

**Air Quality Management District**  
**Smoke Management Program**

Submitted to the  
California Air Resources Board

Prepared by the  
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# Mendocino County Air Quality Management District Smoke Management Program

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# **Mendocino County Air Quality Management District Smoke Management Program**

## **Executive Summary**

The Mendocino County Air Quality Management District is proposing to establish a Smoke Management Program (Program) to comply with California Air Resources Board requirements.

The goals of the Program are to reduce impacts to smoke sensitive areas (SSAs) from outdoor burning and avoid cumulative impacts from multiple burns on a single day. These goals are achieved through a number of means –

- Defining the hours that burning is permitted on burn days to the hours when inversions are less likely (except when overruled by fire agencies)
- Requiring Smoke Management Plans for burns larger than 10 acres
- Improving the methodology for making burn day decisions
- Requiring test burns to check for inversions and smoke transport direction before burning in some situations
- Improving cooperation and coordination with local fire agencies
- Limiting the number of large burns that can occur on any single burn day
- Limiting the number of burns that occur in any one area at a time
- Requiring post burn reporting for larger burns
- Improving coordination with neighboring Air Districts

Primarily the Program is the formalization of the existing permit and permit processing system with the addition of procedures to meet the requirements of California Health and Safety Code, Section 41800, *et.seq.*

# Mendocino County Air Quality Management District Smoke Management Program

## 1. Introduction

The Mendocino County Air Quality Management District (MCAQMD) proposes to implement the following Smoke Management Program (Program) to minimize smoke impacts from outdoor burning of agricultural wastes and prescribed burning by land managers in Mendocino County. This Program addresses recent revisions to Title 17 of the California Code of Regulations [CCR§80100 *et. seq.*].

This Program is intended to be a dynamic document, where elements of the Program can change over time, as needed, without necessarily having to modify existing District rules. Once the Program has been initially approved by the Mendocino County Air Quality Management District Board and the California Air Resources Board (ARB), changes to the Program must be approved by the ARB before being implemented by the District.

***Note that this program in no way supercedes or overrides the primary authority of the local Fire Agencies to control or ban prescribed burns. The local Fire Agencies have absolute veto power over all burn “go” or “continue” decisions. For prescribed burns the local Fire Agencies MUST be kept informed during all steps of the process to any degree they wish to participate.***

Mendocino County is a rural county on the North Coast of California. Traditionally the economy has been based on resource industries, fishing, timber and agriculture, however the economy is slowly shifting towards tourism while maintaining a strong agricultural base (largely vineyards). The majority of the population (more than 65%) lives outside of the four (4) incorporated cities (Ukiah, Willits, Fort Bragg and Point Arena). The population is largely centered on the 2 main north-south transportation corridors, US 101 and Highway 1. Development in the county is typically extremely low-density, “rural residential” style of development on 1 to 10 acre parcels. The total population of the County is approximately 90,000, of which close to 35,000 live in the Ukiah valley.

Appendix A lists all definitions provided in Title 17. Appendix B contains a sample of the District’s Application for a Permit to Burn (Inter-Agency Burn Permit), and an Acknowledgement of Conditions, Appendix C contains Smoke Management Plan Forms and Appendix D contains a copy of the District’s current open burning regulations (Regulation 2).

## 2. Current District Burn program

### Current Rules and Procedures

District open burning regulations are codified in Mendocino County Air Quality Management District Regulation 2 (Appendix D). This regulation currently restricts open outdoor burning to approved combustibles on designated burn days in support of various designated activities. There are regulatory procedures designated for minimizing smoke impacts.

There are procedures established for coordinating burn activities between the State (ARB), the District, the local fire agency, and the burn manager. There is a requirement for a smoke management plan for prescribed burns over 2000 acres (Reg. 2, Rule 401.13 *et seq.*). There is a restriction that no more than 5000 acres may be burned by prescription within the total air shed (North Coast Air Basin) on any one permissive burn day (Reg. 2, Rule 401.12).

### Current Scope of Burning Activities

The District issues about one thousand burn permits each year. In addition, individual fire authorities (delegated by the District) issue another two thousand permits. Of the combined total, about one hundred are for burns of more than 10 acres or fuel in excess of 50 tons. These numbers are not expected to change because of the implementation of the smoke management program. Burning is only allowed on designated burn days during the “burn season” (roughly November to July 1<sup>st</sup>) and is permitted the rest of the year on designated burn days only with local fire agency approval.

### **3. Program Goals**

The purpose of the Smoke Management Program is to reduce the impacts of open burning as a land management tool by managing the amounts and locations of burns with respect to smoke sensitive areas and weather conditions. The goal is to minimize smoke impacts on smoke sensitive areas (SSAs), avoid cumulative smoke impacts, and prevent public nuisance.

### **4. Background**

#### Geography and Population Setting

From a meteorological perspective, the geography of the District is physically divided into three major regions, the coastal region, the inland valleys, and the uplands. The uplands are those areas above 2500 to 3000 feet in elevation. The inland valleys are those areas east of the Coastal Range crest and below 2500 – 3000 feet. The coastal region runs from the ocean to either the Coastal Range crest or the 2500-3000 foot level, whichever comes first.

The main centers of population are found in the inland valleys and along the central coast. In addition, the inland valleys are used extensively for the growing of food crops (orchards and vineyards). Nearly 80% of the wildlands are privately owned and lightly populated (less than 10 people per square mile).

The coastal region is subdivided into two subregions, the Mendocino County South Coast (Gualala to the Navarro River) and the Mendocino County North Coast (Navarro River to the Humboldt County Line).

#### ***Mendocino County South Coast (Navarro River to Gualala)***

(Includes City of Point Arena and communities of Gualala, Elk, Manchester and Anchor Bay)

The South Coast primarily consists of low-density residential development and resource lands with significant areas of parklands and a small amount of agricultural land. Highway 1, largely 2 lanes, serves as the main transportation corridor in the area. East-west connections are virtually non-existent on the South Coast so nearly all traffic must use Highway 1.

The South Coast, along with the rest of Mendocino County is non-attainment for the State PM-10 standard (particulate matter less than 10 microns in size). The primary man-made sources of PM-10 pollution in the area are wood combustion (woodstoves, fireplaces and outdoor burning) and fugitive dust. The District maintains no full time monitoring equipment in the South Coast at this time.

***Mendocino County North Coast (Navarro River to Humboldt County Line)***

(Includes the City of Fort Bragg and the communities of Mendocino, Albion, Westport, Rockport, Inglenook and Casper)

The North Coast area consists of the urbanized area of Fort Bragg/Casper/Mendocino which is an urbanized strip along Highway 1, roughly 15 miles in length and the Highway 1 corridor north of Fort Bragg and “Lost Coast” area (north of Rockport) which is not accessible by paved road.

*Fort Bragg/Casper/Mendocino.* Development in this area is typically low to moderate density, visitor serving commercial. Highway 1 is the primary transportation corridor in the area with Highway 20 providing a link to Willits and Highway 101 and Highway 128 (along the Navarro River) providing a link to Boonville, Ukiah and Sonoma County. Moderate Industrial development exists in Fort Bragg, including Georgia Pacific West, categorized as a major source under EPA Title V. This area also includes the 50,000-acre Jackson State Demonstration Forest, the largest state forest in California (managed by the California Division of Forestry and Fire Protection).

*Highway 1, North of Fort Bragg.* Development in this area is of a much lower density than Fort Bragg and is more typical of the development pattern along the South Coast of Mendocino County.

*“Lost Coast.” (North of Rockport)* This area is largely undeveloped park and wildlands. There is no paved road access to the coast in this area and most land is held in large parcels.

The North Coast is non-attainment for the State PM-10 standard (particulate matter less than 10 microns in size). The primary man-made sources of PM-10 pollution in the area are wood combustion (wood stoves, fireplaces and outdoor burning), fugitive dust, automobile traffic and industry. The District maintains full time monitoring equipment in Fort Bragg.

The Inland area of the county consists of the following subregions, Ukiah Willits and surrounding areas, Inland Rural Mendocino County and Anderson Valley.

### Ukiah, Willits and surrounding area (inland South)

Includes the cities of Ukiah and Willits as well as unincorporated towns from Hopland to Willits. Both Redwood and Potter Valleys are part of this region, however Anderson Valley is not.

The inland urban section of Mendocino County consists of the cities of Ukiah and Willits as well as a large number of unincorporated communities along the main transportation corridors. Highway 101 is the main (in some areas exclusive) north/south roadway and Highway 20 is the main east/west connector. The Northwestern Pacific Railroad runs roughly parallel to Highway 101 and connects Willits and Ukiah. Currently Highway 101 serves as the “main street” for Hopland and Willits however bypasses for both areas are in the planning stages. Highway 101 varies between a divided highway, freeway and 2-lane street in this area. Cow Mountain recreation area, operated by the Bureau of Land Management (BLM) is in the hills east of Ukiah.

### *Hopland (and valleys south of Ukiah)*

Hopland is a rural visitor-serving community. Extensive agriculture in the area leads to frequent conflicts, both in land use and traffic accidents. The District has placed temporary monitoring equipment in Hopland in the past. In addition, the extensive agriculture and frequent inversions can lead to air quality problems resulting from burning and woodstoves.

### *Cities of Ukiah and Willits*

Both Ukiah and Willits are moderate to low density communities. Ukiah and Willits both have a moderate amount of industrial development mainly in the forest products industry. Large areas of unincorporated low-density development surround both cities.

This area is non-attainment for the state PM-10 standard. The primary sources of PM-10 are wood combustion emissions, fugitive dust from construction projects, automobile emissions and industry. Some of the automobile emissions are the result of “pass-through” traffic on 101 because of its nature as a major transportation corridor in the state. The District has full monitoring stations (NOx, Ozone, CO and PM-10) in both Ukiah and Willits. A PM-2.5 monitor has been established in Ukiah. Both Ukiah and Willits have had PM-10 exceedances in the past. Winter cold-air inversions are common in the valleys from November to February.

### ***Inland Rural Mendocino County (inland North)***

Includes Laytonville, Covelo, Leggett and the remainder of Mendocino County. This area contains no incorporated cities and has a large number of unincorporated communities, areas of very low-density rural development and resource lands. Highway 101 provides the only highway access to this area and varies widely from a full freeway to narrow 2-lane highway. State Highway 162 provides access to Dos Rios and Covelo from 101. Highway 162 becomes a dirt road approximately 20 miles east of Covelo and eventually reaches the Central Valley. State Highway 1, from the Coast, joins US Highway 101 at Leggett. This area contains large areas of the Mendocino National Forest north and east of Covelo.

This area of the county is designated as a non-attainment area for the state PM-10 standard. Some of the automobile emissions are the result of “pass-through” traffic on 101 because of its nature as a major transportation corridor in the state. The primary man-made sources of PM-10 pollution in the area are wood combustion (wood stoves, fireplaces and outdoor burning), fugitive dust, and automobile traffic. Forest Products and other resource industries are well established in the region.

### ***Anderson Valley (Philo-Boonville)***

Anderson Valley is a long relatively narrow valley that extends from southeast of Boonville to the mouth of the Navarro River. While several small, unincorporated communities currently exist in the valley, the majority of the population is in the Philo-Boonville area. Highway 128 runs the length of the valley from the county line to Highway 1; Highway 253 provides a connection to the Ukiah area from Boonville.

Anderson Valley, like the rest of Mendocino County, is designated as a non-attainment area for the state PM-10 standard. The primary man-made sources of PM-10 pollution in the area are wood combustion (woodstoves, fireplaces and outdoor burning), fugitive dust (primarily from agriculture), and automobile traffic. Extensive agricultural activities can result in local air quality problems from grading and open burning. The valley is subject to winter cold-air inversions. The District does not currently monitor air quality in Anderson Valley.

## **5. Program Applicability**

### Geographical Area of Applicability

For open burning purposes, the North Coast Air Basin is defined as follows:

The North Coast Air Basin is comprised of the Counties of Del Norte, Trinity, Humbolt, Mendocino, and that region of Sonoma County designated as the Northern Sonoma County Air Pollution Control District. The boundaries of each Air Pollution Control District or Air Quality Management District shall be coterminous with existing county boundaries, except for the southern boundary in Sonoma County that shall lie along the line described as follows:

### Legal Description

Beginning at the southeasterly corner of the Rancho Estero Americano, being on the boundary line between Marin and Sonoma Counties, California; thence running northerly along the easterly boundary line of said Rancho Estero Americano to the to the northeasterly corner thereof, being an angle corner in the westerly boundary line of Rancho Canada de Jonive; thence running along said boundary of Rancho Canada de Jonive westerly, northerly and easterly to its intersection with the easterly line of Graton Road; thence running along the easterly and southerly line of Graton Road, northerly and easterly to its intersection with the easterly line of Sullivan Road; thence running northerly along said easterly line of Sullivan Road to the southerly line of Green Valley Road; thence running easterly along the said southerly line of Green Valley Road and easterly along the southerly line of State Highway 116 to the westerly



line of Vine Hill Road; thence running along the westerly and northerly line of Vine Hill Road, northerly and easterly to its intersection with the westerly line of Laguna Road; thence running northerly along the westerly line of Laguna Road and the Northerly projection thereof to the northerly line of Trenton Road; thence running westerly along the northerly line of Trenton Road to the easterly line of Trenton-Healdsburg Road to the easterly line of Eastside Road; thence running northerly along said easterly line of Eastside Road to its intersection with the southerly line of Rancho Sotoyome; thence running easterly along said southerly line of Rancho Sotoyome to its intersection with the Township line common to Township 8 and 9 North, M.D.M.; thence running easterly along said Township line to its intersection with the boundary line between Sonoma and Napa Counties, State of California.

The Counties of Del Norte, Humboldt, and Trinity operate as a single unified special district agency entitled the North Coast Unified Air Quality Management District. All of Mendocino County is under the jurisdiction of the Mendocino County Air Quality Management District.

### Levels of Applicability

The program, at some level of effort and/or control, is applicable to all open outdoor burning. The individual categories of burning are given below, along with a summary of the requirements/restrictions.

1. Dooryard piles (4x4x3 piles – Residential only).

A dooryard pile is a pile of vegetative matter less than 4 feet by 4 feet square and less than 3 feet high. The vegetative matter must have been grown on the property on which it is burned, and may consist of leaves, branches, and other vegetative materials only. The pile must not contain any unapproved combustibles. The burn plan for a dooryard pile is as follows:

- Must be burn season;
- No MCAQMD permit required - May require a Fire Agency permit;
- Must comply with the restrictions of MCAQMD Regulation 2;
- May only be burned on a State determined permissive burn day;
- May burn only one pile per property per burn day;
- May ignite piles only between the hours of 10 AM and 3 PM or as required by Fire Agency permit.

B.) For Broadcast burns less than 10 acres, piles or slash containing less than 50 tons total fuel or less than 10,000 cubic feet in volume, or producing less than 1 ton of particulate.

*Method of calculating tonnage in Appendix D*

- Must be burn season;
- MCAQMD Permit required – Designated Fire Agency permit accepted;
- No Smoke Management Plan required;
- Must comply with the restrictions of MCAQMD Regulation 2;
- May only be burned on a State determined permissive burn day;
- Must notify the District of intent to burn at least 18 hrs in advance of ignition;
- May burn only one 5-acre plot or pile per parcel per burn day;
- Must do a pilot test burn to determine smoke impacts; (direction of drift, etc.)

- May ignite piles only between the hours of 10 AM and 3 PM or as required by Fire Agency permit. In no case shall ignition or additions to fires be allowed between 2 hours before sundown and 6 AM the following day;
- May be queued. When multiple burns by different individuals may occur on the same day, the District may allocate burns on a first registered (called in) basis, in consideration of smoke impacts (including local cumulative impacts).

*(NOTE: May request non-burn season permission. Then will fall under category C, regardless of size or amount)*

C.) For burns of at least 10 acres but less than 100 acres for broadcast burns, or at least 50 tons but less than 2000 tons of fuel piled or slash, between 10,000 and 200,000 cubic feet of volume, or producing between 1 and 5 tons of particulates:

- MCAQMD Permit required - Designated Fire District permit accepted;
- Smoke Management Plan required – Registration Fee - \$30 + Assessment Fee \$0.50 per acre or \$0.08 per ton of fuel piled or slash, not to exceed \$150.00;
- Smoke Management Plan, Section A required if Smoke Sensitive Areas could be impacted;
- Must comply with the restrictions of MCAQMD Regulation 2;
- Will be queued at the discretion of the Air Pollution Control Officer.
- Smoke Management Plan, Section C required if Smoke Sensitive Areas were impacted;
- Must complete and turn in Smoke Management Plan, Section D to the District at the end of the burn.

D.) For burns of 100 acres or more, 2000 tons of fuel or more, piles totaling 200,000 cubic feet or more, or producing 5 tons or more of particulates:

- MCAQMD Permit required - Designated Fire District permit accepted;
- Smoke Management Plan required – Registration Fee - \$30 + Assessment Fee \$0.50 per acre or \$0.08 per ton of fuel piled or slash, not to exceed \$500.00;
- Smoke Management Plan, Section A required if Smoke Sensitive Area could be impacted;
- Smoke Management Plan, Section B required;
- Must comply with the restrictions of MCAQMD Regulation 2;
- Will be queued at the discretion of the Air Pollution Control Officer;
- Smoke Management Plan, Section C required if Smoke Sensitive Areas were impacted;
- Must complete and turn in the Smoke Management Plan, Section D to the District at the end of the burn.

Smoke Management Plan Registration fees are due at time of filing, assessment fees to be due upon completion of burning.

## 6. Program Structure

The District's Program includes six elements:

- A. A permit system;
- B. Requirement of Smoke Management Plans for larger burns;
- C. Procedures for evaluating meteorological conditions;
- D. Burn scheduling and monitoring procedures;
- E. A set of criteria to be used to make daily burn/no-burn decisions;
- F. A Burn Reporting system.

### A. Permit System

No person shall knowingly set or allow agricultural or prescribed burning unless he/she has a valid permit from the District or a designated agency (Residential dooryard burning excepted). A permit for less than 10 acres, or less than 50 tons of fuel, or less than 10,000 cubic feet of fuel is valid upon issuance. PERMITS FOR EQUAL TO OR GREATER THAN THE ABOVE-SPECIFIED AMOUNTS ARE NOT VALID UNTIL A SMOKE MANAGEMENT PLAN HAS BEEN SUBMITTED AND APPROVED. An example of the District's Permit to Burn form is provided in Appendix B.

*NOTE: Individual fire agencies may or may not choose to be a Designated Agency. If a fire agency chooses not to be designated they cannot issue Burn Permits. Fire agencies choosing to be Designated Agencies will need to forward permits requesting burns for larger than 10 acres, or more than 50 tons of piled fuel or slash to the District. Such permits will not be valid without a Smoke Management Plan.*

Permits issued by designated agencies are subject to the District's Program and to all Rules and Regulations of the District. Designated agencies will submit any information as specified by the District. Each applicant for a permit to burn shall provide information required by the designated agency for fire protection purposes. Each applicant for a permit to burn shall also provide information requested by the District. Each permit to burn is only valid for a single "burn season" (the time of year in which open burning is allowed by CDF).

### B. Smoke Management Plans

Smoke Management Plans (SMP) are required for all burns of equal to or greater than 10 acres, or equal to or greater than 50 tons of fuel, or piles in excess of 10,000 cubic feet total volume. At a minimum, the SMP is the one page Project Description (so-called "short form"). If the project might impact a smoke sensitive area then the one page Section A, the plan for minimizing impacts, must be prepared. If the Project is more than 100 acres or may produce more than 5 tons of particulate material, then Section B must be filled out. This section basically forms a plan for mitigating smoke impacts by specifying the best optimal conditions for smoke mitigation. If the burn is for more than 250 acres OR if smoke impacts occur, then an after action report, Section C, must be filed. All burns over 10 acres must return Section D, the "burn completion report", to the District for calculation of fees based on the amount of material burned.

### C. Meteorological Conditions

The meteorological conditions for a prescribed burn are established by ARB. These conditions are under review by ARB, and by a committee including representatives from CDF, BLM, Forest Service, and several of the Coastal Districts.

The District's Program is supported by a large array of air quality and meteorological data collected by the District, the National Weather Service (NWS), the Federal Aviation Administration (FAA), and other organizations on a daily basis. This data are used by the Air Resources Board's meteorologists to evaluate current conditions and make predictions of future weather conditions that affect air pollution and smoke dispersion within the County and the North Coast Air Basin.

The District operates air monitoring stations located in Ukiah, Willits, and Fort Bragg (see Figure 1). These sites measure numerous air pollutant and meteorological values, including, but not limited to, continuous measurements of ozone, wind speed and wind direction, and 24-hour integrated particulate samples (PM<sub>10</sub> and PM<sub>2.5</sub>) which operate every sixth day. A continuous particulate sampler is operated at the Ukiah monitoring station.

Figure 1: Map showing locations of Mendocino County Air Quality Management District air monitoring stations.

Because of the size of the County, the varied 'micro'-climates and the lack of data sources in large portions of the County, the Air Pollution Control Officer will continue to reserve the authority to designate no-burn days, either for specified areas or the entire county, when local conditions could cause impacts on Smoke Sensitive Areas.

### D. Burn Prioritization

The District recognizes the public benefits of burn projects, including safety, public health, forest health, wildfire prevention, and other ecological needs. Economic reasons are also considered when evaluating the public benefits of burn projects.

The District prioritizes prescribed burn projects at the time of annual registration. Normally, project priority will depend upon the date of project registration, with projects registered earliest getting the highest priority.

The District maintains a map of all registered burn projects, showing the location of the planned burn, as well as the proposed dates of ignition. In cases where priorities conflict, the District will fully consider the overall benefits of the projects and prioritize the projects based upon other factors (i.e., nesting periods, fire danger potential, etc.). The District will work with the land managers to reach consensus on the final project prioritization decision.

#### E. Burn Authorization (Burn/No-Burn decisions)

The District will follow the Air Resources Board guidelines for making burn/no-burn decisions for particular burns. The District will base its burn authorization decision system upon the following factors:

- (1) Air quality;
- (2) Meteorological conditions expected during burning, including wind speeds and directions at the surface and aloft, and atmospheric stability (provided by ARB);
- (3) Types and amounts of materials to be burned;
- (4) Locations of materials to be burned;
- (5) Locations of smoke sensitive areas; and
- (6) Smoke from all burning activities, including burning in neighboring air districts or regions, which may affect the district or region.

Items 1, 2, and 6 are addressed on a daily basis beginning 72 hours before the scheduled burn, in consultation with ARB's staff of meteorologists. Items 3,4, and 5 are addressed when the original SMP arrives in the office. From the information obtained in the SMP boundaries to the allowable conditions for the burn will be set.

*(NOTE: The District does not have the fiscal or staff resources to make or issue it's own meteorological determinations. In any case where meteorological determinations will be needed [i.e. T-lapse rate and surrogate soundings] it is assumed that ARB will gather and provide the needed information to District staff in a prompt manner. In cases where ARB is unable to provide a meteorological determination the Air Pollution Control Officer will make a determination using the best data sources available in consultation with ARB meteorologists. The District assumes that ARB staff will be following the procedures required by the revisions to Guidelines promulgated by ARB. The District does not have the legal authority or technical ability to oversee the operations of ARBs staff in this matter. The District believes that ARB should adopt their own binding policies for ARB staff to use in issuing meteorological determinations.)*

*(NOTE: The District is working with ARB to establish three Met zones to hopefully open up more burn opportunities. If and when new Met zones are established the District will amend this document to reflect the changes.)*

ARB meteorologists issue basin wide notices of permissive burn/no-burn days on a daily basis. The ARB does not issue marginal burn days for Mendocino County. In other words, burning of all types in the entire county is either permitted or not permitted.

Burn day decisions are available to the public by voice recording. The recording is updated daily no later than 4:30 p.m. for the next day's status and is available by calling (707) 463-4391. It is also recommended to call the burn forecast recording on the day of the planned burn. All burners are also advised to contact the District office at (707) 463-4354 before ignition to ensure that conditions in their area are acceptable for burning.

## F. Burn Reporting

A report of agricultural burning, including prescribed burning, conducted during each calendar year will be submitted to the ARB by the District within 45 days of the end of each calendar year. The report will include the estimated tonnage of each waste type burned. When an electronic reporting system is established by the ARB, it will be used by the District for providing reports of burning to the ARB.

A report of permits issued pursuant to California Code of Regulations, Title 17, Subchapter 2, Section 80120(e) during each calendar year will be submitted to ARB by the District within 45 days of the end of the calendar year. The report will include the number of such permits issued, the date of issuance of each permit, the person or persons to whom the permit was issued, an estimate of the amount of waste burned pursuant to the permit, and a summary of the reasons why denial of each permit would have threatened imminent and substantial economic loss, including the nature and dollar amounts of such loss. **Permissive Burn or No-Burn day**

### **Determinations**

Air Resources Board meteorologists specify each day of the year as either a permissive burn day or a no-burn day for the North Coast Air Basin (there are no marginal burn days specified in the District). Agricultural burning, including prescribed burning, is prohibited in Mendocino County on no-burn days.

The Air Resources Board informs the District of the burn day decision for the following day at approximately 3:30 p.m. every day. If conditions preclude a forecast until the next day, the decision is announced by 7:45 a.m.

The Air Resources Board uses established criteria to determine burn/no-burn days. If better science or continued operational experience concludes that the current burn day/no-burn day criteria are inadequate to protect public health and welfare, or if there are adverse impacts in smoke sensitive areas, the District may adopt new burn day/no-burn day criteria in consultation with the ARB and amend this document if required.

## **8. Burn Permits**

An example of the District's Permit to Burn form is included in Appendix B.

### Fees

There will be a non-refundable thirty-dollar (\$30) registration fee for all Smoke Management Plans. There will be a burn fee for the larger burns (over 10 acres) based upon the number of acres for broadcast burns or the number of tons for pile and slash burns. This fee will be payable upon submittal of Smoke Management Plan, Section D, the Post Burn Evaluation Form by the applicant.

## **9. Special Requirements for Prescribed Burning and Prescribed Fires in Wildland and Wildland /Urban Interface Areas**

The anticipated increase in the amount of prescribed burning in the North Coast Air Basin has prompted the development of this Program to minimize smoke impacts and protect public health.

The potential for prescribed fires to impact smoke sensitive areas requires the District to be closely involved with many prescribed burn projects. All prescribed burn projects must be registered and comply with the special requirements described in this section.

Prescribed burn projects are registered by completion and submission of an Application for Prescribed Burning Permit included in Appendix C by the applicant to the District. The District reviews these applications for completeness and to ensure that the applicant has planned to minimize smoke impacts caused by the project. Once approved by the District, the project is registered into the system for final authorization to burn. To meet the requirements of the California Code of Regulations, Title 17, Subchapter 2, the following restrictions are imposed:

### Section 80160 (a)

The District requires annual registration of all planned burn projects, including areas considered for potential naturally-ignited wildland fires managed for resource benefits, with updates as they occur.

### Section 80160 (b)

The District requires the submittal of a Smoke Management Plan (SMP) for all burn projects greater than 10 acres in size or estimated to produce more than 1 ton of particulate matter. The SMP shall contain, at a minimum, the following information:

- (1) Location, types, and amounts of material to be burned;
- (2) Expected duration of the fire from ignition to extinction;
- (3) Identification of responsible personnel, including telephone contacts; and
- (4) Identification and location of all smoke sensitive areas.

The District requests that the permittee submit a map showing the locations of burns or an electronic format version with locations in State Plane Zone 2 coordinates (NAD83 Datum).

### Section 80160 (c)

The District requires that SMPs for burn projects greater than 100 acres in size or estimated to produce more than 5 tons of particulate matter contain, at a minimum, the information required in Section 80160 (b) and the following additional information:

- (1) Identification of meteorological conditions necessary for burning;
- (2) The smoke management criteria the land manager or his/her designee will use for making burn ignition decisions;
- (3) Projections, including a map, of where smoke from burn is expected to travel, both day and night;
- (4) Specific contingency actions (such as fire suppression or containment) that will be taken if smoke impacts occur or meteorological conditions deviate from those specified in the smoke management plan;

- (5) An evaluation of alternatives to burning considered; if an analysis of alternatives has been prepared as part of the environmental documentation required for the burn project pursuant to the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA), as applicable, the analysis will be attached to the SMP in satisfaction of this requirement; and
- (6) Discussion of public notification procedures.

#### Section 80160 (d)

If smoke may impact smoke sensitive areas, the District requires SMPs to include appropriate monitoring, which may include visual monitoring, ambient particulate monitoring or other monitoring approved by the District, as required by the District for the following burn projects:

- (1) Projects greater than 250 acres; or
- (2) Projects that will continue burning or producing smoke overnight; or
- (3) Projects conducted near smoke sensitive areas; or
- (4) As otherwise required by the District.

#### Section 80160 (e)

The District requires, as appropriate, daily coordination between the land manager or his/her designee and the District or the ARB for multi-day burns which may impact smoke sensitive, to affirm that the burn project remains within the conditions specified in the SMP, and to determine if contingency actions are necessary.

#### Section 80160 (f)

The District may specify alternate thresholds to those specified in Sections (b), (c), and (d) consistent with the intent of this section.

#### Section 80160 (g)

The District requires District review and approval of SMPs. The District provides notice to ARB of large or multi-day burns and consults with the ARB on procedures for ARB review and approval as specified in Sections 80160 (d) and (e).

#### Section 80160 (h)

In the event 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 the District, it is decided for smoke management purposes, that the burn can be managed for resources benefit; or for periods of less than 24 hours, a reasonable effort has been made to contact the District, or if the District is unavailable, the ARB; or if after 24 hours, the District has been contacted, or if the District is unavailable, 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 a prescribed fire.

Section 80160 (i)

The District requires submittal of SMPs within 72 hours of the start of a fire for naturally-ignited wildland fires managed for resource benefits that are expected to exceed 10 acres in size.

Section 80160 (j)

The District requires the land manager or his/her designee conducting a prescribed burn to ensure that all conditions and requirements stated in the SMP are met on the day of the burn event and prior to ignition.

Section 80160 (k)

The District requires a post-burn smoke management evaluation by the burner for fires greater than 10 acres.

Section 80160 (l)

The District requires procedures for public notification and education, including appropriate signage at burn sites, and for reporting of public smoke complaints.

Section 80160 (m)

The District requires vegetation to be in a condition that will minimize the smoke emitted during combustion when feasible, considering fire safety and other factors.

Section 80160 (n)

The District requires that material to be burned be piled where possible, unless good silviculture practices or ecological goals dictate otherwise.

Section 80160 (o)

The District requires piled material to be burned to be prepared so that it will burn with a minimum of smoke.

Section 80160 (p)

The District requires that the permit applicant to file with the 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.

## **APPENDIX A**

### **Definitions**

**APPENDIX A**  
**Definitions**

- (a) “Agricultural burning” is defined in Health and Safety Code, Section 39011 as follows:
- (1) “Agricultural burning” means open outdoor fires used in agricultural operations in the growing of crops or raising of fowl or animals, or open outdoor fires used in forest management, range improvement, or the improvement of land for wildlife and game habitat, or disease or pest prevention.
  - (2) “Agricultural burning” also means open outdoor fires used in the operation or maintenance of a system for the delivery of water for the purposes specified in paragraph (1).
  - (3) “Agricultural burning” also means open outdoor fires used in wildland vegetation management burning. Wildland vegetation management burning is the use of prescribed burning conducted by a public agency, or through a cooperative agreement or contract involving a public agency, to burn land predominantly covered with chaparral, trees, grass, or standing brush. Prescribed burning is the planned application of fire to vegetation to achieve any specific objective on lands selected in advance of that application. The planned application of fire may also include natural or accidental ignition.
- (b) “Air Pollution Control District” (APCD), “Air Quality Management District” (AQMD), “Air District,” or “District” means an Air Pollution Control District or an Air Quality Management District created or continued in existence pursuant to provisions of Health and Safety Code, Section 40000 *et seq.*
- (c) “Air quality” means the characteristics of the ambient air as indicated by state ambient air quality standards which have been adopted by the State Board pursuant to Section 39606 of the Health and Safety Code and by National Ambient Air Quality Standards which have been established pursuant to Sections 108 and 109 of the federal Clean Air Act pertaining to criteria pollutants and Section 169A of the federal Clean Air Act pertaining to visibility.
- (d) “Ambient air” means that portion of the atmosphere, external to buildings, to which the general public has access.
- (e) “ARB” or “state board” means the Air Resources Board.
- (f) (Deleted)

- (g)** “Burn plan” means an operational plan for managing a specific fire to achieve resource benefits and specific management objectives. The plan includes, at a minimum, the project objectives, contingency responses for when the fire is out of prescription with the smoke management plan, the fire prescription (including smoke management components), and a description of the personnel, organization, and equipment.
- (h)** “Burn project” means an active or planned prescribed burn or a naturally ignited wildland fire managed for resource benefits.
- (i)** “Class I Area” means a mandatory visibility protection area designated pursuant to section 169A of the federal Clean Air Act.
- (j)** “Designated agency” means any agency designated by the Air Resources Board as having authority to issue agricultural burning, including prescribed burning, permits. An air district may request such a designation for an agency. The U.S. Department of Agricultural (USDA) Forest Service and the California Department of Forestry and Fire Protection (CDF) are so designated within their respective areas of jurisdiction.
- (k)** “Fire protection agency” means any agency with the responsibility and authority to protect people, property, and the environment from fire, and having jurisdiction within a district or region.
- (l)** “Forty-eight hour forecast” means a prediction of the meteorological and air quality conditions that are expected to exist for a specific prescribed burn in a specific area 48 hours from the day of the prediction. The prediction will indicate a degree of confidence.
- (m)** “Land manager” means any federal, state, local, or private entity that administers, directs, oversees, or controls the use of public or private land, including the application of fire to the land.
- (n)** “Marginal burn day” means a day when limited amounts of agricultural burning, including prescribed burning, for individual projects in specific areas for limited times is not prohibited by the state board and burning is authorized by the District consistent with these Guidelines.
- (o)** “National Ambient Air Quality Standards (NAAQS)” mean standards promulgated by the United States Environmental Protection Agency that specify the maximum acceptable concentrations of pollutants in the ambient air to protect public health with an adequate margin of safety, and to protect public welfare from any known or anticipated adverse effects of such pollutants (e.g., visibility impairment, soiling, harm to wildlife or vegetation, materials damage, etc.) in the ambient air.

- (o2)** “Natural ignition” means any ignition not caused by man.
- (p)** “Ninety-six hour trend” means a prediction of the meteorological and air quality conditions that are expected to exist for a specific prescribed burn in a specific area 96 hours from the day of the prediction.
- (q)** “No-burn day” means any day on which agricultural burning, including prescribed burning, is prohibited by the state board or the air district in which the burning will occur.
- (r)** “Open burning in agricultural operations in the growing of crops or raising of fowl or animals” means:
  - (1)** The burning in the open of materials produced wholly from operations in the growing and harvesting of crops or raising of fowl or animals for the primary purpose of making a profit, of providing a livelihood, or of conducting agricultural research or instruction by an educational institution.
  - (2)** In connection with operations qualifying under paragraph (1):
    - (A)** The burning of grass and weeds in or adjacent to fields in cultivation or being prepared for cultivation
    - (B)** The burning of materials not produced wholly from such operations, but which are intimately related to the growing or harvesting of crops and which are used in the field, except as prohibited by District regulations. Examples are trays for drying raisins, date palm protection paper, and fertilizer and pesticide sacks or containers, where the sacks or containers are emptied in the field.
- (s)** “Particulate matter (PM)” means any airborne finely divided material, except uncombined water, which exists as a solid or liquid at standard conditions (e.g., dust, smoke, mist, fumes or smog).
 

“PM2.5” means particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

“PM10” means particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (including PM2.5).
- (t)** “Permissive-burn day,” or “burn day” means any day on which agricultural burning, including prescribed burning, is not prohibited by the state board and burning is authorized by the District consistent with these Guidelines.

- (u)** “Pre-fire fuel treatment” means techniques which can reasonably be employed prior to prescribed burning in order to reduce the emissions that would otherwise be produced in a prescribed fire.
- (v)** “Prescribed burning” - see (a) (3). Tule burning in wildlands or wildland/urban interface is also considered to be prescribed burning.
- (w)** “Prescribed fire” means any fire ignited by management actions to meet specific objectives, and includes naturally-ignited wildland fires managed for resource benefits.
- (x)** "Range improvement burning" means the use of open fires to remove vegetation for a wildlife, game, or livestock habitat or for the initial establishment of an agricultural practice on previously uncultivated land.
- (y)** “Region” means two or more air districts within an air basin or adjoining air basins that sign a memorandum of understanding to implement a coordinated regional smoke management program pursuant to the requirements of Article 2 of this regulation.
- (z)** “Residential burning” means an open outdoor fire for the disposal of the combustible or flammable solid waste of a single-or two-family dwelling on its premises. Residential burning is not considered to be prescribed burning.
- (aa)** “Seventy-two hour outlook” means a prediction of the meteorological and air quality conditions that are expected to exist for a specific prescribed burn in a specific area 72 hours from the day of the prediction.
- (bb)** “Smoke Management Plan” means a document prepared for each fire by land managers or fire managers that provides the information and procedures required in Section 80160.
- (cc)** “Smoke management prescription” means measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include, but are not limited to, minimizing smoke impacts, and safety, economic, public health, environmental, geographic, administrative, social, or legal considerations such as complying with Health and Safety Code, Section 41700, public nuisance statute.
- (dd)** “Smoke Management Program” means the program defined in these Guidelines.

- (ee) “Smoke sensitive areas” are 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 mandatory Class I areas.
- (ff) “State ambient air quality standards” means specified concentrations and durations of air pollutants which reflect the relationship between the intensity and composition of air pollution to undesirable effects, as established by the state board pursuant to Health and Safety Code, Section 39606.
- (gg) “Wildfire” means an unwanted wildland fire.
- (hh) “Wildland” means an area where development is generally limited to roads, railroads, power lines, and widely scattered structures. Such land is not cultivated (i.e., the soil is disturbed less frequently than once in 10 years), is not fallow, and is not in the United States Department of Agriculture (USDA) Conservation Reserve Program. The land may be neglected altogether or managed for such purposes as wood or forage production, wildlife, recreation, wetlands, or protective plant cover.

For CDF only, “Wildland” as specified in California Public Resources Code (PRC) section 4464(a) means any land that is classified as a state responsibility area pursuant to Article 3 (commencing with Section 4125) of Chapter 1, Part 2 of Division 4 and includes any such land having a plant cover consisting principally of grasses, forbs, or shrubs that are valuable for forage. “Wildland” also means any lands that are contiguous to lands classified as a state responsibility area if wildland fuel accumulation is such that a wildland fire occurring on these lands would pose a threat to the adjacent state responsibility area.

- (ii) “Wildland fire” means any non-structural fire, other than prescribed fire, that occurs in the wildland.

For CDF only, “wildland fire” as specified in PRC section 4464(c) means any uncontrolled fire burning on wildland.

- (jj) “Wildland/urban interface” means the line, area, or zone where structures and other human development meet or intermingle with the wildland.

## **Appendix B**

### **Example of a Burn Permit Application**



**Inter-Agency Burn Permit**  
**(707) 463-4391 (Burn Forecast Recording)**  
**PERMIT AND PROCEDURES FOR OPEN OUTDOOR BURNING**  
**FOR PILES LARGER THAN 4 X 4**

PERMIT NUMBER

**THIS PERMIT DOES NOT AUTHORIZE BURNING DURING THE 'BURN BAN' WHICH IS APPROXIMATELY JULY 1 THROUGH THE END OF THE DECLARED FIRE SEASON**

This permit is valid only on days when agricultural burning is permitted by the California Air Resources Board or the Mendocino County Air Quality Management District, pursuant to Health and Safety Code, Section 41855 or Air Quality Management District Regulation 2. All operations shall comply with applicable local, county and state regulations. This permit is not valid for any burning conducted in violation of County Ordinance 3746 (Mendocino County Code, Chapter 9.33). Ordinance 3746 allows the burning of vegetative matter only. The Uniform Fire Code Section 1102.3.3 prohibits the burning of paper products.

**CLASSIFICATION:**

<input type="checkbox"/> A1	General Agricultural	<input type="checkbox"/> NA1	Single & Two family dwellings
<input type="checkbox"/> A2	Range Improvement	<input type="checkbox"/> NA2	Property Development
<input type="checkbox"/> A3	Forest Management	<input type="checkbox"/> NA3	Fire hazard reduction
<input type="checkbox"/> A4	Wildlife Habitat Improvement	<input type="checkbox"/> NA4	Right of way clearing
<input type="checkbox"/> A5	Wildland Vegetative Management	<input type="checkbox"/> NA5	Ditch, levee, or reservoir maintenance

Permittee \_\_\_\_\_ Telephone# \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ Zip \_\_\_\_\_

Location of Burn \_\_\_\_\_

Location: Section \_\_\_\_\_ Township \_\_\_\_\_ Range \_\_\_\_\_

Assessors Parcel # \_\_\_\_\_ Nearest City \_\_\_\_\_

Acreage \_\_\_\_\_ # of Piles \_\_\_\_\_ Tons \_\_\_\_\_ Type of material to be burned: \_\_\_\_\_

**Smoke Management Plan (SMP) Required?:**     No     Yes - Contact Air Quality for requirements and filing of SMPs.

This Permit is valid from \_\_\_\_\_ through \_\_\_\_\_. **Prior to burning, your pile may be required to be inspected by the issuing agency.** Burning hours are \_\_\_\_\_ to \_\_\_\_\_

Additional Comments: \_\_\_\_\_

**Any person who fails to observe the rules and regulations of the Air Quality Management District or any Designated Fire Agency or knowingly emits an air contaminant and fails to take corrective action is guilty of a misdemeanor which may be punishable by a fine and/or a jail sentence, or a civil penalty and the cost of putting out the fire.**

I agree to comply with the open burning requirements of the California Air Resources Board, the Mendocino County Air Quality Management District and Designated Fire Agencies, which may include submitting a Burn Report Card to the Air Quality Management District on a monthly basis until burning is completed or submitting a Smoke Management Plan if required.

(Signature of Applicant) \_\_\_\_\_ **This permit is not valid unless signed.** \_\_\_\_\_ (Date)

Permit issued by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

**ISSUING AGENCY:**

<input type="checkbox"/> Air Quality	463-4354	<input type="checkbox"/> California Dept. of Forestry	459-7414 or _____
<input type="checkbox"/> Anderson Valley FD	895-2020	<input type="checkbox"/> Brooktrails Vol FD	459-4441
<input type="checkbox"/> Covelo Fire District	983-6719	<input type="checkbox"/> Fort Bragg Fire Dept.	961-2831
<input type="checkbox"/> Irish Beach Vol FD	882-2468	<input type="checkbox"/> Little Lake Vol Fire Dist	459-6271
<input type="checkbox"/> Long Valley FD	984-6049	<input type="checkbox"/> Potter Valley Vol Fire Dist	743-1415
<input type="checkbox"/> Redwood Coast FD	882-3226	<input type="checkbox"/> Redwood Valley Vol FD	485-8121
<input type="checkbox"/> City Of Ukiah FD	463-6274	<input type="checkbox"/> Ukiah Valley Fire District	462-7921

**PLEASE READ BOTH SIDES OF THIS PERMIT**      White - Permittee    Yellow - District    Pink - Issuing Agency

**Inter-Agency Burn Permit  
(707) 463-4391 (Burn Forecast Recording)**

**PERMIT AND PROCEDURES FOR OPEN OUTDOOR BURNING FOR PILES LARGER THAN 4 X4**

**THE DECLARED FIRE SEASON IS MAY 1 THROUGH APPROXIMATELY DECEMBER 1.** The season is declared by the California Department of Forestry and Fire Protection. The winter burning season is approximately December 1 through May 1.

The California Department of Forestry and Fire Protection and all other fire agencies require a burning permit for all 'outdoor debris' burning on lands under their jurisdiction - (State Responsibility Area (SRA) and Local Responsibility Area (LRA)). The Air Quality Management District requires a burning permit for all 'outdoor debris' burning during the winter burning season as well as fire season. This permit is valid for all agency requirements. A valid CDF or Local Fire Agency permit will satisfy the requirements for an air quality permit during the fire season as well as winter burning season. For more information on obtaining a burn permit please call the Air Quality Management District at 463-4354 or your fire agency. Please plan ahead.

This permit is subject to temporary or permanent suspension due to critical fire weather conditions. Please be aware of the Burn Ban beginning July 1 of each year and extending through the end of fire season.

A permit may be obtained at a CDF fire station or local fire agency Monday - Friday from 8:00 am to 12:00 pm and 1:00 pm to 5:00 pm. There is no cost for the permit.

Non-agricultural open outdoor burning for single or two-family dwellings is prohibited in Mendocino County with the following exception: The disposal of vegetative matter on the property where it was grown.

For information on recycling, composting and waste reduction, call the Recycling Hotline at 468-9704 or 1-800-246-3939 .

**YARD WASTE IS ACCEPTED FOR COMPOSTING AT SITES IN THE FOLLOWING CITIES:**

Caspar, Fort Bragg, Gualala, Ukiah, & Willits.

**MOST NON-APPROVED COMBUSTIBLES CAN BE RECYCLED AT SITES IN THE FOLLOWING CITIES:**

Albion, Boonville, Caspar, Covelo, Fort Bragg, Gualala, Laytonville, Redwood Valley, Potter Valley, Ukiah, Westport, & Willits,

**APPROVED COMBUSTIBLES** are dried trees, vines, prunings, brush, weeds, and native vegetation which are being burned on the property where they were grown.

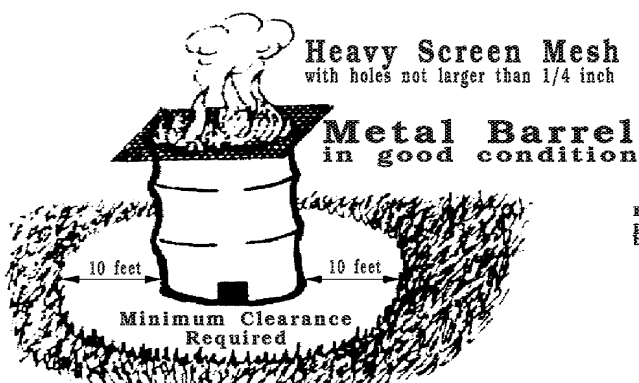
**NON-APPROVED COMBUSTIBLES shall not be burned.** Examples are: household garbage, cardboard, paper products, rubber or plastic materials, styrofoam, shop waste, wood waste, pressure treated wood (such as grape stakes or end posts), demolition debris, used motor oil, oil filters, batteries, pesticides, tires, tar paper.

**BURNING PREPARATIONS ---** The following conditions MUST be met:

1. Material must be an approved combustible and reasonably free of soil and surface moisture from rainfall.
2. Material must be arranged to promote rapid combustion.
3. Green materials must be dried for times as follows:
  - A. Trees and branches over 6" diameter - 60 days.
  - B. Prunings and smaller branches - 15 days.
  - C. Field crops, brush and weeds - seven (7) days.
  - D. Other material - drying time prior to burning will be determined by the District upon request.
4. After drying, burn piles are to be ignited as rapidly as possible by approved ignition devices such as diesel sprayers, drip torches, or kindling.
5. Wind direction shall not be toward any area with significant numbers of people when the fire is ignited or additional fuel is added.

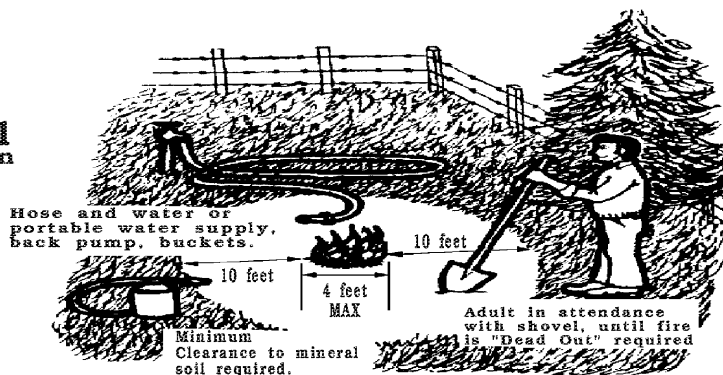
**AGRICULTURAL USE CLASSIFICATIONS (A1,A2,A3,A4,A5)-** Burn Report Cards must be returned monthly (when burning is conducted) until completion of burning.

Any person who fails to observe the rules and regulations of the Air Quality Management District or knowingly emits an air contaminant and fails to take corrective action is guilty of a misdemeanor and may be punishable by a fine, a jail sentence or both, or a civil penalty and the cost of putting out the fire.



Fire Safety Requirements for Dooryard Incinerator

1. Minimum clearance of 10 feet from all flammable material.
2. All openings must be screened with nonflammable material with holes not larger than 1/4 inch.
3. Adult in attendance at all times until fire is DEAD OUT.
4. Water supply at burning site.



Fire Safety Requirements for Piles

1. Minimum clearance of 10 feet from all flammable material.
2. Adult in attendance with shovel until fire is DEAD OUT.
3. Water supply at burning site

**Inter-Agency Burn Permit - Attachment for Smoke Management Plan Review**

**Part A**

**Acknowledgment of Conditions Restricting the Validity of Burn Permit No. \_\_\_\_\_**

I, \_\_\_\_\_, understand that Burn Permit No. \_\_\_\_\_, issued by

(Name of permittee)

\_\_\_\_\_, to me as agent for \_\_\_\_\_

(Fire Authority)

(myself, or organization)

IS NOT VALID UNTIL either:

1. A certified statement is on file with the Mendocino County Air Quality Management District that a Smoke Management Plan is not required for this permit (see Part B below); or
2. A Smoke Management Plan for this permit has been accepted and is on file with the Mendocino County Air Quality Management District.

**Conditions Requiring a Smoke Management Plan**

A Smoke Management Plan is required to validate all burn permits for burns meeting any one of the following conditions:

1. Broadcast burns cumulatively exceeding 10 or more acres on any one day, or
2. Burn piles assembled from 10 or more acres ignited on any one day, or
3. Burn piles cumulatively exceeding 50 tons of fuel as calculated by the formulae given in Table 1 on the back of this document.

\_\_\_\_\_  
(Signature of Permittee)

\_\_\_\_\_  
Date

**Part B**

**Certification that a Smoke Management Plan is not required for this Permit**

I, \_\_\_\_\_, certify under penalty of perjury that Burn Permit No. \_\_\_\_\_,

(Name of permittee)

issued by \_\_\_\_\_, to me as agent for \_\_\_\_\_

(Fire Authority)

(myself, or organization)

does not require a Smoke Management Plan under the conditions set out in Part A.

\_\_\_\_\_  
(Signature of Permittee)

\_\_\_\_\_  
Date

This document is to be mailed or faxed along with a copy of the Burn Permit to:

Mendocino County Air Quality Management District  
306 East Gobbi Street  
Ukiah, CA 95482  
tel: 707-463-4354 fax: 707-463-5707

**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 multiplied by 30 lbs/cu.ft, multiplied by 0.2 packing ratio		
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.) =  $3.1416 \times [\text{height} \times (\text{diameter})^2] / 8$  (see Reference b. below).
- b. USDA (2/1996). Forest Service General Technical Report. Report Number: PNW-GTR-364.

## **Appendix C**

### **Forms for Prescribed Burning Smoke Management Plans**

## **SMOKE MANAGEMENT PLAN FOR BURN PROJECTS OVER 10 ACRES**

In accordance with the Air Quality Management 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 Quality Management District. This SMP application consists of a Project Description page and two sections – A and B. **ALL APPLICANTS MUST COMPLETE THE PROJECT DESCRIPTION PAGE (page 1).** 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 Quality Management District, this SMP serves as a conditional permit to burn, when combined with the District's permit to burn.

The Project Description Page (page 1) 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 Quality Management 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 if the burn will be greater than 100 acres or will produce more than 5 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.

General Information and Requirements regarding this SMP are provided on page 3. Terms used in this form have the same meaning as those defined in the Air Quality Management District's open burning regulation definitions or the California Code of Regulations, Title 17, Subchapter 2, Section 80101. Where differences occur, the Air Quality Management District's definitions apply. Emission factors to assist with calculating burn particulate matter emissions are provided on pages 7 and 8. Contact the Air Quality Management District if you have questions or need assistance with making these calculations.

Information may need to be extracted from the project burn plan (if available) to supplement the SMP. Air Quality Management District review of the burn plan is for informational purposes only. When the burn plan is reviewed, the Air Quality Management 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.

**Smoke Management Plan - Project Description**  
**Complete This Page for ALL PRESCRIBED BURNS\***

<b>1.1 Project Name:</b>	<u>Project Location: (Report at least one of the following location descriptions. Provide attachment as needed.)</u> <b>1.8a Legal:</b> T _____ R _____ S _____ M&B _____ <b>1.8b Lat/Long:</b> Lat ____ (deg.) ____ (min) ____ (sec) Long ____ (deg.) ____ (min) ____ (sec) <b>1.8c UTM: Zone:</b> ____ N _____ m, E _____ m <b>1.9 Project Elevation (msl feet):</b> Top: _____ Bottom: _____ <b>1.10 Land Owner Name:</b> _____ Street: _____ City: _____ State: _____ Zip: _____
<u>Permittee Name:</u>	
<u>Permittee Address:</u>	
<u>Street:</u>	
<u>City:</u>	
<u>State:</u> _____ <u>Zip:</u> _____	
<b>1.4 Permittee/Field Contact:</b>	
<b>1.5 24-hour Phone/Pager:</b>	
<b>1.6 Project Location (Counties):</b>	
<b>1.7 Nearest Town:</b>	

- 1.11 Proposed Time of Year for Burn (Month/Year): \_\_\_\_\_
- 1.12a Is the Primary Purpose of the Burn for Fire Hazard Reduction?  YES  NO
- 1.12b Burn Type (Check one): \_\_\_Forest Management: \_\_\_Range Improvement \_\_\_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): \_\_\_\_\_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 Total 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: \_\_\_\_\_
- 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; or  
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)
- 1.26 No Less Than \_\_\_\_\_ Hours Between Ignitions. Other: \_\_\_\_\_
- 1.27 Ignition Technique: \_\_\_\_\_
- 1.28 Expected Fire Intensity: \_\_\_\_\_ High \_\_\_\_\_ Low

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.\*\*

<b>1.29 District Name:</b> Mendocino County AQMD	<b>1.31 Contact:</b> C. D. Wolbach, Interim APCO
<b>1.30 Address:</b> 306 E. Gobbi Street Ukiah, CA 95482	<b>1.32 24-hour Telephone:</b> (707) 463-4354
	<b>1.33 Fax:</b> (707) 463-5707
	<b>1.34 Email:</b> mcaqmd@co.mendocino.ca.us

**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 5 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

\_\_\_\_\_  
Date

\* If your burn is less than 100 acres with less than 5 tons 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/District burn authorization coordination to be determined by the Air Quality Management District.

**FOR DISTRICT USE ONLY**

\_\_\_ I have reviewed and approved this SMP as a conditional burn permit to be combined with agricultural burn/Air Quality 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 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 : Mendocino County Air Quality Management District

Date: \_\_\_\_\_



## 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 Quality Management 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 Quality Management 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 Quality Management District assistance in determining if Section A should be completed.

### Procedures for Permittees to Report Public Smoke Complaints to Air Districts (CCR section 80160(i))

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 Quality Management 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 Quality Management District, the 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 Quality Management District, or if the District is not available, the Air Resources Board (ARB); or
3. After 24 hours, the Air Quality Management 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.

### 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 both declared the day to be a burn day, and the 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 Quality Management 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.

\* CCR 80120(e) provides that an Air Quality Management 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.

**SECTION A: SMOKE SENSITIVE AREAS (SSAs) as required by Title 17 and 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# \_\_\_\_\_ 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.7b 24-hour Pager ( \_\_\_\_\_ ) \_\_\_\_\_ - \_\_\_\_\_

A.7c Fax: ( \_\_\_\_\_ ) \_\_\_\_\_ - \_\_\_\_\_ A.7d 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	_____	_____	_____	_____
_____ Aircraft	_____	_____	_____	_____
_____ 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 on-going 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 appropriate signage at or near burn sites to identify the burn project to the public as noted on the attached map# \_\_\_\_\_

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: GREATER THAN 100 ACRES OR MORE THAN 5 TONS PM - as required by Title 17 and District policies, this section applies to all burn projects greater than 100 acres or producing more than 5 tons of particulate matter**

---

B.1. Meteorological Conditions for Ignition:

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:

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 Describe 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, is on file with the Air Quality Management District, or is provided for as agreed to by the Air Quality Management District. Document 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 B.4 – B.9 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 Quality Management 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.

**Section C - SMOKE IMPACTS - Post Burn Evaluation For Burns Greater Than 250 Acres or Burns For Which Smoke Impacts Occurred\***

---

**C1. General Information:**

Date of Burn: \_\_\_\_\_ Burn Location: \_\_\_\_\_

Number of Acres Burned: \_\_\_\_\_ Estimated PM Emissions: \_\_\_\_\_ (tons)

Burner Name: \_\_\_\_\_

Burner Address: \_\_\_\_\_  
\_\_\_\_\_

Burner Phone Number: \_\_\_\_\_

Burner Email: \_\_\_\_\_

1. Did the burn remain within the conditions specified in the SMP? \_\_\_\_\_
2. Were there any adverse smoke impacts? \_\_\_\_\_ If so, proceed to Section C2 below.
3. Lessons learned (Optional) (Provide attachment if desired): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**C2. For Burns That Had Smoke Impacts, Complete The Following:**

1. What Air Districts were notified? (who, when, and at what phone number(s))  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Describe adverse smoke impacts below (add attachment if needed):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Were there any complaints from the public? \_\_\_\_\_ If so, how many and from whom:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
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 Quality Management District policies.**

**Section D - POST BURN EVALUATION - Burn Completion Report for Burns between 10 and 250 acres\***

**D1. General Information:**

Date of Burn: \_\_\_\_\_ Permit Number \_\_\_\_\_

Burn Location: \_\_\_\_\_

Number of Acres Burned: \_\_\_\_\_ Estimated PM Emissions: \_\_\_\_\_ (in tons)  
(See attached tables)

Burner Name: \_\_\_\_\_

Burner Address: \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Burner Phone Number: \_\_\_\_\_ Other \_\_\_\_\_

Email: \_\_\_\_\_

1. Did the burn remain within the conditions specified in the SMP and / or Burn Permit? \_\_\_\_\_  
If no, please explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Were there any complaints from the public? \_\_\_\_\_ If yes, how many and from whom:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Attach any smoke observation and weather data collected before, during, and after the burn.

\* As required by Title 17 and Air Quality Management 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 multiplied by 30 lbs/cu.ft, multiplied by 0.2 packing ratio <sup>b</sup>		
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		
<b>Revised 2/13/2001</b>		

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

**Table 2**  
**PM 10 EMISSION CALCULATION FOR PRESCRIBED BURNING OF VARIOUS FUEL TYPES<sup>1,2</sup>**

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 <sup>1</sup>	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 (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	PM Emissions		PM10 EMISSION VALUE			
	%Combustion (lbs/ton fuel)	Conversion Factor	(PM10 lbs 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 used 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.

Figure 1 - Mendocino County Air Quality Management District Ambient Air Monitoring Locations

1. Ukiah
2. Willits
3. Fort Bragg

