

SACRAMENTO VALLEY AIR BASIN SMOKE MANAGEMENT PROGRAM PLAN 2008 Annual Plan

➤ Background

The Smoke Management Program (SMP) is required pursuant to Section 41863 of the Health and Safety Code (HSC) and Subchapter 2 of the Smoke Management Guidelines for Agricultural and Prescribed Burning of Title 17 of the California Code of Regulations (CCR). Section 80155 of the latter directs the Basin Control Council (BCC) to develop and submit a Smoke Management Program to the California Air Resources Board (ARB) for their review and approval. In accordance with the California Code of Regulations, Title 17, Subchapter 2, Article 2, Section 80140(c) the Smoke Management Program of the Sacramento Valley is designated as a regional smoke management program.

The Program applies to agricultural and other burning operations, as defined by Section 80101 of Title 17 of the CCR, that is conducted at all elevations in the Sacramento Valley Air Basin. Policies and procedures apply throughout the year unless otherwise specified in the Program. Many specific computer data gathering and analysis requirements apply only during the fall burning season. Future amendments to the program do not take effect until approved by the ARB.

The Program goals are the following:

- Protection of air quality in the Sacramento Valley
- Protection of public health and safety
- Effective management of daily burning operations

➤ Applicable Laws and Regulations and 2007 SMP Plan Provisions

California Code of Regulations
Title 17 §80155 Sacramento Valley Basinwide Program.

The Sacramento Valley Basinwide Air Pollution Control Council (Basinwide Council) shall submit a smoke management program to the ARB for review and approval. The smoke management program shall apply to all areas of the Sacramento Valley Air Basin. In addition to all other applicable requirements, it shall contain:

(a) A daily basinwide acreage equation establishing a theoretical maximum daily allocation which includes a basinwide meteorological factor (B.M.F.--determined from Tables 4 and 5 of section 80320) and a basinwide air quality factor.

Allocation = $(-1/0.006) * (-170 + (1 * \text{amstab}) + (0.2049159 * 500\text{mb12}) - (0.3579679 * \text{WS}) + (1 * \text{PM}_{2.5} \text{ 0-6}))$
Amstab = morning temperature difference between 3,000 feet and the surface
500mb12 = 500 millibar heights at 4a.m. from National Weather Service models
WS = average wind speed forecasted by the ARB through the mixing layer
PM_{2.5} 0-6 = PM_{2.5} basinwide average from midnight to 6a.m.

(b) Procedures for refining the theoretical maximum allocation in order to establish an initial actual allocation, including consultation between the ARB duty meteorologist and the basin coordinator and considering additional real-time air quality and meteorological information.

Air quality reduction factors

When any district's midnight to 6:00 a.m. average PM_{2.5} is ≥ 27 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) increasing concentrations will result in increasing reductions in allocated acres (e.g., 27-28 is 20%, 29-30 is 40%, 31-32 is 60% and 33-34 is 80%).
When any district's midnight to 6:00 a.m. average PM_{2.5} is $\geq 35 \mu\text{g}/\text{m}^3$ a no burn day will be declared in that district.

A No-burn day will be declared if any of the following criteria are met:

- 1) A.M. stability is ≥ 17 degrees Fahrenheit and the midnight to 6:00 a.m. average basinwide PM_{2.5} is $\geq 30 \mu\text{g}/\text{m}^3$
- 2) Average basinwide north wind speed is forecast to be ≥ 20 miles per hour
- 3) A.M. stability is ≥ 17 degrees Fahrenheit and the midnight to 6:00 a.m. average basinwide PM_{2.5} is $\geq 32 \mu\text{g}/\text{m}^3$ at three or more monitoring sites

Prunings only day

The ARB will declare a prunings only day if the criteria below are met and a no-burn day is not declared. The allocation and distribution to each county will be a minimum of 200 acres. A.M. stability is ≥ 17 degrees Fahrenheit and the midnight to 6:00 a.m. average basinwide PM_{2.5} is 28 to 29 $\mu\text{g}/\text{m}^3$.

Restricted field day

The ARB will declare a restricted field day, if either of the two criteria below is met and a no-burn day is not declared. The allocation and distribution to each county will be a minimum of 200 acres.

- 1) A.M. stability is ≥ 17 degrees Fahrenheit and the midnight to 6:00 a.m. average basinwide PM_{2.5} is 25 to 27 $\mu\text{g}/\text{m}^3$ and the wind speed is forecast to be ≤ 5 mph, or
- 2) Average basinwide north wind speed is forecast to be ≥ 15 miles per hour.

The ARB may declare a restricted field day if the A.M. stability is ≥ 25 degrees Fahrenheit.

Rainfall effects

The ARB allocations will be reduced to 2000 acres after a daily (as noted on the 12Z station reports or other available information) rainfall amount that exceeds an average of 0.05 inches in the Valley.

(c) Procedures for distributing acreage allocations to each air district. The total acreage distributed shall not exceed the initial actual allocation determined by the ARB in consultation with the basin coordinator. The program may specify procedures to update the initial actual allocation, based on real-time meteorological information and the progress of burning the initial actual allocation.

North/South acreage shift

The north/south acreage shift will occur only on those days with the meteorological conditions described below or when the ARB declares a north wind day. The decision to shift must be based upon current meteorological conditions and a prediction that the conditions will persist for the time needed to complete burns and disperse the smoke. Data from all AMOS and airport stations basinwide must meet the criteria for a shift. The range of shifting can vary from 10% to 50% of the basinwide allocation.

Updated ARB acreage allocation

The ARB and the CCO may consult and jointly decide to update the initial, interim, or maximum allocation after they have received new air quality and meteorological data and reports from district field observations that represent conditions

Updated acreage distribution

The CCO may update the distribution of acres to districts, if warranted, between the initial and interim allocations and up to the maximum allocation limit for days with an initial allocation of greater than 4000 acres. Districts must provide field observation information, the latest meteorological data (remember data polling times), and air quality reports when requesting updates from the CCO.

(d) The hours to be permitted for burning.

Burn hours

Agricultural burning ignition hours for field crops shall be set as follows (all times are local times). Burn hours are from 10:00 AM to 5:00 PM for spring (March 1 - April 30), and summer (May 1 - August 31) burning periods. However, during the fall (September 1 - December 31) and winter (January 1 - February 28/29) burn seasons burn hours shall be from 10:00 AM to 3:00 PM. During the intensive fall burn season all field crop fires must be out (no flames) by 4:00 PM to minimize high afternoon particulate readings, unless the basin receives a late update or burn hours are extended.

(e) A description of the meteorological and air quality monitoring networks to be used to provide data for determining the basinwide meteorological and air quality factors.

AMOS weather stations

AMOS station data are collected every hour. The AMOS stations are:

Chico, Durham, Oroville, Biggs, North Yuba, Wheatland, Lincoln, Knights Landing, Natomas, Orland, Artois, Codora, Maxwell, Arbuckle, Kirkville, Esparto, Woodland, and Sutter Buttes

Airports

Airport data are collected every hour. The reporting airports are:

Redding, Red Bluff, Chico, Oroville, Beale AFB, Marysville, Auburn, Sacramento International, Sacramento Executive, Mather, Vacaville, Travis AFB and Stockton

Air quality monitoring stations

The air quality data available includes hourly airport visibilities, hourly PM₁₀, and hourly PM_{2.5}, data.

BAM PM_{2.5} monitoring sites

BAM data are reported hourly. The ARB BAM stations in the Sacramento Valley are:

Chico, Gridley, Colusa, Willows, Roseville, Sacramento T Street, Yuba City and Davis
Local BAM sites are: Elk Grove, Folsom, Sacramento Del Paso Manor, Rio Vista, Vacaville, Woodland and Anderson

TEOM PM₁₀ monitoring locations

TEOM data are reported on the hour. Local SMAQMD TEOM monitoring stations in the Sacramento Valley are:

Sacramento: Airport Road, Del Paso Manor and Health Department Stockton Blvd

(f) Other clarifying details mutually agreed upon by the Basinwide Council and the ARB.

➤ **The 2007 SMP Plan**

The 2007 Smoke Management Program Plan included several changes that were required with the adoption by federal EPA of a new 24 hour PM_{2.5} air quality standard of 35 micrograms per cubic meter of ambient air. The previous EPA air quality standard was 65 micrograms. All of the air quality reduction factors are based on the average midnight to 6:00 a.m. PM_{2.5} values at the Valley air monitoring stations so those numbers had to be revised downwards. Likewise, the air quality terms in the definitions for no burn days, pruning only days and restricted field days had to be reduced. Three air districts also changed the air monitoring sites that they wanted to count for their particulate PM_{2.5} data.

On July 13, 2007 the CA Air Resources Board approved the SMP revisions.

Thank you for submitting the revisions to the Sacramento Valley Air Basin Smoke Management Program, as adopted at your June 8, 2007 public hearing. The purpose of this letter is to approve these revisions, which reflect minor technical changes to the acreage allocation calculations to reflect the revised federal 24-hour PM_{2.5} standard and changes to monitoring locations. I appreciate your efforts to keep the Air Resources Board staff involved in the development of these updates.

➤ **Conclusion**

Last year ARB staff said they did not want to review SMP Plan amendments each year. They stated that they only wanted to review major Plan changes such as allocation equations. Because no modifications to the current SMP Plan are needed, the 2008 Plan will remain unchanged from last year. No workshops or hearings are required. A letter will be mailed to the ARB in June confirming that no changes were made to the Sacramento Valley Air Basin SMP Plan.