



Application for a Smoke Management Permit

Once approved, this completed form will serve as your Smoke Management PLAN. Your PLAN is valid as long as your burn project is the same as described below. The Air District will issue you a separate Smoke Management PERMIT that is valid for up to a year.

PROJECT DESCRIPTION SECTION: Complete pages 1 & 2 for ALL PRESCRIBED BURNS.

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 only need to complete pages 1 & 2. Attach sections A and/or B for all other burns.

1. Project Name:	8. If no project address is available, report at least one of the following location descriptions. Provide attachments as needed. LEGAL DESCRIPTION T _____ R _____ S _____ M&B _____ or LATITUDE & LONGITUDE Lat _____(deg.) _____(min) _____(sec) Long _____(deg.) _____(min) _____(sec) or UTM: Zone: _____ N _____m, E _____m
2. Permittee Name:	
3. Permittee Mailing Address: Street: _____ City: _____ State: _____ Zip: _____	
4. Permittee/Field Contact:	9. Project Elevation (msl feet): Top: _____ Bottom: _____
5. Telephone: Fax: Email: 24-hour phone/pager:	10. Land Owner Name (if different from permittee): _____ Street: _____ City: _____ State: _____ Zip: _____
6. Project Site (Address):	11. Air Sub-Basin (if known):
7. County and Nearest Town:	

12. Anticipated Time of Year for Burn (Month/Year): _____

13. Is the Primary Purpose of the Burn for Fire Hazard Reduction? _____

14. TYPE OF BURN:

- Agricultural Waste Development Fire Hazard Abatement Forest Management
- Levee, Reservoir, & Ditch Maintenance Mechanized Natural Ignition
- Range Improvement – Livestock Habitat Improvement
- Range Improvement – Wildlife/Game Habitat Improvement
- Range Improvement - Initial establishment of agricultural practice on previously uncultivated land
- Right-of-Way Clearing (public entities or utilities) Watershed Management
- Wildlife Habitat Improvement Wildland Vegetation Management

15. Vegetation Type (in %): _____% Brush _____% Grass _____% Other (Describe): _____

16. Is your project a: ____ Pile Burn or ____ Broadcast Burn (standing vegetation)?
17. Project Size: Number of Piles: _____ Average Pile Size: _____ (diameter x height)
(For assistance, see Table 1 on page 10.) **or** _____ (acres standing vegetation)
18. Total Project Fuel Loading: _____ (tons vegetation)
19. Particulate Matter Emissions: _____ (tons PM10)
(Use Emissions Factors Tables on pages 12-13 for assistance with emissions calculation)
20. Emission Factor Table Used or EPA-Approved Calculation Method (circle one)?
21. Preferred ignition hours for the fire: _____
22. Expected burn duration (ignition to complete extinction): _____ (hours or days)
23. Fuel drying time and conditions prior to ignition: _____
24. Limitations on pile size, pile number, and/or acreage limitations to minimize smoke impacts (complete as appropriate): _____
25. Preferred wind direction: _____

It is the responsibility of the permittee to ensure that conditions of the Smoke Management Plan 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.**

26. Air District Name: MBUAPCD	28. Contact: Compliance Division
27. Address: 24580 Silver Cloud Court Monterey, CA 93940	29. 24-hr Phone: (831) 647-9411
	30. Fax: (831) 647-8501

The permittee will report public smoke complaints to the Air District per the procedures described in the **Instructions for the Smoke Management Permit Application** document.

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 items 42 and 43 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/Title (print): _____
 Preparer's Phone (include area code): _____
 Preparer's Signature: _____
 Name of Authorized Representative in Control of the Property (if applicable): _____

Permittee or Authorized Representative Signature: _____

Signature Date: _____

** 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) *

31. **Smoke Sensitive Areas (SSAs) within 10 miles:** Describe locations of SSAs and distances from burn site (miles) – (Also the attached Map# _____ shows SSAs)

32. The attached map# _____ provides smoke travel projections for:
_____ Day _____ Night _____ Topographical considerations.

33. Has prescribed burning historically occurred in this area? _____ Yes _____ No
_____ Don't Know

34. If yes, were there impacts to smoke sensitive areas? _____ Yes _____ No
_____ Don't Know

35. If yes, please describe impacts:

36. For burns that will occur past daylight hours and/or for more than one day, please provide the Air District with 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. Who will be in contact with the Air District:

Telephone: (_____) _____ - _____

24-hour Pager: (_____) _____ - _____

Fax: (_____) _____ - _____

E-mail: _____

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

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) *

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:

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

<u>Method</u>	<u>Details</u>
<input type="checkbox"/> Belt Weather Kit	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> RAWS	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> Aircraft	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> Other	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> Additional Requirements:	_____

39. Smoke Behavior Observations:

<u>Method</u>	<u>Details</u>
<input type="checkbox"/> Visual	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> Test Fire	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> Balloon	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> Aircraft	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> PM Monitoring Inst	Location _____ Beginning _____ Interval _____ Ending _____
<input type="checkbox"/> Additional Requirements:	_____

40a. Public Notification:

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 Newspaper Posters/flyers Telephone calls
 Other (Explain in 40b below)

40b. The specifics of the notification procedure(s) checked above are as follows:

40c. 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#_____.

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) *

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

Air District Name: _____
Contact: _____
Address: _____
24-hour Telephone: _____
Fax: _____

Air District Name: _____
Contact: _____
Address: _____
24-hour Telephone: _____
Fax: _____

* **See the Instructions for the Smoke Management Permit Application for help 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

42. Meteorological Conditions for Ignition

Source of Meteorological Information: _____

Surface Wind Direction:

Ideal: _____ Acceptable Range: _____ (degrees)

Surface Wind Speed:

Ideal: _____ Maximum: _____ Minimum: _____ (mph)

Transport Wind Direction:

Ideal: _____ Acceptable Range: _____ (degrees)

Relative Humidity:

Ideal: _____ Maximum: _____ Minimum: _____ (%)

Target Mixing Height Parameters: _____

Acceptable Temperature Range: _____ (degrees)

Other Considerations to Assure Acceptable Smoke Dispersion:

43. 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):

44. Describe any applicable interior unit contingency cutoff lines (refer to map# ___ as appropriate):

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

45. Check as applicable:

- The environmental documentation required for the burn project pursuant to the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA) is attached to this SMP.
- Such environmental documentation is already on file with the Air District.
- No environmental analysis was prepared as required by NEPA or CEQA.
- This project is categorically exempt from CEQA, under category number: _____

46. 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, is on file with the Air District, or is provided for as agreed to by the Air District. (Items 47 - 51 below do not have to be completed if this Section has been checked.)

Document name & location: _____

_____ 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 47 - 51 below.

47. Alternatives Considered: _____

48. Alternatives Rejected and Reasons for Rejection: _____

49. Alternatives Used, and Tons of Vegetative Material Treated With Each Alternative:

50. Particulate Reduction for Each Alternative Used (tons): _____

51. Total Particulate Reductions from Alternatives Used: _____

52. If this project is greater than 250 acres or smoke impacts occur, the permittee will provide a completed Post Burn Evaluation Form (see page 8) to the Air District within 30 days of project completion.

53. For burns greater than 250 acres, items 38 & 39 describe the site monitoring requirements.

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

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, complete Section B below.
3. Lessons learned (Optional) (Provide attachment if desired):

Section B. For Burns That Had 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:

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 items 38 and 39 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 PM10 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 a parabolic 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 Parabolic Volume (cu.ft.) = 3.1416 x [height x (diameter)²]/8 (see Reference 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:

$$\begin{aligned}
 \text{PM10 ton(s) emissions per VT} &= (\text{number of acres VT}) (\text{FL tons per acre}) (\text{Emission Value (EV)}) = \underline{\hspace{2cm}} \text{ ton(s)/VT} \\
 \text{PM10 ton(s) emissions per VT} &= (\text{number of acres VT}) (\text{FL tons per acre}) (\text{Emission Value (EV)}) = \underline{\hspace{2cm}} \text{ ton(s)/VT} \\
 \text{Sum Total is the Estimated PM 10 for the project} &= \underline{\hspace{2cm}} \text{ ton(s)/project}
 \end{aligned}$$

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	() x	()	x	(0.007) =	_____
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	() x	()	x	(0.008) =	_____
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 = _____

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 (EVs) FOR BURNING OF MULTIPLE VEGETATION TYPES*

Calculation of PM10 emission values = (% combustion) x (PM10 emission lbs/ton) x (1 ton/2000 lbs)*

VEGETATION	%Combustion	PM Emissions (lbs/ton fuel)	Conversion Factor	PM 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.

MBUAPCD DISTRICT REVIEW

(For District Use Only)