


Agenda Item: G-2
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Board Agenda Item

TO: Air Pollution Control District Board

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SUBJECT: Prescribed Burn Program Overview

RECOMMENDATION:

Receive and file a presentation on the District's role with Prescribed Burning under the District's Smoke Management Program.

BACKGROUND:

The District's Smoke Management Program protects the public from air pollution associated with prescribed burning through implementation and enforcement of Title 17 California Code of Regulations, Division 3, Chapter 1, Subchapter 2 – Smoke Management Guidelines for Agricultural and Prescribed Burning, and District Regulation IV, Rule 401 – Agricultural and Prescribed Burning.

The *Smoke Management Guidelines for Agricultural and Prescribed Burning* provide guidelines and flexibility to air districts in the development and implementation of their Smoke Management Programs. The guidelines are intended to assure adequate state oversight, including initial program approval, and periodic program assessment. While local air districts may establish stricter regulatory standards than those set forth in the guidelines, no local or regional authority may ban prescribed burning.

The Smoke Management Program and District Rule 401 were unanimously adopted by the District Board on May 16, 2002. The Smoke Management Program provides guidelines and procedures for operating the District Prescribed Burning Program. District Rule 401 specifies requirements for burn permits, burn registration, Smoke Management Plans (SMPs), burn day determinations, ignition authorization, and burn reporting.

Aeron Arlin Genet, Air Pollution Control Officer

Prescribed burning is the planned application of fire to vegetation to achieve specific objectives. The foremost goal is to prevent wildfires. Other objectives include creating natural fuel breaks in the wildland-urban interface, mimicking natural fire regime and historic fire return intervals, controlling plant diseases, eliminating invasive non-native plant species, promoting soil nutrients and vegetation growth, protecting watersheds, improving ecosystem health, and restoration of breeding habitats for endemic and threatened species like the Western Snowy Plover.

The burns are administered by Land Managers including federal, state, local, or private entities. Throughout our region, the primary Land Managers are the Santa Barbara County Fire Department and the United States Forest Service. Other Land Managers include the National Park Service, Vandenberg Air Force Base, State Parks, UCSB, and the Santa Barbara Cattlemen's Association.

Prescribed burns create smoke, which contains reactive organic compounds, nitrogen oxides, particulate matter, greenhouse gases including short-lived climate pollutants such as black carbon, and other pollutants. Notwithstanding that, prescribed burns can be minimized, monitored, and managed to produce significantly less smoke emissions than wildfires and avoid public health impacts and exceedances of ambient air quality standards. By better managing the conditions under which fuel is burned, prescribed burns reduce the risk of wildfires and provide significant air quality and public health benefits, including carbon sequestration associated with soil regeneration and photosynthesis from renewed vegetative growth.

In response to increasingly severe fire seasons in recent years, measures are being taken throughout California to increase the use of prescribed burning to reduce the naturally occurring buildup of vegetative fuels, thereby reducing the risk and severity of wildfires. Critical actions include:

- ***Executive Order B-52-18:*** In May 2018, Governor Brown signed Executive Order B-52-18 (Improve Forest and Community Resilience to Wildfire and Other Climate Impacts) to double the acreage of land actively managed through vegetation thinning, controlled fires, and reforestation from 250,000 acres to 500,000 acres.
- ***California Senate Bill (SB) 1260:*** In September 2018, SB 1260 (Senator Hannah Beth Jackson) was enacted to require the California Air Resources Board (CARB), in coordination with local air pollution control districts, to reduce the risk of catastrophic wildfires by expanding the use of prescribed burning. This bill also highlighted the role of air districts in conducting these burns which includes air quality and smoke monitoring program and a public awareness campaign.
- ***California Vegetation Treatment Program (CalVTP):*** In December 2019, the California Board of Forestry and Fire Protection approved the CalVTP which directs increased vegetation treatments, including prescribed burning, within the treatable landscape of the State Responsibility Area.
- ***Agreement for Shared Stewardship of California's Forests and Rangelands:*** In August 2020, Governor Newsom signed a MOU entering the State of California into a joint agreement with the federal government (U.S. Forest Service) to increase the pace and

scale of vegetation treatment, including natural fire regimes (prescribed burning), of forest and wildlands to 1,000,000 acres per year by 2025.

DISCUSSION:

Prescribed burning is a vegetation management tool for reducing the risk of wildfires and creating associated air quality and public health benefits. The District's Smoke Management Program is designed to avoid smoke impacts to the public, including potential sensitive receptors, and prevent exceedances of federal and state ambient air quality standards.

In support of those efforts, the District utilizes a team approach to administer the program. Internally, the District's burn team is comprised of representatives from different divisions who have specific roles in the program, including oversight of compliance, meteorology, monitoring, reporting, and public notifications. The District burn team works closely with Land Managers to assist them in the process and facilitate the success of the prescribed burn.

Early in the calendar year, Land Managers submit annual reports for the prior year of completed prescribed burning, which the District compiles and submits to CARB. Land Managers also register prescribed burns with the District at that time and upload SMPs in the Prescribed Fire Information Reporting System (PFIRS) for District review and approval. PFIRS is a web-based interface between air quality managers, land management agencies, and individuals that conduct prescribed burning in California. The website facilitates communications by providing access to a database containing information on burn planning, burn approvals, and emissions information. Visit <https://ssl.arb.ca.gov/pfirs/index.php>

Smoke Management Plans (SMPs)

SMPs are a critical component of the prescribed burn process that the Land Managers submit to the District for review and approval. The SMPs include project specific information to assess the fuel to be burned and air quality impacts from this activity. The primary goal of the SMP is to define the ideal prescription for conducting a successful burn while minimizing air quality impacts. Key components of the SMP include the following:

- Identification of burn (i.e., location, acreage, fuel moisture, fuel arrangement, fuel density, tons of fuel/acre, estimated emissions, calculation methodology, elevation, and slope)
- Ignition prescription (i.e., meteorological parameters including ideal surface wind direction and speed, transport winds, mixing height, temperatures, and relative humidity)
- Identification of smoke sensitive areas with maps and their distance from the burn,
- Smoke mitigation measures (e.g., curing time of fuels, test burns, smoke spotters to evaluate smoke dispersion, ignition methods, burn sequencing to manage smoke dispersion, and mop-up)

- Public outreach methods (e.g., 2-step process that involves the District and Land Manager jointly issuing a *Press Release* 14 to 21 days prior to the burn, and jointly issuing a *Media Advisory* on the day of or day prior to the burn)
- Alternatives to burning
- Project maps

If a SMP needs to be amended, then the District returns it the Land Manager with comments. If the SMP is complete, then the District approves the SMP and shares it with partner air agencies in the South Central Coast Air Basin (i.e., San Luis Obispo County Air Pollution Control District (APCD) and Ventura County APCD) and San Joaquin Valley APCD when appropriate.

Pre-Burn Preparations

Before the prescribed burn, the District's Smoke Management Coordinator reviews the National Weather Service's spot forecast and the District's Air Quality Index (AQI) forecast for ozone and particulate matter (PM10 and PM2.5) for the proposed burn date. Additionally, the Coordinator generates BlueSky smoke models based on different variables to predict cumulative impacts of smoke from the prescribed burn. Staff conducts site inspections to survey fuels, fire breaks, meteorology and prevailing winds, topography, nuisance potential and sensitive receptors. During the site visit, possible locations for deployment of Environmental Beta Attenuating Monitors (E-BAM) is identified as well as proximity to Remote Area Weather Stations (RAWS) and ambient air monitoring stations. All of this information, along with the burn plan and ignition sequencing is reviewed with the Land Manager.

Following those preparations, the Coordinator notifies the District Monitoring Group to deploy E-BAMs at selected locations for the prescribed burn. The E-BAMs are deployed from the District's regional equipment cache to potential sensitive receptor locations (e.g., schools, hospitals, etc.) and emission readings are made available to the public in real-time (hourly increments) on the District website. The purpose of the EBAM deployment is to register potential smoke impacts to sensitive receptors that are located downwind from the prescribed burn location and outside of the existing regional monitoring network

Two-Step Media Notification Process

In the Smoke Management Plan, the District requires the Land Manager's Public Information Officer (PIO) and the District's PIO to issue two joint media notifications of the pending burn. The first media notification (i.e., news release) is issued when the burn window is identified (approximately 21 days prior to the burn). It addresses the acreage, burn timeline, contact information, recommended precautions, and provides website links for more information. The second media notification (i.e., media advisory) is jointly issued the day before or morning of the burn. It addresses the Who, What, When, and Where questions of the burn. This two-step media notification allows the public to become more aware of the upcoming prescribed burn, and if needed, take precautionary steps to reduce smoke impacts during these burns.

Ignition Authorization Request

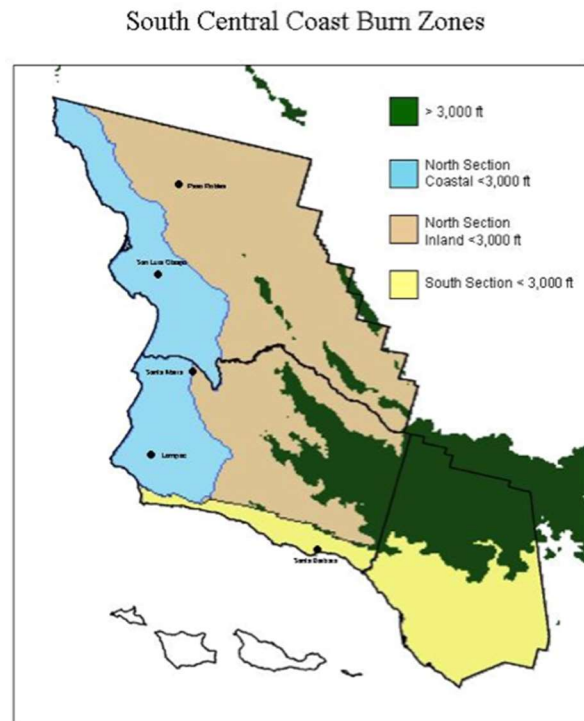
Prior to burning, the Land Manager submits an ignition authorization request in PFIRS for District approval. The Smoke Management Coordinator receives the request and consults with

CARB Meteorology and the Santa Barbara County Fire Department (SBCFD) on burn day forecasts and determinations.

Burn Day Determinations

Santa Barbara County is in the South Central Coast Air Basin and burn day determinations are made by CARB Meteorology and SBCFD for four (4) separate burn zones within the county (see map on the right). These include South Central Coast above 3,000 feet, South Central Coast-South below 3,000 feet, South Central Coast-North Coastal below 3,000 feet, and South Central Coast-North Inland below 3,000 feet.

CARB Meteorology provides a 96-hr trend, 72-hr outlook, 48-hr forecast, and 24-hr decision for burn day determinations. Every day at 3:00 pm, CARB Meteorology makes their burn day determination and lists it on the PFIRS website. Determinations are either a Permissive Burn Day, Marginal Burn Day, or No Burn Day.



The primary meteorological criterion for burning is having a good mixing height (over 1,500 ft), which is assessed by a meteorological value called 500 millibar (mb) heights. High 500 mb height values indicate air is sinking through the air column, which tends to keep smoke near the ground. Low 500 mb height values indicate air is rising, which tends to cause smoke to rise and disperse – therefore, reducing ground level impacts from the burns.

SBCFD reviews CARB’s burn day determination and validates the burn day status at the local level using Fire Danger Operating Plan (FDOP) indices (e.g., fuel moisture levels, temperatures, relative humidity, average winds speeds, sustained wind speeds, and gusts for respective Fire Danger Areas). SBCFD then makes the local burn day determination and updates the burn day status website (<https://www.sbcfire.com/permit-burning/>) and phone line (805-686-8177). SBCFD may have the same burn day determination as CARB or they may make a more restrictive local burn day determination. However, the local burn day determination may not be less restrictive than CARB’s burn day determination.

The District may authorize prescribed burning on CARB Permissive and Marginal Burn Days. It may also authorize prescribed burning on No Burn Days if there is a threat of imminent and substantial economic loss, in which case the District may limit the amount of material burned. During the 2020 calendar year, there were 305 Permissive and Marginal Burn Days, and 49 No Burn Days for Santa Barbara County, as determined by CARB. When prescribed burning is taking place, Agricultural and Residential burning is prohibited in the same burn zone to reduce overall smoke in the air basin. This is reflected in the local burn day determination.

Field Work on the Day of the Burn

The District's Smoke Management Coordinator is onsite for most prescribed burns. On the morning of the burn, the Coordinator reviews meteorological data online and collects meteorological data onsite. During the onsite safety briefing and review of the burn plan, the Smoke Management Coordinator reviews the spot forecast with the fire crew and shares the latest available meteorological data.

During the burn, the Smoke Management Coordinator remains in radio contact with the Land Manager (i.e., Burn Boss and Incident Commander) and checks for public nuisance complaints. The Coordinator assesses fire behavior, smoke dispersion, downwind odors, and assesses emission readings and meteorological parameters at the nearest ambient air quality monitoring stations, RAWS, and EBAM locations. The Coordinator also collects meteorological data in the field (e.g., temperatures, winds, relative humidity) and compares it with the spot forecast and the other meteorological data collected from monitoring stations. To preempt impacts to the public or the environment, anticipated concerns and/or documented observations are conveyed to the Land Manager in real time for evaluation and response. If necessary due to smoke impacts, the Coordinator will work with the Land Manager/Burn Boss to stop the burn.

Post Burn

Every prescribed burn is unique unto itself and yields valuable insights and lessons. To benefit from those lessons and promote continuous improvement, the Smoke Management Coordinator and Land Manager document and discuss lessons learned, which is shared with the Burn Team. Finally, the Land Manager submits a burn report in PFIRS documenting the acreage consumed.

More details of the program elements will be shared as part of the accompanying Board presentation. More information is also available on the District's website: www.ourair.org/prescribed-burning.

FISCAL IMPACT:

Aside from SB 1260 grant funds for air district efforts to expand prescribed burning, the District's Smoke Management Program and associated staff time to administer is unfunded. The District's participation in CARB's Prescribed Burn Reporting and Monitoring Support Program and Prescribed Burn Air Monitoring Equipment Cache Storage Program allowed it to encumber up to \$55,000 in grant funding from CARB in Fiscal Year 2019-20, (approved by your Board on June 20, 2019), and up to an additional \$94,900 in Fiscal Year 2020-21 (approved by your Board on June 18, 2020). In addition to these grants, funding is currently available, on a cost reimbursement basis, through the California Air Pollution Control Officers Association (CAPCOA) for staffing costs associated with deployment of portable monitoring devices during local prescribed burn activities and District staff training. The revenues and costs for the prescribed burn program described above are included in the budget approved by your Board.