

# **Northern Sierra Air Quality Management District Smoke Management Program**

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# Introduction and Background

The Northern Sierra Air Quality Management District is located northeast of Sacramento and is comprised of three counties; Plumas, Sierra, and Nevada. The District is responsible for permitting and enforcement of District Rules and Regulations in 4529 square miles of land. The western portion of the District is mainly lowlands, down to 300 feet in elevation, and covered predominantly with grasses, manzanita, and chaparral. The lowlands lead into the rolling foothills of the Sierra Nevada Mountains, which are covered, by oak woodlands, brush, and some coniferous trees. The central and eastern portion of the District is high mountain peaks, up to 9000 feet, and valleys and are covered by various pine and fir forests. The District is bordered on the north by Lassen and Shasta counties, on the west by Tehama, Butte, and Yuba counties, on the south by Placer County and on the east by the State of Nevada. A very large portion of the District's landmass is owned or managed by the National Forest system and several large, private landowners. The District has a population of approximately 116,000 people (2000 census figures) located in unincorporated areas and 5 incorporated cities (Grass Valley, Nevada City, Truckee, Loyalton, and Portola). As with most of California, the District has cool to mild winters (except the higher elevations) and warm to hot summers. Surface winds are predominantly southwesterly, with seasonal northerly influences. Additionally, the District experiences up-slope daytime winds and down-slope nighttime winds. During the spring, summer and fall seasons, temperature inversions are a normal occurrence, which prohibits good dispersion of smoke and other air pollutants.

The Northern Sierra AQMD is one of seven air pollution control districts that make up the Mountain Counties Air Basin (MCAB). The MCAB consists of Amador, Calaveras, El Dorado, Mariposa, Northern Sierra, Placer (portion thereof), and Tuolumne air pollution control districts. The seven air districts work closely together employing a regional approach to air pollution control.

This Smoke Management Program ("Program") is intended to describe Northern Sierra Air Quality Management District's ("District") methods of implementing §80100-80330 of the California Code of Regulations Title 17, Smoke Management Guidelines for Agricultural and Prescribed Burning, and of ensuring compliance with District Regulation III - Open Burning (Rules 300-318). One of the District's goals is to achieve and to maintain all state and federal ambient air quality standards related to particulate matter through implementation of emission reducing measures, which includes this Program. The Program's objectives are to allow for the continuation of agricultural and prescribed burning as a resource management tool and provide increased opportunities for agricultural and prescribed burning, while at the same time minimizing smoke impacts to the public.

The District derives its authority to implement and enforce this Program from Regulation III, Rules 312, Burning Permits and 316, Burn Plan Preparation. These rules require applicants for agricultural and prescribed burning to supply such information as is required by the District prior to setting or allowing an outdoor fire. Additionally Rule 315, Burning Management Requirements, requires the District to regulate burning or require mitigation if it is determined that meteorological conditions could cause smoke to create or contribute to a violation of an air

quality standard or cause a public nuisance. These rules give the District broad authority to regulate agricultural and prescribed burning activities in its jurisdiction.

This Program was prepared in conjunction with the air districts participating in the Mountain Counties Air Basin Technical Advisory Committee. Public and private land management agencies have been given the opportunity to comment on this Program through participation in the Mountain Counties Air Basin Smoke Management Alliance (“MCABSMA”). Additionally, the District provided a 30-day public notice and comment period prior to District Board of Directors adoption.

In addition to the MCABSMA, the District participates in and is a member of the North East Air Alliance (NEAA). The NEAA is composed of air districts and burn agencies from the counties of Lassen, Modoc, Siskiyou, Shasta, Tehama, Plumas, and Butte. Both air alliances provide a forum to develop agreements with public, and private land management agencies for more detailed smoke management activities and associated tools. The MCABSMA and NEAA Charters are attached as Appendix A and B, respectively.

Since the District’s current regulations provide the authority to implement and enforce this Program, no modifications to Regulation III are anticipated at this time. Once the program is fully developed and implemented, the District may discover changes that need to be made in the District’s regulations. Any changes needed to fully develop and implement the Program will be drafted, and after public review, adopted by the District’s governing board.

The Program is divided into six sections: permitting, registration, authorization, planning, resources, and enforcement with supporting appendices. Each section describes the methods used by District staff for that particular issue from specific actions that are required to general guidelines or procedures that provide direction to District staff. The appendices include pertinent documents that support the Program. Since smoke management is complex and is affected by many variables, no written program will be able to address every situation. This Program is designed to provide general direction, but should not override common sense in regulating burning in the District.

## **Section 1- Burn Permits**

District staff issues air pollution permits for all agricultural and prescribed burning projects. The permits are issued at the District’s office but also may be issued via fax, mail, or e-mail. The permit includes conditions that limit burning to permissive burn days, limit types of material to be burned, require material that is burned to be free of moisture and dirt. The permit allows the District to add conditions to limit the amount of material to be burned or burn hours if necessary. In addition to the air permit, land managers/burners must also submit a Smoke Management Plan for prescribed burning projects.

- a) All agricultural and prescribed burning requires a valid air permit from the District. The most current version of the Air Pollution Permit application is attached as Appendix C. An approved Smoke Management Plan serves as a conditional permit to burn, when combined

with the single-page air pollution permit. The most current version of the Smoke Management Plan application is attached as Appendix D.

- b) A valid burn permit may also be required from the fire agency that has jurisdiction in the area of the proposed burn project.
- c) Burning conducted pursuant to such permits issued by the District and a fire agency must comply with all the conditions specified on such permits including an approved Smoke Management Plan. (See section 4 for further discussion on the Smoke Management Plan requirements.) Failure to abide by permit conditions is a violation of Section 41852 of the California Health and Safety Code and of District Rule 505, Conditional Approval.
- d) All permits issued for agricultural and prescribed burning by the District or fire agency must contain the following words or words of similar import: “This permit is valid only on those days during which agricultural burning, including prescribed burning, is not prohibited by the State Air Resources Board or by an air district pursuant to Section 41855 of the Health and Safety Code, and when burning on the lands identified herein has been approved by the air district”.
- e) The District may issue special permits for agricultural or prescribed burning on no-burn days if denial of such permits would threaten imminent and substantial economic loss. The District limits the amount of burning that can occur pursuant to the issuance of such a permit to the extent that it ensures no exceedences of air quality standards or smoke impacts to smoke sensitive areas. Each applicant for a no-burn day permit shall submit a completed No Burn Day Burn Permit application to the District or as otherwise required by the District to make this determination.

## **Section 2 - Burn Registration and Reporting**

- a) All persons who desire to conduct prescribed burning in the District in any particular calendar year must register their planned burn projects with the District. The MCABSMA and NEAA members register their burns semi-annually prior to the spring and fall burn seasons. Updates and late additions to this registration process are accepted from members and non-members. The burn registration must include the name of the permittee, including a contact person with phone number; a listing of all projects planned, with legal descriptions of their locations (township, range, section #); and an estimate of the total acreage and/or tons of material to be burned.
- b) Each day during the burn season, land managers/burners will submit a daily report to the Air District. This report shall, at a minimum, list project name, date, location, and acres burned. The Daily Authorization Request & Information Reporting, or other suitable form, can be used for this purpose.

- c) A report of the agricultural and prescribed burning conducted each calendar year in the District is submitted to ARB within 45 days of the end of each calendar year. The report includes the estimated tonnage and/or acreage for each type of waste burned from both agricultural and prescribed burning by county.
- d) The District also reports all special permits (no-burn day permits) issued each calendar year within 45 days of the end of each calendar year. This report includes 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 tonnage and/or acreage for each type 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.
- e) Upon full implementation of the Prescribed Fire Incident Reporting System (PFIRS) or other suitable electronic reporting system, and upon proven effectiveness of this system, the District will fully participate to the greatest extent possible and encourage, if not require, MCABSMA and NEAA members full cooperation and participation.

### **Section 3 - Burn Authorization System**

- a) The District operates a daily burn authorization system that regulates agricultural and prescribed burning. The burn authorization system specifies the amount, timing, and location for each burn project within the District boundaries.
- b) The purpose of the burn authorization system is to minimize smoke impacts in smoke sensitive areas, avoid cumulative smoke impacts, and prevent public nuisance. All burn authorization requests are evaluated first by these considerations.
- c) In evaluating burn authorization requests the Air District considers the following factors:
  - air quality;
  - meteorological conditions expected during burning;
  - types and amounts of materials to be burned;
  - location and timing of materials to be burned;
  - locations of smoke sensitive receptors;
  - smoke from all burning activities, including burning in neighboring air districts or regions which may affect the air quality in the District; and
  - historical data from previous burning.

Burn authorizations may be issued to land managers and burners for specific burn projects 24 hours in advance of ignition of each project. To obtain District authorization to burn any project, the land manager or burner must contact the District via telephone, fax, E-mail, or in person announcing the intent to burn. The burner must submit the Daily Authorization Request & Information Reporting, or other suitable form to the District (Appendix E). Using the above criteria, the District staff would either grant or deny authorization to burn. When two or more burns are proposed for the same day and in the same general location, the burn agencies will

coordinate amongst themselves and decide which burn will proceed. Once a burn authorization is granted it is only rescinded if meteorological conditions change such that adverse air quality impacts are likely.

- d) A burn authorization from the District only authorizes the ignition of a burn if the smoke management conditions specified in the project's Smoke Management Plan are met at the time of ignition and for the duration of the burn. A burn authorization does not relieve the burner from meeting the conditions of the smoke management plan. It is the burner's responsibility to ensure all conditions listed in the Smoke Management Plan are met prior to ignition. To validate the specific smoke transport conditions that exist on each site the land manager/burner will launch a helium-filled balloon, set a test fire, rely on local weather forecasts, spot weather forecasts, RAWS or other validation method, as specified in their Smoke Management Plan.
- e) To receive a burn authorization for burning on a No Burn Day, the land manager/burner must submit a completed No Burn Day Authorization Request Application to the District as soon possible prior to ignition. As a prerequisite to burning on a No Burn Day, the District requires that the burn project be entered with ARB and shall have received the 48/72/96 notices for at least 3 days prior to ignition. In addition, the District may require the land manager/burner to supply on-site or RAWS meteorological weather observations, site-specific weather forecasts, or other information necessary to assist in authorizing the burn project.
- f) In order to assist the land managers/burners in their planning process, the District may require the land managers/burners to enter their burn project with ARB to receive a 48-hour forecast, 72-hour outlook, and a 96-hour trend. To accomplish this, the land manager/burner shall submit a completed CB-3 form to the ARB and the District. The land manager/burner may contact the District after 3 p.m. Monday through Friday to obtain the forecast information. If requested, the District will contact the burner with this information or the District may request ARB to contact the burners. On weekends and holidays, the land managers/burners may need to call the ARB before 4 p.m. (The Plumas National Forest currently has its own burn day recorder that the District enters daily burn day status and 48/72/96 information). These forecasts are not a substitute for a burn authorization, and contain no guarantee that a favorable forecast will necessarily lead to a burn authorization approval, but are intended solely to help in burn project planning.
- g) The District maintains a daily log, recording burn authorizations, location of the burns, amounts of material burned, planned and unplanned wildfires occurring that day, and any other relevant information related to smoke impacts for that day. This data is used in the burn authorization process for subsequent days and in evaluating the success and efficiency of the smoke management program. The District also maintains maps indicating burn locations in the District for easy reference of daily burning, location of smoke sensitive receptors, and potential cumulative smoke impacts from other burning in the region.

- h) Multi-day burns require authorization on a daily basis from the District and consultation with the ARB.
- i) If smoke from a project may impact other Districts or states, District staff shall notify the appropriate air quality agency prior to ignition, by faxing or by other electronic means the Controlled Burn/Prescribed Fire Notification form (Appendix F) as soon as practical and prior to the actual ignition. Any concerns these agencies have over the planned burn will be incorporated into the authorization.
- j) If increased burning activities causes competition for burning between burn agencies, the District will, in coordination with MCABSMA and NEAA members, establish guidelines for prioritizing all agricultural burns, including prescribed burns. In considering priorities, the District shall consider the public benefits of burn projects, including safety, public health, forest health and wildfire prevention, ecological needs, economic concerns, and disease and pest prevention. Efforts to reduce smoke emissions, such as removal of excess material, shall also be considered.
- k) The District operates several burn day information recordings; (530) 283-3602, (530) 268-1023, (530) 274-7928, (530) 582-1027, (530) 994-3561, (530) 289-3662, (530) 258-2588, (530) 284-6520, and (530) 832-4528 to announce the daily burn day decision in the District. The District consults with the ARB and fire agencies as necessary to make the final determination.

## **Section 4 - Smoke Management Planning**

- a) Each prescribed burn project will be registered for smoke management planning purposes as described in Section 2a.
- b) Burn projects less than 10 acres in size or that will emit less than one ton of particulate matter may only need to obtain an air pollution permit. Burn projects greater than 10 acres or that will emit in excess of one ton of particulate matter must complete a District Smoke Management Plan. Before issuing an authorization to burn, the District, at its discretion, may require additional smoke management procedures to be used if a burn: 1) is greater than 100 acres in size, 2) may impact smoke sensitive areas, or 3) presents other potential problems.
- c) The following minimum smoke management actions will be considered for every burn project, and may require written submittal to the District of the actions taken consistent with the guidelines above and the District Smoke Management Plan form:
  - 1) Meteorological Prescription: Provide a detailed meteorological prescription that must be met to proceed with the burn. At a minimum the prescription must include acceptable wind direction. Other considerations may include wind speed, temperature profile, winds aloft, humidity, temperature, actual and predicted inversions, burn day status, and forecast precipitation. The District may require weather forecasts to be obtained to make smoke management decisions for the burn project.



- 2) Contingency Actions: The actions the burner will take if smoke from the burn project produces unacceptable smoke impacts, which may include: stopping further ignitions, active fire suppression, rapid mop up, and other appropriate techniques that are discussed with the District.
  - 3) Smoke Mitigation: Actions that will be taken to minimize smoke from the burn, which may include: minimum drying times/fuel moistures, piling and/or windrowing materials, active mop up of smoldering, pretreatment of fuels, and other appropriate techniques.
  - 4) Burning Alternatives: Describe the alternatives to burning that have been considered for this burn project and the basis of why the alternatives were not feasible or justified. Alternatives are listed in the SMP. Additionally for projects requiring NEPA/CEQA environmental documentation, alternatives to burning are addressed in the air quality section of such documents. The location of these documents is noted in the SMP.
  - 5) Smoke Sensitive Receptors: A description of what smoke sensitive receptors, such as towns, schools, or roads, is required along with a map showing the location of sensitive receptors and predicted smoke travel.
  - 6) Public Notification: The potentially affected public will be notified of the burn project by one or all of the following: media announcements, phone contact lists, road signs, and other appropriate techniques.
  - 7) Complaint Handling Procedures: A procedure shall be developed that insures that all complaints regarding smoke impacts received by a company or individual conducting the burn are promptly reported to the District.
  - 8) Smoke Monitoring: Describe the procedures that will be used to monitor and track the smoke transport from the burn project, which may include: a smoke spotter to check on downwind sites, ambient air monitoring, aerial monitoring, or other appropriate methods.
- d) Naturally Ignited Wildland Fires: A District Smoke Management Plan shall be completed and submitted to the appropriate Air District within 72 hours from the start of the fire if the size of the burn is expected to exceed ten acres in size and will be managed for resource benefit. When a natural ignition occurs on a no-burn day, the initial “go/no-go” decision to manage the fire for resource benefit will be a “no-go” unless:
- 1) After consultation with your Air District, the Air District staff decide, for smoke management purposes, that the burn can be managed for resource benefit; or
  - 2) For periods of less than 24 hours, a reasonable effort has been made to contact the District, or if the District is not available, the Air Resources Board (ARB); or

- 3) After 24 hours, the District has been contacted, or if the District is not available, the ARB has been contacted and concurs that the burn can be managed for resource benefit.

A “no-go” decision does not necessarily mean that the fire must be extinguished, but that the fire cannot be considered as a prescribed fire.

- e) District staff will maintain the highest possible level of training with regards to smoke management. Staff that are assigned to the District’s agriculture and prescribed program will attend smoke management workshops, seminars, and training sessions. Participation and cooperation in smoke management alliances, Interagency Air and Smoke Council (IASC) meetings, and Mountain Counties Air Basin Technical Advisory Committees will strongly be encouraged, if not mandatory. When the Prescribed Fire Incident Reporting System (PFIRS) or some other electronic substitute, becomes available, the District will participate to the fullest extent possible.
- f) Commencing on April 1, 2001, the District will take part in an experimental ARB program which will refine the daily permissive burn day status to one of four categories; marginal, fair, good, and superior burn days. These ARB decisions will assist the District in issuing burn authorizations, especially for those multi-day or large single-day burn projects
- g) For those burns that are either in excess of 250 acres, created smoke impacts or were burned on No Burn Days, the responsible burn agency must complete a District Project Post Burn Form. These are to be completed and returned to the District within 30 days from the completion of the burn project. This information will then be reviewed and can assist in issuing burn authorizations for similar projects.
- h) All agricultural burning projects (for the purpose of this subsection excludes prescribed burn projects) will be registered with the District for smoke management planning purposes through the permitting process as described in Section 1. Agricultural burning projects are required to abide by air permit conditions that include general smoke management under Regulation III.

## **Section 5 - District Resources**

### a) General District Resources

The District consists of 7.5 staff and a 6 member Board of Directors. The Air Pollution Control Officer and his/her subordinates will be responsible to carry out the provisions of this Program. The District will rely on the ARB for forecasting and the MCABSMA, NEAA, and MCAB Technical Advisory Committee for planning.

### b) Meteorological Resources

The District relies primarily on the ARB to provide the daily burn day decision and the 48/72/96 forecasts to guide the burn authorization. To augment it’s forecasting tools, the ARB funds a

local meteorological data gathering flight out of Columbia (Tuolumne County) to obtain more accurate data on atmospheric conditions in the air basin.

The District utilizes the Internet as a tool to access general weather trends, RAWs data, and fire weather forecast data for specific burns.

The District may also utilize special weather forecasts obtained by burn agencies through the Interagency Fire Forecast and Warning Unit, especially for burn projects that are large or located near sensitive receptors.

The District plans to purchase a portable weather station for use at burn projects when site specific data is not available. The equipment will include wind speed, wind direction, temperature, relative humidity and possibly barometric pressure. The District currently utilizes a handheld anemometer and handheld digital sling psychrometer/thermo-hygrometer to gather general data. The District also possesses portable visual equipment (cameras, binoculars) to observe and document smoke impacts, plume dispersion, and other items.

#### c) Air Monitoring Resources

The District has had as many as seven PM-10 “HI-Vols” distributed throughout the three counties. Currently, one Hi-Vol is operational in Quincy, Plumas County. Additionally, four PM-2.5 sites are operational in Grass Valley, Truckee, Portola, and Quincy and three TEOM sites in Grass Valley, Truckee, and Quincy. Data from these sites can be used for informational and planning purposes. The District has plans to eventually replace all Hi-Vol sites with beta attenuation monitors (BAMS) when economically feasible.

## **Section 6 - Inspection and Enforcement**

- a) Subject to the constraints of time and availability, District staff conduct on-site inspections of a representative number of agricultural and prescribed burns each year. Such inspections are prioritized based on the following criteria:
  1. active burns that are conducted in an area or by a source that historically generates many complaints;
  2. active burns that are generating complaints;
  3. active burns that are large (100+ acres) or located near sensitive receptors; and
  4. planned burns representing a variety of sources and fuels.
- b) Inspections of active burns document that meteorological conditions are within acceptable parameters; that the amount of acreage and/or fuel given in the burn registration and authorization is what is actually being burned; and that the burn is not impacting any sensitive receptors.
- c) Inspections of planned burns document that the projected acreage and/or fuel loading is consistent with that reported in the burn registration; that the meteorological prescription is

reasonable for the location; and that actions taken to reduce fuel loading and/or smoke emissions have been carried out.

- d) If unacceptable smoke impacts occur to a smoke sensitive area from an authorized burn, and such impacts are verified by District staff, then the burner is promptly notified and required to take such contingency actions as are possible.
- e) Notices of Violation issued for violations of the District's Smoke Management Program are handled according to the District's Mutual Settlement Program.