )
3. Use moderate to high intensity fire to reduce encroaching vegetation.	( )	( )
4. Maintain visual quality by keeping an irregular edge varying the fuel break from 200-500 feet in width.	( )	( )

- Burn objectives will be estimated immediately following the burn, and measured with a stand exam at the end of the first growing season.

Narrative for Objectives "NOT MET"

_____

_____

_____

_____

_____

POST BURN CHECKLIST:	COMPLETED Y/N	DATE
1.Hazard trees extinguished and/or put on the ground.	_____	_____
2.Roadside culverts cleaned-out and winterized.	_____	_____
3.Fence lines inspected and repaired.	_____	_____
4.Water bars installed on hand-lines.	_____	_____
5.Soil stabilization work completed.	_____	_____
6.Visual Quality mitigation completed.	_____	_____

- **Notify the appropriate District and/or S.O. Specialist of adverse impact(s) resulting from the burn.**
- **A Copy of this Post Burn Summary will be submitted to the district/forest monitoring coordinator upon the completion of the burn.**

Signature of monitor:_____JobTitle_____

B. **ACTUAL CONDITIONS:**

Date/Time of Ignition_____/_____Days Since Rain_____Seasonal Precip_____

Fuel Moisture: 1 Hr%_____ 10 Hr%_____ 100 Hr_____ 1000 Hr_____ NFDRS 1000_____

Live____ Duff____ MFWS____ WDIR____ Temp____ RH_____ Cloud Cover (CCVR)____

WEATHER DOCUMENTATION									INTENSITY		
DATE	TIME	% CCVR	TEMP	RH	MFWS	WDIR	ROS	FL	HOT	MED	COOL

CCVR- CLOUD COVER	Remarks
MFWS-MIDFLAME WIND SPEED	
WDIR-WIND DIRECTION	
ROS-RATE OF SPREAD	
FL-FLAME LENGTH	

C. **SMOKE CONDITIONS:** Direction of Smoke Movement: _____

Convection column or smoke plume: Well Formed ( ) Weak ( )

Height above fire: 5000'+ ( ) 500 - 5000' ( ) < 500' ( )

Describe smoke conditions day after ignition:

_____

_____

_____

_____

_____

D. **SHORT TERM FIRE EFFECTS AND RESULTS (Narrative):**

_____

_____

_____

_____

_____

17. **BURN DAY GO-NO-GO CHECKLIST**
To be filled out daily by burn boss and filed in project folder.

A "no" response to any item means stop!!!

BURNING OPERATIONS

1. Are **ALL** fire prescription criteria met Y/N?
2. Is the fire weather forecast favorable Y/N?
3. Are **ALL** personnel required in the prescribed fire burn plan on site Y/N?
4. Have **ALL** personnel been briefed on safety hazards, escape routes and safety zones Y/N?
5. Is **ALL** of the required equipment in place and in working order Y/N?
6. Have **ALL** personnel been briefed on the prescribed fire burn plan requirements Y/N?
7. Are sufficient backup resources available for containment of escapes Y/N?
8. Can the burn be executed according to plan and will it meet management objectives Y/N?

HELICOPTER OPERATIONS

9. Have **ALL** aviation safety requirements been met Y/N?
10. Have aerial hazards been noted Y/N?
11. Have pilots been appraised of unavoidable flight hazards Y/N?
12. Have pilots been reminded of hazards Y/N?
13. Have over flights been avoided and personnel placed away from flight paths Y/N?

SMOKE MANAGEMENT

14. Are **ALL** smoke management prescription specifications met Y/N?

IF ALL QUESTIONS ABOVE HAVE BEEN ANSWERED "YES" YOU MAY PROCEED WITH IGNITION.

CERTIFIED BY:_____ **DATE:**_____

TITLE:_____

Daily Positions:

RX Burn Boss _____
Ignition Specialist _____
Holding Specialist _____
Other _____

18. TECHNICAL REVIEW

Checklist for Review of Prescribed Fire Burn Plans

Project Name North Main Divide Fuel Break Prescribed Burn
District Trabuco R.D.

- ✓ Plan is in compliance with the NEPA document for this project.
- ✓ Objectives, Desired Results & Tolerable Deviations clearly outlined.
- ✓ Prescription adequate to meet objectives & have a safe burn.
- ✓ Plan includes a prediction of expected fire behavior.
- ✓ Plan provides for requesting a spot weather forecast on moderate and high complexity burns.
- ✓ Plan requires a test burn.
- ✓ Problem areas or sensitive areas identified clearly.
- ✓ Plan includes organization needed and instructions for overhead.
- ✓ Maps adequate.
- ✓ Escape Contingency Plan adequate.
- ✓ Safety Plan adequate.
- ✓ Smoke sensitive areas identified & Smoke Management Plan adequate.
- ✓ Required documentation submitted to APCD or AQMD for burn permit.
- ✓ RECOMMENDED FOR APPROVAL.

INSTRUCTIONS: Technical Reviewer shall complete this checklist and attach it to the prescribed burn plan. Initial each box to indicate item found satisfactory. Enter N/A (not applicable) for those items reviewed and found not applicable.

Technical Review Completed by: [signature] Date 5/17/05

Prescribed Fire Qualification Rx Burn Boss 2, Rx Fire Man

19. **NWCG Complexity Rating**

NWCG
PRESCRIBED FIRE COMPLEXITY RATING
WORK SHEET

L = LOW, M = MODERATE, H = HIGH

	ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1.	Potential for Escape	L	M	L
2.	The Number and Dependency of activities	L	L	L
3.	Off-Site Values	M	M	M
4.	On-Site Values	L	L	L
5.	Fire Behavior	M	M	L
6.	Management Organization	L	L	L
7.	Public and Political Intrest	M	M	L
8.	Fire Treatment Objectives	L	L	L
9.	Constraints	M	M	L
10.	Safety	L	L	L
11.	Ignition Procedures/ Methods	L	L	L
12.	Interagency Coordination	M	M	M
13.	Project Logistics	L	L	L
14.	Smoke Management	L	M	M
	SUMMARY	M	M	M

Document why H,M,L ratings where selected under rational.

NWCG
PRESCRIBED FIRE SUMMARY
COMPLEXITY RATING SHEET

RISK	OVERALL RATING	Moderate
POTENTIAL CONSEQUENCES	OVERALL RATING	Moderate
TECHNICAL DIFFICULTY	OVERALL RATING	Moderate

SUMMARY COMPLEXITY DETERMINATION: Moderate

RATIONALE: The rating for all categories in low or moderate. Firing methods are standard hand firing techniques. Time of year and location of burn on ridge tops allows for low potential for escape.

Modules: SURFACE, SIZE, SPOT, IGNITE

Description		NMD Hot Prescription
Fuel/Vegetation		
First Fuel Model		2
Second Fuel Model		5
First Fuel Model Coverage	%	50
Mean Cover Height	ft	10
Fuel Moisture		
1-h Moisture	%	5
10-h Moisture	%	7
100-h Moisture	%	10
Live Herbaceous Moisture	%	80
Live Woody Moisture	%	80
Weather		
20-ft Wind Speed	mi/h	25
Wind Adjustment Factor		0.4
Direction of Wind Vector (from upslope)	deg	0
Air Temperature	oF	85
Terrain		
Slope Steepness	%	50
Ridge-to-Valley Elevation Difference	ft	1000
Ridge-to-Valley Horizontal Distance	mi	0.5
Spotting Source Location		RT
Fuel Shading from the Sun	%	0
Fire		
Elapsed Time	h	1

Run Options

Two fuel model weighting method: area-weighted.

Calculations are only for the direction of maximum spread.

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.

Wind and spread directions are degrees clockwise from upslope.

Wind direction is the direction the wind is pushing the fire.

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NMD Hot Prescription

Rate of Spread (maximum)	120.8	ch/h
Heat per Unit Area	703	Btu/ft2
Fireline Intensity	1368	Btu/ft/s
Flame Length	12.5	ft
Direction of Maximum Spread (from upslope)	0	deg
Effective Wind Speed	10.6	mi/h
Maximum Wind Exceeded?	No	
Forward Spread Distance	120.8	ch
Backing Spread Distance	2.3	ch
Spotting Distance from a Wind Driven Surface Fire	0.6	mi
Probability of Ignition from a Firebrand	67	%

Modules: SURFACE, SIZE, SPOT, IGNITE

Description		NMD Mid-Range Prescription
Fuel/Vegetation		
First Fuel Model		2
Second Fuel Model		5
First Fuel Model Coverage	%	50
Mean Cover Height	ft	10
Fuel Moisture		
1-h Moisture	%	8
10-h Moisture	%	10
100-h Moisture	%	15
Live Herbaceous Moisture	%	100
Live Woody Moisture	%	100
Weather		
20-ft Wind Speed	mi/h	15
Wind Adjustment Factor		0.4
Direction of Wind Vector (from upslope)	deg	0
Air Temperature	oF	75
Terrain		
Slope Steepness	%	50
Ridge-to-Valley Elevation Difference	ft	1000
Ridge-to-Valley Horizontal Distance	mi	0.5
Spotting Source Location		RT
Fuel Shading from the Sun	%	0
Fire		
Elapsed Time	h	1

Run Options

Two fuel model weighting method: area-weighted.

Calculations are only for the direction of maximum spread.

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.

Wind and spread directions are degrees clockwise from upslope.

Wind direction is the direction the wind is pushing the fire.

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NMD Mid-Range Prescription

Rate of Spread (maximum)	39.0 ch/h
Heat per Unit Area	457 Btu/ft2
Fireline Intensity	479 Btu/ft/s
Flame Length	7.7 ft
Direction of Maximum Spread (from upslope)	0 deg
Effective Wind Speed	6.9 mi/h
Maximum Wind Exceeded?	No
Forward Spread Distance	39.0 ch
Backing Spread Distance	1.4 ch
Spotting Distance from a Wind Driven Surface Fire	0.3 mi
Probability of Ignition from a Firebrand	42 %

Modules: SURFACE, SIZE, SPOT, IGNITE

Description		NMD Cool Prescription
Fuel/Vegetation		
First Fuel Model		2
Second Fuel Model		5
First Fuel Model Coverage	%	50
Mean Cover Height	ft	10
Fuel Moisture		
1-h Moisture	%	10
10-h Moisture	%	15
100-h Moisture	%	20
Live Herbaceous Moisture	%	120
Live Woody Moisture	%	120
Weather		
20-ft Wind Speed	mi/h	0
Wind Adjustment Factor		0.4
Direction of Wind Vector (from upslope)	deg	0
Air Temperature	oF	65
Terrain		
Slope Steepness	%	50
Ridge-to-Valley Elevation Difference	ft	1000
Ridge-to-Valley Horizontal Distance	mi	0.5
Spotting Source Location		RT
Fuel Shading from the Sun	%	0
Fire		
Elapsed Time	h	1

Run Options

Two fuel model weighting method: area-weighted.

Calculations are only for the direction of maximum spread.

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.

Wind and spread directions are degrees clockwise from upslope.

Wind direction is the direction the wind is pushing the fire.

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NMD Cool Prescription

Rate of Spread (maximum)	7.6	ch/h
Heat per Unit Area	412	Btu/ft2
Fireline Intensity	92	Btu/ft/s
Flame Length	3.6	ft
Direction of Maximum Spread (from upslope)	0	deg
Effective Wind Speed	3.1	mi/h
Maximum Wind Exceeded?	No	
Forward Spread Distance	7.6	ch
Backing Spread Distance	0.7	ch
Spotting Distance from a Wind Driven Surface Fire	0.0	mi
Probability of Ignition from a Firebrand	30	%

Modules: SURFACE, SIZE, SPOT, IGNITE

Description		NMD Worst Case Prescription
Fuel/Vegetation		
First Fuel Model		2
Second Fuel Model		5
First Fuel Model Coverage	%	50
Mean Cover Height	ft	10
Fuel Moisture		
1-h Moisture	%	5
10-h Moisture	%	7
100-h Moisture	%	10
Live Herbaceous Moisture	%	80
Live Woody Moisture	%	60
Weather		
20-ft Wind Speed	mi/h	50
Wind Adjustment Factor		0.4
Direction of Wind Vector (from upslope)	deg	0
Air Temperature	oF	85
Terrain		
Slope Steepness	%	50
Ridge-to-Valley Elevation Difference	ft	1000
Ridge-to-Valley Horizontal Distance	mi	0.5
Spotting Source Location		RT
Fuel Shading from the Sun	%	0
Fire		
Elapsed Time	h	1

Run Options

Two fuel model weighting method: area-weighted.

Calculations are only for the direction of maximum spread.

Fireline intensity, flame length, and spread distance are always for the direction of the spread calculations.

Wind and spread directions are degrees clockwise from upslope.

Wind direction is the direction the wind is pushing the fire.

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NMD Worst Case Prescription

Rate of Spread (maximum)	353.6	ch/h
Heat per Unit Area	703	Btu/ft2
Fireline Intensity	4440	Btu/ft/s
Flame Length	21.4	ft
Direction of Maximum Spread (from upslope)	0	deg
Effective Wind Speed	20.4	mi/h
Maximum Wind Exceeded?	No	
Forward Spread Distance	353.6	ch
Backing Spread Distance	2.4	ch
Spotting Distance from a Wind Driven Surface Fire	1.5	mi
Probability of Ignition from a Firebrand	67	%

TITLE: Results of FOFEM model execution on date: 5/10/2005

FUEL CONSUMPTION CALCULATIONS

Region: Pacific_West
Cover Type: FCC - 166-G-Grass-Mature-Medium-(None)-(none)
Fuel Type: Natural

FUEL CONSUMPTION TABLE

Fuel Component Name	Preburn Load (t/acre)	Consumed Load (t/acre)	Postburn Load (t/acre)	Percent Reduced (%)	Equation Reference Number	Moisture (%)
Litter	0.23	0.23	0.00	100.0	999	
Wood (0-1/4 inch)	0.04	0.04	0.00	100.0	999	
Wood (1/4-1 inch)	0.20	0.05	0.15	26.7	999	16.0
Wood (1-3 inch)	0.00	0.00	0.00	0.0	999	
Wood (3+ inch) Sound	0.00	0.00	0.00	0.0	999	30.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Wood (3+ inch) Rotten	0.00	0.00	0.00	0.0	999	30.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Duff	0.53	0.27	0.26	51.8	2	75.0
Herbaceous	0.30	0.27	0.03	90.0	221	
Shrubs	0.00	0.00	0.00	0.0	23	
Crown foliage	0.00	0.00	0.00	0.0	37	
Crown branchwood	0.00	0.00	0.00	0.0	38	
Total Fuels	1.30	0.87	0.43	66.7		

FIRE EFFECTS ON FOREST FLOOR COMPONENTS

Duff Depth Consumed (in) 0.1 Equation: 6
Mineral Soil Exposed (%) 31.0 Equation: 10

	Emissions -- lbs/acre flaming	smoldering	total
PM 10	2	32	34
PM 2.5	1	27	28
CH 4	0	16	16
CO	4	361	365
CO 2	960	1468	2428
NOX	2	0	2
SO2	1	1	2

	Consumption tons/acre	Duration hour:min:sec
Flaming:	0.27	00:01:00
Smoldering:	0.60	00:03:15
Total:	0.87	

TITLE: Results of FOFEM model execution on date: 5/10/2005

FUEL CONSUMPTION CALCULATIONS

Region: Pacific_West
Cover Type: FCC - 173-S-Shrub-Immature-Medium-(None)-(none)
Fuel Type: Natural

FUEL CONSUMPTION TABLE

Fuel Component Name	Preburn Load (t/acre)	Consumed Load (t/acre)	Postburn Load (t/acre)	Percent Reduced (%)	Equation Reference Number	Moisture (%)
Litter	0.45	0.45	0.00	100.0	999	
Wood (0-1/4 inch)	0.10	0.10	0.00	100.0	999	
Wood (1/4-1 inch)	0.70	0.52	0.18	74.2	999	16.0
Wood (1-3 inch)	0.80	0.26	0.54	32.7	999	
Wood (3+ inch) Sound	0.00	0.00	0.00	0.0	999	30.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Wood (3+ inch) Rotten	0.00	0.00	0.00	0.0	999	30.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Duff	1.06	0.55	0.51	51.8	2	75.0
Herbaceous	0.00	0.00	0.00	0.0	22	
Shrubs	1.00	0.80	0.20	80.0	231	
Crown foliage	0.00	0.00	0.00	0.0	37	
Crown branchwood	0.00	0.00	0.00	0.0	38	
Total Fuels	4.11	2.68	1.43	65.2		

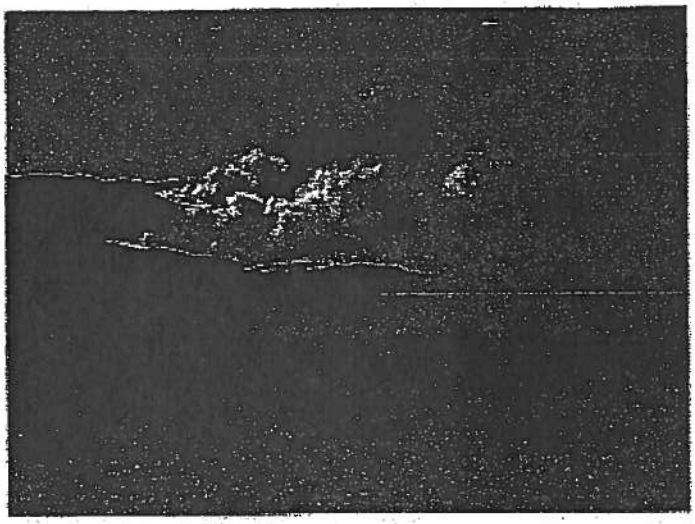
FIRE EFFECTS ON FOREST FLOOR COMPONENTS

Duff Depth Consumed (in) 0.2 Equation: 6
Mineral Soil Exposed (%) 31.0 Equation: 10

	Emissions – lbs/acre flaming	smoldering	total
PM 10	8	74	82
PM 2.5	7	63	70
CH 4	2	38	40
CO	17	838	855
CO 2	4592	3411	8003
NOX	8	0	8
SO2	3	3	6

	Consumption tons/acre	Duration hour:min:sec
Flaming:	1.29	00:01:00
Smoldering:	1.39	00:11:45
Total:	2.68	

Cleveland National Forest



Fire Management Plan

2005-2006

Prepared By: Carlton M Joseph

Reviewed By: Richard A. Hawkins

Approved By:

Date: FEBRUARY 10th, 2005

Cleveland N.F. 2005 Fire Management Plan

Table of Contents

CLEVELAND NATIONAL FOREST
2005 FIRE MANAGEMENT PLAN

Section I - Introduction

I.A. Purpose of the Plan

All National Forests with vegetation capable of sustaining wildland fire are required by Forest Service Handbook 5109.19; Chapter 50, to prepare a Fire Management Plan (FMP). This FMP brings the Cleveland National Forest into compliance with Forest Service Manuals (FSM) 5101, 5103, 5106 and 5108. The FMP includes management direction and policy found in the:

1. Federal Wildland Fire Management Policy and Program Review
2. Wildland and Prescribed Fire Management Policy and Implementation Procedures Reference Guide
3. Managing Impacts of Wildland Fires on Communities and the Environment
4. 10-Year Comprehensive Strategy Implementation Plan

The lands within the Cleveland National Forest (CNF) have been marked by frequent, large, and in many cases, destructive wildfires. Despite the apparent damage caused by fires, fire plays an important role in the natural ecological processes of the plant communities that dominates the forest.

The FMP is a fundamental strategic document that guides the full range of fire management related activities. It provides a framework for the management of wildland fire, prescribed fire and hazard fuel reduction, as tools to safely accomplish the resource protection and management objectives of the Cleveland National Forest as described in the Land and Resource Management Plan (1987).

The Final Environmental Impact Statement for the Land and Resource Management Plan (FLRMP) presents several alternatives to implement federal wildland fire policies as they existed at the time of the Record of Decision (ROD) for the FLRMP.

The Cleveland National Forest is comprised of primarily chaparral vegetation interspersed with whole communities, such as Palomar Mountain and Pine Valley; as well as being surrounded by urban encroachment in Orange, Riverside and San Diego Counties,. The forest is nearly contiguous federal land within the congressional boundaries, with some major private in-holdings. Because of the urban nature of the forest, land management policies and activities are complex. This may be especially true for fire management actions, which must endeavor to balance resource protection issues with life and safety issues. The FLRMP EIS proposes alternatives for managing wildland and prescribed fire, reducing fuels, and protecting natural and cultural resources while providing for firefighter and public safety. It also examines the environmental impacts of each alternative.

I.B. Collaboration

The current Cleveland National Forest FLRMP was developed in an interdisciplinary team format involving the Forest staff, resources managers, fire managers, scientists and the public, with the purpose of developing a comprehensive land and resource management program for the forest. Planning was conducted under the authority of the Multiple-Use, Sustained Yield Act of 1960, and the Forest and Rangelands Renewable Resource Planning Act of 1974.

The FLRMP received critical review during the formulation of the draft EIS. Fire management direction provided in the current FLRMP was available for comment and possible revision during the comment period.

The FMP is tiered off of the direction found in the FLRMP. Agency specific policy changes that have occurred since the ROD was signed are included as part of the FMP.

The Cleveland National Forest, in collaboration with the Angeles, Los Padres and San Bernardino National Forests are currently in the process of revising the existing FLRMP. New direction for the fire management program is anticipated to be associated with the revised FLRMP. This new planning process will refocus the direction of the fire management program, leading to a substantial revision of this version of the FMP.

I.C. Link to Policy

The FMP is a detailed program of action designed to assist fire managers in carrying out existing fire management policies and to achieve resource management and fire protection objectives defined in the current FLRMP. This FMP does not supercede or modify decisions made in the FLRMP.

I.D. Link to Land and Resource Management Planning

The goals and objectives as defined in the LMRP were developed in a collaborative effort and with full scrutiny of the public. Because of the planning process utilized in the development of the FLRMP, it fully meets the requirements of the National Environmental Policy Act (NEPA) as well as other State and Federal regulatory requirements.

I.E. Authorities

The authorities for the implementing the actions defined of the FMP are found in FSM 5101 and 5108. FSM 5101 cites:

1. *Organic Administration Act, Act of June 4, 1897 (16 U.S.C. 551)*. This act authorizes the Secretary of Agriculture to make provisions for the protection of National Forests against destruction by fire.

2. *Bankhead-Jones Farm Tenant Act, Act of July 22, 1937 (7 U.S.C. 1010, 1011)*. This act authorizes and directs the Secretary of Agriculture to develop a program of land conservation and land utilization to "assist in controlling soil erosion, reforestation, preserving natural resources, protecting fish and wildlife, . . . mitigating floods, . . . protecting the watersheds of navigable streams, and protecting the public lands. . . ."

3. *Wilderness Act, Act of September 3, 1964 (16 U.S.C. 1131, 1132)*. This act authorizes the Secretary of Agriculture to take such measures as may be necessary in the control of fire within designated wilderness.

4. *National Forest Management Act, Act of October 22, 1976 (16 U.S.C. 1600 et seq.)*. This act directs the Secretary of Agriculture to specify guidelines for land management plans to ensure protection of forest resources. Implementing regulations at Title 36, Part 219 of the Code of Federal Regulations (36 CFR 219.27) specify that consistent with the relative resource values involved, management prescriptions in forest plans must minimize serious or long-lasting hazards from wildfire.

5. Clean Air Act, as amended (42 U.S.C. 7401 et seq.). This act provides for the protection and enhancement of the nation's air resources and applies to the application and management of prescribed fire.

6. Healthy Forest Restoration Act of December 03, 2003

5101.2 - Fire Management on Other Federal, State, and Private Lands. The following additional authorities provide for Forest Service wildfire protection activities on other lands under appropriate circumstances:

1. Economy Act of 1932, Act of June 30, 1932 (41 U.S.C. 686). This act provides for procurement of materials, supplies, equipment, work, or services from other federal agencies.

2. Granger-Thye Act, Act of April 24, 1950 (16 U.S.C. 572). This act authorizes expenditure of Forest Service funds to erect buildings, lookout towers, and other structures on land owned by states. It provides for the procurement and operation of aerial facilities and services for the protection and management of the national forests and other lands administered by the Forest Service.

3. Reciprocal Fire Protection Act, Act of May 27, 1955 (42 U.S.C. 1856). This act authorizes reciprocal agreements with federal, state, and other wildland fire protection organizations.

4. Wildfire Suppression Assistance Act, Act of April 7, 1989 (42 U.S.C. 1856). This act authorizes the Secretary of Agriculture to enter into agreements with fire organizations of foreign countries for assistance in wildfire protection.

FSM 5108 provides the reference to consult for guidance on the minimum standards and procedures in various aspects of wildland fire management. These references include:

1. Federal Wildland Fire Management Policy and Program Review, Final Report, December 18, 1995
2. National Interagency Mobilization Guide
3. Prescribed Fire Complexity Rating System Guide
4. Prescribed Fire Smoke Management Guide
5. Wildland and Prescribed Fire Management Policy Implementation Procedures ReferenceGuide
6. Wildland and Prescribed Fire Qualification System Guide

With this plan, the fire management program will employ fire management activities to accomplish land and resource management objectives and reduce the risk of wildland fire in and adjacent to the forest. The fire management staff will use varying strategies to manage hazardous vegetation and identify suppression actions appropriate to protect human life and private property. Strategies for implementation would be based on knowledge gained from fire and fuels research and suppression experience from Forest Service personnel and cooperating fire agencies.

Fire management planning and programs have been operational for many decades. Given the direction in the current FLRMP a continued program of aggressive fire suppression action and integrated vegetation management activities have been identified as the preferred alternative. These fire management actions are included in all management prescriptions, including Wilderness, where planned ignitions may be used to eliminate *"unnatural build-up of fuels"* within the wilderness.

Section II - Relationship To Land Management Planning And Fire Policy

II.A. Reference to Planning and Documents

The Forest Service's management policies, FSM 5100 and FSH 5109 along with the 2001 Federal Fire Policy, provide the requirements for the Cleveland National Forest to build a program consistent with stated land and resource goals and objectives while ensuring firefighter and public safety. The Cleveland National Forest Land and Resource Management Plan (FLRMP) is in compliance with these policies.

II.B. Reference to Policy Documents

Forest Service Manual 5103, as revised in May 2000 states:

1. Develop a fire management plan based on direction in land and resource management plans and interagency plans and assessments. Amend Forest plans where necessary to meet fire management objectives. Use the best available science to assess and plan on a landscape scale, across agency boundaries.

2. Conduct fire management planning, preparedness, suppression, monitoring, and research, and fire use on an interagency basis and involve affected partners. Integrate with forest planning whenever possible.

3. Observe these fire management priorities on all fires: first, ensure firefighter and public safety; and, second, protect property and natural and cultural resources based on the relative values to be protected.

Responsibilities for assuring that fire management actions are consistent with the direction provided in the FLRMP are delegated to the Regional Forester and Forest Supervisors. FSM 5104 identifies the following responsibilities:

- Regional Foresters. Regional Foresters have the responsibility to:

    1. Ensure that fire management direction is adequate to guide Regional employees.

    2. Ensure that fire management direction is adequately integrated into forest plans.

- Forest Supervisors. Forest Supervisors have the responsibility to:

    1. Incorporate fire management direction into Forest land and resource management plans.

    2. Identify the most efficient level program for the management of wildland fire to meet Forest land and resource management plan direction.

    3. Establish and implement a fuel management program that supports fire management direction in the Forest LRMP.

Federal Wildland Fire Management Policy

The Interagency Federal Wildland Fire Policy Review Working Group revised the Federal Wildland Fire Management Policy in 2001. Main elements of the policy are listed in Table 2.1. from that policy, which follows on the next 2 pages.

Table 2.1 2001 Federal Wildland Fire Management Policy

POLICY	*2001 FEDERAL WILDLAND FIRE MANAGEMENT POLICY*
Safety	Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.
Ecosystem Sustainability	The full range of fire management activities will be used to help achieve ecosystem sustainability including its interrelated ecological, economic, and social components.
Response to Wildland Fire	Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected dictate the appropriate management response to the fire.
Use of Wildland Fire	Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions described in operational plans.
Rehabilitation and Restoration	Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, and safety, and to help communities protect infrastructure.
Protection Priorities	The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have committed to an incident, these human resources become the highest value to be protected.
Wildland Urban Interface	The operational roles of federal agencies as partners in the Wildland Urban Interface are wildland firefighting, hazardous fuel reduction, cooperative prevention and education, and technical assistance. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer; they may also enter into formal agreements to assist state and local governments with full structural protection.)
Planning	Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans are strategic plans that define a program to manage wildland and prescribed fires based on the area's approved land management plan. Fire Management Plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.

POLICY	*2001 FEDERAL WILDLAND FIRE MANAGEMENT POLICY*
Science	Fire Management Plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, Fire Management Plans, and implementation plans.
Preparedness	Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight.
Suppression	Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.
Prevention	Agencies will work together and with their partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.
Standardization	Agencies will use compatible planning process, funding mechanisms, training and qualification requirements, operational procedures, values-to-be-protected methodologies, and public education programs for all fire management activities.
Interagency Cooperation and Coordination	Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.
Communication and Education	Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.
Agency Administrator and Employee Roles	Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.
Evaluation	Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects begun under the 2001 Federal Fire Policy. The evaluation will assure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

Forest Land and Resource Management Plan (FLRMP)

The FLRMP and EIS were developed under the implementing regulations of the National Forest Management Act (NFMA), Title 36, Code of Federal Regulations, Part 219 (36 CFR 219) published in 47 CFR 43026 on September 30, 1982. Also followed as part of the planning process of the FLRMP were the National Environmental Policy Act (NEPA) Council of Environmental Quality (CEQ) regulations, Title 40, Code of Federal Regulations, Parts 1500-1508. In addition, the Plan preparation reflected the Regional Guide for the Pacific Southwest Region of the Forest Service. The Federal Wildland Fire Management Policy of 2001 has become a major policy emphasis since the publication of the FLRMP. This and the direction in the FLRMP provide overall fire management policy direction for the Cleveland National Forest.

Specific Cleveland N.F., Forest-wide Standards and Guidelines can be found in **Appendix 1.**

II.C.1. Goals and Desired Condition: Forest-Wide

Air Quality

1. Prescribed fire will be conducted only under suitable air quality conditions.
2. Continue cooperation with local air quality control agencies.

Fire and Fuels

1. The fire management organization will emphasize a balanced program of fire suppression and fuels management with an expected reduction of wildlfire acreage between 35 to 40 percent over the planning period."
2. Fuels treatments will average more then 7,500 acres per year and an additional 91 miles of fuelbreaks will be constructed and added to the exsiting 113 mile system."
3. The Forest will reduce to an acceptable level the risks and consequences of wildfire within wilderness or escape from wilderness." Prescribed fire will be used to meet these objectives."
4. Protection and direct improvement will be employed where appropriate to ensure perpetuation of viable populations of all sensitive species."
5. Soils: "Soil productivity will be enhanced over the long-term indirectly as a result of the expected reduction of wildfire."

FIRE SIZE OBJECTIVES AND SUPPRESSION STRATEGIES

MANAGEMENT AREA	FMAZ	MAXIMUM ACRE SIZE OBJECTIVE (90% of theTime)	FIRE INTENSITY LEVEL	SUPPRESSION STRATEGY	SUPPRESSION RESTRICTION
W wilderness Agua Tibia San Mateo, Hauser Pine Creek	2 & 3	75 50 10		Contain Contain Control	Mechanical Equipment*
D Developed Recreation	1,2,& 3	20 10	1-2 3-6	Contain Control	None
U General Forest Unroaded	2 & 3	20 10	1-2 3-6	Contain Control	None
R General Forest Roaded Urban Interface all other areas	2 &3	 10 500 300 10	 1-6 1-2 3 4-6	 Control Contain Contain Control	None
RNA Research Natural Area	2 & 3	10	1-6	Control	None

**See Wilderness Fire Authorities and Process Appendix*

Fish and Wildlife
1. Protect and enhance riparian areas, and improve degraded areas, giving emphasis to riparian-dependent resources.
2. Maintain and enhance the viability of sensitive plant species.
3. Provide for diverse and viable wildlife communities through increased habitat improvement.
4. Riparian areas: losses due to wildfire will be reduced by managing understory fuels, reducing wildfire acres, and developing age class mosaics in the surrounding chaparral.
5. Riparian and broadleaf woodland areas would be actively managed for protection and improvement."

Soil and Water
1. Maintain long-tearm soil productivity and prevent permanent degradation of soils.

Vegetation
1. Broadleaf Woodland: Direct protection of oaks will be utilized as meeded to to ensure regeneration.
2. Chaparral: The most significant change in vegetation will be in the distribution of age classes in chaparral as prescribed burns averaging 6,000 to 7,000 acres per year are implemented across the Forest.
3. An additional 3,700 acres of type conversion of chaparral to grass will be implemented for fuelbreak construction in areas with high fire protection needs."

Vegetation Management
1. Emphasize both fuels treatments and an efficient fire organization to minimize wildland fire losses.
2. Manage chaparral lands to meet multiple resource program needs.
3. Manage conifer forest and broadleaf woodland vegetation types in all-age appearing stands to maintain or enhance the health and vigor of the trees and to provide favorable conditions for wildlife and fish, recreation, and fuels management."

Wilderness
1. Manage wilderness to maintain wilderness character at desired capacities.
2. To meet these goals, fire management direction in the Cleveland FLRMP is stated as follows: "In wilderness, the forest will permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness., The Forest will reduce to an acceptable level the risks and consequences of wildfire within wilderness or escape from wilderness. Prescribed fire will be used to meet these objectives."

Wilderness Resources
1.Vegetation management plans to minimize the frequency and intensity of wildfires will be developed for each wilderness and will be implemented.

II.C.2. Goals and Desired Condition: Vegetation Specific

For management purposes, areas on the Forest have been grouped into five classes of vegetation. These areas are chaparral, broadleaf woodlands, conifer forest, grassland, and riparian. The acreage extent of the Forest's vegetation types are as follows:

Vegetation Types	*Acres*	*Percent*
Chaparral	369,798	88.0
Broadleaf Woodland	23,405	5.6
Conifer Forest	16,805	4.0
Grassland	5,241	1.2
Riparian	4,795	1.2

Chaparral:
In the chaparral (broadleaf, chamise, coastal sage) a mosaic of varying successsional stages i.e. Early, Mid and Late is most desirable. This vegetative type is characterized by relatively frequent wildfires. Prescribed fire is the primary management tool for the purpose of wildlife, range forage, water, soil, and natural fuels improvements. Mechanical treatments are considered for use on fuelbreaks and natural fuels treatment.

Broadleaf Woodland and Conifer Forests

Reference Cleveland FLRMP G. Management area prescriptions, management standards. Prescribed fire and mechanical treatments may be used to accomplish desired condition.

Section III – Wildland Fire Management Strategies

See sub-items below.

III.A. General Management Considerations

All wildland fires in the Cleveland National Forest will be suppressed. A full range of suppression options may be utilized in order to maximize firefighter and public safety while providing an appropriate suppression response based upon values at risk. Where reciprocal fire protection agreements permit, a combination of federal, state and local suppression resources will be utilized. For lands where reciprocal agreements are not in place, *"assistance by hire"* will be utilized if it meets the requirements of the most appropriate and timely suppression response.

Prescribed fires on federal lands will be managed in coordination with cooperating state and local agencies such as the South Coast Air Quality Management District, and the San Diego Air Quality Management District which covers both San Diego and Imperial Counties.

The following core principles are overarching for all goals (A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 2001):

Collaboration – Facilitate a collaborative approach at the local, regional, and national levels.

Priority Setting – Emphasize the protection of communities, municipal, and other high-priority watersheds at risk. Long-term emphasis is to maintain and restore fire prone ecosystems at a landscape scale.

Accountability – Establish uniform and cost-effective measures, standards, reporting processes, and budget information in implementation plans that will fold into the Government Performance and Results Act (1993) process.

III.B. Wildland Fire Management Goals

The goals for Fire Management on the Cleveland National Forest mirror those set forth in the Federal Wildland and Prescribed Fire Management Policy. This plan hopes to achieve a balance between suppression to protect life, property, and resources, and fire use to regulate fuels and maintain healthy ecosystems. The following are the fire management goals that will guide development of this FMP:

1. Every fire management activity is undertaken with firefighter and public safety the priority andthe primary consideration.

2. Fire Management program activities are aligned to fully complement one another in support of an ecological approach to resource management.

3. Fire-related considerations are integrated into land management planning alternatives, goals and objectives.

4. Fire management programs and activities are economically viable, based upon values to be protected.

5. Fire Management will be based on best available science and current research and information will be integrated into all decisions.

6. Fire managers collaborate with other federal and state land management agencies, and regulators, and the public to coordinate fire management activities which may impact private or non-forest lands and/or public health.

7. Wildland fire, prescribed fire , and other fuels management practices are managed to protect communities, and compliments ecological restoration to the extent feasible.

III.C. Wildland Fire Management Options

The scope of fire management options that can be implemented on the Cleveland National Forest are minimal. Proximity to urban interface severely limits opportunities for wildland fire use or less aggressive suppression strategies.

III.C.1.Wildland Fire Suppression

Human-caused fires and lightning fires will be suppressed due to the proximity of wildland urban interface. The appropriate management response for these fires can range from initial attack to a combination of strategies to confine the fire. Outside of wilderness areas, aggressive initial attack is employed on all fires. The FLRMP calls for aggressive attack on wildfires, consistent with initial attack policy and the Wildland Fire Situation Analysis.

III.C.2. Wildland Fire Use

Wildland fire use for achieving resource management objectives is not an option on the Cleveland NF. Currently, there are no areas designated in the Cleveland FLRMP where naturally ignited fire can be used to protect, maintain and enhance resources and be allowed to function in its natural ecological role.

III.C.3. Prescribed Fire

The forest has seen a dramatic change in the type and amount of funding for fuels management program work in the last several years. For 2005, the Fuels Management program is based on a total budget of approximately $ 1,200,000. Approximately 50% of this budget relates to the prescribed fire element.

III.C.4. Non-Fire Applications

Non-Fire Applications - Mechanical

Mechanical hazardous fuel reduction activities reduce the fire hazard of natural fuels when an assessment determines that these means will be more efficient and involve less risk than prescribed fire. Utilizing mechanical treatments can mitigate many issues concerning air quality. The beneficial outcome of these treatments is that firefighter and public safety is enhanced, real property, natural and cultural resources may be protected and potential suppression cost and property damage may be significantly reduced.

The Cleveland National Forest represents a true "urban interface" where communities have built up to the very boundary of the forest. In addition, there are thousands of structures intermixed with flammable vegetation on private inholdings within the Forest Service Direct Protection Area. This characteristic can present serious problems for management of wildfire and the protection of life and property. Some of the best defenses against wildfire in this situation are to use non-fire hazard fuel reduction techniques in areas most vulnerable to wildfire.

Mechanical fuel reduction projects occur annually in a number of places within the forest where wildland fuels grow directly against the urban interface. The practice is also utilized as part of the fuel break maintenance program on the forest. Mechanical treatments are used to construct control lines and reduce fuel loads in high risk areas in the preparation of conventional prescribed burns. Mechanical treatments are used as a silvicultural practice in both plantations and natural timber stands on the forest. Much of this work is hand piling of material.

Non-Fire Applications – Biological

While included as part of the FLRMP the use of sheep or goats to maintain the fuelbreak system has been declining over the last five-year period.

Non-Fire Applications – Chemical

Currently, there is no use of herbicides as part of the hazardous fuels reduction program. The use of herbicides for maintenance of fuelbreaks is a known and effective method of fuelbreak maintanence. The forest currently uses repetitive burning of the fuelbreak system as a maintenance tool in place of the historic practice of herbicide applications.

III.D. Wildland Fire Management Strategies By Fire Management Unit

See sub-sections below.

III.D.1. Delineate FMUs On A Map

See copy of Cleveland N.F. map in **Appendix 2.** This is a 2-sided map, with the Palomar and Descanso Districts on one side of the map, and the Trabuco District on the other side. The majority of the Forest is in FMU # 1. The Wilderness and Research Natural Areas that comprise FMU #2 are indicated on the map.

III.D.2. Summary Listing Of The Identifiers For The FMU's

See sub-sections below.

III.D.2.a. FMU Identifiers

The Cleveland NF is currently divided into two Fire Management Units (FMU); **FMU 1** (Suppression) and **FMU 2** (Wilderness FMU). They are differentiated by land management objectives, values to be protected, and planned fire suppression tactics.

III.D.2.b. FMU Characteristics (discussion below with III.D.2c and d).

III.D.2.c. Strategic And Measurable Management Objectives Specific To FMU

III.D.2.d. Management Constraints Or Criteria Affecting Operational Implementation

Independent discussion, grouped by FMU, follows below for items III.D.2b-d:

SUPPRESSION FMU (FMU 1)

This FMU is referred to as the Suppression FMU. This FMU is currently composed of Management Areas (MA) where FLRMP direction either does not make provision for use of fire for resource benefit or where complicating factors make fire use impractical at this time. Aggressive suppression responses typically occur on fires in these MA's. The MA's included are MA U (General Forest, Unroaded Natural Settings); MA R (General Forest, Roaded); and MA D(Developed Recreation Complex);

III.D.2.b. Characteristics: FMU 1

The Suppression FMU encompasses the major portion of the three ranger districts on the forest. FMU#1 is generally located on the upper slopes and crests of the mountain ranges. The valley floors and lower slopes are generally in private or other ownership and much of this is urbanized. This FMU is about 418,500 acres in size.

Elevations range from 1000 feet in the river bottoms to 6500 feet on the major peaks. The Suppression FMU has highly variable terrain ranging from deep, steep-walled canyons in the river gorges to highly channeled midslope sub-watersheds and relatively flat benches and ridges.

Plant communities include broadleaf chaparrel, chamise-chaparral, coastal sage chaparrel, oak-woodland, and conifer forest. Each of these communities include mixtures of understory grasses, shrubs and hardwoods.

This area of the Forest supports a wide range of terrestrial and aquatic species including many TES (threatened, endangered or sensitive) species. The Forest LRMP currently provides for a full range of management activities in this area.

The FMU supports a wide range of human uses. There is a highly developed urban intermix zone along the entire western edge of the forest. This FMU also has extensive developed recreation areas throughout the zone, and supports many dispersed recreation activities such hiking, backpacking, hunting, and fishing.

Fire history records indicate that this area has a history of large human-caused fires, particularly in the wildland urban interface zone.

This FMU 1 encompasses all of the Cleveland NF except designated wilderness and Research Natural Areas.

III.D.2.c. Strategic and Measurable Management Objectives: FMU 1

FMU 1 contains resources and improvements at risk from wildland fire considering the current unnaturally flammable condition of the vegetation due to significant vegetation mortality related to long term drought. It is also an area which interfaces with private lands and contains many improvements. The first priority for fire management in this FMU is the safety of personnel and the public, including adjacent landowners. The strategic management goals specific to this FMU include:

- Suppress all fires in FMU 1 using the appropriate management response with the intent of minimizing the loss of natural resources and improvements, protecting cultural and historic resources and checking fire spread onto private property. Control 95% or higher all human and natural ignitions during initial attack (48 hours). As per the FLRMP, control fires in the wildland urban interface at 10 acres and maximum wildfire patch size forest wide at no more than 500 acres.

- Use prescribed fire and mechanical treatment to reduce hazardous fuel accumulations, restore rangeland and wildlife habitat and enhance ecosystem health. As per the FLRMP, treat between 6,200 and 8,500 acres per year.

- Develop and maintain cooperative agreements and working relationships with local fire agencies, and adjacent landowners to encourage hazard fuel reduction projects in the wildland/urban intermix.

III.D.2.d. Management Constraints Or Criteria Affecting Operational Implementation: FMU 1

Constraints affecting fire management operations within FMU 1 include:

- All fire management activities will consider safety of personnel and the public as the highest priority.

- Fire management operations will be carried out by qualified personnel who promote the safe and skillful application of fire management strategies and techniques.

- Fire management operations will not be initiated until all personnel involved receive a safety briefing describing known hazards and mitigating actions, current fire season conditions and current and predicted fire weather and behavior.

- Smoke management and air quality requirements and reporting procedures for San Diego County APCD and the South Coast Air Quality Management District will be followed for all prescribed fire operations.

- Fire management operations will not result in unacceptable impacts to forest resources, especially T & E species or their habitat.

- Consider the significant Native American cultural values which exist in this FMU by minimizing fire suppression-related impacts and fire management-related human occupancy on tribal lands protected by the Forest Service or on NFS lands.

- The Forest will monitor and determine preparedness levels based on the preparedness plan found in section 23.11 of the California Mobilization Guide and consistent with the levels established by the National MAC Group at the National Interagency Coordination Center.

Wilderness FMU (FMU 2)

III.D.2.b. Characteristics: FMU 2

Four wilderness areas, totaling 76,474 acres and three Research Natural Areas with 1,554 acres outside of wilderness areas are the only lands not placed in the Suppression FMU, FMU #1. The following statement depicts the Desired Future Condition regarding wildfire in Cleveland N.F. wilderness areas. Vegetation management plans to minimize the frequency and intensity of wildfires will be developed for each wilderness and will be implemented upon approval of the Chief of the Forest Service. The Forest will reduce to an acceptable level the risks and consequences of wildfire within wilderness or escape from wilderness. Generally, all fires are suppressed in these wilderness areas, using "light hand on the land" tactics.

III.D.2.c. Strategic and Measurable Management Objectives: FMU 2

1. Establish effective communication with wilderness users to minimize wildfire starts and provide for user safety.
2. Allow no open campfires.
3. Motorized vehicle and equipment use is allowed for emergency purposes only.
4. Require that aerial tankers use water or retardant with fugitive dye on fires whenever possible.
5. The allowable wildfire size objectives and suppression strategies for fire intensity levels are

Intensity	Allowable Size	Suppression Strategy
FIL 1,2	75 Acres	Contain
FIL 3	50 Acres	Contain
FIL 4-6	10 Acres	Control

6. Upon approval by the Regional Forester, use prescribed burning to re-establish or maintain natural growth patterns and diversity, or other wilderness values.

III.D.2.d. Management Constraints Or Criteria Affecting Operational Implementation: FMU 2

- All fire management activities will consider safety of personnel and the public as the highest priority.
- Fire management operations will be carried out by qualified personnel who promote the safe and skillful application of fire management strategies and techniques.
- Fire management operations will not be initiated until all personnel involved receive a safety briefing describing known hazards and mitigating actions, current fire season conditions and current and predicted fire weather and behavior.
- Smoke management and air quality requirements and reporting procedures for San Diego County Air Pollution Control District and the South Coast Air Quality Management District will be followed for all prescribed fire operations.
- Fire management operations will not result in unacceptable impacts to forest resources, especially T & E species or their habitat and cultural resources.
- Consider the significant Native American cultural values which exist in this FMU by minimizing fire suppression-related impacts and fire management-related human occupancy on tribal lands protected by the Forest Service or on NFS lands.

The Forest will monitor and determine preparedness levels based on the preparedness plan found in section 23.11 of the California Mobilization Guide and consistent with the levels established by the National MAC Group at the National Interagency Coordination Center.

III.D.2.e. Historical Fire Occurrence

(This discussion applies to both FMU 1 and FMU 2).

Fire is a primary agent of change in the vegetation patterns across the southern California landscape. The distribution, composition, and structure of almost all plant communities in this region are influenced by fire. Historically, fires appear to have burned under a wide range of environmental conditions, exhibiting erratic, smoldering-and-run behaviors as weather and fuel conditions change. These fires would continue to burn in some instances until extinguished by rain of lack of fuel. These fires exhibited short duration, high intensity afternoon runs and occasionally by large conflagrations (Minnich 1988). Today and for at least the last 50 years, smoldering fires are actively suppressed and extinguished. This significantly reduced opportunities for short duration runs and other burn patterns and therefore increasing the likelihood that when an area burns, it does in a relatively fast moving, high severity fire.

Natural fire-return intervals in low elevation chaparral are in the range or 50-70 years, however fire frequency has significantly increased only in the ignition-prone areas near the urban

interface, usually where there are high proportions of scrub and grass vegetation that facilitates fire spread. In the conifer forest, fire scar studies indicate a fire return interval of fifteen to thirty years prior to the suppression era. However over the last seventy years, fires have been rare in the interior forest as this is where fire suppression has been most successful related to both natural and human caused ignitions.

While large fires occur every month of the year on the Cleveland National Forest, the largest fires spread rapidly under Santa Ana winds during the fall. The 172,000 acre Laguna Fire of September, 1970 and the 273,000 acre Cedar Fire of October, 2003 both started on the forest and spread many miles off the forest, under Santa Ana winds. Increased development on private lands inside the forest and along the forest boundary has added complexity to suppression operations. Structure protection needs within the Forest Service Direct Protection Area can result in larger fire perimeters as a result.

III.D.2.f. The Fire Management Situation

See sub-items below. Discussion for III.D.2.f.1-6 applies to both FMU 1 and FMU 2.

III.D.2.f.1. Weather Patterns Influencing Fire Behavior And Historical Weather Analysis

Forest wide, fuel moistures peak out in late March to early April. As the Pacific storm track into California becomes less frequent, precipitation in the southern California begins to diminish. This, combined with longer daylight hours starts the drying trend that leads to fire season.

By May the polar front shifts north; cool, dry, stable air from the Pacific high becomes dominant, and rainfall in California becomes insignificant. The Pacific high off the west coast consistently brings in dry air and clear skies and allows inland areas to get quite warm, even hot. Foothill grasses are generally cured enough to carry fire in late May and early June. Although these fires are usually easy to suppress, some become established on steep slopes and burn several hundred acres. Suppression is aided by high live green fuel moistures in chaparral fuels, which do not generally cure enough to actively carry fire until late June.

The Pacific high dominates summertime weather causing very hot temperatures (95-100+ degrees), moderately dry humidity (30-40%, frequently lower), and low 10-hour fuel moistures (3-5%). Summer rainfall is non-existent except for precipitation from passing thunderstorms, which mainly falls at higher elevations. With some exceptions, strong eye-level winds are not responsible for high rates of fire spread. Topography moves fire upslope/up canyon and predominate southwest upper level wind flow directs fires to the north or east.

Several times throughout the fire season the Pacific high is intruded upon by tropical moisture from the Gulf of Mexico or the Pacific that brings thunderstorms to the southern mountain ranges. Thunderstorms that start fires have occurred as early as April but are more likely to pass through between June and September. These thunderstorms generally carry some precipitation with them and can happen at any elevation on the Forest. Low elevation lightning occurrence is rare and nearly all lightning activity on the forest is confined to the Palomar, Vulcan, and Laguna Mountain Ranges.

IV.B.2.d. Detection

The implementation of an integrated detection system on the Cleveland National Forest is a combination of different applications. The systems presently employed are fixed, aerial, ground and automatic lightning detection. Following is a summary of the present detection system.

FIXED DETECTION: This use is primarily by established fire lookout towers. The Cleveland National Forest currently has the following inventory. Currently Los Pinos is the only active fire tower on the Cleveland. Staffing will be dependent on time of year and budget.

1. Los Pinos Lookout
2. Lyons Peak Lookout
3. High Point Lookout

The activation of these towers is dependent on fiscal year funding. The financial operating plan defines those that are activated on a fire season basis.

AERIAL DETECTION - FIXED WING: The Cleveland contracts CWN fixed-wing aircraft following lightning storms to provide reconnaissance for the districts. CDF also provides a fixed wing air attack for recon purposes when available. The policy on aircraft use is found in the Aviation Operations Plan (see Appendix 10).

AERIAL DETECTION - ROTOR: In addition to the fixed-wing program is a contract helicopter. When needed this equipment is used to supplement the aerial detection program.

GROUND DETECTION: An important part of detection mobilization is ground detection. Engine companies and prevention units go on lightning patrol during lightning storms.

AUTOMATIC LIGHTNING DETECTION: This system is available as a cooperative program with the Bureau of Land Management. This is available through the internet at the Forest Dispatch Center.

IV.B.2.e. Fire Weather and Fire Danger

See sub-items below.

IV.B.2.e.(1) Weather Stations

Fire weather predictions are made based on fire weather information obtained from RAWS stations that coincide with National Weather Service forecast zones.

STATION *NAME*	NFDRS FUEL *MODEL*	ELEVATION	ASPECT	SLOPE	CLIMATE *CLASS*	ERC 90%	ERC 97%	BI 90%	BI 97%
CAMERON	B	3443	S	1	2	92	113	160	192
GOOSE VALLEY	B	1530	S	1	2	44	55	50	66
MT. LAGUNA	B	5760	W	1	3	93	124	108	143
ALPINE	B	2024	S	1	2	50	68	56	87
CORONA	B	620	S	1	2	41	54	51	73
DESCANSO	B	3480	S	2	2	70	98	117	164
EL CARISO	B	3038	SW	2	2	75	94	148	182
OAK GROVE	B	2752	S	1	2	91	110	149	174
PINE HILLS	B	3800	S	1	3	63	90	108	149
TEMESCAL	B	1125	SW	1	2	58	77	88	125

SLOPE:

1	0-25%
2	26-40%
3	41-55%
4	56-75%
5	Over 75%

CLIMATE: 1 Arid – Desert & Steppe

2 Subhumid – Dry Season
3 Subhumid – Adequate Rain
4 Wet – Rain Forest

IV.B.2.e.(2) NFDRS

Trend monitoring on the Cleveland National Forest is based on chaparral live fuel moisture. Live fuel moisture is a significant indictor of potential fire behavior. Each forest fuel sampling location is visited monthly and sampled. The results are published monthly for all employees to be aware of.

Burning indexes are used on the Cleveland NF to determine thresholds of fire danger. The lack of heavy fuels makes ERCs less useful on this unit. The burning index is representative of the rapid change fire danger that occurs in this climatic zone. Burning index is used for determining, initial response, potential of natural ignitions, large fire actions, prescribed fire and fire prevention activities, and staffing levels. Burning index is derived from NFDRS outputs through analysis and the use of historic weather data records from appropriate weather stations using the FireFamily Plus software, and includes analysis of large fire occurrence.

Every fire line supervisor will be issued a *"pocket card"* for the fuel types on their home unit. The District Fire management Officer or Incident Commander is responsible for issuing the pocket cards and for briefing off-unit resources about existing fire danger and potential fire behavior conditions before deployment The *"pocket card"* is one of the better means of communicating both fire danger and potential fire behavior as for each NFDRS area as the burning indexes associated with the escape of historical fires are indicated. Twice daily, Forest Service dispatchers communicate weather forecasts to firefighters in the field. Predicted and actual burning indexes are a portion of the information communicated to fire management personnel.

IV.B.2.f. Policy and Forest Service Manual and Handbook Direction

Policy and Forest Service Manual and Handbook Direction

Module Leader Supervisor – Engine, Hotshot, Helitack, and other regular crews used for fire suppression must be trained to standards and accompanied by properly qualified supervisors. On the regular supervisor's day off, a qualified employee will serve as the alternate supervisor. If no qualified supervisor is present, the module is not available for fire dispatch.

Module strength:

Engine module - Qualified supervisor, engine operator, trained crew. The staffing for a Type III engine crew is five-person seven day effective. The minimum staffing level for an engine module to be considered available will be three persons, which must include a qualified engine boss, a qualified driver-operator and a qualified firefighter (all three positions must be filled by different people) is allowed for non-fire (all risk) emergency situations.

Hotshot crew and Type I handcrew - Minimum of 18 and maximum of 20 persons, including the superintendent, captains, and trained crew. The Type 1 crew will meet the standards outlined in chapter 60 (page 319) of the National Mobilization Guide.

Helicopter Management (Direction from IHOG) – Minimum daily staffing requirement for a type 2 fire helicopter is a qualified manager plus three helicopter crewmembers. On the

Cleveland National Forest the staffing level for the medium helicopter assigned to the forests results in a crew size of 7-10 firefighters per day.

FAA Standard Category Temporarily Designated for Limited Use - Limited use designation denotes a helicopter that can only be utilized in a limited role (not for passenger transport). Use would typically include external cargo transport or water/retardant dropping missions. Minimum staffing requirement is for one qualified Manager. The Type 1 Helitanker assigned to the Cleveland National Forest is staffed with a qualified manager and one firefighter each day as this helicopter is limited to water/retardant dropping missions.

Type 2 Handcrew – Qualified supervisor, assistant supervisor, trained crew, with a maximum of twenty-one people including a trainee.

Drawdown Levels:

Minimum draw down of Chief Officers for the Forest is displayed in the California Mobilization Guide, and is displayed in **Appendix 9.** Also found in this appendix are the proposed drawdown levels for tactical fire resources. The proposed levels are expected to be adopted for the 2005 California Mobilization Guide.

Drawdown is also evaluated for the Geographic Area and the Forest Service drawdown levels for southern California can be found on page 49 of the California Mobilization Guide.

All module personnel are required to have Hazmat training and Hazmat refresher training. Fire personnel will follow the health and safety code guidelines for first responder and medical training requirements.

When the forest approaches the drawdown level, other resources can be obtained to increase initial attack capability. Surrounding forests and other fire departments may provide additional staffing to enhance the Cleveland National Forest's initial attack capability. There are two Type II handcrews, private water tenders and dozers, that the forest can call out for fire replacement or when fire severity funding becomes available.

IV.B.2. g. Aviation Management

The Forest uses fixed and rotor wing aircraft for a variety of tasks including: fire suppression, personnel transport, recon/detection, project work, search and rescue, prescribed burning, photographic work and administrative use. The Cleveland National Forest is colocated with the California Department of Forestry and Fire Protection at the CDF Air Attack Base in Ramona. The forest manages a medium helicopter with helitack crew and a DC-4 Airtanker at this location. The Forest also manages a Type I Helitanker at the Hemet –Ryan Airport in Hemet. Refer to **Appendix 10** for the Forest Aviation Management Plan that establishes policy and guidelines.

IV.B.3 Initial Attack

Initial attack is an aggressive suppression action consistent with firefighter and public safety and values to be protected.

IV.B.3.a. Information Used to Set Initial Attack Priorites

The Forest provides for initial attack of all fires. Each qualified Initial Attack Incident Commander is provided with a complete set of maps displaying TES plant and animal locations and areas with archeological significance. Pre-attack maps are available for most areas that provide information on water sources and pre-exiting fire control lines or fuelbreaks. Since lightning fires on the forest are uncommon, prioritizing initial attack fires is rarely needed. In the rare case where there are multiple fire starts and inadequate resources to attack all fires, those fires with the least potential or greatest distance from the urban interface are given the lowest priority for staffing.

IV.B.3.b. Criteria for the Appropriate Initial Attack Response

Due to the history of fast moving chaparral fires on the Cleveland National Forest, a standard aggressive initial attack response is made to all reports of fires during the high probability portion of the season. The minimum response to these fires consists of five engines, one prevention unit, two chief officers, 2 helicopters, 1 airtanker, two handcrews and one fire investigator.

During the low probability portion of the fire season, initial attack responses involve less resources, as federal aircraft are off contract and there are no temporary firefighters in the workforce. These responses typically involve 2-5 engines and a Chief Officer.

IV.B.3.c. Confinement as an Initial Attack Suppression Strategy

A confinement strategy may be selected through the Wildland Fire Situation Analysis (WFSA) process when a fire has exceeded or is expected to exceed extended attack capability or planned management capability. Prepare a WFSA as the fire or management considerations dictate. Therefore, confinement is not used as an initial attack strategy on the Cleveland National Forest.

IV.B.3.d. Response Times

Individuals and modules with initial attack responsibilities shall be able to respond within two minutes of dispatch during normal duty hours during fire season. During the low probability fire season, staffing levels are significantly reduced and response times from staffed stations to incident locations may be significantly longer than during the high probability portion of the fire season when all stations are staffed.

IV.B.3.e. Restrictions and Special Concerns

The table below shows the limitation on equipment use, aircraft use, chemical fire retardant, tracked equipment, and other mechanized equipment for wilderness and special management areas on the Cleveland National Forest.

A. Aerial applied retardant colored	G. Snag Felling
B. Aerial applied retardant clear	H. Use of Motorized vehicles
C. Helicopter use	I. Hand constructed fireline
D. Smokejumpers or cargo	J. Helispot construction
E. Use of Portable Pumps	K. Back firing
F. Use of chainsaws	L. Dozer constructed fireline or Trails

Management Areas	Fire Management Tactics Needing Approval	Approving Official
Wilderness		
Recommended Wilderness	H L	Forest Supervisor
Wilderness	C E F J K	Forest Supervisor
Wilderness	H L	Regional Forester
Wild and Scenic River		
Scenic River (Proposed)	J L	Forest Supervisor
Wild River (Propoesed)	H J L	Forest Supervisor
Special Interest Areas	J L	Forest Supervisor
Research Natural Area	J L	Forest Supervisor
Roadless Area	L	Forest Supervisor

The document, "Wilderness Wildfire Management on the Cleveland National Forest" has been approved by the Forest Supervisor **Appendix 11.** This document outlines approvals by the Forest Supervisor for certain suppression activities in wilderness based on the burning index at the time of the fire.

IV.B.3.f. Social and Political Concerns

There is intense scrutiny by elected officials and the news media regarding suppression and prescribed fire operations on the Palomar and Descanso Ranger Districts. This is due primarily to the 273,000 Cedar Fire of 2003, which started on the Cleveland National Forest and spread into numerous jurisdictions, resulting in 15 fatalities and 2,800 homes lost.

Tribal relationships are a significant concern area as there are several tribal reservations in the Forest Service DPA and many additional reservations along the forest boundary.

The general concern of downstream impacts of flooding is considered in suppression and fuels management operations as there are many communities subject to flood damage and loss of life following major fires.

IV.B.4. Extended Attack and Large Fire Suppression

Extended attack occurs on wildland fires that cannot be controlled during the first suppression response action as determined by the Incident Commander or where appropriate suppression management response has not been successful. This may also be applied to prescribed fires where the prescription or actions were unsuccessful.

IV.B.4.a. Determine Extended Attack Needs

If the fire cannot be controlled with the initial suppression response, the incident should be considered in an extended attack mode. When complexities and span of control exceeds the capabilities of the extended attack, a WFSA will be developed.

IV.B.4.b. Implementation Plan Requirements – WFSA Development

The WFSA documents the decision making process for determining the appropriate suppression action and estimated cost of an incident, which is expected to, or has exceeded, the planned management action (FSM 5131.1). The WFSA will also aid in the development of strategies and suppression tactics, considering economics, resource loss, complexity, and probability of success. For assistance on developing objectives, alternatives and probabilities refer to the website http://www.fs.fed.us/fire/wfsa for more information.

IV.B.4.c. Complexity Decision Process for Incident Management Team Transition

When the decision has been made to order a Type I or Type II Incident Management Team to take over management of a wildland fire, the responsible Line Officer or that official with jurisdictional and/or protection authority for the area on which the incident occurs shall ensure that the designated Incident Commander is briefed regarding wildfire suppression objectives, considerations, and constraints. See **Appendix 12** for the 2003 complexity analysis. The complexity analysis is utilized to determine the appropriate level of management, ie. , a Type I, II or III Incident Management Team.

IV.B.4.d. Unit Example of Delegation of Authority for the Incident Commander

A delegation of authority letter (FSM 1230) outlining authority and responsibility shall be issued by the appropriate line officer to the assigned Incident Commander or Fire Use Manager. Refer to **Appendix 13** for an example of Delegation of Authority letter.

IV.B.5. Exceeding Existing WFIP – Selecting A New Strategy

When wildland fires cannot be controlled during the initial suppression action or when the appropriate management response in a fire use area has not been successful, the WFIP is considered to have been exceeded. The WFSA is initiated at this stage. Initiation of the WFSA is also necessary when implementation of a prescribed burn plan is not successful and must be suppressed.

IV.B.6. Minimum Impact Suppression Tactics (MIST) Requirements

Minimum Impact Suppression Tactics (M.I.S.T.) will be used for managing fires in all wilderness, Research Natural and riparian areas and where possible, in all other areas. Refer to **Appendix 14** for the M.I.S.T. guidelines.

IV.B.7. Other Fire Suppression Considerations.

Water sources are very limited over most of the forest area. Not all water sources may be used for fire suppression, a critical briefing items for firefighters and Incident Management Teams from outside the area.

IV.C. Wildland Fire Use

Wildland Fire Use is not utilized on the Cleveland National Forest. Discussion of sub-items IV.C. 1-8 is not applicable to the CNF.

IV.D. Prescribed Fire

See sub-sections below.

IV.D.1. Planning and Documentation

See sub-sections below.

IV.D.1.a. Describe annual activities to prepare for and implement the program

Prescribed fire management begins at the district level under the leadership of the District Rangers. Resource and fire management personnel identify needs based on the priorities associated with their various areas of interest. The district staff officers then develop projects to meet those needs. This project is then presented to the district ranger for initiation. Once a project has been approved by the District Ranger it is taken to the Forest Fuels Committee.

The Forest Fuels Committee is made up of the Forest Fire Management Officer, the Forest Resource Officer, each of the 3 District Rangers, each of the District Fire Management Officers and the District Fuels Officers. The committee meets twice a year to allocate funds and assign targets. Priorities are set for the various projects so that the various specialists can know what to concentrate on as far as surveys and writing environmental documents. Surveys are scheduled and conducted often years in advance of project implementation. This is then incorporated into the forest's 5-year Vegetation Management Plan.

The 5-Year Vegetation Management Plan is updated at least once a year as targets are accomplished and new ones developed. It is also updated to reflect changing national and regional direction as well as on the ground environmental factors. Projects include community protection, forest health, dead tree removal, noxious weed removal, timber stand improvement, and Penny Pine plantation maintenance.

The annual activities are listed below:

- Prioritize proposed projects based on current year budget allocation
- Prepare and approve burn plans
- Obtain burn permits
- Implement projects
- Award contracts
- Complete monitoring requirements
- Report accomplishments

IV.D.1b. Long-term Prescribed Fire Strategy.

Most of the planned prescribed fire projects are planned in FMU #1 with some planned burning along wilderness and Research Natural Areas. In FMU#1, treatments are designed to reduce the number of timber stands in Condition Class 3 and to reduce the number of high risk/high hazard acres of chaparral directly adjacent to communities. Treatments in FMU#2 are boundary treatments of areas with special designations designed to confine fire to roadless areas or to prevent fires from entering roadless areas.

In addition to addressing forest health issues, the long-term strategy is flexible and provides for both primary lines of community defense (defense and threat zones) and secondary lines of community defense (Strategically placed area treatments (SPLATS) and fuelbreaks). Secondary lines of community defense are assessed annually, as wildfires create the need for adjustments to the program. The current forest program of work for 2005 calls for no treatments in FMU #2 and all treatments in FMU#1. Of the forest WFHF target of 2,222 acres, 1,870 acres will be accomplished utilizing prescribed fire.

Planned burn units for the next 5 years are identified on maps located in **Appendix 15.**

IV.D.1.c. Numbers And Kinds Of Qualified Personnel Necessary To Plan And Execute Proposed Annual Prescribed Fire Program

Training and qualifications procedures are outlined in the NWCG 310-1, FSM 5140, and FSM 5109.17. The Forest training officer maintains the qualification and training database. Burn projects will only occur when there are sufficient and qualified personnel on scene as specified in the burn plan. The list of persons qualified for prescribed fire is in **Appendix J.**

A typical prescribed burn on the Cleveland National Forest is managed by qualified overhead utilizing between 3 and 6 engines with several hand crews. A similar sized contingency force is present on site during firing and holding operations. The size of the organization is directly related to the methods and holding needs utilized by the Burn Boss, Firing Boss, and Holding Boss. The forest can provide up to 150 personnel during the low probability portion of the fire season for conducting prescribed burns. The forest can usually provide appropriate staffing and contingency forces for two concurrent prescribed fire operations.

IV.D.1.d. Weather, Fire Behavior and Fire Effects Monitoring Associated With Prescribed Fire Applications

A fire prescription is outlined in the burn plan. The prescription includes parameters for fire behavior and environmental variables. Weather observations are monitored at the project area by manual weather collection of temperature, relative humidity, wind speed and direction, and cloud cover, or by remote automated weather station (RAWS). The RAWS collects the dry bulb, wet bulb, relative humidity, calculated 10-hr. fuel moisture, wind speed and direction, minimum and maximum temperature and humidity (past 24 hours), and rainfall. A post burn summary and checklist form located in the burn plan is completed to determine if the resource goals and air quality objectives were met. A risk assessment is included in the burn plan to address and mitigate potential hazards. The measurable objectives identified in the FMU are verified and monitored through the burn plan as described above.

The prescribed fire manager and/or burn boss will maintain a burn project folder that will contain the following documentation:

- Approved burn plan, smoke plan, and job hazard analysis
- Go-no-go checklist
- Post burn monitoring and accomplishment forms
- Burn organization chart
- Maps

Weather files containing: spot request forms, daily spot weather forecasts, RAWS weather data, on site observation forms, smoke monitoring and dispersion observations

Long-term monitoring includes site visits the first, third, and fifth year following treatments.

IV.D.1.e. Format For Critiques Of Prescribed Fire Projects

Post-burn evaluations are included in each Prescribed Fire Burn Plan (See **Appendix 16**).

IV.D.1.f. Reporting Requirements For Accomplishments And Escaped Fires

Prescribed fire accomplished acres are reported to the Emergency Command Center (ECC) daily and recorded in a tracking database. All fuel treatment acres accomplished by fund type are summarized in the Management Attainment Report (MAR) each fiscal year. Daily summaries of burned acres (prescribed fire and wildland fire use) are also reported to the county Air Pollution Control District (APCD) offices each calendar year. Report fuel treatment accomplishments in accordance with MAR procedures (FSH 6509.11k). In addition, all treatments are also reported on the NFPORS database.

Fires that escape the project area are declared wildfires and are reported on the 5100-29 Individual Fire Report. Due to the political significance of escaped fires, any escaped fires are reported immediately to the Regional Office.

IV.D.1.g. Historic Fuel Treatment Map For Projects Affecting Planned Actions

Refer to **Appendix 17** for the fuel treatment map covering the past five years. These more recent projects are the most likely to affect planned activities in the future. The most significant future activities affected by recent treatments will be fire suppression operations.

IV.D.1.h. Local Prescribed Fire Burn Plan Requirements

Burn plans will be completed using the standard R-5 format consistent with the direction found in FSM 5140 and Chapter 4 of the Implementation Guide. Refer to **Appendix 18** for a sample of a Cleveland National Forest Burn Plan, using the standard R-5 format.

IV.D.2 Exceeding Existing Prescribed Fire Burn Plan (WFSA Preparation)

Prescribed burns exceeding the parameters of the plan will be suspended or suppressed. Reporting of the escaped fire will be consistent with the direction provided in FSM 5140. Fire suppression actions will be the same as described in the Fire Suppression section of this FMP Section IV.C. A WFSA will be initiated as described in Section IV C.4.a & b of this document. Refer to the Contingency Plan section of the Prescribed Burn Plan if further information is needed to complete the WFSA.

IV.D.3. Air Quality And Smoke Management

See sub-items below.

IV.D.3.a. Air Quality Issues

The primary air quality issues relate to local air district coordination and mitigation of negative air quality effects from various smoke sources. Sources of smoke on the forest include agricultural burning in the valleys adjacent to the Forest, burning of forest debris by various agencies and the public, woodstoves, campfires, and wildland fire. Smoke from some of these activities can also travel to neighboring forests and States under certain atmospheric conditions. Recent efforts have focused on information sharing between burners and air regulators, consistency between air districts, and stronger coordination with the California Air Resources Board. Existing air quality issues related to prescribed burning are more complex on the Trabuco Ranger District, within the South Coast Air Quality Management District, than elsewhere on the forest.

IV.D.3.b. Smoke Management Plan That Complies With Clean Air Act

The goals of air resource management on the Forest is to minimize air pollutants caused by forest management activities and cooperate with California Air Resources Board and applicable Air Pollution Control District's in monitoring and regulating off-forest air pollution sources. Emphasis will be placed on air quality-related values in Class I airsheds and communities. The objective is to maintain or improve air quality to meet requirements under the Clean Air Act. Mitigating the effects of fire and fuels management on air quality include "remedying impairment of visibility in mandatory Class I federal areas which impairment results from manmade air pollution" (Clean Air Act Visibility Protection, Subpart II, 42 U.S.C. & 7491 et seq.)

IV.D.3.b.(1) Location Of Class I Airsheds

The only Class I Airshed on the forest is the Aqua Tibia Wilderness on the Palomar Ranger District.

V.D.3.b.(2) Pre-Identified Smoke Sensitive Areas

The communities and recreation areas within and adjacent to the Cleveland National Forest are the pre-identified smoke sensitive areas. The Palomar Observatory is also a smoke sensitive area on the forest. Smoke impacts from activities on the forest are greatest in Riverside County, where there are significant urban areas directly east of the Trabuco Ranger District.

IV.D.3.b.(3) Local And Regional Smoke Management Restrictions And Procedures

Similar procedures and restrictions apply throughout the forest. The Palomar and Descanso Ranger District work directly with the San Diego Air Pollution Control District on issues and coordination of the prescribed burning program. Under certain weather conditions, restrictions are placed on time of day for burning to reduce smoke impacts to communities during the evening hours. There are occasional restrictions on burning when CDF issues "No Burn Day by Proclamation" notices in San Diego which prevents civilians with burning permits from burning on those days. There are adequate designated burn days to complete planned prescribed fire activities most years.

On the Trabuco Ranger District, air quality coordination occurs with the South Coast Air Quality Management District. This air basin is in a state of non-compliance with numerous EPA goals and the number of days available for burning are significantly less than elsewhere on the forest. The district occasionally uses a procedure for requesting exceptions when important community protection burns are in the appropriate prescription for a successful burn. The district has spent considerable time educating air quality personnel on the importance of accomplishing prescribed burning projects and both agencies agree that prescribed fires help reduce future wildfire smoke impacts.

The Province Air Quality Specialist located on the Angeles National Forest works on a regional basis with air quality districts regarding the cumulative affects of prescribed fire smoke and emissions in general resulting from programs on the four southern California national forests.

IV.E. Non-Fire Fuel Applications

The Forest applies a strategic approach for locating both prescribed fire and non-fire fuels treatments across broad landscapes. Wildland Urban Interface zones have the highest priority for hazard fuel reduction treatments. Old Forest emphasis areas characterized by high fire hazard and risk have the next highest priority for fuel treatments, followed by General Forest with high hazard and risk. Fuel treatments within sensitive habitats are approached more cautiously, and the intensity is limited within California spotted owl protected activity centers and California spotted owl home range core areas.

IV.E.1. Mechanical Treatment and Other Applications

The Forest applies a strategic approach for locating both prescribed fire and non-fire fuel treatments across broad landscapes. Wildland Urban Interface zones have the highest priority for hazard fuel reduction treatments. Old Forest emphasis areas characterized by high fire hazard and risk have the next highest priority for fuel treatments, followed by General Forest with high hazard and risk.

IV.E.1.a. Annual Activities To Prepare For And Implement The Program.

The annual activities are listed below:

- Inventory and identify fuel treatment units
- Participate in interdisciplinary teams (IDT)
- Complete required NEPA documentation
- Prepare project plans and layout
- Prioritize proposed projects based on current year budget allocation
- Implement projects
- Award contracts
- Complete monitoring requirements
- Report accomplishments

IV.E.1.b. Equipment And Seasonal Use Restrictions by FMU.

Equipment use is not allowed in Wilderness FMU #2 and there are very few restrictions in Suppression FMU #1. Seasonal use restrictions relate to spotted owl nesting season and neo-tropical bird nesting season on the Cleveland National Forest. Due to adequate opportunities for project implementation at other times of year, these seasonal use restrictions do not limit project accomplishment.

IV.E.1.c. Effects Monitoring

The fuels project manager will monitor the measurable objectives identified in the FMU's and will maintain a project folder that will contain the following documentation:

- Approved NEPA documentation
- Maps
- Cost accounting
- Completed accomplishment form

Long-term monitoring of treatments in timber stands focuses on forest vigor and long-term monitoring in chaparral areas focuses on plant succession and sedimentation issues. Short-term monitoring objectives are listed in each project or prescribed burn plan.

IV.E.1.d. Critique Format For Mechanical Treatment Projects

Non-fire accomplishments are reported to the S.O. fuels staff monthly and recorded in a tracking database. All fuel treatment acres accomplished by fund type are summarized in the Management Attainment Report (MAR) each fiscal year (FSH 6509.11k). Like prescribed fire, these treatments must be monitored for effectiveness and compliance with the associated NEPA document by the Line Officer and their fire and resource management staffs. The forest does not have a standard critique format for mechanical treatments.

IV.E.1.e. Mechanical Treatment Cost Accounting

The accounting system-job code structure currently being used by the Forest Service does not differentiate between mechanical and non-mechanical project costs. Costs for all Hazardous Fuels Reduction projects are lumped together into one job code per District, irrespective of project type. Consequently, each ranger district must track which part of each management codes is spent on different methods of fuels treatments.

IV.E.1.f. Reporting And Documentation Requirements

Accomplished acres are reported to the Emergency Command Center (ECC) daily and recorded in a tracking database. All fuel treatment acres accomplished by fund type are summarized in the Management Attainment Report (MAR) each fiscal year. In addition, all mechanical and other treatments are also reported on the NFPORS database.

IV.E.1.g. Annual Planned Project List – Mechanical Projects

Mechanical-Hazardous Fuels Reduction Projects Planned for CNF FY 2005		
Project	**Mech. Acres**	**Sums**
Descanso		
Kitchen Creek	19	19
Palomar		
East Grade	133	
Fry Creek	150	283
Trabuco		
Falls	50	50
	Forest Sum:	332

IV.F. Emergecy Rehabilitation And Restoration

Burned Area Emergency Rehabilitation (BAER) is implemented under the direction of the Forest Resource Officer. Under their direction, a standing team of specialists on the forest serve as the Forest BAER Team and implement on average, two Emergency Rehabilitation and Restoration Plans per year following significant wildfires on the forest. Refer to **Appendix 19** for a sample implementation plan and BAER Report.

Section V – Organizational and Budgetary Parameters

V.A. Current Fiscal Year Budget And The Ability To Support Planned And Unplanned Actions

The Cleveland N.F. uses the National Fire Management Analysis System (NFMAS) to request its Preparedeness and Hazardous Fuels Reduction program budgets. NFMAS is a formal process that provides a consistent and objective method for estimating both the effectiveness and the economic efficiency of alternative fire management programs. NFMAS analysis requires compiling and summarizing historical weather and fire data to determine the most efficient level (MEL) of fire management organization.

The CNF is able to support all preparedness actions during its declared fire season as long as it receives a sufficient WFPR (Wildland Fire, Preparedness) allocation from the Regional Office to cover all program needs. When wildfire activity continues past the end of the CNF's declared fire season, the CNF is dependent upon Severity Funding in order to continue to maintain an effective initial attack organization. Severity funding requests are coordinated by the Southern California Operations Coordination Center, located in Riverside, CA.

Appendix A displays FS-5100-2 (Integrated Fire Management Organization and Financial Plan) forms for the CNF that detail planned expenditures for the current year organization (C04).

Appendix B displays the forms for the planned Most Efficient Level organization (MEL). There are 2 versions of each report, the first shows items that would be staffed using both WFPR and WFHF (Hazardous Fuels Reduction) funding, the second version shows items staffed only using WFPR funding.

V.B. Organization Chart Supported By Current Fiscal Year Budget

Charts showing the CNF Fire Management organization at the Supervisor's Office and District levels are displayed **Appendix 20.**

Because of the Wildland/Urban Interface nature of the CNF, a full suppression response, consisting of 5 Type III Engines, 1 Water Tender, two handcrews, 1 Type II Helicopter and 1 Medium Air Tanker is the standard response for initial attack and escaped fires on the CNF.

During times of low fire danger, when fire weather conditions are such that a fire would burn with a low rate of spread and minimal resource danger, a modified response may be used, generally consisting of two to five engines with a Chief Officer.

At the extended attack stage of a fire, additional resources are requested in order to suppress the fire in the most cost effective manner possible, based upon resource availability (dependent upon other fire activity in the area).

The Forest utilizes a "BLITS" team (Base Logistics and Incident Team Support) to facilitate the rapid set-up of an Incident Command Post and Base for a fire that will reach the extended attack stage. A copy of the Forest BLITS Plan is located in **Appendix 21.**

As resources become depleted, the CNF Draw-down Plan is utilized, to ensure that an adequate fire suppression organization is maintained on the Forest. One duty officer per District, and one for the Forest, must be maintained at all times. Lieu days for suppression personnel may be cancelled, and reserve engines activated (one per District) in order to maintain this organization. When the forest approaches the drawdown level, other resources can be obtained to increase initial attack capability. Surrounding forests and other fire departments may provide additional staffing to enhance the Cleveland National Forest's initial attack capability. There are two Type II handcrews, private water tenders and dozers, that the forest can call out when fire replacement or fire severity becomes available.

Minimum draw down of fire suppression resources for the Cleveland National Forest is displayed in **Appendix 9.**

There are no contract crews and engines located in southern California for use by the CNF during times of high fire danger or activity.

V.C. Cooperative Agreements And Interagency Contacts

Interagency cooperation is necessary for the Cleveland N.F. to effectively suppress wildfires.

The key interagency cooperators involved with assisting the CNF in implementing its FMP, for fire suppression and hazardous fuels reduction, are the California Department of Forestry and Fire Protection (CDF), the Orange County Fire Authority, and the Federal Fire Department (Camp Pendleton). An annual coordination meeting with each of these agencies is conducted to review and approve their respective interagency operating plans (a separate meeting for each cooperator).

The Forest FMO is responsible for ensuring that these annual coordination meetings occur.

The CNF has the most interagency interaction with the CDF, these contacts are maintained with numerous joint CNF – CDF chief officer meetings throughout the year. An annual Operating Plan is developed each year involving BLM, CDF-Riverside, CDF-San Diego, and the Cleveland National Forest.

Appendix F contains a list of the cooperative agreements that the Cleveland National Forest maintains with all of its cooperating agencies, there are currently over 50 Agreements, and Memorandums of Understanding, in place. Because of the large physical size of these agreements, they are not included in this plan. Hard copies of these agreements are located in the Supervisor's Office Fire Operations Office, in the first bookshelf next to the office entrance.

The CNF ECC is in the process of updating these agreements using templates provided by the Regional Office. As these agreements are completed, electronic versions will be added as appendices to the CNF FMP.

V.D. Equipment Rental Agreements

A list of Equipment Rental Agreements used by the Cleveland N.F. is located in **Appendix 21.** Also located in this appendix are documents explaing procedures used on the CNF Copies of the ERAs are maintained at the CNF Emergency Coordination Center.

V.E. Contract Suppression And Prescribed Fire Resources

Not applicable on the Cleveland N.F., there are neither contract suppression nor prescribed fire resources available in southern California for use by the CNF.

Section VI – Monitoring And Evaluation

See sub-items below.

Section VI.A. Annual Monitoring Requirements

Monitoring and evaluation are separate, sequential activities that provide information to determine whether programs and projects are meeting land and resource management plan direction. Monitoring involves the collection of information, on a sample basis, from sources specified in the Forest land and resource management plan. Evaluation of monitoring results is used to determine the effectiveness of the Forest land and resource management plan and the need to either change the plan through amendment or revision, or to continue with the plan. Overall direction is found in FSM 1922.7; FSH 1909.12 (ch. 6); and 36 CFR 219.12(k) of the rule adopted in 1982. The Monitoring Plan for the Cleveland National Forest is derived from the FLRMP and is located in Appendix 22.

Conduct monitoring and evaluation of the fire program to determine whether the program and associated projects are meeting Forest land and resource management plan direction. Specific goals are to:

1. Ensure that Forest land and resource management plan goals and objectives are being achieved and management prescriptions are being implemented as directed.

2. Determine if the costs of implementing the fire program and the management effects are occurring as predicted.

3. Carry out monitoring at an intensity commensurate with the risks, costs, and values involved in meeting fire program and land and resource management plan objectives through resource management. Use the formal management review system in FSM 1400 as an approach to evaluate the overall effectiveness of fire program monitoring. Involve the public and other agencies, as appropriate, in the monitoring process.

53.1 - Monitoring Levels

There are three distinct levels of monitoring:

1. Implementation monitoring,

2. Effectiveness monitoring, and

3. Validation monitoring.

These levels are defined in FSM 1922.7.

53.11 - Implementation Monitoring
Conduct implementation monitoring as part of routine assignments and document the results in project files as part of fire management responsibilities. Use implementation monitoring to determine if prescriptions, projects, and activities within the fire program are implemented as designed and are in compliance with fire program and land and resource management plan objectives, standards, and guidelines. Fire and Fuels projects forest-wide are monitored in this manner.

53.12 - Effectiveness Monitoring
Effectiveness monitoring determines if plans, prescriptions, projects, and activities are effective in meeting management objectives, standards, and guidelines. Resource and/or technical specialists should conduct this level of monitoring on a limited basis as determined by resource values and risk, and by public issues. Begin effectiveness monitoring only after determining that the fire program prescription, project, or activity to be monitored has been implemented according to land and resource management plan direction. The monitoring items incorporated into Prescribed Fire Burn Plans are an example of effectiveness monitoring on the Cleveland National Forest.

53.13 - Validation Monitoring
Validation monitoring determines whether the initial data, assumptions, and coefficients used in development of the fire program are correct or if there is a better way to meet fire program regulations, policies, goals, and objectives. Conduct validation monitoring when effectiveness monitoring results indicate that basic assumptions or coefficients are questionable. In general, conduct validation monitoring studies in close coordination with research personnel. Limit the scope of validation monitoring to those coefficients and standards that are not reasonably substantiated by existing research. There are two validation monitoring studies in progress on the Cleveland National Forest. Both studies focus on hazardous fuels reduction projects, one in chaparral vegetation and one in conifer forest.

53.2 - Minimum Monitoring and Evaluation Requirements
Minimum monitoring and evaluation requirements are found in the Forest land and resource management plan (see Appendix 22). Monitoring and evaluation of the fire program can include, but are not limited to, the following:

1. The changes in fire activity (fire occurrence and acres burned by size and intensity) and comparison with the predictions derived for that area where fuel conditions have been altered by management practices.

2. A comparison of the prevention program projections for person-caused fires, with trends evidenced by the fire occurrence statistics.

3. An evaluation of the adequacy of the fire management organization to meet the expected fire frequency and size distribution at the expected cost and net value change levels as projected for the selected fire program.

4. A determination of the adequacy of the values change analysis by comparing the reported annual value change from the individual fire reports with the projected analysis.

5. Assessment of implementation of national, Regional, and local safety direction.

53.3 - Evaluation of Monitoring Results
Monitoring and evaluation are separate, sequential tasks. Monitoring is designed to observe and record the results of both natural processes and actions permitted by the land and resource management plan. Evaluation examines those results, determines how well those results meet land and resource management plan direction, and identifies measures to keep the plan viable.

53.31 - Evaluation Techniques
Use a full spectrum of techniques and methods to evaluate the results obtained from monitoring. Evaluation techniques include, but are not limited to:

1. Site-specific observations by on-site resource specialists.
2. Field assistance trips by other technical specialists.
3. General field observations by unit officials.
4. On-going accomplishment reporting processes.
5. Formal management reviews on a scheduled basis.
6. Discussions with other agencies and the public users.
7. Management team review of monitoring results.
8. Interdisciplinary team reviews of monitoring results.
9. Involvement with existing research activities.
10. Review and analysis of records documenting monitoring results.

53.32 - Evaluation in Relation to Three Monitoring Levels
For direction on the direct, sequential relationship among these monitoring levels, refer to FSH 1909.12, chapter 6.

Section VI.B. Reporting Requirements

Annual reporting requirements include:

1. Accident reports
2. Aircraft summaries
3. Annual fire report
4. Current year budget summary (5100-2)
5. Individual fire reports (5100-29)
6. Management Attainment Report (MAR)
7. National Fire Plan Information Database
8. Prescribed burning summary reports to each Air Pollution Control District
9. Training accomplishments

Appendices, CNF 2005ggggggggg Fire Management Plan

A.	"Current" Funding Form FS-5100-2
B.	"Most Efficient Level" Form FS-5100-2
C.	Specific Staffing And Action Guide
D.	Job Aides: Source List
E.	Implementation Plan Formats (Burn Plan, Incident Action Plan, And Sale Area)
F.	Cooperative Agreements
G.	Fuels Allocation Process To Determine Priority Projects Within The Fire Program
H.	Wildland Fire Situation Analysis Format
I.	Form FS-5100 29, National Fire Management Event Report
J-1	List Of Qualified Personnel For Prescribed Fire And Wildland Fire
J-2	Procedures for Qualified
K.	Rental Equipment Agreements
L.	Contracts For Suppression And Prescribed Fire Resources ***(Not Applicable on CNF)***
M.	Contract Operator Fire Plans ***(Not Applicable on CNF)***
N.	Other Fire Management Related Plans That The Unit Develops Annually
O.	Relevant National And Regional Memoranda And Direction

1	Forest-Wide Standards and Guidelines (Condition of Forest)
2	Maps, CNF Fire Management Units (FMUs)
3	Pocket Cards (Range of Potential Behaivior)
4	Prevention Plan
5	Fire Restriction and Closure Plan
6	Fire Plan for Construction and Service Contracts
7	Training Process, FQRC & Priority Trainee List
8	Readiness Inspection Checklist (Preparedness Reviews)
9	Drawdown Levels
10	Aviation Plan
11	Wilderness Wildfire Management on the Cleveland National Forest
12	Complexity Analysis (Incident Management Team Transition)
13	Delegation of Authority (To Incident Commander)
14	Minimum Impact Suppression Tactics Guidelines
15	Fuels Treatment Units Planned in Next 5 Years (Maps by District)
16	Post-Burn Evaluation Format, (Prescribed Fire)
17	Fuels Treatment Projects Completed in Last 5 Years (Maps by District)
18	Prescribed Fire Burn Plan, Sample
19	Burned Area Rehabilitation Plan & Report, Format
20	Organization Charts, Fire Management at Supervisor's Office & District Levels
21	CNF Base Logistics Team Support Plan (BLITS)
22	FRLMP Monitoring Plan

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File Code: 5140 **Date:** April 2003
Route To:

Subject: Fuels Management and Fire Use Program Reviews

To: Forest Supervisors, Modoc and Cleveland NF

This year the Regional Office Fire, Fuels and Aviation staff will be conducting program reviews of the fuels management/fire use program on two National Forests, the Modoc National Forest (June 9-13, 2003) and Cleveland National Forests (May 19-23, 2003). This review will also examine the fire weather and fire danger rating programs.

Christie Neill, RO Fire, Fuels and Aviation, has coordinated dates with your Forest Fire Staff please notify her if the review should need to be rescheduled. Enclosed is a standard format to assist your staff in preparing for this review. The review team will be looking at those items in the standard format that are pertinent to the programs on the above forests. Some of the areas that will be reviewed include:

-integration of project planning with Forest Land Management Plan and Fire Management Plan
-completeness of the Forest's fire weather database
- use of Weather Information Management and National Fire Danger Rating Systems
-consistency of prescribed fire burn plans with the FSM 5140
-implementation of the prescribed fire and wildland fire use qualifications system

We look forward to this review, and hope it will assist the Fire and Aviation staff in further enhancing the Forest's program. Questions may be directed to Christie Neill at (916) 640-1065.

RAY QUINTANAR
Director, Fire and Aviation Management

Cc:
Berni Bahro
Beth Little
Ray Hermit
Mike Gertsch

Role	Staff	Name	Date/Time
Author:	FAM	Christie Neill	3/30/2003
Concur:	FAM		
	FAM		

Forest_____ Date__ Reviewer(s) _____

Prescribed Fire/Wildland Fire Use Qualifications System	
1. General Information:	
X	**a. Number of qualified RxFM1's, RxFM2's, RxB1's, and RxB2's:**
X	
2. Grandparenting:	
X	**a. Grandparenting was done between 10/xx/1996 and xx/xx/97:**
X	**b. Grandparenting was completed accurately:**
X	**c. Grandparenting was documented thoroughly:**
X	
3. Qualifications System in Place :	
X	**a. Training course requirements met as per the NWCG 310-1, FSM 5140, and 5109.17 (note – 5109.17 is still draft.....):**
X	**b. Experience requirements met as per the NWCG 310-1, FSM 5140, and 5109.17 (note – 5109.17 is still draft.....):**
X	**c. Position task books in use:**
X	**d. FQRC process:**
X	**c. Documentation:**
X	
X	
X	
X	

NEPA / Environmental Analysis Documentation & Planning Process for Fire Use & Fuels Management Projects
1. List NEPA/Environmental Analysis Documents Reviewed:
• a. EA - Completed Project:
• b. EA - Completed Project:
• c. EA - Planned Project:
• d. EA - Planned Project:
2. NEPA Compliance
• a. EA signed off by specialists & NEPA coordinator: Other resource specialist involvement:
• b. Other public or agency review (as needed): Other public or agency involvement (as needed):
3. Relationship to LMP
• a. Specific reference to LMP standards and guidelines, and desired conditions:
• a. Status of Fire Management Plan development:
6. NEPA Documentation:
• 1. Purpose and need identified:
• 2. Proposal and reasonable range of alternatives discussed:
• 3. Issues and concerns addressed:
• 4. Site specific and quantitative level of analysis:
• 5. Cumulative impacts:
• 6. Air quality analysis:

7. Streamlining techniques used - tiering, incorporation by reference, supplementing:
8. Decision Memo prepared and approved by line officer:

Forest_____ Date_____ Reviewer(s) _____

Fire Weather/Fire Danger Rating Programs	
1. General Information:	
X	**a. Number of RAWS stations:**
X	**b. Number of manual stations:**
X	**c. Timeframe for upgrading manuals to RAWS:**
X	**d. Number of Micro-RAWS available for off-Forest fires:**
X	**e. Designated severity station(s):**
X	
2. RAWS Maintenance History	
X	**a. Annual maintenance completed, FY99 and FY00:**
X	**b. Maintenance documented in ASCADS:**
X	**c. Utilization of the depot maintenance contract:**
X	**d. Number of trained RAWS field maintenance technicians:**
X	**e. On-site severity station inspection results:**
X	**f. All RAWS are on hourly transmission:**
X	**g. All RAWS have satellite telemetry capability:**
X	**h. All RAWS have solar radiation sensors:**
X	**i. Number of heated gauges needed:**
X	

3. WIMS	
X	**a. Station catalogs complete and accurate:**
X	**b. Data archiving complete and timely:**
X	**c. Correct 90th and 97th percentile breakpoints:**
X	**d. Stations are in correct phase of greenup/curing cycle:**
X	**e. Number of personnel who have completed a formal WIMS class:**
4. National Fire Danger Rating Sytem	
X	**a. Severity station has sufficient data for severity requests:**
X	**b. Severity station data archiving is up-to-date:**
X	**c. Fire Danger Rating Pocket Cards (or similar tools) completed and in use:**
X	**d. Number of personnel who have completed a formal NFDRS class:**

Forest_____ Date__ Reviewer(s) _____

Prescribed Fire Burn Plan Technical Review
1. List Rx Burn Plans Reviewed (Maximum of Four)
• **a. Rx Burn Plan - Completed Project:**

• b. Rx Burn Plan - Completed Project:
• c. Rx Burn Plan - Planned Project:
• d. Rx Burn Plan - Planned Project:
2. Consistency with NEPA Documents:
• a. Fire Analysis:
• b. Smoke Management Analysis:
3. All Required Elements Addressed:
4. Project Risk Assessment:
5. Project Complexity Level & Complexity Rating:
6. Burn Plan Technical Review:
7. Burn Plan Approval:
8. Emphasis Items:
• a. Spot Weather Forecast Requirements:
• b. Fire Behavior Calculations Validation:
• c. Use of Fire Behavior Prediction Tools
• d. Fuel Moisture Calculations:
• e. Live Fuel Moisture Calculations:
• f. Smoke Management Plan:
• g. Aerial Ignition Plan:
• h. Go/No-Go Checklist:

• i. Contingency Plan
9. For Completed Projects:
• d. Pre-burn Monitoring and Documentation - • weather, test fire, go/no-go checklist, spot weather forecast:
• d. Burn Monitoring and Documentation - • weather, fire behavior, smoke dispersal:
• a. Post-Burn Evaluation:
• e. Long Term Monitoring Plan:

FINAL DRAFT
Summary of Fuels Management Fire Use Program Review
Cleveland National Forest
May 19-23, 2003

On May 19, 2002 representatives of the Regional Office Fire and Aviation Management Staff began a four-day review of the Cleveland National Forest's prescribed fire and fuels management program. This review consisted of interviews, site visits and field trips on the Descanso and Palomar Ranger Districts. Discussions with Fire Division Chiefs, Fuels Specialists, Southern California Conservation Strategy Team Members and Forest Supervisor

We would like to document the positive aspects and strengths of the Cleveland National Forest's Fire Management organization in which we encountered.

- Excellent fire staff skills, leadership knowledge and support. Key forest and district fire staff very involved at the local, regional and national levels. Great line officer support to the overall fire program.

- Forest has had consistent Forest Fire Leadership at the Forest and District level. All districts have a District Fuels Specialist. There will be a forest level fuels/prevention position filled this year. This increases forest fire leadership capabilities and consistency.

- The district personnel are actively pursuing and participating in Fire Safe Councils, dealing with grants, assistance, setting priorities, evacuation planning.

- The review team found that the forest has an excellent working relationship with San Diego County Air Pollution Control District. Smoke issues are not prohibiting implementation of prescribed fire projects.

- Forest has a sound fire strategy. Projects reviewed consistent with goals of the National Fire Plan and 10 Year Comprehensive Strategy.

- Forest has a prescribed fire contingency plan.

- Grandparenting process is documented for two districts reviewed.

- Regional burn plan format being implemented on new projects.

- Good relationship with all other staff areas. Forest has an integrated program of work and out year plan of forest priority projects. Good working relationships between forest staff and line officers reflected.

- Fuels and vegetation program that is well integrated and has good line officer support.
- Fire is considered an opportunity with an active management approach. The forest is currently developing "shelf NEPA" on all units to anticipate changes in management directions, money and cooperative projects.
- Forest has evaluated themselves to identify strengths, weaknesses and opportunities.

Overview Southern California Conservation Strategy (SCCS)

Tom White and Rich Hawkins provided an overview of the Southern California Conservation Strategy for the fire and vegetation management sections. The fire and fuels strategy has some very similar goals and objectives as other plans. Terminology is a huge concern. Fire fighter safety and drought mortality are issues that need to be woven into the plan. Team is not clear on how the affects analysis and key points of the objectives are linked.

Effects analysis for fire suppression and direct protection maintenance is needed. Description of the affected environment and key measures for consequences need to be identified. Six alternatives have been identified for the DRAFT EIS. Include key description for condition class, fire regime, WUI, Fuel and vegetation treatments, and watershed protections in the affected environment by forest. Tables by forest may be needed to analyze effects. Five years of planned projects will be used to described effects for each alternative. Future foreseeable actions and critical adjustments may be needed as wildland fires modify the landscape, use fire history to display this concern. Show the 5-10 years of fire history independent of the entire fire history to illustrate this point.

Current LRMP and Fire Management Plan

Background
The Land and Resource Management Plan for the Cleveland National Forest was signed in 1986. Section III of the FMP includes **Fire Management Goals**; current LRMP direction states the following goals of, 1) a reduction of 35 to 40% in wildland fire acres burned, and 2) an annual average of 7500 acres per year, with 91 miles of fuel breaks added to the 113 miles. **Fire Management Options** include fire suppression and prescribed fire (unplanned lightning ignitions) would be "allowed to play" in wilderness areas.

There are seven Fire and Fuels Standards and Guidelines in the LRMP, they include direction for firefighter safety, fuel treatments, fuel break construction, cooperative fire agreements, development of fire management areas and the protection of life and property.

Monitoring and Evaluation requirements of fire and fuels management include 4 key elements related changing fire size, planning of fuels projects, describing trends in fire cause, and tracking implementation costs associated with fuels treatments.

Fire Management Action Guide, first edition completed in 1987, updated in1996 with the Specific Action Preparedness Guide.

Comments to Out-year Fuel Treatment Planning

The fuels and vegetation program has great line officer support. The current forest fuels organization consists of 3 fuels battalions, 1 forest fuels officer (vacant) at the SO. The forest NEPA coordinator supports the 3 district fuels battalions in project development and coordination. Fire and fuels is considered an opportunity with an active management approach. The forest is currently developing "shelf NEPA" on all units to anticipate management directions and available money. The Cleveland has developed 5-year program work for hazardous fuels treatments; FORBS data is current and consistent with the LRMP.

Recommendations
Opportunities exist for adding more mechanical treatment projects to deal with the drought and insect mortality areas. These new opportunities need to be included into the 5-yr program of work.

Public safety issues on Federal Administrative sites and lands should be identified, assessed, and prioritized for treatment in areas of high mortality.

Fill forest level fuels position. This position is needed to assist with tracking policy changes as it relates to fire use and fuels management, fire use planning, training, qualifications, coordinate and provide technical assistance to districts on landscape analysis, NEPA, technical fire analysis, assist with inter staff coordination, fire management planning, upward reporting, outyear hazardous fuels budget requests etc.

Integration of land management planning and the Fire Management Plan
The current LRMP is under revision, with a Draft EIS scheduled for the fall of 2003. The current Fire Management Action Plan was completed in 1987 and updated in 1996.

Forest Service Handbook 5109.19_Chapter 50 direct an annual review and approval of the Fire Management Plan is completed by the forest supervisor prior to February 1, and provide a copy to Regional Forester. The previous regional direction for Fire Management Action Plans was that they were to be annually updated, reviewed and approved by the forest supervisor. The first Fire Management Action Plan was approved and review by the forest supervisor in 1987. The next update to the Fire Management Action Plan occurred in 1996, regional direction at the time required annual review and approval by the forest supervisor by April 1, with a copy provided to the regional forester.

Recommendation
Update the current Fire Management Action plan with letter from the Forest Supervisor for 2003 that references other appendices " on the shelf". Update by February 1, 2004. December 2004 FMP are required to meet Chapter 50 FSH 5109.19.

NFMAS planning and the transition to Fire Program Analysis (FPA)
Desired Conditions and measurable resources objectives identified in the FMP will be an important element of the Fire Program Analysis (FPA) model. The desired conditions, resource objectives, and standards are developed in the LRMP. The future fire and fuels organizations of the 4 southern California forests will be based on the desired conditions, resource objectives, and standards currently being developed in the Southern California Conservation Strategy.

Recommendation
Work closely with the Regional Office Fire and Aviation fuels and fire planning staff to ensure adequate input for Fire Management during the draft revision process of the LRMP. A scheduled date for the fire and fuels inputs to the draft document has been set **for August 4th through the 8th**. This will be an opportunity to brief the fire staffs of the four southern forests and review the input and analysis for review the draft document Fire Management. A tentative date for a Southern California Fire Management Plan Workshop has been identified for **October 27-31, 2003.**

Project specific NEPA
Ensure air quality and smoke management is addressed in project level plans and document compliance with federal, state and local air quality regulations in decision documents.

Concern forest projects may not be receiving the level of priority needed to implement national fire plan hazardous fuel projects thru the FWS. Forest should continue to utilize the "streamlining process" with early participation with NMFS and FWS in project planning. Maintain the tracking system to ensure submitted projects to the FWS are getting follow up concurrence documentation in a timely matter for the decision maker.

The FWS have hired full time NFP Biologists in several offices. The forest should take full advantage and utilize these individuals in all phases of project development and out year program of work to ensure priority NFP projects retain high priority as funded and agreed to thru National MOUs.

The forest should prioritize specific training for the fuels specialists to increase and maintain fuels analysis skills. Examples include, 1900-1, FVS, Fire Family Plus, Fuels Mgt Continuing Education, learn update on new versions of fire behavior modeling (NEXUS, FOFEM5, FLAMMAP, FARSITE) fuel and fire effects modeling as needed. Encourage new and interested fuels specialists to apply for TFM. Recruit and develop other specialists, biologists.

Operations, Qualifications and Training
Qualification reviews identified that there is adequate personnel to perform Technical Review of complexity level II burn plans, although only 3 key forest personnel are qualified to prepare and

technically review Complexity Level I projects. Consider prioritizing training courses specific for RXBI and RXPL for key burn bosses.

Continue to formalize the process to document training, and completed task books, performance ratings, certificates etc; in employee training records to support they are qualified for specific prescribed fire positions, especially important for burn boss qualified personnel.

June 2001 Regional Supplement to FSM 5140 became effective requiring all prescribed fire burn plans to be in regional format. Most burn plans reviewed were in the older regional format. Unit just needs to make sure they have all elements meet FSM 5140 R5 Supplement prior to implementation ig; contingency element, technical review completed and signed.

Utilizing the most current version of the NWCG Prescribed Fire Complexity System 1/2002. Revise forest level integrated prescribed fire contingency plan and process to be included in each prescribed fire burn plan. Ensure all burn bosses understand the contingency plan and forest process.

August 17th, 2001 Fuels and Fire Use Program Review letter to Forest Supervisors requests fire staff and burn bosses to review and refresh on new FSM 5140 policy, clarify and or develop forest procedures specific to implementation of the prescribed fire projects.

Comments & Recommendations
Recommend forest training staff validate training records with red card database for each district unit to assist prioritizing training for out year. It is critical that the Forest develop a process to maintain currency of burn bosses and evaluate the need to accelerate training and currency to maintain a qualified organization to meet future forest prescribed fire goals.

Forest needs to compile all prescribed fire qualifications into the forest red card database

Issue is the new NWCG 2002 version of the complexity analysis makes if difficult to have anything less than a complexity level 1 burn outside of pile burning. This will require the RXPL to be listed as preparer on all complex burn plans.

It is essential that all burn plans be in the Regional format prior to implementation. We recommend that the forest review and ensure that every element required in the 5140 chapter of the Forest Service Manual is addressed adequately in every burn plan and copies of burn plans are maintained in the supervisors office.

Consider including prescribed fire prescription matrix for chaparral into the burn plan for those who want to utilize it.

A consolidated Forest list of all qualified personnel by position should be compiled and available for each unit prescribed fire burn plans and the FMP.

Explore ways to increase the fuels program and the amount of allocated dollars through the fuels out year request for budgeting system (FORBS). Incorporate costs for an out year level of

mechanical fuels reduction and any needs to expand organization to accomplish treatments consistent with LRMP revisions and the need for treatment of recent die back of vegetation.

National Fire Danger Rating Program

The current version of the Forest's Fire Management plan (FMP) contains very little information on the use and application of the National Fire Danger Rating system to support daily fire management decisions.

The Forest has done a good job of developing the Danger Rating PocketCards. The forecast indices referenced in the card are only announced to the field for the next day. No daily update is provided to the field.

Consider the weather data needs to support the proposed program of work that results from the LRMP in the validation of the current weather station network.

The Forest uses the Sale Activity Level (SAL) to manage personal use woodcutting on the Ranger Districts. This process uses the 10-minute average wind speed and 10-hour fuel moisture as determined by an analog, or weighed, 100-gram fuel stick. The Forest has been using calculated 10-hour moisture values rather than the weighted values as outline in existing Regional direction. (See 5100/2450/6300 letter of 26 July 2002 – Sale Activity Level Determination).

Recommendations

The Forest should utilize the fire danger rating operating plan template referenced in Chapter 7 of the 2003 Red Book - Field Operations Guide in conjunction with the direction provided in FSH 5109.19. Specific attention should be paid to validating boundaries of the fire danger rating areas and the weather station network within each FDRA. This should be an interdisciplinary (fire, fuels, meteorology, smoke management) interagency effort and focus on the fire danger rating areas regardless of jurisdictional boundaries.

Consider the use of additional cooperator weather stations to strengthen data used in Forest's fire management decision processes. This will require the appropriate privileges in WIMS. The shared use of the weather stations and maintenance expectations should be documented in the appropriate mutual aid agreements.

A revision of the PocketCards should accompany any revision to the FDRAs or weather station network. Consider announcing actual NFDRS indices at various times throughout the day to the field units as an aid to maintaining good situational awareness of fire danger.

Ensure that the threshold values displayed on the PocketCard relate to historical fire occurrence.

Ensure unit utilizes the weighed 10-hours fuel stick moisture 1400 measurement for the SAL process rather than calculated values from the Weather Information Management System (WIMS). The calculated fuel stick from the RAWS is not an appropriate measurement for use in the SAL process.

RAWS
The review included site visits to all 10 RAWS sites. All current RAWS sites were established based on historical manual station sites. Fire Station compounds have developed and expanded and as a result half of the RAWS stations do not meet NFDRS site standards because of buildings, parking/pavement, vegetation growth and irrigation.

The Forest has a good RAWS maintenance program in place, however it is dependant on one specific individual.

The Forest should develop a long-term strategy for weather station maintenance to be included in the FMP, which develops and distributes an understanding of the RAWS program operation, maintenance skills, and necessary documentation to each of the Ranger Districts.

Forest can initiate a resource order to acquire a "loaner" RAWS station to evaluate the possible relocation of the Alpine RAWS Station.

One dedicated individual has been responsible for the annual maintenance of the forest remote automated weather stations - RAWS. Annual maintenance has been performed and in most cases all documentation has been recorded in ASCADS (Automated Sorting, Conversion and Distribution System).

The Forest should plan for the development of individual District contacts to assist or assume the duties of annual maintenance and perform emergency repairs and sensor swaps. Every opportunity should be taken to share in the maintenance process with district personnel, across Districts and with Cooperators.

Recommendations
Acquire the necessary RAWS hardware upgrades to bring all stations to the current NFDRS standard (Solar radiation sensor and GPS unit)

The calibration and replacement schedule published in the NFDRS standards document (PMS 426-3, May 2000) should be reviewed to insure proper rotation of sensors (tipping buckets and wind speed/wind direction sensors).

Review the information included in ASCADS to ensure items such as serial numbers, route, and site descriptions are accurate.

Recommend keeping hard copy local documentation to manage sensor replacement.

Ensure common information between ASCADS and WIMS (Weather Information Management System) is accurate and identical information.

Recommend locating an additional RAWS on Palomar RD to closer monitor weather in the area associated with chaparral and timber mortality.

Recommend retiring the Corona fire weather station and utilizing the RAWS at a more representative location in FDRA 640.

Recommend relocating the Laguna RAWS to a location with more wind exposure. A good candidate site is located on the ridge top approximately 100 yards uphill from the current site.

Recommend relocation of Temescal, Oak Grove and Goose Valley to avoid influence of buildings, pavement, dust and irrigated lawns.

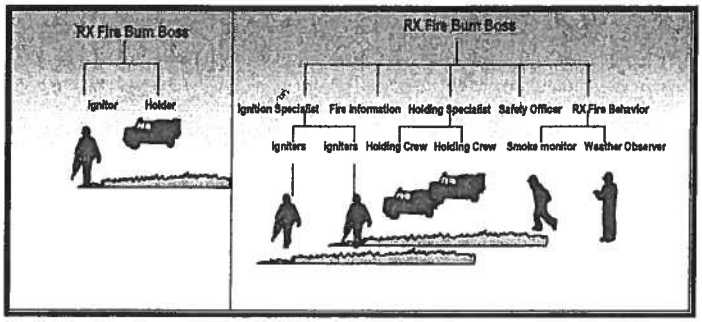
All relocation and weather station site selection should involve participation of the National Weather Service and Riverside Fire Weather Center.

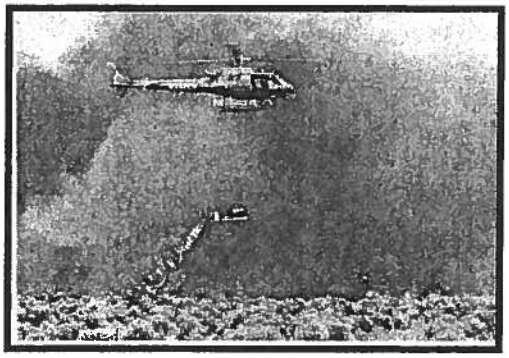
Respectfully submitted by the Fuels Management Fire Use Program Review Team,

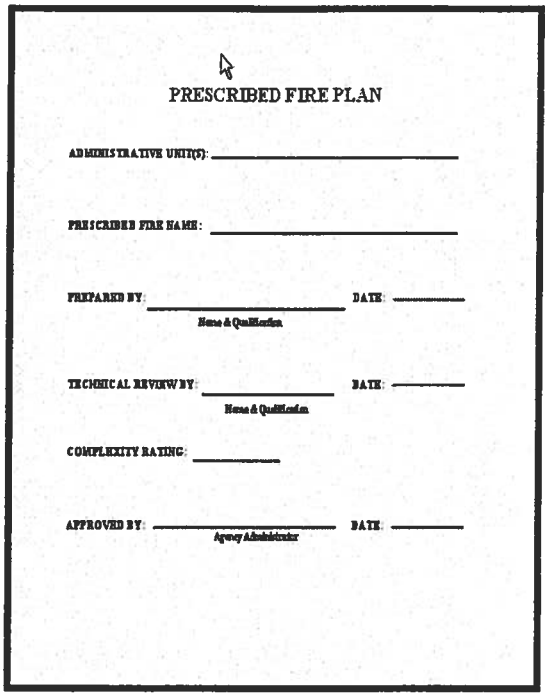
Christie Neill, Pacific Southwest Region
Berni Bahro, Pacific Southwest Region
Mike Gertsch, Pacific Southwest Region
Beth Little, Pacific Southwest Region
Neil Sugihara, Pacific Southwest Region
Russ Gripp, Northern Province Fire Management

Interagency Prescribed Fire

Planning and Implementation Procedures Reference Guide






PRESCRIBED FIRE PLAN

ADMINISTRATIVE UNIT(S): _____

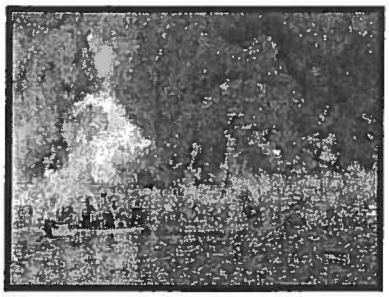
PRESCRIBED FIRE NAME: _____

PREPARED BY: _____ DATE: _____
Name & Qualification

TECHNICAL REVIEW BY: _____ DATE: _____
Name & Qualification

COMPLEXITY RATING: _____

APPROVED BY: _____ DATE: _____
Agency Administrator



March 2006

Foreword

Executive Summary

Fire is an essential ecological process in many fire dependent ecosystems. In large areas of the country, fire exclusion from these ecosystems has led to unhealthy forest, woodland and rangeland conditions. These areas are at risk of intense, severe wildfires that threaten communities and cause significant damage to key ecological components.

As one component of fire management, prescribed fire is used to alter, maintain, or restore vegetative communities; achieve desired resource conditions; and to protect life, property, and values that would be degraded and/or destroyed by wildfire.

Federal Prescribed Fire Programs are guided by the principles of the 1995 Federal Wildland Fire Management Policy and Program Review and the 2001 update. Collectively these principles establish that wildfire suppression, wildland fire use, and prescribed fire programs be implemented equally, consistently and concurrently, as a means to avoid fire risks. The policy emphasizes firefighter safety as a consideration in planning and a priority in operations (Wildland Fire Management Policy, June, 2003).

This guide supports the Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy. It provides unified direction and guidance for prescribed fire planning and implementation for the Department of the Interior's Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), the National Park Service (NPS), the United States Fish and Wildlife Service (USFWS) and the United States Department of Agriculture Forest Service (USDA FS).

This guide partially replaces the original Wildland and Prescribed Fire Management Policy Implementation Procedures and Reference Guide (USDI/ USDA 1998)[1] which established consistent agreement between agencies regarding federal policy direction related to prescribed fire planning and implementation.

[1] Other documents that replace this 1998 document are the *Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy,* June 20, 2003 and *Wildland Fire Use Implementation Procedures Reference Guide, May 2005*

Contents

Introduction

Purpose

The purpose of this guide is to provide consistent interagency policy, establish common terms and definitions and identify planning and implementation processes for prescribed fire.

The guide describes what is **minimally** acceptable for prescribed fire planning and implementation. Agencies may choose to provide more restrictive standards and policy direction, but must adhere to these **minimums**.

Scope

This guide provides policy and direction to implement existing federal policy and has been developed with tribal, state, county, and local cooperators in mind. While some of these guidelines will not fit all non-federal cooperators, the intent is to include everyone by establishing a planning and implementation guide that might result in that outcome.

Prescribed Fire Program Goals

Interagency Prescribed Fire Program goals are to:

- Provide for firefighter and public safety as the first priority.
- Ensure that risk management is incorporated into all prescribed fire planning and implementation.
- Use prescribed fire in a safe, carefully planned, and cost-efficient manner.
- Reduce wildfire risk to communities, municipal watersheds and other values and to benefit, protect, maintain, sustain, and enhance natural and cultural resources.
- Utilize prescribed fire to restore natural ecological processes and functions, and to achieve land management objectives.

Authorities

All use of prescribed fire will be supported by a Land/Resource Management Plan (L/RMP) and/or Fire Management Plans (FMP). Prescribed fire projects can only be implemented through an approved Prescribed Fire Plan. Specific authorities exist for each agency to utilize prescribed fire (See Appendix A). All project decisions to use prescribed fire are subject to the agency's analysis, documentation, and disclosure requirements for complying with the National Environmental Policy Act (NEPA).

During prescribed fire planning and operations, all federal agencies will accept each other's standards for qualifications. The minimum qualifications standard is National Wildland Fire Coordinating Group (NWCG) Wildland and Prescribed Fire Qualifications System Guide, 2000 (PMS 310-1). State, local cooperators and contractors working on federal agency prescribed fires must meet the NWCG PMS 310-1 standards unless local agreements specify otherwise.

The main reference glossary for this guide is the NWCG glossary, which is updated periodically: http://www.nwcg.gov/.

This guide is not intended to address interagency business rules. Reference individual agency's business rules for direction.

Prescribed Fire Planning Process

Common planning documents to ensure quality prescribed fire plans include:

Land/Resource Management Plan (L/RMP)

Overall direction is provided to the Wildland Fire Management Program by Land/Resource Management Plans (L/RMP). These plans serve as the document to initiate, analyze, and provide the basis for using prescribed fire to meet resource management objectives.

Fire Management Plan (FMP)

All burnable acres will be covered by a Fire Management Plan (FMP). The FMP is the cornerstone plan for managing a Wildland Fire Management Program and should flow directly from the L/RMP. FMPs may be developed for a Fire Planning Unit (FPU) that crosses jurisdictional boundaries. Where the Wildland Fire Management Program crosses jurisdictional boundaries, or where

program coordination is essential, the FMP will require interagency coordination. Most FMPs are anticipated to fall into this category.

National Environmental Policy Act (NEPA)

Resource and prescribed fire objectives for specific prescribed fire projects are derived from the NEPA analysis. **The entire prescribed fire project area must be analyzed under NEPA.** NEPA documents that identify and analyze the effects of using or not using prescribed fire treatment projects may include Environmental Impact Statements (EIS), Environmental Assessments (EA), and Categorical Exclusion (CE).

Other authorities that may be utilized to guide analysis and determination of NEPA compliance are Healthy Forest Restoration Act (HFRA), Healthy Forest Initiative (HFI), and the Tribal Forest Protection Act (TFPA).

Prescribed fire planning and related NEPA analysis should always occur at the largest possible spatial and temporal scales.

Implementation Organization and Qualifications

During prescribed fire planning and operations, all federal agencies will accept each other's standards for qualifications. The minimum qualifications standard is National Wildland Fire Coordinating Group (NWCG) Wildland and Prescribed Fire Qualifications System Guide, 2000 (PMS 310-1). State, local cooperators and contractors working on federal agency prescribed fires must meet the NWCG PMS 310-1 standards unless local agreements specify otherwise. No less than the organization described in the approved Prescribed Fire Plan may be used for implementation. The complexity of each prescribed fire or phase of fire(s) determines the organization(s) needed to safely achieve the objectives specified in the Prescribed Fire Plan.

Minimum Supervisory Qualifications determined by prescribed fire complexity:

Table 1. Qualifications requirements related to Prescribed Fire Complexity.

	Complexity		
Position	**High**	**Moderate-Low**	**Low**
RXM1	Optional	Optional	Optional
RXM2	Not Allowed	Optional	Optional
RXB1	Required	Optional	Optional
RXB2	Not Allowed	Required	Optional
RXB3	Not Allowed	Not Allowed	Required
RXI1	Optional[5]	Optional	Not Applicable
RXI2	Not Allowed	Optional[6]	Not Applicable
Holding Specialist: Holding functions will be managed by personnel qualified at the appropriate ICS wildland fire operations position as required by complexity, assigned resources and operational span of control. For some projects, there may be no holding requirements or the holding duties are assumed by the Burn Boss.			

High, Moderate, and Low complexity prescribed fires are determined through the required NWCG Prescribed Fire Complexity Rating System Guide.

[5] Not all high complexity burns require an RXI1.

[6] RXI2 could be a collateral duty position under a moderate complexity burn. Not all moderate complexity burns require a RXI2.

Prescribed Fire Burn Boss Type 3 (RXB3):

Adoption of the RXB3 position is up to each agency. Non-federal RXB3s must meet the qualifications as listed in the table below unless local agreements specify otherwise.

An RXB3 will only be allowed to implement low complexity prescribed fires where the possibility of spread or spotting outside the project area is negligible to non-existent; multiple fuel models are not involved; aerial operations are not involved; and with a span of control up to a maximum of seven personnel.

The requirements for Prescribed Fire Burn Boss Type 3 are:

Table 2. Requirements for Prescribed Fire Burn Boss Type 3

Training:	Required: S-290 Intermediate Wildland Fire Behavior Suggested: S-234 Ignition Operations
Prerequisite Experience:	Incident Commander, Type 5 **OR** Advanced Firefighter/Squad Boss **AND** Satisfactory position performance as a Prescribed Fire Burn Boss Type 3
Physical Fitness:	Moderate
Other Position Assignments that will Maintain Currency:	Prescribed Fire Burn Boss Type 2 Prescribed Fire Burn Boss Type 1 Fire Use Manager Prescribed Fire Manager Type 1 Prescribed Fire Manager Type 2

Responsibilities

Prior to prescribed fire implementation, thorough planning and review processes must be conducted. All prescribed fire actions must be developed from resource/fire management objectives carried forward from FMP's and L/RMP's. A specific implementation plan for each prescribed fire must be completed, reviewed, and approved before ignition can begin.

The Agency Administrator has final approval authority for all Prescribed Fire Plans, unless special circumstances warrant higher review and concurrence (such as may occur during higher Preparedness Levels or for extremely large, complex projects). Although the Agency Administrator has final approval authority for the Prescribed Fire Plan and the Agency Administrator "GO/NO-GO" checklist, the Prescribed Fire Burn Boss has the responsibility to make the on-site tactical "GO/NO-GO" decision. The Prescribed Fire Burn Boss ensures that all prescription, staffing, equipment, and other plan specifications are met before, during, and after the prescribed fire.

Every Prescribed Fire Plan must receive a technical review. The Technical Reviewer and Prescribed Fire Plan Preparer must be qualified or have been previously qualified as a Prescribed Fire Burn Boss at an experience level equal to or higher than the complexity being reviewed. Either **the Prescribed Fire Plan Preparer or Technical Reviewer must be currently qualified**.

Only a RXB1 can review plans at high complexity. An RXB2 can review plans of moderate to low complexity. An RXB3 is not allowed to function as a Prescribed Fire Plan Preparer (see Chapter 3, section C.) or Technical Reviewer.

Agency or individual unit policy may dictate additional reviews. Interagency Prescribed Fire Plans require approval from all appropriate Agency Administrators and a technical review. Listed below are the prescribed fire and implementation position roles and responsibilities:

Agency Administrator

For the purposes of this document, the Agency Administrator is defined as the Line Officer (or designee) of the agency or jurisdiction that has responsibility for the prescribed fire. These usually include the: NPS Park Superintendent, BIA Agency Superintendent, USFS Forest Supervisor, BLM District/Field Office Manager, FWS Project Leader, State Forest Officer, and/or Fire Chief.

The Agency Administrator is responsible to:

1. Approve Prescribed Fire Plans. When approving a plan, understand the risks associated with it. Ensure that the plan has been reviewed and recommended for approval by the Technical Reviewer who was not the primary preparer of the plan.
2. Ensure that only trained and qualified personnel participate in the implementation portion of the prescribed fire.
3. Ensure that projects are monitored, evaluated, and documented in the project file.
4. Sign, date, and provide an expiration date for the approval to burn on the Agency Administrator GO/NO-GO Checklist (Reference Burn Plan Template, Appendix B).
5. Understand and approve the Complexity Analysis (PMS 424 January 2004).
6. Ensure that all prescribed fires are conducted in accordance with the approved implementation plan and established standards and guidelines.
7. Ensure that periodic reviews and inspections of the Prescribed Fire Program are completed.
8. Determine if and when the Agency Administrator is to be notified that contingency actions are being taken.
9. Report all wildfires resulting from prescribed fires through the chain of command.

10. Declare an escaped prescribed fire a wildfire (if responsibility is assigned in the plan).
11. Ensure that escaped prescribed fires are reviewed according to established guidelines.

Technical Reviewer

The Technical Reviewer is responsible for reviewing each Prescribed Fire Plan element for content as well as evaluating the risk and Complexity Analysis to ensure that the stated goals and objectives can be safely and successfully achieved when properly implemented. The Technical Reviewer shall be qualified or previously qualified as a Burn Boss at or above the level of project complexity. At a minimum, NWCG qualifications will be accepted. The Technical Reviewer should have local knowledge of the area, experience burning in similar fuel types, and/or conduct an on-site review. **The Technical Reviewer must be someone other than the primary preparer of the plan.** An off-unit technical review is encouraged to provide an additional independent perspective. It is acceptable for other specialists to review certain portions of the plan however; a primary Technical Reviewer must be designated as technical review signatory. For example, a fire behavior analyst may review the fire behavior calculations; the aviation manager may review the air operations plan; and/or a resource specialist may review impacts to their resource of interests. It is recommended that at least once every year, each unit should send a moderate or high complexity Prescribed Fire Plan off-unit for technical review.

The Technical Reviewer is responsible to:

1. Ensure that Prescribed Fire Plans meet agency policy and direction.
2. Ensure that the Complexity Analysis accurately represents the project, so the Agency Administrator understands the identified risks and the mitigating measures enacted. This may require on-site review in Wildland Urban Interface (WUI) or high complexity situations by the Technical Reviewer.
3. Check the prescription parameters against the fuel types to ensure that the project as planned has a reasonable chance of meeting the resource management objectives.
4. Ensure that the fire behavior calculations and/or prescription parameters are appropriate and within the acceptable range.
5. Ensure that the ignition, holding and contingency plans are consistent with the predicted fire behavior.
6. Complete and sign the Technical Review Checklist (See Burn Plan Template, Appendix B) and the Prescribed Fire Plan signature page.

Prescribed Fire Plan Preparer

For the purpose of this document, the Prescribed Fire Plan Preparer is defined as the individual responsible for the preparation of the Prescribed Fire Plan. Several people may be involved in the preparation of the Prescribed Fire Plan, but the Prescribed Fire Plan Preparer is responsible for the final plan content. The primary preparer of the Prescribed Fire Plan will sign the signature page.

The preparer is responsible to:

1. Prepare the Prescribed Fire Plan in accordance with this guide's policy and direction.
2. Coordinate with the resource management and/or technical specialists to ensure that the plan meets management and operational objectives.
3. Interact with the Technical Reviewer to ensure that all plan elements are adequately addressed.
4. Complete and sign the Complexity Analysis.

Prescribed Fire Burn Boss (RXB1/RXB2/RXB3)

The Prescribed Fire Burn Boss is responsible to the Agency Administrator, Prescribed Fire Manager, or FMO/local fire management organization for implementing the Prescribed Fire Plan.

The Prescribed Fire Burn Boss is responsible to:

1. Review the Prescribed Fire Plan prior to implementation and ensure all required elements and objectives are addressed.
2. Inspect the burn unit to validate Prescribed Fire Plan elements including areas of special concern as well ensuring that holding/contingency plans adequately address expected fire behavior outside the unit(s).
3. Obtain current weather and smoke management forecasts, updates, and special advisories from a meteorologist.
4. Maintain communication with the Agency Administrator, Prescribed Fire Manager, or FMO/local fire management organization.
5. Ensure that the Agency Administrator GO/NO-GO Checklist is valid (See Burn Plan Template, Appendix B)
6. Take to the field those portions of the Prescribed Fire Plan necessary for completing the briefing and safe project implementation.
7. Complete and sign the Prescribed Fire GO/NO-GO Checklist (See Burn Plan Template, Appendix B).
8. Ensure availability of any contingency resources and management of those resources if deployed.
9. Ensure that all operations are conducted in a safe manner and in accordance with the approved plan and established standards and guidelines.
10. Verify qualifications of all assigned personnel. Conduct the personnel/safety briefing to ensure a safe operation.
11. Conduct the test fire and document the results.
12. Supervise assigned personnel and direct the ignition, holding and monitoring operations. The Prescribed Fire Burn Boss will be responsible for implementation including mop-up and patrol unless otherwise assigned to other qualified personnel.
13. Declare the prescribed fire out unless the responsibility for it is formally passed to another Prescribed Fire Burn Boss, Prescribed Fire Manager or the local fire management organization.
14. Determine when the prescribed fire is not within prescription parameters (both short and long term) or is not meeting objectives.
15. Declare an escaped prescribed fire a wildfire (if responsibility is assigned in the plan).
16. Manage the incident or oversee the transition to another Incident Commander if an escape occurs.
17. Ensure that reports are completed.
18. Coordinate with adjacent landowners, cooperators and permittees as designated in the Prescribed Fire Plan.

Fire Management Officer (FMO)/ Fire Program Manager

The Fire Management Officer (FMO)/Fire Program Manager is responsible to the Agency Administrator for planning, implementing and monitoring of the Prescribed Fire Program in accordance with policy and direction.

The FMO/Fire Program Manager is responsible to:

1. Ensure compliance with National, Regional, tribal and local fire policy and direction, as well as applicable state and local laws.
2. Ensure that Preparedness Level Restrictions are adhered to. At National Preparedness Levels Four and Five, prescribed fire implementation is restricted. See the National Interagency Mobilization Guide for details.
3. Ensure that both the Prescribed Fire Plan Preparer and the Technical Reviewer are qualified or qualified less currency at the level of complexity or higher.
4. Ensure that trained and qualified personnel are available to participate in the Prescribed Fire Program.
5. Assign the Prescribed Fire Burn Boss.
6. Ensure a Prescribed Fire Plan with written approval exists for each prescribed fire project.
7. Review the Prescribed Fire Plan to assess the impact of the project on the unit's workload; include the project in the unit's Annual Work Plan; assess the unit's

ability to implement the project; and assess the need for additional implementation resources.

8. Ensure that all prescribed fires are conducted in accordance with the approved Prescribed Fire Plan and established standards and guidelines.
9. Declare an escaped prescribed fire a wildfire (if responsibility is assigned in the plan).
10. Act as liaison/coordinator to the Agency Administrator, Prescribed Fire Manager and/or Prescribed Fire Burn Boss, local dispatch office, other units, other agencies, air quality authorities, news media, transportation agencies, and safety officials.
11. Ensure that projects are reported through the local office and comply with national reporting guidelines.
12. Ensure that fuels management projects and interagency support actions are reported through the proper reporting systems.
13. Ensure that periodic reviews and inspections of the Prescribed Fire Program are completed.
14. Update Agency Administrator on the progress of the prescribed fire (as necessary).
15. Ensure that projects are monitored, evaluated and documented as a part of the project file.

Prescribed Fire Manager (RXM1/RXM2)

The Prescribed Fire Manager is responsible for implementing and coordinating assigned prescribed fire activities. A Prescribed Fire Manager may be assigned during periods when multiple simultaneous prescribed fires are being conducted; when multiple prescribed fires will be conducted within a short time frame; or where there is complex interagency involvement.

The Prescribed Fire Manager is responsible to:

1. Review Prescribed Fire Plans prior to implementation.
2. Monitor all prescribed fire operations.
3. Ensure that all operations are conducted in a safe manner and in accordance with the approved plan(s) and established standards and guidelines.
4. Act as coordinator/liaison between the burn organization(s) and other offices, agencies, air quality authorities, news media, transportation agencies, safety officials, and interested public.
5. Declare an escaped prescribed fire a wildfire (if responsibility is assigned in the plan).
6. Obtain and interpret long-term weather information.
7. Brief the Burn Bosses and direct operational assignments according to policies, priorities and standards.
8. Set priorities for allocation of resources.
9. Ensure the completion of all required documentation including the evaluation and documentation of accomplishments, fire behavior and fire effects, operation procedures, and cost summaries.

Ignition Specialist (RXI1/RXI2)

The Ignition Specialist reports to the Prescribed Fire Burn Boss and is responsible for supervising and directing ground and/or aerial ignition operations according to established standards in the Prescribed Fire Plan.

The Ignition Specialist is responsible to:

1. Review the Prescribed Fire Plan and the burn unit prior to implementation.
2. Brief personnel on project objectives and ignition operations.
3. Complete the test fire according to the ignition plan at the direction of the Prescribed Fire Burn Boss.
4. Conduct ignition operations in a safe manner according to the ignition plan.
5. Identify the impacts of ignition on the control and desired fire effects.
6. Coordinate ignition operations with the Holding Specialist.

Holding Specialist

The supervisory position in charge of the holding forces reports to the Prescribed Fire Burn Boss. There is no specific NWCG approved prescribed fire position for this function. This position is assigned by name and title using PMS 310-1 mnemonics. Holding functions will be managed by personnel qualified at the appropriate Incident Command System (ICS) wildland fire operations standard and as required by the prescribed fire complexity, assigned resources, and operational span of control.

The Holding Specialist is responsible to:

1. Review the Prescribed Fire Plan and the burn unit prior to implementation.
2. Brief holding personnel on project objectives and holding operations.
3. Conduct holding operations in a safe manner according to the holding plan.
4. Coordinate holding operations with the Ignition Specialist.
5. Confine the fire to a predetermined area, mop up, and patrol.
6. Maintain communication with Burn Boss on holding progress and/or problems.

For some prescribed fires, there may be no holding requirements or the holding duties are assumed by the Prescribed Fire Burn Boss.

Fire Effects Monitor (FEMO)

The Fire Effects Monitor (FEMO) is responsible for collecting the onsite weather, fire behavior, and fire effects information needed to assess whether the fire is achieving established resource management objectives.

The FEMO is responsible to:

1. Review the monitoring plan prior to implementation.
2. Monitor, obtain, and record weather data.
3. Monitor and record fire behavior data throughout the burn operations.
4. Recon the burn unit/area assigned.
5. Plot the burn area and perimeter on a map.
6. Monitor and record smoke management information.
7. Monitor first order fire effects.
8. Provide monitoring summary of the fire.
9. Provide fire behavior and weather information to burn personnel as appropriate.

Helitorch Manager (HTMG)

The Helitorch Manager is responsible to manage the helitorch operation, supervise the mixing operation, and provide technical assistance to the Prescribed Fire Burn Boss/Ignition Specialist. The HTMG may also serve as Helicopter Manager and Helitorch Manager or Helicopter Parking Tender (but not both).

Plastic Sphere Dispenser Operator (PLDO)

The Plastic Sphere Dispenser Operator (PLDO) is responsible for the preparation, operation, maintenance, and care of the dispenser. The PLDO reports to the Ignition Specialist.

Helitorch Mixmaster (HTMM)

The Helitorch Mixmaster (HTMM) is responsible for supervising the mixing/filling operations. The HTMM may also serve as Helitorch Manager or Helicopter Manager.

Resource Specialist or Resource Advisor (READ)

The Resource Specialist/READ is responsible for ensuring the prescribed fire project is planned and implemented in a manner supporting the unit's resource management goals and objectives. The Resource Specialist/READ is responsible to the Agency Administrator.

The Resource Specialist/READ is responsible to:

1. Ensure resource management representation in the preparation of the Prescribed Fire Plan.
2. Ensure a review of Prescribed Fire Plans is conducted before each plan is submitted for approval.
3. Evaluate the prescribed fire project in terms of meeting objectives..
4. Provide resource information and direction to the Prescribed Fire Burn Boss.

5. Present information at briefings on resources, priorities, and issues of concern.
6. Coordinate with adjacent landowners, cooperators and permittees as designated in Prescribed Fire plan or by Burn Boss.

Amendments

There may be a need to make amendments to the Prescribed Fire Plan. These are changes to the Prescribed Fire Plan that require Agency Administrator signature. When changes are necessary, plans must be amended to identify the affected sections; the reason for the change(s); and have the changes clearly identified. For amendments, the same standards for Prescribed Fire Plan preparation, review, and approval apply.

Common reasons for amending the Prescribed Fire Plan may include:

- Changes to objectives.
- Changes to complexity.
- Changes to fire behavior prescription parameters.
- Changes to project area boundaries resulting in either an increase or decrease in area.
- Reduction in resource capabilities identified as required in the plan.
- Major changes to ignition methods including ground ignition to aerial ignition; aerial ignition to hand ignition; hand drip torch ignition to use of terra torch ignition (includes ATV mounted ignition devices); and/or hand ignition from roadways to hand ignition from boats or other watercraft.

To avoid having to amend the Prescribed Fire Plan, flexibility should be built into the plan that will allow for a range of adjustments during the prescribed fire. When building flexibility, the range of identified options must remain within the scope of the Complexity Analysis.

Examples of flexibility that can be built into a prescribed fire plan:

- The Prescribed Fire Plan may state that on burn day and subsequent days of the prescribed fire, a mix of the number and kinds of hand crews and engines may be modified as long as stated production capabilities are not compromised.
- As the prescribed fire progresses from ignition to holding to mop up and patrol, specified capabilities and/or types of resources may be adjusted. If these flexibilities are built into the Prescribed Fire Plan, there must be a clear statement as to the work capability requirements of the resources at the various stages of the prescribed fire.
- Minor changes in burn unit boundaries to facilitate holding and/or ignition, as long as the area in question has been in the NEPA document, requires no change in holding or ignition resources and is within the project boundaries.
- Additional resources may be assigned to the project without amending the burn plan if the addition of these resources does not change the complexity of the burn or require additional supervisory positions. These changes must be documented in the daily briefing.

Safety

The Federal Wildland Fire Policy states that firefighter and public safety is first priority. Prescribed Fire Plans and activities must reflect this commitment. Every person involved in a prescribed fire is responsible for identifying safety issues and concerns. It is the responsibility of each individual participating in prescribed fire activities to notify immediate supervisor of any possible misunderstanding of assigned tasks or safety concerns related to the assignment.

NWCG established Work/Rest Guidelines and span of control apply equally to wildland and prescribed fire operations. The management of crew, overhead, and support personnel rest to assure safe, productive fire operations is the responsibility of all supervisory fire management personnel (refer to *NWCG Interagency Incident Business Management Handbook*, PMS 902, NFES 3139).

Exposure to smoke during prescribed fire operations can be a significant safety concern. Research has shown that exposure to smoke on prescribed fires, especially in holding and ignition positions, often exceeds that on wildfire. At a minimum, smoke exposure must be addressed in the Job Hazard Analysis (JHA) and smoke management element. Public safety impacts from smoke should be addressed in the Smoke Management and Air Quality Element as well as the Public, Personnel Safety, Medical Element.

Transportation and use of any product containing chemicals (drip torch fuel, aviation gas, sphere dispensers, fusees, fuel thickener, etc.) must be in compliance with the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200) and Department of Transportation Regulations (49 CFR Part 171), and agency specific guidance. Material Safety Data Sheets (MSDS) for hazardous materials used on projects should be consulted in developing the JHA.

The SAFENET form and process is designed for reporting and correcting unsafe situations and is applicable to prescribed fire applications.

The risk management process identified in the NWCG Incident Response Pocket Guide (IRPG, PMS 410-1) helps ensure that critical factors and risks associated with prescribed fire operations are considered during decision making. This process should be applied to all prescribed fire planning and operations.

Consider using a Safety Officer on high complexity prescribed fires and others where the complexity analysis shows the need or indicates a higher than normal hazard.

A qualified Safety Officer is defined as a currently qualified Safety Officer, at any Type level (Types 1, 2 or 3), as defined by the NWCG, *Wildland and Prescribed Fire Qualification System Guide* (PMS 310-1).

Prescribed Fire Plan

The Prescribed Fire Plan is the site-specific implementation document. It is a legal document that provides the Agency Administrator the information needed to approve the plan and the Prescribed Fire Burn Boss with all the information needed to implement the prescribed fire. Prescribed fire projects must be implemented in compliance with the written plan.

Prescribed Fire Plans will vary in their degree of detail. The size and complexity of the prescribed fire project will determine the level of detail required. The Prescribed Fire Plan Template (Appendix B) must be utilized. Each element must be addressed and then assembled in the sequence identified in the template. Should an element not apply to a specific prescribed fire plan, not applicable (N/A) may be utilized. Programmatic plans for multiple units under like conditions may be appropriate. Additional information may be added as appendices.

If an interagency mixed ownership Prescribed Fire Plan is being prepared, the development of all appropriate elements within the plan will be conducted in an interagency setting. Interagency agreements and Memorandums of Understanding (MOU) and/or private land owner agreements are required to implement prescribed fire on multiple ownerships.

Listed below are the planning explanations of each individual element required as part of a complete Prescribed Fire Plan and implementation policy related to the element.

Element 1. Signature Page

The following information must be included on the signature page:

1. Administrative unit name.
2. Prescribed Fire Unit (burn unit)/Project name.
3. At a minimum, three dated signatures are required: a Prescribed Fire Plan Preparer, a Technical Reviewer, and an Agency Administrator. Additional signatures may be included as required by the individual unit.
4. Final determined complexity rating(s).
5. If the plan needs to be amended, the signed and dated amendments must be attached to the Prescribed Fire Plan (see Chapter 4).

Element 2. GO/NO-GO Checklists

Agency Administrator GO/NO-GO Checklist

The Agency Administrator Pre-Ignition Checklist (Burn Plan Template, Appendix B) is required to be completed. The Agency Administrator's Pre-Ignition Checklist and Approval evaluates whether compliance requirements, Prescribed Fire Plan's elements, and internal and external notification(s) have been completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. The checklist establishes the expiration date for the implementation of the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval is required. An 'acting' Agency Administrator may sign the Agency Administrator GO/NO-GO checklist if authority to do so has been delegated. If the Prescribed Fire Plan is amended, a review and re-validation of the Agency Administrator GO/NO-GO Checklist would be required and included in the Project File.

Prescribed Fire GO/NO-GO Checklist

Prior to all ignition operations, the assigned Prescribed Fire Burn Boss will complete and sign the Prescribed Fire GO/NO-GO Checklist (Burn Plan Template, Appendix B). This checklist is a minimum standard and agencies may elect to add questions and/or approval signatures. For each day of active ignition on a prescribed fire, a separate daily GO/NO-GO Checklist is required.

Element 3. Complexity Analysis

Risk management is a foundation for all prescribed fire activities. Risks and uncertainties relating to prescribed fire activities must be

understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. At a minimum, those risks from the Complexity Analysis that are rated high and can not be mitigated will be identified with a discussion of the risks associated in the Summary Complexity Rating Rationale. This discussion will also be included in the Complexity Analysis Summary page (Burn Plan Template, Appendix B).

The Prescribed Fire Complexity Rating must be completed utilizing the Prescribed Fire Complexity Rating System Guide, NWCG, January, 2004 (or current version).

The purpose of the complexity rating process is to provide:

- Assignment of a complexity rating of high, moderate, or low to the prescribed fire.
- Management and implementation personnel a relative ranking as to the overall complexity of a specific prescribed fire project.
- A process that can be used to identify Prescribed Fire Plan elements or characteristics that may pose special problems or concerns.
- A process that identifies mitigation activities needed to reduce the risk/hazard to the implementation personnel and public as well as mitigating potential resource damage.

A preliminary rating will be completed early in the Prescribed Fire Plan development stage. This will identify potential concerns that may be mitigated during the plan preparation process. Once the Prescribed Fire Plan is near completion, the final complexity rating is made. The final complexity rating will be used as a basis for determining prescribed fire organization, Prescribed Fire Burn Boss level, and mitigation measures.

The Summary Complexity Rating Rationale will clearly justify the summary rating for prescribed fire organization and Prescribed Fire Burn Boss level. It must also identify those risks from the Complexity Analysis that are rated high and can not be mitigated and will provide a discussion of the risks associated. The Complexity Analysis must be signed by the Prescribed Fire Plan Preparer and the Agency Administrator and attached as an appendix to the Prescribed Fire Plan. The Complexity Analysis Summary will be attached to the Prescribed Fire Plan following the GO/NO-GO Checklists.

Separate prescriptions and/or burn organizations for different stages of implementation may result in multiple Complexity Analyses and ratings. For example, a plan may have separate prescriptions for spring and fall burning which may require different organizations and constitute the need for additional complexity analyses.

If a prescribed fire complexity changes which results in different Prescribed Fire Burn Boss qualifications, a separate complexity analysis is required. For example, for certain prescribed fires conducted over time, progressive or sequential actions may reduce complexity, organization and Prescribed Fire Burn Boss qualifications. (e.g. a large scale, high complexity prescribed fire has been black-lined, portions burned and operations suspended for a period of time then resumed to continue or finish the prescribed fire). In this case, a separate Complexity Analysis will be developed to reflect the reduced complexity rating and will be included in the appendix of the Prescribed Fire Plan.

Element 4. Description of the Prescribed Fire Area

A. Physical Description

This section of the plan will describe the physical features of the prescribed fire area.

- Location: Narrative description of the location of the prescribed fire project including a legal description, UTM and/or latitude/longitude (decimal degrees; NAD83 preferred), county, and state.
- Size: Area, in acres, of the prescribed fire project with a breakdown by prescribed fire unit and/or ownership if applicable.

- Topography: Identify the upper and lower range of elevation, slope(s) –maximum/minimum and average, and aspect(s) of the prescribed fire project.
- Project Boundary: **The project boundary defines that area where fire will be ignited and may be allowed to burn (some agencies previously called this Maximum Management Area or Allowable Area).** Describe the physical, natural and/or human made boundaries (including multiple units) of the prescribed fire project. This will be done through maps and may include narratives. The entire prescribed fire project area must be analyzed under NEPA.

B. Vegetation/Fuels Description

This is a description of current vegetation and fuels in the project area and should discuss history including past environmental effects or land management practices and how they have impacted the fuel characteristics. Identify any reference material used.

- Describe the structure and composition of the vegetation type(s) and fuel characteristics. This description may include natural or activity fuels, total fuel load (both live and dead) in tons/acre, dead fuel load by time-lag size classes, live fuel load (woody/herbaceous), fuel bed depth, and vertical and horizontal arrangement within the project boundary.
- Describe the percent of the unit composed of each vegetative type and the corresponding fuel model(s).
- Identify conditions (fuels, slope, and aspect) in and adjacent to boundaries that may be a potential threat for escaped fire.
- Identify any abiotic conditions like airshed, climate, soils, etc. as appropriate.

C. Description of Unique Features and Resources:

List and discuss special features, hazards, regulations, issues, constraints, etc. Examples may include: fences to protect, power poles, historical/cultural sites, threatened and endangered species or habitat, etc.

D. Maps:

Maps will be developed and included in the Prescribed Fire Plan. At a minimum, the plan will include a vicinity and project map. The number of maps, map size and scale, legend and level of detail should be appropriate for the complexity of the project. All maps will include the standard mapping elements: title, name of preparer(s), date, north arrow, scale, and legend.

- Vicinity Map: Shows prominent features including roads, streams, water sources, towns, structures, and the proximity of the burn unit(s) to these features. Transportation route(s) will be identified. Map scale will be such that the burn units can be located on the ground and in sufficient detail to guide implementation.
- Project Map(s): The project map(s) identify features in sufficient detail to guide and assist in operational implementation of the prescribed fire. Topographic, vegetative, or aerial photo maps should be used as the base map. ICS map display symbols, identified in the Fireline Handbook PMS 410-1 will be used as appropriate. Examples of features that should be included on the project map(s) are: project boundary, individual unit boundaries, ownership, fireline locations, natural barriers, fuel model locations, proposed ignition patterns and sequence, critical holding points, hazards, safety

zones, escape routes, helispots, areas of special concern, smoke management issues (predicted plume dispersion, sensitive receptors, etc), escaped fire contingency actions (primary and secondary control lines, trigger points, etc), water sources, location of treatment monitoring plots, etc. if these are significant in communicating project implementation.

Element 5. Goals and Objectives

A short summary description will be developed that identifies the purpose of the prescribed fire and the resource management goals from the supporting L/RMPs and/or NEPA documents. The summary will identify desired future conditions of the prescribed fire project. This should be consistent with the appropriate land management goals. Include a discussion of future Fire Regime Condition Class (FRCC) post-treatment conditions if applicable.

Describe in clear, concise statements the specific measurable resource and fire objectives for this prescribed fire. Objectives will be measurable and quantifiable so prescription elements can be developed to meet those objectives and the success of the project can be determined following implementation.

Element 6. Funding

Identify the funding source(s) and estimated cost(s) of the prescribed fire. Itemize by phase if desired.

Element 7. Prescription

Prescription is defined as the measurable criteria that define a range of conditions during which a prescribed fire may be ignited and held as a prescribed fire.

The plan prescription will describe a range of low to high limits for the environmental (weather, topography, fuels, etc.) and fire behavior (flame lengths, rate of spread, spotting distance, etc.) parameters required to meet Prescribed Fire Plan objectives while meeting smoke management and control objectives.

Parameters are quantitative variables expressed as a range that result in acceptable fire behavior and smoke management.

The range of prescribed fire behavior characteristics (outputs such as: flame lengths, rates of spread, scorch heights, mortality, spotting, etc.) identified in the plan will help determine the acceptable combination of environmental parameters (inputs such as: weather, topography and fuels) under which the prescribed fire can be conducted. In many cases, burning under the extremes of all prescriptive parameters would not meet or possibly exceed the desired prescribed fire behavior characteristics and are therefore out of prescription. The Prescribed Fire Burn Boss must ensure that the prescriptive parameters and fire behavior characteristics as identified in the Prescribed Fire Plan are not exceeded. Empirical evidence (historical evidence or researched data) and judgment may be utilized to identify or calibrate prescriptions. Weaknesses in modeling can be overridden, but must be justified with empirical evidence and/or verified actual fire behavior.

Separate prescriptions may be needed for multiple fuel model conditions to address seasonal differences and/or types of ignition (black lining, aerial ignition, etc). Separate prescriptions may result in multiple complexity ratings and burn organizations. For example, a separate prescription is needed for black-lining operations if conditions will be significantly different from the primary prescription or if the holding resources differ from those identified for ignition and holding phases. Separate prescriptions may result in the need to identify multiple levels of management, organizational structures, implementation measures, and pre-burn considerations.

Holding and contingency plans must be developed with the consideration of the predicted fire behavior outside the project boundary(s). Fire behavior characteristics for fuel models within the maximum spotting distance and/or adjacent to the project boundaries must be considered and modeled using worst-case fire behavior predictions. These predictions will be identified from fire behavior model runs or empirical evidence of the hottest, driest, and windiest prescription limits identified in the Prescribed Fire Plan, along with the most

extreme environmental conditions (slope, aspect).

A short fire behavior narrative that summarizes the fire behavior identified in the prescription and discusses how it will achieve the desired treatment objectives may be included.

When used, fire behavior calculations must be developed using an appropriate fire behavior modeling program. Include modeling and/or empirical evidence documentation as an appendix or in the fire behavior narrative.

Element 8. Scheduling

Identify the general ignition time frame(s) (i.e. time of day, duration of ignition) or season(s) and note any dates when the project may not be conducted. For prescribed fires with multiple ignitions or burn days, list projected duration.

At National Preparedness Levels Four and Five, prescribed fire implementation is restricted. See National Interagency Mobilization Guide for details.

Element 9. Pre-burn Considerations

Describe on and off-site actions and considerations that need to be conducted prior to implementation. Examples include clearances; line to be built; preparation of critical holding points; snags to be felled or protected; equipment to be pre-positioned; special features to be protected; warning signs to be placed; weather recording; fuels condition sampling; monitoring needs; responsibility; and timeframes.

Describe any fuel sampling and weather data that may need to be obtained (See Element 14: Test Fire). This data should be taken at the project site. If this is not possible, use the closest representative site.

The plan will include a list of organizations (including media) and individuals that are to be notified prior to ignition, with information necessary to make the contacts. Reasonable efforts will be made to notify adjacent land owners (or their agents) and other potentially impacted publics. Attempts and/or actual notifications will be documented with date and method and placed in the Project File.

Identify in the burn plan the method and frequency for obtaining weather and smoke management forecast(s).

Spot weather or local area forecasts are required prior to ignition, on all ignition days and any days the fire is actively spreading. A copy of the forecast will be included in the Project File. The Prescribed Fire Burn Boss or other person in charge of mop-up and patrol will also obtain and review the spot weather or area forecast to determine if mop up and patrol resources are adequate.

Element 10. Briefing

All assigned personnel must be briefed at the beginning of each operational period to ensure personnel safety considerations (including the JHA) and prescribed fire objectives and operations are clearly defined and understood. Briefing checklists are required to be included in the Prescribed Fire Plan and will include the following elements:

- Burn Organization and Assignments
- Burn Objectives and Prescription
- Description of the Prescribed Fire Area
- Expected Weather & Fire Behavior
- Communications
- Ignition Plan
- Holding Plan
- Contingency Plan and Assignments
- Wildfire Conversion
- Safety and Medical Plan

The briefing checklist should list briefing topics only, not re-state what is listed in the Prescribed Fire Plan for that element.

The Prescribed Fire Burn Boss will ensure that any new personnel arriving to the prescribed fire receives a briefing prior to assignment.

An Incident Action Plan (IAP) is optional, it is recommended for large multi-day or high complexity prescribed fires.

If aerial ignition devices will be used, include an Aerial Ignition briefing.

Element 11. Organization & Equipment

The complexity of each prescribed fire determines the organization capabilities needed to safely achieve the objectives specified in the Prescribed Fire Plan. Specify the minimum required implementation organization to meet the capabilities (line production rates, etc.) by position, equipment, and the supplies needed for all phases of the prescribed fire until declared out. At a minimum, a Prescribed Fire Burn Boss will be assigned to every prescribed fire. Positions that may not be filled as collateral duty will be identified in the organization chart of the Prescribed Fire Plan.

Standard ICS fire management principles for span of control and length of assignments will be adhered to when developing burn implementation organization(s) and used in managing prescribed fires. On prescribed fires with large organizations, use the ICS organization and staffing commensurate with the level of complexity. Consider the use of a Prescribed Fire Manager in conducting multiple prescribed fires.

Before implementation (all phases) of the prescribed fire, documentation in the form of an organization chart must be completed. Any changes to the organization during implementation must be documented. Any changes that reflect modification of the capabilities, equipment or supplies will require an amendment. Different organizations may be identified for different phases of implementation (i.e. holding v. mop-up and patrol, different ignition operations, different prescriptions).

Multiple prescriptions for one Prescribed Fire Plan are permissible (Element 7). Multiple prescriptions may require identifying and developing multiple organizations.

The Prescribed Fire Burn Boss is responsible for implementation including mop-up and patrol until the responsibility is formally passed to a Prescribed Fire Burn Boss, Prescribed Fire Manager or the local fire management organization.

Element 12. Communication

Develop communications plan specific to the project's implementation to address safety and tactical resource management needs. Identify and assign command, tactical, and air operations frequencies as needed. Also include any required telephone numbers. Cover under an Incident Action Plan, if utilized.

Element 13. Public & Personnel Safety, Medical

Describe provisions to be made for public and personnel safety. All personnel who are within the active burn area are required to wear personal protective equipment. Identify and analyze the safety hazards unique to the individual prescribed fire project and specify personnel safety and emergency procedures. Include safety hazards (including smoke exposure and impacts) and measures taken to reduce those hazards. Specify emergency medical procedures, evacuation methods, and emergency facilities to be used. A Job Hazard Analysis (JHA) is required for each prescribed fire project and will be attached to the Prescribed Fire Plan as an appendix.

Element 14. Test Fire

Provisions for a test fire are required and results must be recorded. The test fire must be ignited in a representative location and in an area that can be easily controlled. The purpose of the test fire is to verify that the prescribed fire behavior characteristics will meet management objectives and to verify predicted smoke dispersion. In many applications, analysis of the initial ignitions may provide adequate test fire results. On multiple-day projects, evaluation of current active fire behavior, in lieu of a test fire, may provide a comparative basis for continuing and must be documented. If in doubt however, initiate a separate test fire and evaluate results.

Prior to ignition of both the test fire and ignition operations, compare the Prescribed Fire Plan prescription elements, both individually and collectively, against local area or spot weather forecasts, other predicted conditions, and the actual conditions onsite (See element 9: Pre-Burn Considerations) to ensure that predicted

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fire behavior will take place and/or weather parameters will not change to the point of the burn going out of prescription.

Element 15. Ignition Plan

Describe planned ignition operations including firing methods, devices, techniques, sequences, patterns, and ignition staffing for single or multiple unit operations. Maps showing proposed firing patterns may be included. If aerial ignition (or other aerial operations) is planned, cover aviation operations, organization, and safety within the Prescribed Fire Plan, Aerial Ignition Plan, or in an agency specific Aviation Operating Plan (Refer to the Interagency Helicopter Operations Guide, {NFES #1885} and the Interagency Aerial Ignition Guide {NFES #1080} for more detailed information on this topic). Multiple prescriptions and ignition operations (blackline, primary, aerial, etc.) may require identifying and developing multiple ignition organizations.

Element 16. Holding Plan

Describe general procedures to be used for operations to maintain the fire within the project area and meet project objectives until the fire is declared out. This may include mop-up and/or patrol procedures. Describe critical holding points (if any) and mitigation actions. Critical holding points will be identified on the project map. Describe minimum capabilities needed for all phases of implementation (see Element 11: Organization and Equipment). If used, attach or reference modeling outputs or worksheets (i.e. Fireline Handbook production rates, BEHAVE, etc.) and/or documented empirical evidence to justify minimum holding resources required.

Different organizations may be identified for different phases of implementation (i.e. holding v. mop-up and patrol, different ignition operations, different prescriptions). Multiple prescriptions may require identifying multiple complexity ratings and developing multiple holding organizations.

If onsite resources are insufficient to meet the prescribed fire plan objectives, then the Burn Boss should implement the Contingency Plan or Wildfire Conversion.

Element 17. Contingency Plan

"...If the objectives are not being met the Contingency Plan, a required component of the Prescribed Fire Burn Plan, is implemented. If the Contingency Plan is successful at bringing the project back within the scope of the Prescribed Fire Burn Plan the project continues. If contingency objectives are not met the prescribed fire is converted to a wildfire and Extended Attack is undertaken."

Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy, June 20, 2003, page 12.

Contingency planning is intended for more than just a response to an escaped fire. The contingency plan is the portion of the Prescribed Fire Plan that considers possible but unlikely events and the contingency resources and actions needed to mitigate those events.

Contingency planning is the determination of initial actions and additional resources needed if the prescribed fire is not meeting, exceeds, or threatens to exceed:

- Project or unit boundary
- Objectives
- Prescription parameters
- Minimum implementation organization
- Smoke impacts
- Other Prescribed Fire Plan elements

The contingency plan will establish trigger points or limits that indicate when additional holding resources and actions are needed.

Contingency planning includes the additional resources required, and the maximum acceptable response time for those resources. Resource needs should be based on fire behavior outputs tied to the worst case fire behavior scenario (as modeled in Element 7: Prescription). Plans may identify different levels of contingency resources needed for different phases of the burn ignition through patrol.

Verify and document availability of identified contingency resources and response time on day of implementation. If contingency resources

availability falls below plan levels, actions must be taken to secure operations until identified contingency resources are replaced.

The same contingency resource can be identified for multiple prescribed fire projects. When specific contingency resources are identified for more than one prescribed fire, the local fire management organization(s) must evaluate and document adequacy of all contingency resources within the area. This evaluation must consider:

- Local, current, and predicted fire danger
- Local and regional wildland fire activities.

Once a contingency resource is committed to a specific wildland fire action (wildfire, wildland fire use or prescribed fire), it can no longer be considered a contingency resource for another prescribed fire project and a suitable replacement contingency resource must be identified or the ignition halted.

The Agency Administrator will determine if and when the Agency Administrator is to be notified that contingency actions are being taken.

If the contingency actions are successful at bringing the project back within the scope of the Prescribed Fire Plan, the project may continue. If contingency actions are not successful by the end of the next burning period, then the prescribed fire will be converted to a wildfire.

Element 18. Wildfire Conversion

The Prescribed Fire Plan will specify who has the authority to declare a wildfire. A prescribed fire must be declared a wildfire by those identified in the plan when that person(s) determines that the contingency actions have failed or are likely to fail and cannot be mitigated by the end of the next burning period by on-site holding forces and any listed contingency resources. In addition, an escaped prescribed fire must be declared a wildfire when the fire has spread outside the project boundary, or is likely to do so, and cannot be contained by the end of the next burning period. A prescribed fire can be converted to a wildfire for reasons other than an escape.

Describe the actions to be taken when a prescribed fire is declared a wildfire (refer to Wildland Fire and Aviation Program Management and Operations Guide {BIA--Blue Book} and Interagency Standards for Fire and Aviation {Red Book}). Description will include:

- Wildfire declaration (by whom)
- IC assignment
- Notifications: dispatch, Agency Administrator, adjacent land owners, etc.
- Extended attack actions and opportunities to aid in suppression efforts.

After a wildfire declaration, an escaped prescribed fire cannot be returned to prescribed fire status. A WFSA will define appropriate future management actions.

Element 19. Smoke Management & Air Quality

Describe how the project will comply with local community, County, State, Tribal, and Federal air quality regulations. Identify what permits, if any, need to be obtained. Identify smoke sensitive areas including population centers, recreation areas, hospitals, airports, transportation corridors, schools, non-attainment areas, Class I air sheds, and restricted areas that may be impacted. Include modeling outputs and mitigation strategies and techniques to reduce the impacts of smoke production, if required by State Implementation Plans (SIPs) and/or State or local regulations. Reference the Smoke Management Guide for Prescribed and Wildland Fire 2001 Edition for other smoke management planning suggestions and smoke management techniques for reducing or redistributing emissions.

Special considerations must be taken to address smoke when the project is in a non-attainment area for a National Ambient Air Quality Standards including insuring compliance with SIP/TIP provisions and addressing Conformity. Projects which will potentially impact Class I areas should address any efforts to minimize smoke impacts on visibility. Comply with all local, State, Tribal and Federal pre-burn and post-burn data reporting requirements.

Element 20. Monitoring

Prescribed fire monitoring is defined as the collection and analysis of repeated observations

or measurements to evaluate changes in condition and progress toward meeting a management objective. Describe the monitoring that will be required to ensure that Prescribed Fire Plan objectives are met. For the prescribed fire, at a minimum specify the weather, fire behavior and fuels information (forecast and observed) and smoke dispersal monitoring required during all phases of the project and the procedures for acquiring it, including who and when.

Element 21. Post-burn Activities

Describe the post-burn activities that must be completed. This may include post-burn report, safety mitigation measures, and rehabilitation needs including those as a result of pre-burn activities undertaken.

Appendices.

Include all the required appendices.

A. Maps

B. Technical Review Checklist

C. Complexity Analysis

D. Job Hazard Analysis

E. Fire Behavior Modeling Documentation or Empirical Documentation

Project File

All prescribed fire Project Files will contain the following information. Agencies and/or administrative units may require additional information.

1. Prescribed Fire Plan
2. Monitoring data including weather, fire behavior, fire effects and smoke dispersal observations
3. Weather forecasts
4. Notifications
5. Documented prescribed fire organization(s)
6. Any agreements related to implementation
7. Multiple day GO/NO-GO checklist(s), if applicable
8. Re-validation of the agency administrator GO/NO-GO checklist

Depending on the scope and complexity of the prescribed fire, optional information and/or further documentation that may be included in the Project File include:

1. After Action Review (see Chapter 8)
2. Incident Action Plans, Unit Logs
3. Press releases, etc
4. Implementation costs
5. Actual ignition patterns and sequences used
6. Smoke management information
7. Agency individual fire occurrence form
8. Detailed Post Burn Report
9. NEPA documentation
10. Permits

Reviews

After Action Review (AAR)

Each operational shift on a prescribed fire should have an informal After Action Review (AAR). Certain events or a culmination of events that may affect future prescribed fire implementation and/or policy should be submitted via the Roll-up documentation (Found at http://www.wildfirelessons.net). The questions to answer in conducting an AAR are:

1. What did we set out to do (what was planned)?
2. What actually happened?
3. Why did it happen that way?
4. What should be sustained? What can be improved?

Escaped Fire Reviews

The Agency Administrator will be notified of an escaped fire. The Agency Administrator is required to make the proper notifications. All prescribed fires declared a wildfire will have an investigative review initiated by the Agency Administrator. The level and scope of the review will be determined by policy and procedures in Wildland Fire and Aviation Program Management and Operations Guide (BIA--Blue Book) or Interagency Standards for Fire and Aviation (Red Book).

The goal of the escaped prescribed fire review process is to guide future program actions by minimizing future resource damage and/or preventing future escapes from occurring by gathering knowledge and insight for incorporation into future resource management and prescribed fire planning. The objectives of the review are to:

- Determine if the Prescribed Fire Plan was adequate for the project and complied with policy and guidance related to prescribe fire planning and implementation.
- Determine if the prescription, actions, and procedures set forth in the Prescribed Fire Plan were followed.
- Describe and document factual information pertaining to the review.
- Determine if overall policy, guidance, and procedures relating to prescribed fire operations are adequate.
- Determine the level of awareness and the understanding of the personnel involved, in regard to procedures and guidance.

At a minimum, the escaped fire review report will include the following elements:

1. An analysis of seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration.
2. An analysis of the actions taken leading up to the wildfire declaration for consistency with the Prescribed Fire Plan.
3. An analysis of the Prescribed Fire Plan for consistency with policy.
4. An analysis of the prescribed fire prescription and associated environmental parameters.
5. A review of the approving line officer's qualifications, experience, and involvement.
6. A review of the qualifications and experience of key personnel involved.
7. A summary of causal agents contributing to the wildfire declaration.

Document the incident, including all actions prior to and after the escape. Set up a file that includes all pertinent information, i.e., the Prescribed Fire Plan; a chronology of events including the prescribed fire report; unit logs and individual statements; weather forecasts including any spot forecasts; weather information taken on site and Remote Automated Weather Station (RAWS) and National Fire Danger Rating System (NFDRS) data for the day of the escape from the nearest station(s); photos; and all other pertinent information. Since all prescribed fires are planned management actions, an escape may lead to a Tort Claim and liability issues. Special attention to documentation is critical.

An independent review team is recommended for conducting escaped fire reviews. The number of individuals assigned to the team and their functional expertise should be commensurate with the scope and focus of the review. Interagency participation is highly recommended for all prescribed fire reviews.

References

NWCG Glossary of Wildland Fire Terminology PMS 205

Additional definitions found in the NWCG glossary of Project Management Terms (http://www.nwcg.gov/teams/pmo/products/glossaries.htm)

National Fire & Aviation Executive Board, Federal Fire Policy Directives Task Group – Common Policy Language, November 19, 2004

Interagency Strategy for the Implementation of Federal Wildland Fire Management policy, September 7, 2004

Smoke Management Guide for Prescribed and Wildland Fire 2001 Edition, December 2001

Restoring Fire Adapted Ecosystems on federal Lands - A Cohesive Fuel Treatment Strategy for Protecting People and Sustaining Natural resources. August 2, 2002

10-Year Comprehensive Strategy Implementation Plan, May 2002

Prescribed Fire Complexity Rating System Guide PMS 424, January 2002

Review and Update of the 1995 Federal Wildland Fire Management Policy, January 2001.

Cerro Grande Prescribed Fire Investigative Report - National Park Service, May 18, 2000

Sawtooth Mountain Prescribed Fire Burnover Fatality - Bureau of Indian Affairs Fort Apache Agency, Arizona May 14, 2003

Lowden Ranch Prescribed Fire Review Final Report - Bureau of Land Management, July 22, 1999

Wildland and Prescribed Fire Qualifications System Guide PMS 310-1 January 2002

Appendix A: Laws and Authorities

Organic Administration Act of June 4, 1897 (16 U. S. C. 551

Weeks Law, Act of March 1, 1911 (16 U. S. C. 563)

National Park Service Act of 1916 as amended (67 Stat. 495; 16 U.S.C. 1 et seq.)

Protection Act of September 20, 1922 (42 Stat. 857; 16 U.S.C. 594)

Clark-McNary Act of 1928 (45 Stat. 221; 16 U. S. C. 487)

McSweeney-McNary Act of 1928 (45 Stat. 221; 16 U.S.C. 487)

Economy Act of June 30, 1932 (47 Stat. 417; 31 U.S.C. 1535)

Taylor Grazing Act of June 28, 1934 (48 Stat. 1269; 43 U.S.C. 315)

Oregon and California Act of August 28, 1937 (50 Stat. 875; 43 U.S.C. 1181e)

Bankhead-Jones Farm Tenant Act of July 22, 1937 (7 U. S. C. 1010 - 1011)

Federal Property and Administrative Service Act of 1949 (40 U.S.C. 471; et seq.)

Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 U.S.C. 1856a)

Clean Air Act of July 14, 1955, as amended (42 U. S. C. 7401 et seq.)

Multiple-Use Sustained Yield Act of 1960 (16 U. S. C. 528)

Wilderness Act of 1964 (16 U. S. C. 1131 - 1132)

National Wildlife Refuge System Administration Act of 1966 as amended (80 Stat. 927; 16 U.S.C. 668dd through 668ee)

National Environmental Policy Act of 1969 (42 U. S. C. 4321)

Alaska Native Claims Settlement Act of 1971 (85 Stat. 688; 43 U.S.C. 1601)

Endangered Species Act of 1973 (16 U. S. C. 1531 - 1544)

Disaster Relief Act of May 22, 1974 (88 Stat. 143; 42 U.S.C. 5121)

Federal Fire Prevention and Control Act of 1974 (88 Stat. 1535; 15 U.S.C. 2201)

National Forest Management Act of 1976 (16 U. S. C. 1600 et seq.)

Federal Land Policy and Management Act of 1976 (90 Stat. 2743)

Federal Grant and Cooperative Agreement Act of 1977 (P.L. 950224, as amended by P.L. 97-258, September 13, 1982 (96 Stat. 1003; 31 U.S.C. 6301 thru 6308)

Alaska National Interest Lands Conservation Act of 1980 (94 Stat. 2371)

Supplemental Appropriation Act of September 10, 1982 (96 Stat. 837)

Wildfire Suppression Assistance Act of 1989 (P.L. 100-428, as amended by P.L. 101-11, April 7, 1989), 42 U. S. C. 1856

Indian Self-Determination and Education Assistance Act (PL 93-638) as amended

National Indian Forest Resources Management Act (P. L. 101-630 November 28, 1990)

Tribal Self-Governance Act of 1994 (P.L. 103-413)

Department of the Interior and Related Agencies Appropriations Act, Fiscal Year 1995 (P.L. 103-332)

National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57)

Federal Financial Assistance Management Act of 1999 (P.L. 106-107)

Healthy Forest Restoration Act of 2003 (P.L. 108-18, 117 Stat. 1887)

Tribal Forest Protection Act of 2004 (P.L. 108-287)

Department of the Interior, Departmental Manual; Part 620: Wildland Fire Management; Chapter 4: Fuels Management and Wildland-Urban Interface Community Assistance

Department of Agriculture, US Forest Service Manual; FSM 5100: Fire Management; Chapter 5140: Fire Use

National Historic Preservation Act (1966 as amended)

Appendix B: Prescribed Fire Plan Template

A standardized, reproducible template form for the Prescribed Fire Plan development process is included in this appendix. A standardized format is provided for the Prescribed Fire Plan in PDF. An electronic version editable in Word is also available. Users should prepare the plan using the electronic version.

In the electronic Word version, the Project Name and/or Unit Name should be entered in the document's header which will automatically appear on each following page of the plan.

To insert information into the document's header:

1. Double-click in the header region (upper region of each page displayed on the screen).
2. Type Project and/or Unit information.
3. Double-click *outside* the header region in the body of the document.

You may also access the header under **View > Headers and Footers**. This will open the header region for edits automatically. After entering the information, go again to **View > Headers and Footers** which will return you to being able to enter information into the body of the document.

PRESCRIBED FIRE PLAN

ADMINISTRATIVE UNIT(S): _____

PRESCRIBED FIRE NAME: _____

PREPARED BY: _____ **DATE:** _____

Name & Qualification

TECHNICAL REVIEW BY: _____ **DATE:** _____

Name & Qualification

COMPLEXITY RATING: _____

APPROVED BY: _____ **DATE:** _____

Agency Administrator

Project Name: _____

Unit Name: _____

ELEMENT 2: AGENCY ADMINISTRATOR GO/NO-GO PRE-IGNITION APPROVAL CHECKLIST

Instructions: The Agency Administrator's GO/NO-GO Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator's Go/No-Go Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Fire Plan elements, and internal and external notifications have been or will be completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
		Is the Prescribed Fire Plan up to date? *Hints: amendments, seasonality.*
		Will all compliance requirements be completed? *Hints: cultural, threatened and endangered species, smoke management, NEPA.*
		Is risk management in place and the residual risk acceptable? *Hints: Prescribed Fire Complexity Rating Guide completed with rational and mitigation measures identified and documented?*
		Will all elements of the Prescribed Fire Plan be met? *Hints: Preparation work, mitigation, weather, organization, prescription, contingency resources*
		Will all internal and external notifications and media releases be completed? *Hints: Preparedness level restrictions*
		Will key agency staff be fully briefed and understand prescribed fire implementation?
		Are there any other extenuating circumstances that would preclude the successful implementation of the plan?
		Have you determined if and when you are to be notified that contingency actions are being taken? Will this be communicated to the Burn Boss?
		Other:

Recommended by: _____ Date: _____
FMO/Prescribed Fire Burn Boss

Approved by: _____ Date: _____
Agency Administrator

Approval expires (date): _____

Project Name: _____

Unit Name: _____

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or contain above normal fuel loadings which were not considered in the prescription develo ment? If NO proceed with checklist., if YES go to item B.		
B. If YES have appropriate changes been made to the Ignition and Holding plan and the Mop Up and Patrol Plans? If YES proceed with checklist below, if NO STOP.		

YES	NO	QUESTIONS
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the Prescribed Fire Plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the Prescribed Fire Plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results

_____ _____

Burn Boss Date

Project Name: _____

Unit Name: _____

ELEMENT 3 COMPLEXITY ANALYSIS SUMMARY

PRESCRIBED FIRE NAME			
ELEMENT	**RISK**	**POTENTIAL CONSEQUENCE**	**TECHNICAL DIFFICULTY**
1. Potential for escape			
2. The number and dependence of activities			
3. Off-site Values			
4 On-Site Values			
5. Fire Behavior			
6. Management organization			
7. Public and political interest			
8. Fire Treatment objectives			
9 Constraints			
10 Safety			
11. Ignition procedures/ methods			
12. Interagency coordination			
13. Project logistics			
14 Smoke management			

COMPLEXITY RATING SUMMARY	
	OVERALL RATING
RISK	
CONSEQUENCES	
TECHNICAL DIFFICULTY	
SUMMARY COMPLEXITY DETERMINATION	
RATIONALE:	

Project Name: _____

Unit Name: _____

ELEMENT 4: DESCRIPTION OF PRESCRIBED FIRE AREA

A. Physical Description

1. Location:
2. Size:
3. Topography:
4. Project Boundary:

B. Vegetation/Fuels Description:

1. On-site fuels data
2. Adjacent fuels data

C. Description of Unique Features:

ELEMENT 5: GOALS AND OBJECTIVES

A. Goals:

B. Objectives:

1. Resource objectives:
2. Prescribed fire objectives:

ELEMENT 6: FUNDING:

A. Cost:

B. Funding source:

Project Name: _____

Unit Name: _____

ELEMENT 7: PRESCRIPTION

A. Environmental Prescription:

B. Fire Behavior Prescription:

ELEMENT 8: SCHEDULING

A. Ignition Time Frames/Season(s):

B. Projected Duration:

C. Constraints:

ELEMENT 9: PRE-BURN CONSIDERATIONS

A. Considerations:

1. On Site:

2. Off Site

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

C. Notifications:

ELEMENT 10: BRIEFING

Briefing Checklist:

Burn Organization

Burn Objectives

Project Name: _____

Unit Name: _____

Description of Burn Area

Expected Weather & Fire Behavior

Communications

Ignition plan

Holding Plan

Contingency Plan

Wildfire Conversion

Safety

ELEMENT 11: ORGANIZATION AND EQUIPMENT

A. Positions:

B. Equipment:

C. Supplies:

ELEMENT 12: COMMUNICATION

A. Radio Frequencies

1. Command Frequency(s):
2. Tactical Frequency(s):
3. Air Operations Frequency(s):

B. Telephone Numbers:

Project Name: _____

Unit Name: _____

ELEMENT 13: PUBLIC AND PERSONNEL SAFETY, MEDICAL

A. Safety Hazards:

B. Measures Taken to Reduce the Hazards:

C. Emergency Medical Procedures:

D. Emergency Evacuation Methods:

E. Emergency facilities:

ELEMENT 14 TEST FIRE

A. Planned location:

B. Test Fire Documentation:

1. Weather conditions On-Site:

2. Test Fire Results:

ELEMENT 15: IGNITION PLAN

A. Firing Methods:

B. Devices:

C. Techniques:

D. Sequences:

Project Name: _____

Unit Name: _____

E. Patterns:

F. Ignition Staffing:

ELEMENT 16: HOLDING PLAN

A. General Procedures for Holding:

B. Critical Holding Points and Actions:

C. Minimum Organization or Capabilities Needed:

ELEMENT 17: CONTINGENCY PLAN

A. Trigger Points:

B. Actions Needed:

C. Additional Resources and Maximum Response Time(s):

ELEMENT 18: WILDFIRE CONVERSION

A. Wildfire Declared By:

B. IC Assignment:

C. Notifications:

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression:

Project Name: _____

Unit Name: _____

ELEMENT 19: SMOKE MANAGEMENT AND AIR QUALITY

A. Compliance:

B. Permits to be Obtained:

C. Smoke Sensitive Areas:

D. Impacted Areas:

E. Mitigation Strategies and Techniques to Reduce Smoke Impacts:

ELEMENT 20: MONITORING

A. Fuels Information (forecast and observed) Required and Procedures:

B. Weather Monitoring Required and Procedures:

C. Fire Behavior Monitoring Required and Procedures:

D. Monitoring Required To Ensure That Prescribed Fire Plan Objectives Are Met:

E. Smoke Dispersal Monitoring Required and Procedures:

ELEMENT 21: POST-BURN ACTIVITIES

Post-burn Activities That Must be Completed:

Project Name: _____

Unit Name: _____

APPENDICES

A. **Maps: Vicinity and Project**
B. **Technical Review Checklist**
C. **Complexity Analysis**
D. **Job Hazard Analysis**
E. **Fire Behavior Modeling Documentation or Empirical Documentation (unless it is included in the fire behavior narrative in Element 7; Prescription)**

Project Name: _____

Unit Name: _____

A: MAPS

1. Vicinity Map:

Project Name: _____

Unit Name: _____

2. Project Map:

Project Name: _____

Unit Name: _____

C. TECHNICAL REVIEWER CHECKLIST

PRESCRIBED FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page		
2. GO/NO-GO Checklists		
3. Complexity Analysis Summary		
4. Description of the Prescribed Fire Area		
5. Goals and Objectives		
6. Funding		
7. Prescription		
8. Scheduling		
9. Pre-burn Considerations		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Conversion		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-burn Activities		
Appendix A: Maps		
Appendix B: Complexity Analysis		
Appendix C: JHA		
Appendix D: Fire Prediction Modeling Runs		
Other		

S = Satisfactory U = Unsatisfactory

Recommended for Approval: **Not Recommended for Approval:**

_____ _____ _____

Technical Reviewer Qualification and currency (Y/N) Date

€Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Project Name: _____

Unit Name: _____

C: COMPLEXITY ANALYSIS

Project Name: _____

Unit Name: _____

D. JOB HAZARD ANALYSIS

Project Name: _____

Unit Name: _____

E. FIRE BEHAVIOR MODELING DOCUMENTATION OR EMPIRICAL DOCUMENTATION

PRESCRIBED FIRE CONTINGENCY PLAN

The contingency plan level for this project will be determined by the Burn Boss. Contingency planning includes ignition day and mop-up/patrol period.

Prior to Ignition

The Burn Boss or the Prescribed Fire Manager will identify which resources are actually available within the desired response time for each project. Prior to ignition, the Burn Boss will validate that contingency forces are available. The ECC will monitor and notify the burn boss of any changes in resource status.

Mop-up/Patrol Standards

For the purposes of wildland and prescribed fire use, the definition for patrol *is a person or crew who carry out patrol actions, such as to go back and forth watchfully over a length of control line during or after its construction, to prevent slopovers, control spot fires, or extinguish overlooked hotspots* (Firefighter's Guide, July 1986). Patrol frequency is the number of times in a 24-hour period that the entire fire line will be patrolled.

Contingency Resources

Contingency resources are identified as the number and type of resources needed to respond should the fire exceed the holding capabilities of on site resources. These resources shall be within a 3-hour response time from the project site. The Burn Boss or the Prescribed Fire Manager will notify the ECC of contingency resource needs based on the probability of ignition and the wind speed as predicted from weather forecasts and/or from actual on site observations.

It is the responsibility of the assigned Burn Boss to monitor weather forecasts and on-site conditions and to implement the appropriate action as outlined in this plan. Because of the long duration of some burns, activation levels are based on the potential for these projects to spot outside control lines using the following fuel and weather characteristics.

Probability of Ignition (PI) is a factor of the receptiveness of the receiving fuel bed to new ignitions from firebrands.

PI: 10-40 Low potential for new ignitions
50-60 Moderate potential for new ignitions
70+ High potential for new ignitions

Wind Speed (WS) determines the horizontal force driving firebrands across control lines outside the burn unit. Weather records were reviewed covering a 20-year period to indicate the frequency of winds. The three mid-flame wind speed levels will be used based on the frequency of occurrence and their effect on spotting.

WS: 0-3 mph: Minimal effect on holding control lines.
4-10 mph: Significant effect on holding control lines.
10+ mph: Adverse effect on holding control lines.

These two factors can be measured on site or can be predicted from general and or spot weather forecasts. The chart below will be used to determine the level of action required based on actual and/or predicted weather conditions.

PI	Mid-flame WS	Mop-up distance	Patrol Frequency	Contingency Resources	Contingency Level
10-40	0-3	Burn Boss	Burn Boss	Burn Boss	1
	4-10		Burn Boss	Burn Boss	1
	10+		1 patrol/day	1 Engine	2
50-60	0-3		Burn Boss	1 Engine	2
	4-10		1 patrol/day	1 Engine	2
	10+		2 patrols/day	2 Engines	3
70+	0-3		1 patrol/day	1 Engine	2
	4-10		2 patrols/day	2 Engines	3
	10+		2 patrols/day	2 Engines + ten Firefighters	4

Note: Burn Boss to dictate required actions that apply to items listed Burn Boss.

Activating the Contingency

In the event that the prescribed fire needs additional personnel and equipment for routine slopovers and small spot fires immediately adjacent to the fire area, the burn boss will:

Contact ECC and request the resources as needed to contain the event. The burn boss may request additional resources prior to or during ignition as he/she determines to be necessary for that operational period. The contingency resources should know their status and be available to respond to the project site within 3 hours of activation.

Contingency levels may change through the life of the project. The initial contingency level identified will remain in effect until changed by the Burn Boss or Prescribed Fire Manager. The Burn Boss or Prescribed Fire Manager will document changes as necessary below.

Date													
Contingency Level													
Burn Boss Initials													

PRESCRIBED FIRE CONTINGENCY PLAN

Contingency level determination is based on site prescription parameters established to meet project objectives. Contingency planning includes ignition day and mop-up/patrol period. The contingency level is determined daily based on where the prescription parameters fall. `

Fire Prescription	Hot end of Rx	Hotter mid-range	Cooler mid-range	Cool end of Rx
Contingency Level	1	2	3	4

The following resources are considered to be minimum Contingency Forces. The Burn Boss may request additional resources during any phase of the project as he/she determines to be necessary. The contingency resources should be able to respond to the project site within 2 hours of activation.

Contingency Level	1	2	3	4
Patrol (1 person)				
Engines				
Crews(s)				
Water Tenders				

Note: Level 4 is considered to be for periods of Low Fire Danger.

Prior to Ignition and During Operations:

- The burn boss will identify which resources are actually available within the desired response time for each project and contact ECC with this information.
- Prior to ignition, the burn boss will validate with ECC that contingency forces are available.
- The ECC will monitor and notify the burn boss of any changes in resource status.

- Burn Boss will determine when a project moves from initial contingency level. ECC will be notified of the change followed up by documentation using this form.

- In the event a prescribed fire project requires additional personnel and equipment for slopover(s) and small spots immediately adjacent to the planned fire area, but still within the scope of the project burn plan, the Burn Boss will contact ECC and order forces as needed to contain the event. Activation of contingency forces does not in itself constitute an escape.

Contingency levels may change through the life of the project. The initial contingency level identified will remain in effect until changed by the Burn Boss or Prescribed Fire Manager. The Burn Boss or Prescribed Fire Manager will document changes as necessary below.

Date													
Contingency Level													
Burn Boss Initials													