

**Smoke Management Plan
Check Off Sheet (for permittee use only)**

Air District: _____ Date: _____

Permittee Name: _____

Project Name: _____

Check (√) one of the following as a result of the information listed above or other pertinent information:

	Less than 1 ton of Particulate Matter (PM10) emissions and/or less than 10 acres in size, applicant must complete and comply with an Air District Burn Permit.
	Between 1 ton and 10 tons of PM10 emissions and/or between 10 and 100 acres complete sections 1, 2, 3, and 5 of the Smoke Management Plan.
	Over 10 tons of PM10 emissions and/or 100 acres complete sections 1-5 of the Smoke Management Plan and over 250 acres, complete sections 1-6.
	Regardless of size or PM10 emissions, if smoke has the potential to impact a smoke sensitive area, complete those sections of the Smoke Management Plan identified by the Air District.

Those Sections checked off (√) are to be completed and submitted as the Smoke Management Plan to your local air district for review.

	Section 1 – GENERAL INFORMATION AND APPROVALS
	Section 2 – PROJECT SPECIFIC INFORMATION
	Section 3 – PUBLIC NOTIFICATION AND ALTERNATIVES
	Section 4 – SMOKE DISPERSAL SURVEILLANCE AND MONITORING
	Section 5 – DAILY AUTHORIZATION REQUEST AND INFORMATION REPORTING FORM
	Section 6 – AIR DISTRICT PROJECT POST BURN FORM

Section 5 to be completed and submitted every day of active ignition.

Section 6 to be completed and submitted within 30 days after completion of project.

SMOKE MANAGEMENT PLAN

(MAY 31, 2001 TAC Approved)

In accordance with the air district's Smoke Management Program, this Smoke Management Plan (SMP) serves as part of the applicant's permit application. Once approved by the air district, this SMP serves as part of the conditional permit to burn, when combined with the standard single page permit to burn.

Final authorization to burn this project may be granted by the responsible air district staff 24 hours in advance of ignition and must be obtained for each day of actual ignition. Final authorization may be denied if the conditions set forth in this Smoke Management Plan have not been met by the day of the ignition. (CCR 80160(j))

This SMP is required for all prescribed burns (Forest Management Burning, Range Improvement Burning, Wildland Vegetation Management Burning). Unless specified on the Check Off Sheet, in the Northern Sierra Air Quality Management District this plan is not required for burn projects less than five acres in size.

The information required herein is the minimum information needed to evaluate the effectiveness of smoke management efforts for this project. Further information may be needed if the proposed burn:

- 1) is large;
- 2) has the potential to impact a smoke sensitive area;
- 3) may have multi-jurisdictional smoke impacts;
- 4) have other complexities, which make more information necessary.

Information may need to be extracted from the project burn plan to supplement this SMP. Air district staff review of the burn plan is for informational purposes only. When the burn plan is reviewed, the air district staff 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 definitions and/or the California Code of Regulations, Title 17, §80101. Where differences occur, the air district's definitions apply.

SECTION 1 – GENERAL INFORMATION

A. PROJECT INFORMATION: (CCR 80160(b))

Project Name/Number					Air District Permit Number			
Legal Location	T	R		S		Project Acres		
Street/Crossroads								

Check off () the category(ies) of prescribed burning that applies to this project:

<input type="checkbox"/>	Forest Management Burning: 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.
<input type="checkbox"/>	Range Improvement Burning: use of outdoor fires to remove vegetation for a wildlife, game, or livestock habitat or for the initial establishment of an agricultural practice on previously uncultivated land.
<input type="checkbox"/>	Wildland Vegetation Management Burning: 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.
<input type="checkbox"/>	Naturally Ignited Wildland Fire Managed for Resource Benefits. (<i>Refer to the Procedures page for requirements</i>) (CCR 80160(h)(i))
<input type="checkbox"/>	Improvement of Land for Wildlife or Game Habitat: include with this SMP a statement from the California Department of Fish and Game, which certifies that this burn is desirable and proper. This CDFG statement may specify the amount of brush treatment that is appropriate for this project (for non-federal lands). (CCR 80160(p)) <i>Comments:</i>

Check off () the Types of Burn Project(s):

<input type="checkbox"/>	Machine Pile Burn	<input type="checkbox"/>	Hand Pile Burn	<input type="checkbox"/>	Landing Pile Burn
<input type="checkbox"/>	Broadcast Burn	<input type="checkbox"/>	Understory Burn	<input type="checkbox"/>	Other _____

Check off () the Type of Vegetation(s):

<input type="checkbox"/>	Brush	<input type="checkbox"/>	Grass	<input type="checkbox"/>	Timber Litter
<input type="checkbox"/>	Residual Timber Slash	<input type="checkbox"/>	Other _____		

Fill In the following Information:

Burn Window/Season:					
Desired Season for Burn:		Acceptable Season for Burn:			
Project/Unit Elevation (ft):					
Top of Unit(s):		Bottom of Unit(s):			
Duration of Burn: (CCR 80160(b))					
Ignition _____ days	Burndown _____ days	Total _____ days			
Will an ARB Controlled Burn Notice 48/72/96 be requested? (Refer to the Procedures for the use of the CB-3 form.)			<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> </table>	Yes	No
Yes	No				

B. EMISSIONS ESTIMATES (Fill In):

EPA-approved method used to calculate emissions	
Total estimated emissions: Particulate Matter (PM10)	tons

See Attached Calculations

C. IDENTIFICATION OF SMOKE SENSITIVE AREAS: (CCR 80160(b))

Smoke Sensitive Areas (SSA) include population centers (e.g. towns, villages, developments), hospitals, schools, daycare centers, nursing homes, shopping centers, public events, and may include campgrounds and trails inhabited by significant numbers of people.

Please Fill In and/or Check Off (√)			Yes	No
Could any Smoke Sensitive Areas be affected by project?				
SSA	Distance/Direction From Burn	Unacceptable Conditions		
			Yes	No
Does the planned project have the potential to impact a Class I area? If yes, why:				
Does the planned project have the potential to impact another air district or state? If yes, why?				
Is the planned project located in more than one air district? If yes, list.				
Historically, has burning in this area impacted any SSA? If yes, list conditions that led to the impact:				

If burning this project on a day concurrent with other burn projects or this is a multi-day burn which might cause a smoke impact on any SSA, it is the burn agency's responsibility to communicate daily and coordinate this burn project with the air district staff and/or the ARB, and other burners to minimize or avoid these impacts. (CCR 80160(e))

Check Off the Attached Maps

√	Smoke Management Plan Maps
	Desired range of daytime plume path during ignition map (CCR80160(c))
	Possible night time smoke path map (CCR 80160(c))
	Smoke sensitive areas map (CCR 80160(b))
	Interior cut off lines map (Estimate/Potential)
	Project map

D. APPROVAL

I, the undersigned permittee, understand that this SMP, once approved by the Air District (District) and/or California Air Resources Board, is a condition of the Air District burn permit. This information is true to the best of my knowledge.

SMP Preparer Agency:	Telephone Number:
SMP Preparer's Name (print):	Title:
Signature:	Submittal Date:

√	AIR DISTRICT USE ONLY BELOW THIS LINE
	ARB Consultation (Required for multi-day or projects greater than 250 acres) (CCR 80160(g))
	Approved as submitted: _____ Date _____ <i style="text-align: center;">Air District Staff Signature</i>
	Approved with changes or conditions: _____ Date _____ <i style="text-align: center;">Air District Staff Signature</i> Changes/conditions:
	DISAPPROVED as submitted: _____ Date _____ <i style="text-align: center;">Air District Staff Signature</i> For the Following Reasons:

SECTION 2 – PROJECT SPECIFIC INFORMATION

A. WIND PRESCRIPTION: (CCR 80160(c))

Fill in the Surface Wind Direction.	
Ideal:	Allowable:
Fill in the Wind Direction Aloft (Transport Direction).	
Ideal:	Allowable:
Identify potential meteorological conditions that would prohibit acceptable smoke dispersal:	

Note: The air district may require additional on-site weather observations and/or spot weather forecasts.

B. MITIGATIONS: (CCR 80160(m)(n) and (o))

Please check off the mitigations below, which will be implemented to reduce smoke impacts, especially if the smoke will impact a smoke sensitive area.

√	Mitigations
	Vegetation will be in the following condition during combustion, considering fire safety and other factors:
	Vegetation will be piled and prepared where possible so that it can be burned with a minimum amount of smoke, unless good silvicultural or ecological practices dictate otherwise.
	Limit burning to _____ Piles or _____ acres per day.
	No more than _____ piles shall be burning at one time
	Allow _____ hours between ignition of _____ (piles/units).
	Mop up will begin within: 18 hrs 24 hrs 48 hrs 72 hrs after ignition.
	Special weather condition forecast:
	Burn window: Begin ignitions (time): _____ Terminate ignitions (time): _____
	Other, explain:

C. CONTINGENCIES: (CCR 80160(c))

Please check off the contingency actions that can be practically and safely implemented if smoke impacts a smoke sensitive area. Adequate resources must be provided for contingency actions.

√	Contingencies
	Stop ignitions, except as needed to maintain control of fire (allow fire to burn to contingency control lines).
	Fire suppression.
	Begin mop up immediately.
	Begin mop up within _____ hours of problem identification.
	Begin complete mop up within _____ hours of smoke problem identification.
	Discontinue mop-up if favorable conditions return.
	Other, explain:

D. SMOKE IMPACT COMPLAINT PROCEDURES: (CCR 80160(1))

1. All smoke related complaints shall be forwarded within two (2) hours or as soon as practical to the air district and either the Prescribed Fire Manager, Burn Boss and/or Incident Commander via fax or telephone.
2. The permittee will attempt to obtain at least the following minimum information from complainants and forward it to the air district:
 - a. date of complaint
 - b. time of complaint
 - c. complainant's name
 - d. complainant's address
 - e. complainant's telephone #
 - f. nature of the complaint (smoke impacts, visibility, fear of fire)
3. The Prescribed Fire Manager, Burn Boss and/or Incident Commander, in coordination with the Air District staff, shall seek resolution for all complaints, as necessary.
4. A log of all complaint calls related to a burn project shall be kept in the project file folder for a period of one year from the conclusion of the burn project.

E. CONTACTING RESPONSIBLE OFFICIALS: (CCR 80160(l))

Note: Do not display or release personal phone information in burn or smoke plans.
 Make available to the Air District:

1. Who is the Prescribed Fire Manager/Burn Boss/Incident Commander? _____

2. How can this person be reached at the burn project? _____

SECTION 3 – PUBLIC NOTIFICATION AND ALTERNATIVES

A. PUBLIC NOTIFICATION: (CCR 80160(c.6)(l))

Check off below all of the actions, to minimize the impact of smoke that will be taken to advise the SSA that burning is planned. When the burning is imminent, known sensitive receptors will be contacted.

√	Type Of Notification	Describe The Activity And Timing
	Radio Station	
	Newspaper	
	Posters/Flyers/Letters	
	Television	
	Door to Door	
	Signage	
	Personal Phone Calls	
	Other, explain:	

B. EVALUATION OF ALTERNATIVES TO BURNING: (CCR 80160(c))

Have alternative treatments other than burning been considered for this project?		
No. Please explain why burning was chosen over any alternatives.		
Yes. Please list alternatives below.		
Alternative	Extent Used	Particulate Reduction (tons)
Yes, part of NEPA/CEQA documentation.		
Attached		
On File with:		

SECTION 4 – SMOKE DISPERSAL SURVEILLANCE AND MONITORING (CCR 80160(d))

Check off (✓) all of the activities procedures used for smoke surveillance and monitoring. (e.g. before, during and post-burn). (Note: indicate timing of each item.) All weather and surveillance records shall be filed in the project folder and be available for air district review upon request.

✓	Smoke Dispersal Surveillance And Monitoring
	Test Fire
	Balloon(s)
	Weather Collection (i.e. RAWS)
	Aircraft
	Weather Forecast
	Visual Monitoring
	Other:
Method/Location of Visual Monitors:	
Interval of smoke dispersal monitoring:	

If this project is larger than 250 acres or if there is the potential for impacts to SSAs, a Post-Burn Evaluation will be required from the burner within 30 days after completion of the burn. (CCR 80160(k))

SECTION 5 - DAILY AUTHORIZATION REQUEST & INFORMATION REPORTING (CCR 80145)

This information must be submitted to the Air District before 3:30 p.m. (1530 hours) daily

AGENCY: _____

<i>Burn Date</i>	<i>Acres</i>		<i>Project Name</i>	<i>Legal Location</i>	<i>County</i>	<i>Burn Type</i>	<i>Consumption Ton/Acre (est)</i>	<i>Reported By</i>	<i>Air District Authorization**</i>	
	<i>Planned</i>	<i>Actual</i>							<i>Date</i>	<i>Initials</i>

****The smoke management plan and meteorological conditions, special permit conditions (if applicable) have been completed and adjacent burn agencies or land managers have been contacted.**

SECTION 6 - AIR DISTRICT PROJECT POST BURN FORM

Complete the following for burns greater than 250 acres burns that created smoke impacts, burning on a no burn day or as required by the Air District. Forward to the Air District within 30 calendar days of the completion of the burn.

A. GENERAL INFORMATION:

Burner/Agency/Permittee Name						
Project Name/Number				Air District Permit Number		
Legal Location	T		R		S	Project Acres
Street/Crossroads						

B. BURN INFORMATION:

Date Of Burn	Burn Day Status	Ignition Time	Planned Acres	Actual Acres	Tonnage Consumed	Completion Date Of Burn

C. EMISSIONS INFORMATION:

POLLUTANT	TOTAL EMISSIONS (tons/burn)
PM10	
PM 2.5	
Other Pollutants	

D. NARRATIVE INFORMATION:

Was this burn conducted as per the Smoke Management Plan's air quality conditions? _____

Were there any smoke impacts, including impacts to Smoke Sensitive Areas, neighboring air districts and or states? If yes, list areas and duration of impacts.

List reason(s) for impacts. _____

Number of complaints received? (Forward complaints to Air District) _____

5. List contingency actions initiated to reduce impacts: _____

List recommendations to utilize for future burns in this area to minimize impacts: _____

Was the burn successful with regards to air quality? _____

SUBMITTED BY: _____ DATE: _____

Air District Use Only		
Staff Reviewer:	Date Reviewed:	Date Logged:

PROCEDURES

Use of the 48/72/96 forecast: (CCR 80145(f))

Fill in the requested information for the project on the supplied ARB Control Burn Notice - CB-3 form, being specific as to when the proposed burn will take place. In the first position of the "Person to be notified" column write in the name and phone number of the Air District where the burn will take place. In the second position, fill in your name or agency name and phone number. Fax this form to the ARB (916-445-0786) and either send or fax a copy to the Air District three (3) days prior to the start of the burn. The ARB will then notify the Air District of the forecast for the burn and the Air District will relay this information to you on a daily basis. Please notify the Air District and ARB within 24 hours when this burn is canceled, postponed, deactivated, or completed.

Naturally Ignited Wildland Fires Managed For Resource Benefit

A Smoke Management Plan (SMP) shall be completed and submitted to the appropriate Air District within 72 hours from the start of the fire if the size of the burn is expected to exceed ten acres in size. (CCR 80160(i))

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 staff decide, 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 District, or if the District is not available, the Air Resources Board (ARB); or

- After 24 hours, the District has been contacted, or if the 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 80160(h))

PM10 EMISSIONS CALCULATIONS FOR DIFFERENT PILE SIZES

- Choose the pile size most represented on your burn site.
- Multiply the number of piles in your project with the corresponding “Tons of PM10” values to get the total PM10 tonnage.

PILE BURN PM-10 EMISSIONS CALCULATIONS

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

PM10 EMISSIONS FOR SPECIFIED PILE SIZES	
PILE SIZE (in feet)	TONS OF PM10/PILE
4' diameter x 3' height	0.0005
5' diameter x 4' height	0.001
6' diameter x 5' height	0.002
8' diameter x 6' height	0.004
10' diameter x 6' height	0.007
12' diameter x 8' height	0.01
15' diameter x 8' height	0.02
20' diameter x 10' height	0.04
25' diameter x 10' height	0.07
50' diameter x 10' height	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	

- Formula used for Paraboloid Volume (cu.ft.) = $3.1416 \times [\text{height} \times (\text{diameter})^2] / 8$ (see Reference b. below).
- USDA (2/1996). Forest Service General Technical Report. Report Number: PNW-GTR-364.