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State of California
Environmental Protection Agency
AIR RESOURCES BOARD

Notice of Decision and
Response to Significant Environmental Issues

Item: AMENDMENTS TO THE AGRICULTURAL BURNING GUIDELINES, TITLE 17, SECTIONS 80100 THROUGH 80330, OF THE CALIFORNIA CODE OF REGULATIONS

Approved by: Resolution 00-8

Adopted by: Executive Order G-00-057
Dated: January 22, 2001

Agenda Item No.: 00-3-1

Public Hearing Date: March 23, 2000

Issuing Authority: Air Resources Board

Comment: The regulation revises State guidelines governing agricultural burning. Agricultural burning refers to the intentional use of fire for waste removal of vegetation, disease and pest prevention, forest operations, and range improvement. Agricultural burning includes "prescribed burning", which consist of fires intentionally ignited to meet specific land management objectives. Thus prescribed burning is a subset of agricultural burning. The amendments place primary emphasis on smoke management through improved planning, collaboration, and consultation between burners, including federal and State land management agencies, and air agencies. The amendments contain three new basic provisions: requirements for a "burn authorization system"; requirements for a "smoke management plan"; and provisions for the use of a "marginal" burn day. The amendments to the existing Guidelines are needed to ensure that public health and air quality standards are taken into account in the face of expected increases in prescribed burning.

In oral and written comments, members of the public raised a number of concerns regarding the environmental impacts of agricultural and prescribed burning and the process through which the Guidelines deal with mitigation of these impacts. There were conflicting viewpoints on when burning is in the public interest. Some commentors argued that

prescribed burning is needed to reduce wildfire risk and is preferable to catastrophic wildfires because the latter result in more emissions, more smoke and greater public safety hazards. Some commenters worried that the revised Guidelines would impair the ability to use fire as a vegetation management tool, while others felt there should be more emphasis on the use of alternatives to burning for vegetation management in order to prevent smoke impacts. Concerns were raised whether there are adequate means for evaluating the various impacts from burning and its alternatives and questioned how the State would attain air quality goals despite increased emissions from burning.

These issues were initially addressed in the Initial Statement of Reasons (Staff Report) dated February 4, 2000, which is incorporated by reference herein (see especially pages 47 through 56.) The comments received during the public review periods and the public hearing are summarized and responded to in the Final Statement of Reasons (FSOR) for this regulatory item, in particular the responses to comments 174-181 which are attached. These comments and references are attached, and the FSOR is incorporated by reference herein.

Response: Whereas State law precludes the banning of agricultural burning, which includes prescribed burning, it also requires the ARB to promulgate guidelines for the regulation and control of agricultural burning. Before adopting guidelines, the ARB must address the potential impacts to public health as affected by air quality, while considering the economic and technical feasibility of the guidelines.

The revised Guidelines detail improvements to a comprehensive process for dealing with smoke from agricultural burning and prescribed burning and respond to the need for better coordination, locally, regionally and statewide. The revised Guidelines do not necessarily require minimized burning; however, they do establish procedures intended to reduce potential smoke impacts by staging the timing and location of burns so as to reduce smoke intensities. This will be accomplished through implementation of smoke management programs tailored to the needs of each air district but containing fundamental elements to be used statewide.

The smoke management programs will include two new elements, “marginal burn days” and “daily burn authorizations,” both means for allocating the increases expected in prescribed burning to times when the carrying capacity of ambient air can accommodate the emissions. The revised Guidelines also require that an "alternatives analysis" be conducted prior to large prescribed burns to determine whether it is feasible to decrease the amount of burning in the vegetation management

project. All of these features set up a mechanism for mitigating air quality impacts. For publically-authorized projects, the pre-existing National Environmental Protection Act (NEPA) and the California Environmental Quality Act (CEQA) procedures will be used to evaluate other environmental impacts and their mitigation. In addition, burn projects conducted for habitat improvement must first be approved as suitable by the California Department of Fish and Game (Health and Safety Code 41861.)

Impacts from agricultural and prescribed burning were described in the Staff Report, although they cannot be quantified with great certainty Statewide at this time. These impacts will ultimately, and appropriately, be quantified and mitigated through the individual air district smoke management programs.

In Resolution 00-8 approving the regulation (which is attached hereto and incorporated by reference herein), the Board made various findings pertaining to the potential environmental impacts of the amendments. Specifically, the resolution directed ARB staff to take several actions regarding environmental impacts and alternatives to burning: (1) to work with the California Air Pollution Control Officers Association (CAPCOA) to develop a programmatic environmental impact report template that can be used by the air districts in performing environmental impact assessments of their smoke management programs; and, (2) to assist air districts in the assessment of environmental impacts associated with burn projects or smoke management program revisions that are undertaken by the air districts to comply with the Guidelines.

The ARB has convened an EIR Tool Development Working Group comprised of ARB and air districts' staff, land management agencies and other stakeholders. This working group will serve as a forum for discussion of environmental issues that may arise during air districts' program development. To assist the individual air districts with the CEQA analysis associated with the adoption of their respective programs, the ARB has also contracted with the University of California to prepare a template for a programmatic Environmental Impact Report (EIR.) The EIR template will contain information about emissions factors for types of burns; alternatives to burning and their impacts; impacts from burning on resources other than air quality (e.g. erosion, habitat loss, etc.); means of mitigating smoke impacts to air quality and public health; and a discussion of the natural rate of return for fires and potential impacts from catastrophic fires. This information can be used by the air districts to support adoption of their respective programs and when they evaluate smoke management plans for burn projects.

The revised Guidelines also require smoke management plans to contain an analysis of potential alternatives to burning. As an example of the opportunities that arise from the alternatives analysis, an air district could create criteria for burn allocations that give priority to those projects that minimized burning through use of alternative treatments. The ARB is committed to encouraging incentive programs for alternatives to burning, especially where reduction of smoke and other adverse environmental impacts are realized by the project. In response to statewide interest in promoting alternatives, the ARB has established an Alternatives to Burning Working Group. The members include representatives of air districts, State and federal land management agencies, farming interests, private timber industry, and biomass-to-energy proponents. The purpose of the group is to identify and promote alternatives to agricultural and prescribed burning.

Finally, the ARB continues to work with the other western states to address regional haze and compliance with the requirements for visibility improvement promulgated by the U.S. Environmental Protection Agency. Prescribed burning is expected to increase in all of the western states as national fire policy changes. Managing the potential effects of this increased burning is a difficult task requiring cooperation between states and between state and federal agencies and private interests. The ARB has taken the step of revising California's Guidelines as a means of facilitating this cooperation and to better enable the State and the air districts to meet air quality goals for visibility and the criteria air pollutants affecting public health.

Certified:

Amy Whiting
Regulations Coordinator

Date: January 18, 2001

174. Comment: The State's water, air, soil, timber, wildlife, aesthetics, recreation, human and economic resources are interconnected. The interests of all agencies should be coordinated before regulations are passed so that each agency doesn't micro-manage just the resource it is responsible for. Even the CEQA process does not guarantee that all agencies, federal and State, will not adopt regulations that work at cross purposes. The land resource manager who tries to comply with all regulations is left with conflicts in deciding which resource has priority for protection. For instance, the Staff Report states on page 41 that prescribed fires in wildlife habitat and riparian ecosystems may pose unacceptable consequences and that mechanical treatments might be the preferred alternative. But there are many wilderness areas where mechanical treatment can be too damaging or is not feasible. Mechanical removal of biomass, as an alternative to burning, can increase soil erosion from the use of ground disturbing equipment. Non-point source pollution could then impact surface water quality. The decision as to which treatment is most appropriate must be left to the land manager, who has the professional education and experience to make the decision. (Evans; El Dorado NF; USFS)

Agency Response: ARB is charged with developing rules and regulatory programs focused on preventing adverse impacts to air quality, determined by standards and criteria for protecting public health and visibility. We agree that seamless coordination is more often met in the breach than in the observance, but it is worth making the effort at every opportunity. Both CEQA and the public rulemaking process are meant to promote interagency coordination so that a proposed rule can be evaluated in the light of all aspects of environmental quality. The revised Guidelines are designed to allow flexibility in selecting the most suitable means of vegetation management. There are many methods of vegetation management that meet other public interest and natural resource protection goals, while also reducing smoke impacts. These include biomass utilization for energy recovery and mechanical treatments that can return nutrients to the soil. All of these means have beneficial and adverse impacts that must be weighed.

In order to facilitate the required process for review of alternatives at the burn project level, section 80160(c)(5) has been modified in the revised Guidelines to allow an alternative analysis from a NEPA or CEQA document to be attached to the smoke management plan in lieu of preparing another document.

175. Comment: ARB's Staff Report did an inadequate job of evaluating the environmental impacts related to the proposed revision to the Guidelines in title 17. It raises questions about what sort of environmental impact analysis will be required from the air districts when they develop their smoke management programs and related rules. Most rural air districts are not equipped to resolve these issues on their own and request guidance and assistance in navigating through the CEQA requirements. Specifically, the air district and CAPCOA request assistance in developing a Programmatic EIR for the air districts' use in rule adoption and implementation of the

program at the local level. This programmatic EIR would eliminate a duplication of effort among air districts throughout California. (MBUAPCD; CAPCOA; Northern Sierra; Northern Sierra (Hill); NSCAPCD; NSCAPCD (Lee))

Agency Response: Chapter 11 of the Staff Report addressed the environmental impacts from changes in prescribed burning activities that will occur as a result of implementation of the Smoke Management Guidelines at a statewide level. In response to this concern, the Board resolution approving the Guidelines directed ARB staff to work with CAPCOA to develop a programmatic environmental impact report (EIR) template that can be used by the air districts in performing environmental impact assessments of their smoke management programs. The Board further directed ARB staff to assist the air districts, as requested, in the assessment of environmental impacts associated with burn projects. ARB has contracted with consultants to prepare an Environmental Impact Report (EIR) template. The programmatic EIR template will include discussions of air quality and non-air quality environmental impacts, alternatives to burning, and impact mitigation. This information can be used by the air districts to support adoption of their respective programs and to evaluate smoke management plans for burn projects. With CAPCOA, ARB has convened an EIR Tool Development Working Group comprised of ARB, air districts, land management agencies and other stakeholders. This working group will provide guidance and assistance to the consultants preparing the programmatic EIR template and serve as a forum for discussion of environmental issues that may arise during air districts' program development.

176. Comment: If a NEPA analysis does in fact provide an analysis of alternatives, then it should be linked to the regulations. If a NEPA analysis has been done by federal agencies, such as the USFS and the Bureau of Land Management (BLM), who plan to increase prescribed burning, it can be attached to the burn report. Overall, the single most significant issue is what the USFS can do in terms of alternatives to burning so that their impact is minimized on the entire program in the State. (CFA (Bischel))

Agency Response: As a result of discussion of this issue at the public hearing, language was added to section 80160(c)(5) and included in the 15-Day Notice of Public Availability of Modified Text. The revised language states that if an alternatives analysis is prepared as part of the NEPA documentation, it can be included in the smoke management plan submitted by a burn permit applicant to meet the requirements of section 80160 of the revised Guidelines. Although the commenter mentioned the burn report, ARB assumed from the context of the comments that the intention was for the alternatives to be considered beforehand, not after-the-fact. If the NEPA alternatives analysis were attached to the burn report, which is prepared after the burn takes place pursuant to section 8061(k), it would not serve the same purpose of assuring that alternatives were considered during planning and prior to the burn.

177. Comment: The amendments should direct air districts to participate in NEPA planning processes in order to ensure that federal burns meet air quality goals and that air district concerns are addressed during planning. If necessary, the amendments

should provide guidance to federal agencies regarding any new analysis that would be useful additions to prescribed burning NEPA documents. (Wheelabrator (Jolley); CNPS)

Agency Response: We agree that ARB and air district participation in the NEPA planning process is a useful way to ensure that protection of air and smoke management are addressed at the outset of planning for federal burn projects. ARB has participated in the development process for the USFS's Sierra Nevada Forest Plan Amendment Draft Environmental Impact Statement primarily to ensure this particular programmatic NEPA document includes smoke management considerations. ARB staff is also evaluating the possibility of including an element on NEPA and CEQA review procedures in the Compliance Division's training program for smoke management offered to air district staff. Participation in the early stages of draft development is valuable as well as commenting during final reviews. Ultimately, it is the responsibility of each air district to decide when to participate in the NEPA process even though continuous participation by air districts is sometimes limited by available staff resources. At a minimum, section 80160 (c)(5) of the Guidelines has been revised to indicate that it is acceptable for an entity to submit their NEPA or CEQA alternatives analyses to meet the smoke management plan requirement for an alternatives analysis.

178. Comment: The environmental analysis in the Staff Report should address the impacts of all means of compliance. The report only addresses the impacts of burning. (MBUAPCD)

Agency Response: The purpose of the ARB action is to amend our Guidelines for agricultural, including prescribed, burning. As such, the Guidelines will facilitate and manage the application of fire as a tool for vegetation management in such as way as to minimize smoke impacts. Adherence to the Guidelines will have a salutary effect on the environment, not a negative one. The ARB complied with Public Resources Code (PRC) section 21080.5 in preparing the environmental discussion in the Staff Report/ISOR. Alternatives to the staff proposal and mitigation measures were discussed. In order to provide air districts with maximum flexibility in developing their smoke management plans and programs, the Guidelines set forth criteria and program elements with which the air districts must comply, but the Guidelines do not regulate individual burn projects.

As an agency with a certified regulatory program, the ARB is not required to prepare and certify EIRs. Moreover, since we are not adopting a rule or regulation requiring the installation of pollution control equipment, or a performance standard, compliance with PRC section 21159, which requires an analysis of the reasonably foreseeable methods of compliance, is not required. Nor, at this stage of the statewide agricultural burn program, it is logical or feasible. The Guidelines do not require the use of other means of vegetation management besides burning and it is speculative at this stage to make assumptions about choices other than burning.

The alternatives that CEQA requires the ARB to discuss are alternative provisions in the Guidelines regarding smoke management, not alternatives to burning. Nevertheless, in order to ensure consideration of burn impacts at the local level where the burn projects are managed, the Guidelines do provide that those conducting large prescribed burns must demonstrate to the air districts that they have considered alternatives to burning prior to obtaining a burn permit. Some federal and State agencies will address this alternatives analysis through the NEPA/CEQA process to the extent they have prepared an EIS/EIR for their burn projects. Other burners and permitting agencies will need to prepare proper environmental documents for their projects in accordance with NEPA/CEQA. The identification and impacts of alternatives to burning are specific to the burn program of each air district as well as to the burn project itself, as are feasible mitigation measures, and these could not be quantified with any degree of precision at this time.

Nevertheless, a general discussion of alternatives to burning was set forth on pages 40-41 of the Staff Report. The various alternatives (chipping, maceration and burial, selective understory thinning, mulching, animal grazing, herbicidal treatments, and removal for biomass conversion to energy) can all be used in addition to, or in place of, burning. In addition to quantifying air emissions, project proponents will need to judge the impacts of alternatives against the same parameters as discussed for burning on pages 50-56 of Chapter IX of the Staff Report. The assessment of environmental impacts from alternatives to burning will necessarily be conducted in further depth at the time burners apply for burn permits because natural and economic conditions vary so greatly from project to project. The air districts will bear much of the burden of any further CEQA analysis. To assist in this effort, the ARB has contracted with the University of California Riverside to provide additional information about the impacts of burning, alternatives to burning and their impacts, and mitigation measures, in an EIR template that air districts can utilize at the time they adopt their revised smoke management programs. Burners will also be able to utilize this information in their environmental documents, including their alternatives analyses. There is interest in increased utilization of biomass from crop waste and forest management. ARB will continue to assist as needed in determining the air pollutant emissions from these biomass facilities.

179. Comment: Prescribed burning will increase as a result of the proposed revisions to the Guidelines in title 17 due to “marginal burn days”. The environmental impact section of the report does not address this quantitatively with regard to particulate matter, ozone and regional haze. The final Staff Report should explain how ozone and particulate levels and regional haze criteria will be improved when burns, ozone precursors, and particulate emissions are expected to increase. The CEQA analysis in the Staff Report does not contain any numbers on expected emissions from the increased amount of prescribed fire, how the regulation will affect the emissions, and if the regulation will hinder the ability of the State to meet federal and State ambient air quality standards. The ARB should provide data and analysis to evaluate these effects. (Amador; MBUAPCD)

Agency Response: The existence of "marginal burn days", a new smoke management tool in the revised Guidelines, will not be the cause of increases in prescribed burning. Based on the estimates provided by the public land management agencies, prescribed burning will increase within the next three years. The increase in prescribed burning is part of a long-range effort to restore our forests by using prescribed burning to approximate the natural rate of fire return for the respective forest ecosystem. There are estimates that increased prescribed burning in California through the mid-21st century would occur before a steady-state level could be reached.

The key purpose of the marginal burn day is to provide additional opportunities for limited prescribed burning within suitable subregions of an air basin where the overall conservative forecast for the entire air basin would be a no-burn day. To do this, ARB meteorologists, working with air district meteorologists, will determine where local conditions can accommodate good smoke dispersal without causing exceedances of air quality standards within the air basin. The ARB analyzed decisions for burn-no burn days in the Mountain Counties and the North Central Coast Air Basins as two example of air basins with subregional carrying capacities. Staff determined that 10-25% of the days during the September-November burn season could be marginal burn days. On these days, in the appropriate locations, a limited amount of burning, e.g. the equivalent of one to two tons of PM10, NOx and VOC emissions, could be allowed without jeopardizing ambient air quality.

The ARB is also currently working in partnership with other western states to develop strategies to reduce regional haze. California and the other western states are also evaluating strategies to reduce emissions from non-burning source categories, including motor vehicles, power plants, and other mobile and stationary sources, in a comprehensive effort to achieve national goals for regional haze reduction and visibility improvement.

All of the proposed changes to the Guidelines are designed to accommodate increases in prescribed burning without increasing localized smoke impacts that may constitute a public nuisance or exceedances of air quality standards due to prescribed burning alone. While annual emissions from prescribed burning will increase, the intent of the revised Guidelines is to partition these emissions over an increased number of days so that the impact on regular burn days is not as severe as it would be without the revisions. It is also possible that daily averages could improve, or annual concentrations could decrease at certain locations as better decisions for smoke dispersal are made.

180. Comment: The final Staff Report should evaluate the reliability of ARB's air quality forecasts. (MBUAPCD)

Agency Response: As mentioned before, the staff report is final and will not be revised. Regarding air quality forecasts, two kinds are made by ARB meteorologists. The first consists of intrinsic forecasts needed when agricultural burning decisions are made (for air basins, districts or specific locations, usually sites of proposed burning). These

forecasts are usually unwritten estimates used at the time by the meteorologist. The forecasts are based on expected conditions of atmospheric stability, potential for dispersion and transport, reported visibility at airfields, known current and expected smoke impacts, and specific, but very limited, air quality information available near real-time to our duty meteorologists. This type of forecast of general air quality for a given area has worked well for our many data-sparse areas of the State.

The second type of forecasts consist of specific air quality forecasts made for a few select cities in the State to track ongoing pollution conditions on a daily basis. Besides being used internally at the ARB, several of these daily forecasts have been provided to air districts to give them a first cut at what values they in turn provide to the public in support of local or regional Pollutant Standard Index (PSI) or Air Quality Index (AQI) programs. Although air districts would be the best judge of how reliable those forecasts are for their purposes, such forecasts have worked reasonably well (based on limited statistical verification efforts and on daily comparison of actual versus predicted values by the duty meteorologists) for ARB's smoke management and episode prediction programs.

Both air quality and meteorological data are used in making the daily burn/no-burn decision. In making the burn/no burn day decisions for an air basin, ARB meteorologist considers the real-time air quality data available, the types and amounts of burning likely to occur that day, and whether the atmospheric mixing conditions are sufficient to lift and disperse smoke without causing exceedances of air quality standards. The ARB meteorologists also, at times, receive input from air district staff familiar with local conditions, before making the air basin burn/no-burn decision. The ARB and the air districts will continue to evaluate the impact of their decisions in terms of successful smoke dispersal, smoke incidents, and monitoring data to develop a better understanding of local conditions and smoke-carrying capacity.

181. Comment: ARB's environmental analysis in Chapter 10 of the Staff Report is insufficient for making decisions that can have major environmental consequences. The report fails to address long-term emissions tradeoffs between prescribed fire and wildfire. It also fails to address potential effects on species that require fire to survive, particularly threatened and endangered species. The ARB should have used some of the current modeling techniques, such as the Fire Effects Trade/Off Model, the First Order Fire Effects Model, and the Fire Effects Information System, in the analysis. (El Dorado NF; USFS)

Agency Response: The purpose of the revised Guidelines is to allow increased prescribed burning at times when smoke can be effectively dispersed. The judgment of whether or not to select prescribed burning as the preferred vegetation management tool is made by the land manager who balances environmental, technical, and economic impacts of the alternatives for each project. The potential for a wildfire occurring in a given location is always a possibility, but the probability is difficult to determine statewide. The calculation of trade-offs between wildfire and prescribed fire emissions would require a more complete knowledge of the acreage for each

ecosystem type in the State, natural rates of fire return for each vegetative subtype within each ecosystem and knowledge of the long-term plans for land managers conducting prescribed burning. The land managers develop this information for their projects. What we do know is that for any given forested acre, a wildfire generally emits more air pollutants than a prescribed fire because it burns hotter and consumes more fuel. Prescribed fires are controlled burns that are managed to burn at lower temperatures and to consume less vegetative material resulting in fewer emissions. ARB will encourage federal agencies to conduct trade-off analyses. The federal agencies, as a part of the NEPA analysis, also address the impacts of fire on endangered species and habitat, including those vegetative species that need fire to trigger reproduction or those habitats that can be maintained by burning off invasive or deleterious plants.

Some of the models mentioned are in the development stage. They are still being refined for application to different forest ecosystems and to California situations. ARB has contracted with University of California researchers to provide emission factors for different burn situations using California plant species. As these emission factors and models become more reliable, ARB will work with the USFS and other burn agencies to apply the models to assess emissions from prescribed burning and wildfires. These will be useful in short-term analyses and with long-term planning efforts as we work together to develop means to achieve full attainment of the State and federal air quality standards in California and to respond to federal regional haze requirements in the western states. See also the Agency Response to Comment #178.