APPENDIX 1
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. Once approved by the air district, this SMP serves as a conditional permit to burn, when combined with the district's permit to burn. This SMP application consists of a Project Description page and two sections - A and B. **ALL APPLICANTS MUST COMPLETE THE PROJECT DESCRIPTION PAGE.** Sections A and B of the SMP may need to be completed depending on the burn's potential to impact smoke sensitive areas and the size of the burn.

The Project Description page 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 must be completed and attached to the Project Description 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 of the SMP must be completed and attached to the Project Description 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.

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 burn agency is

responsible for providing firefighter and public safety, which is not the intent of the information included on this form.

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.

SMP Project Description
(Complete This Page for All Prescribed Burns)*

1.1 Project Name:1.7 Nearest Town:1.2 Permittee:1.8 Project Location: Latitude/Longitude or, UTM Coordinates Lat_____Long_____ N_____m, E_____m 1.9 Project Elevation (msl feet): Top:_____ Bottom:_____1.3 Permittee Address:
Street:_____ City:
_____ State: _____ Zip: _____1.4
Permittee/Field Contact:1.10 Land Owner Name: _____
Street:_____ City: _____State: ____ Zip: _____1.5 24-hour Phone/Pager:1.6 Project Location (Counties):

1.11 Proposed Time of Year for Burn (Month/Year): _____

1.12 Burn Purpose (Check one): ___ Forest Management: ____ Range Improvement ____ Wildland Vegetation Management
____ Natural Ignition (see General Information on page 6 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: ____ Brush _____ Grass ____ Timber Litter ____Timber Slash ____ Other (Describe): _____

1.15 Vegetation Condition: ____ Machine Pile Burn ____ Hand Pile Burn ____ Understory ____ Landing Pile Burn ____ Broadcast

1.16 Project Area: _____(acres) 1.17 Number of Piles: _____ 1.18 Average Pile Size: _____

1.19 Project Fuel Loading: _____ (tons vegetation) 1.20 Particulate Matter Emissions: _____ (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: _____

1.22 Preferred Ignition Hours for the Fire Are: _____

1.23 Expected Burn Duration (ignition to complete extinction): Total Time: _____ (hours or days)

1.24 Fuel Drying Time and Conditions prior to ignition:
_____

1.25 Ignition Conditions to Minimize Smoke (complete as appropriate):
No More Than _____ Piles At One Time, and No More Than ____ Piles Per Hour, or _____ Piles Per Day (pile burning)
No More Than _____ Acres Per ____ Hour, and No More Than ____ Acres Per Day (non-pile burning)
No Less Than _____ Hours Between Ignitions. Other:
_____

1.26 Ignition Technique**:**
_____

1.27 Ignition Intensity: _____ High _____ Low

1.28 Who will Enter Data from this SMP to PFIRS** Database? ____ Permittee ____ Air District ____ Not Applicable
(Note: Air District may charge applicant if its staff does data entry).

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.

1.29 Air District Name:1.31 Contact:1.30 Address:1.32 24-hour Telephone:1.33 Fax:1.34 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 3.

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: _____
Preparer's Name (print): _____
Title:_____
Preparer's Phone: (_____)_____-_____

Preparer's Signature: _____

Name of Authorized Representative in Control of the Property (if applicable):
_____

Permittee or Authorized Representative Signature:
_____
Signature Date: _____

* 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.
** PFIRS - Prescribed Fire Incident Reporting System.

General Information and Requirements

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.

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

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 (CCR section 80160(l))

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.

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.

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.

The permittee shall, in coordination with the air district, seek resolution for all complaints, as necessary.

The permittee shall keep a log of all complaints about this burn project for one year from the conclusion of the burn project.

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:

After consultation with your Air District, the Air District decides, for smoke management purposes, that the burn can be managed for resource benefit; or

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

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.

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

Ignition of this burn project will not occur unless all conditions and requirements stated in this SMP are met prior to ignition on the day of the burn event, the ARB and the District have <u>both</u> declared the day to be a burn day, and the Air District has authorized the burn on the day of the burn.

Department of Fish and Game Certification (CCR 80160 (p))

Permit applicants are required to file with the Air District a statement from the Department of Fish and Game certifying that the burn is desirable and proper if the burn is to be done primarily for improvement of land for wildlife and game habitat. The Department of Fish and Game may specify the amount of brush treatment required, along with any other conditions it deems appropriate. Air District staff can provide further clarification on this requirement.

SECTION A: 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#_____ shows SSAs)
_____
_____
_____

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

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

A.4 If yes, were there impacts to smoke sensitive areas? ____ Yes ____ 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)
_____

A.7a Telephone: (_____) _____-_____

A.7c Fax: (_____) _____-_____ A.7b E-mail: _____

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
____ Belt Weather Kit	_____	_____	_____	
____ RAWS	_____	_____	_____	
____ Other _____	_____	_____	_____	_____

(Additional Description of Monitoring Requirements):
_____
_____

A.10 Smoke Behavior Observation:

Method	Location	Beginning	Interval	Ending
____ Visual**	_____	_____	_____	
____ Test Fire	_____	_____	_____	
____ 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 continuous until end of burning. Check which of the following procedures will be used to notify and educate the public about this burn project.
___Television ___Radio ___Newspaper ____Posters/flyers ____Telephone calls ___Other (Explained below)

A.11b The specifics of the notification procedure(s) checked above are as follows:
_____
_____

A.12 The permittee will place signage to identify the burn project to the public as noted on the attached map#_____.

Adjacent 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: _____

* 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: 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

Surface wind direction: Ideal: _____ Acceptable Range: _____ (degrees)
Surface wind speed: Ideal: _____ Maximum: _____ Minimum: _____ (mph)
Aloft wind direction: Ideal: _____ Acceptable Range: _____ (degrees)
Aloft wind speed: Ideal: _____ Maximum: _____ Minimum: _____ (mph)
Relative Humidity: Ideal: _____ Maximum: _____ Minimum: _____ (%)
Acceptable Temperature Range: _____ (degrees)
Other. Please specify: _____

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):

_____
_____
_____
_____
_____
_____
_____
_____

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

_____
_____
_____
_____

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

_____ 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 or is on file with the air district.

_____ 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 below.

B.4 Alternatives Used**:**

_____
_____
_____
_____

B.5 Tons of Vegetative Material Treated Using Each Alternative:

_____
_____
_____
_____

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

_____
_____

B.7 Total Particulate Reductions from Alternatives: _____

B.8 The following alternatives to burning were considered, but not carried out:

_____
_____
_____
_____

B.9 Reasons for Rejection:

_____
_____
_____
_____

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: _____

Did the burn remain within the conditions specified in the Smoke Management Plan? _____

Were there any adverse smoke impacts? _____ If so, proceed to Section B below.

Lessons learned (Optional) (Provide attachment if desired):

_____

_____

_____

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

What Air Districts were Notified (who, when, and at what phone number(s))?

_____

_____

_____

Describe adverse smoke impacts below (add attachment if needed):

_____

_____

_____

Were there any complaints from the public? _____ If so, how many and from whom:

_____

_____

_____

_____

Lessons learned (add attachment if needed):

_____
_____
_____
_____
_____
_____

Attach all air quality data collected before, during, and after the burn.

Table 1
PM-10 EMISSIONS CALCULATIONS FOR DIFFERENT PILE SIZES

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" value to get the total PM-10 tonnage.

PM10 EMISSIONS FOR SPECIFIED PILE SIZESRevised 10/3/00 Tonnage was calculated using 38 lbs/cu.ft.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**GENERIC PILE BURNING in feet, tonnageTONS OF PM10**4' diameter x 3' height, 0.18 tons0.0025' diameter x 4' height, 0.36 tons0.0036' diameter x 5' height, 0.63 tons0.0068' diameter x 6' height, 1.24 tons0.01210' diameter x 6' height, 1.80 tons0.01712' diameter x 8' height, 3.41 tons0.03215' diameter x 8' height, 5.10 tons0.04820' diameter x 10' height, 11.04 tons0.10525' diameter x 10' height, 16.90 tons0.161

Table 2
PM 10 EMISSION CALCULATION USING BURN OPERATOR'S FUEL LOADING ESTIMATES FOR PRESCRIBE BURNING

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 below equation and review the following examples:

Information needed for PM 10 Calculations:
Vegetation type (VT)
Estimated total number of acres vegetation came from
Operator's estimated vegetation fuel loading (FL est.) per acre

Estimated PM10 Emission Formula for Prescribe Burning;
VT PM10 tons = (number of acres)(FL est.)(Vegetation Default value) = _____ ton(s)
VT. PM10 tons = (number of acres)(FL est.)(Vegetation Default value) = _____ ton(s)
VT. PM10 tons = (number of acres)(FL est.)(Vegetation Default value) = _____ ton(s)
Sum Total is the Estimated PM 10 for the project = _____ ton(s)/project

VEGETATION TYPE(S)	ACRE(S)	FL est.	EV**	ton(s)/acre
Basing Sage/Low Sage PM10 tons =	(_____)	(_____)	(0.010) =	_____ ton(s)
Chamise PM10 tons =	(_____)	(_____)	(0.009) =	_____ ton(s)
Mixed Chaparral/Montane PM10 tons =	(_____)	(_____)	(0.008) =	_____ ton(s)
Hackberry Oak PM10 tons =	(_____)	(_____)	(0.005) =	_____ ton(s)
Productive Brush (Manzanita) PM10 tons =	(_____)	(_____)	(0.009) =	_____ ton(s)
Black Oak PM10 tons =	(_____)	(_____)	(0.005) =	_____ ton(s)
Grass/Forb PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Wet Meadow PM10 tons =	(_____)	(_____)	(0.004) =	_____ ton(s)
Jeffrey Pine/Knobcone PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Lodgepole Pine PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Mixed Conifer PM10 tons =	(_____)	(_____)	(0.006) =	_____ ton(s)
Pinyon Pine PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Ponderosa Pine, Gray Pine PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Canyon Live Oak PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Willow PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Interior Live Oak PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Red Fir PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Giant Sequoia PM10 tons =	(_____)	(_____)	(0.007) =	_____ ton(s)
Ceanothus PM10 tons =	(_____)	(_____)	(0.010) =	_____ ton(s)
White Oak PM10 tons =	(_____)	(_____)	(0.003) =	_____ ton(s)
Hardwood (Stocked) PM10 tons =	(_____)	(_____)	(0.003) =	_____ ton(s)
Hardwood (Non-stocked) PM10 tons =	(_____)	(_____)	(0.003) =	_____ ton(s)
Blue Oak PM10 tons =	(_____)	(_____)	(0.003) =	_____ ton(s)

Sum Total of the Estimated PM 10 for the project in <u>tons/project</u> = _____

VEGETATION'S ESTIMATED PM10 TONNAGE VALUE TO USE FOR PRESCRIBE BURNS WITH BURN OPERATOR'S FUEL LOADING ESTIMATE

Vegetation type's estimated emission value = (% combustion)(PM10 emission lbs/ton)
(1 ton/2000 lbs)*

VEGETATION

Basing Sage/Low Sage PM10 emission value =	(1)(20.17 lbs/ton)(1 ton/2000 lbs)	= 0.010
Chamise PM10 =	(.9)(20.17 lbs/ton)(1 ton/2000 lbs)	= 0.0091
Mixed Chaparral/Montane PM10 =	(.8)(20.17 lbs/ton)(1 ton/2000 lbs)	= 0.008
Hackberry Oak PM10 =	(.4)(25 lbs/ton)(1 ton/2000 lbs)	= 0.005
Productive Brush (Manzanita) PM10 =	(.9)(20.17 lbs/ton)(1 ton/2000 lbs)	= 0.009
Black Oak PM10 =	(.4)(25 lbs/ton)(1 ton/2000 lbs)	= 0.005
Grass/Forb PM10 =	(1)(15 lbs/ton)(1 ton/2000 lbs)	= 0.007
Wet Meadow PM10 =	(.6)(15 lbs/ton)(1 ton/2000 lbs)	= 0.004
Jeffrey Pine/Knobcone PM10 =	(.6)(25 lbs/ton)(1 ton/2000 lbs)	= 0.007
Lodgepole Pine PM10 =	(.6)(25 lbs/ton)(1 ton/2000 lbs)	= 0.007
Mixed Conifer PM10 =	(.6)(20.5 lbs/ton)(1 ton/2000 lbs)	= 0.006
Pinyon Pine PM10 =	(.6)(22 lbs/ton)(1 ton/2000 lbs)	= 0.007
Ponderosa Pine, Gray Pine PM10 =	(.6)(25 lbs/ton)(1 ton/2000 lbs)	= 0.007
Canyon Live Oak PM10 =	(.6)(25 lbs/ton)(1 ton/2000 lbs)	= 0.007
Willow PM10 =	(.6)(25 lbs/ton)(1 ton/2000 lbs)	= 0.007
Interior Live Oak PM10 =	(.6)(25 lbs/ton)(1 ton/2000 lbs)	= 0.007
Red Fir PM10 =	(.6)(23.1 lbs/ton)(1 ton/2000 lbs)	= 0.007
Giant Sequoia PM10 =	(.6)(25 lbs/ton)(1 ton/2000 lbs)	= 0.007
Ceanothus PM10 =	(1)(20.17 lbs/ton)(1 ton/2000 lbs)	= 0.010
White Oak PM10 =	(.4)(15 lbs/ton)(1 ton/2000 lbs)	= 0.003
Hardwood (Stocked) PM10 =	(.4)(15 lbs/ton)(1 ton/2000 lbs)	= 0.003
Hardwood (Non-stocked) PM10 =	(.4)(15 lbs/ton)(1 ton/2000 lbs)	= 0.003
Blue Oak PM10 =	(.4)(15 lbs/ton)(1 ton/2000 lbs)	= 0.003

* = Vegetation's product of the percent combustion and PM10 emission estimate 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.