

# Particulate Matter Exceptional Events Mitigation Plan for the South Coast Air Basin and Coachella Valley

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## 1. Introduction

### 1.1. Purpose

The U.S. EPA has established rule 40 CFR 51.930 - Mitigation of Exceptional Events that requires States to take appropriate and reasonable actions to protect public health from exceedances or violations of the national ambient air quality standards. This involves preparation of a mitigation plan for recurring natural events or cultural events that cause repeated exceedances of an ambient air quality standard.

This document addresses particulate matter less than or equal to 10 µm in diameter (PM10) from high winds in the South Coast Air Basin (SoCAB or Basin) and the Coachella Valley portion of the Salton Sea Air Basin (SSAB) along with fine particulate matter (PM2.5) from wildfire and firework emissions in the SoCAB. This document also serves as an update to the PM10 mitigation plan finalized in 2018 in accordance with the periodic review and evaluation process established in the 2018 PM10 mitigation plan<sup>1</sup>. Unless explicitly stated, all mitigation measures and programs implemented by the South Coast Air Quality Management District (South Coast AQMD) apply to both the South Coast Air Basin and the Coachella Valley portion of the Salton Sea Air Basin. No new mitigation measures or programs are proposed in this document.

A State requesting an exclusion of air quality data due to exceptional events must at minimum:

- Provide for prompt public notification whenever air quality concentrations exceed or are expected to exceed an applicable ambient air quality standard;
- Provide for public education concerning actions that individuals may take to reduce exposures to unhealthy levels of air quality during and following an exceptional event; and
- Provide for the implementation of appropriate measures to protect public health from exceedances or violations of ambient air quality standards caused by exceptional events.

This exceptional events mitigation plan details the strategies and programs currently in place to achieve these objectives.

### 1.2. Exceptional Events Rule Requirements

EPA promulgated the Exceptional Events Rule in 2007, pursuant to the 2005 amendment of Clean Air Act (CAA) section 319. In 2016, EPA finalized revisions to the Exceptional Events Rule. The 2007 Exceptional Events Rule and 2016 Exceptional Events Rule revisions added sections 40 CFR §50.1(j)-(r), 50.14, and 51.930 to title 40 of the Code of Federal Regulations (CFR). These sections contain definitions, criteria for EPA approval, procedural requirements, and requirements for air agency demonstrations. EPA reviews the information and analyses in the air agency's demonstration package using a weight of evidence

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<sup>1</sup> [http://www.aqmd.gov/docs/default-source/public-notice/exceptional-events/final-high-wind-fugitive-dust-mitigation-plan-submitted-to-carb-09\\_18\\_20.pdf?sfvrsn=6](http://www.aqmd.gov/docs/default-source/public-notice/exceptional-events/final-high-wind-fugitive-dust-mitigation-plan-submitted-to-carb-09_18_20.pdf?sfvrsn=6)

approach and decides to concur or not concur. The demonstration must satisfy all the Exceptional Events Rule criteria for EPA to concur with the exclusion of air quality data from regulatory decisions.

Under 40 CFR §50.14(c)(3)(iv), the air agency demonstration to justify data exclusion must include:

- “A narrative conceptual model that describes the event(s) causing the exceedance or violation and a discussion of how emissions from the event(s) led to the exceedance or violation at the affected monitor(s);”
- “A demonstration that the event affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation;”
- “Analyses comparing the claimed event-influenced concentration(s) to concentrations at the same monitoring site at other times” to support the requirement above;
- “A demonstration that the event was both not reasonably controllable and not reasonably preventable;” and
- “A demonstration that the event was a human activity that is unlikely to recur at a particular location or was a natural event.”

In addition, the air agency must meet several procedural requirements, including:

1. Submission of an Initial Notification of Potential Exceptional Event and flagging of the affected data in EPA's Air Quality System (AQS) as described in 40 CFR §50.14(c)(2)(i),
2. Completion and documentation of the public comment process described in 40 CFR §50.14(c)(3)(v), and
3. Implementation of any applicable mitigation requirements as described in 40 CFR §51.930.

### **1.3. PM10**

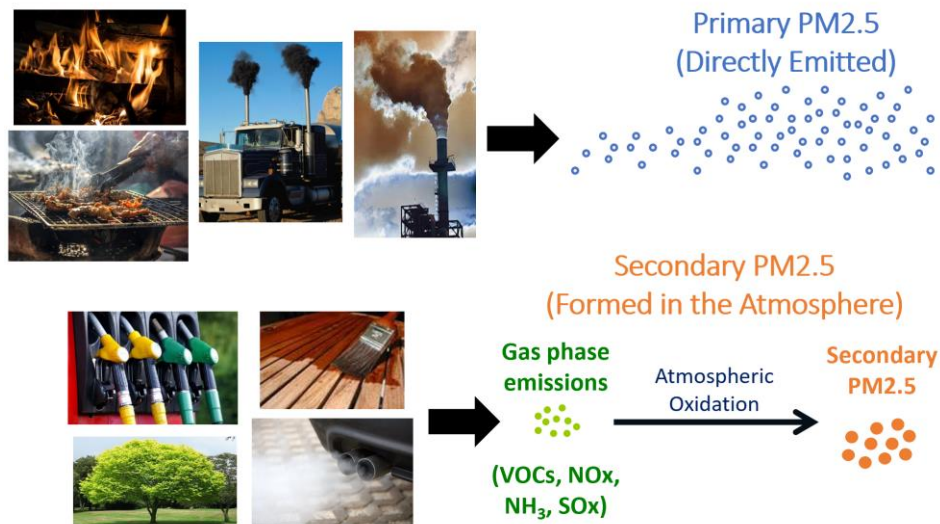
PM10 is a major air pollutant consisting of small, suspended solid or liquid particles of dust, sand, metallic and mineral substances, road-surface materials, pollen, smoke, fumes, and aerosols. Most of the PM10 mass in the atmosphere is generated by physical processes such as grinding or erosion. A very small fraction of the PM10 mass may be formed in the atmosphere by chemical processes, but these particles are small enough to also be considered PM2.5. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the air sacs in the lungs where they may be deposited, resulting in adverse health effects. PM10 can also reduce visibility and is classified as a criteria pollutant.

### **1.4. PM2.5**

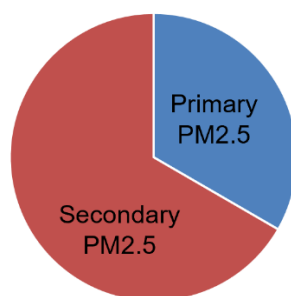
PM2.5 is a suspension of solid or liquid particles that are 2.5 µm or less in diameter. These particles can be directly emitted by combustion sources or can be formed in the atmosphere (Figure 1). Gas-phase volatile organic compound (VOCs), oxides of nitrogen (NO<sub>x</sub>), oxides of sulfur (SO<sub>x</sub>) and ammonia (NH<sub>3</sub>) react with each other and other atmospheric oxidants to form species with lower volatility that condense into the particle-phase. Gasses can condense onto existing particles or nucleate new particles depending

on conditions. The precursors are from mobile, point and area sources, with the largest portion resulting from fuel combustion. Both directly emitted PM<sub>2.5</sub> and PM<sub>2.5</sub> that is formed in the atmosphere contribute to measured PM<sub>2.5</sub> concentrations, but in the South Coast Air Basin, secondary PM<sub>2.5</sub> formation is responsible for roughly two thirds of the total PM<sub>2.5</sub> mass (Figure 2).<sup>2</sup>

Most sources of PM<sub>2.5</sub> and PM<sub>2.5</sub> precursors have regular patterns of emissions that may vary by day of the week or possibly by season. However, episodes of elevated PM<sub>2.5</sub> can be caused by adverse meteorological conditions and emission sources that occur infrequently such as wildfires and fireworks. Wildfires are an important source of PM<sub>2.5</sub> and PM<sub>2.5</sub> precursors and can lead to significant PM<sub>2.5</sub> episodes, especially during the summer and fall months when wildfire activity is more likely. Fireworks, either from commercial displays or personal use, are a significant source of PM<sub>2.5</sub> on July 4<sup>th</sup> and 5<sup>th</sup> each year; concentrations recorded on these days are typically the highest measured in the entire year. To a lesser extent, fireworks also influence PM<sub>2.5</sub> concentrations on January 1<sup>st</sup> in some areas of the South Coast Air Basin.



**Figure 1 - PM<sub>2.5</sub> Formation Mechanisms.**



**Figure 2 - Approximate Contribution of Primary and Secondary PM2.5. Formation Processes in the South Coast Air Basin. The contribution was calculated based on annual averaged PM2.5 speciation measurements conducted at the Los Angeles-North Main Street Station Averaged from June 2012 to July 2018.<sup>2</sup>**

#### **1.4.1. PM2.5 Wildfire Emissions**

Wildfires emit a variety of pollutants, including PM2.5, PM10, carbon dioxide, carbon monoxide, methane, non-methane hydrocarbons, nitrogen oxides, and nitrous oxide. CARB publishes annual estimates of wildfire emissions for fires in California (<https://ww2.arb.ca.gov/wildfire-emissions>). The 2023 report estimates PM2.5 wildfire emissions of more than one million short tons in California in both 2020 and 2021. These two years represent a stark increase in PM2.5 emissions over previous years in the report, 2000-2019 and 2022, which is the most recent year on record. The emissions produced in any given fire depends on several factors, including acres burned, vegetation type (e.g., woodland vs shrubs), and fire intensity (flaming vs smoldering).

#### **1.4.2. PM2.5 Fireworks Emissions**

Fireworks contribute to PM2.5 mainly through primary emissions. Metals are a major chemical component of firework smoke. For example, potassium nitrate, a major component in fireworks, is mixed with sulfur and charcoal to create an explosion. Also, metals such as copper, barium, strontium, titanium, and aluminum are often added to fireworks to produce distinct colors upon detonation.

Because of firework emissions, the PM2.5 concentrations measured during Independence Day and the day after (July 4<sup>th</sup> and 5<sup>th</sup>) are usually the highest each year in the SoCAB. Moreover, 24-hour average PM2.5 concentrations on July 4<sup>th</sup> and 5<sup>th</sup> are usually significantly higher than the average PM2.5

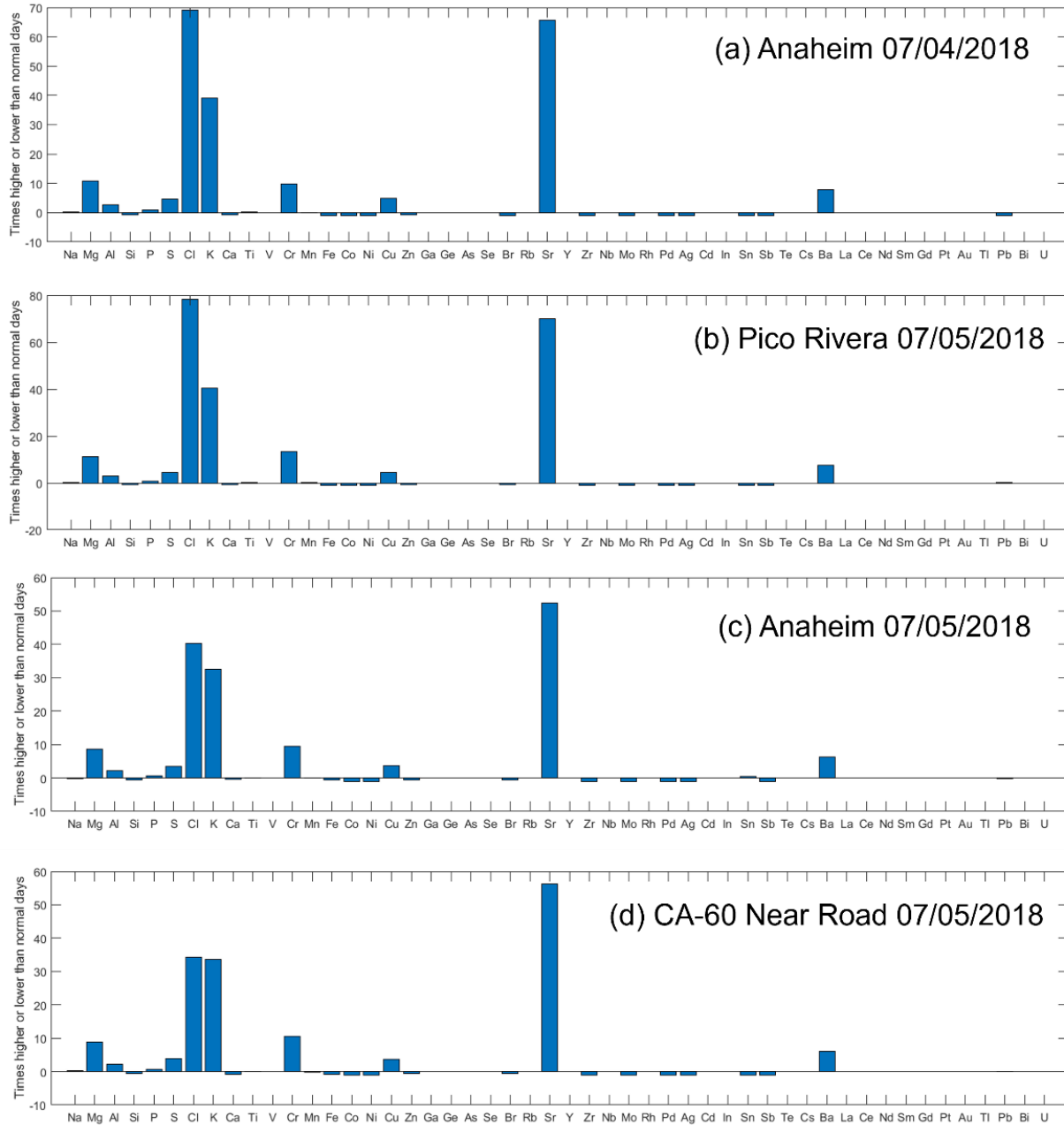
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<sup>2</sup> Fractions of primary and secondary PM were estimated using the PM2.5 speciation data measured at the Los Angeles-North Main Street station from June 2012 to July 2018. The total mass of the elemental carbon and metals was assigned as primary PM2.5. The total mass of inorganic ions was assigned as secondary PM2.5. For organic aerosols, we referred to Figure V-6-20 in the Appendix V of the South Coast AQMD's 2016 Air Quality Management Plan (AQMP) and assigned 30% of the organic aerosol as primary PM2.5 and 70% to the secondary PM2.5 fraction. Appendix V of the South Coast AQMD's 2016 Air Quality Management Plan (AQMP) is available at <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/appendix-v.pdf?sfvrsn=10>.

concentrations measured on other days in June to August. Metal species usually comprise a significantly larger share of the PM<sub>2.5</sub> mass on July 4<sup>th</sup> and 5<sup>th</sup>. To study the contribution of these metals towards PM<sub>2.5</sub> levels, we measured the concentration of metal species using X-Ray Florescence (XRF) from 48 daily FRM PM<sub>2.5</sub> filter samples. Among all these FRM filter samples, twelve samples were collected on July 4<sup>th</sup> and 5<sup>th</sup>, 2017-2018, while the rest were collected in January and February, 2017-2018, when the PM<sub>2.5</sub> concentrations were not affected by any known high pollution events. The PM<sub>2.5</sub> concentration of analyzed FRM samples collected on July 4<sup>th</sup> and 5<sup>th</sup> ranged from 30.6 to 67.8  $\mu\text{g}/\text{m}^3$ ; on days outside July 4<sup>th</sup> and July 5<sup>th</sup>, concentrations ranged from 6.4 to 31.3  $\mu\text{g}/\text{m}^3$ . We found that in 2017-2018, metal species were responsible for about 28% - 34% of the total PM<sub>2.5</sub> mass on July 4<sup>th</sup> and 5<sup>th</sup>, while they only are responsible for about 3 – 13% of the total PM<sub>2.5</sub> mass on other days. The enhancement in species fraction on the 4<sup>th</sup> and 5<sup>th</sup> of July relative to the average species fractions on all other days studied is shown in Figure 3. Fractions of Mg, Cl, S, K, Cr, Cu, Sr, and Ba collected on July 4<sup>th</sup> and 5<sup>th</sup>, 2018 are significantly elevated compared with days that did not exceed the standard. Many of these species are major chemical components of fireworks.



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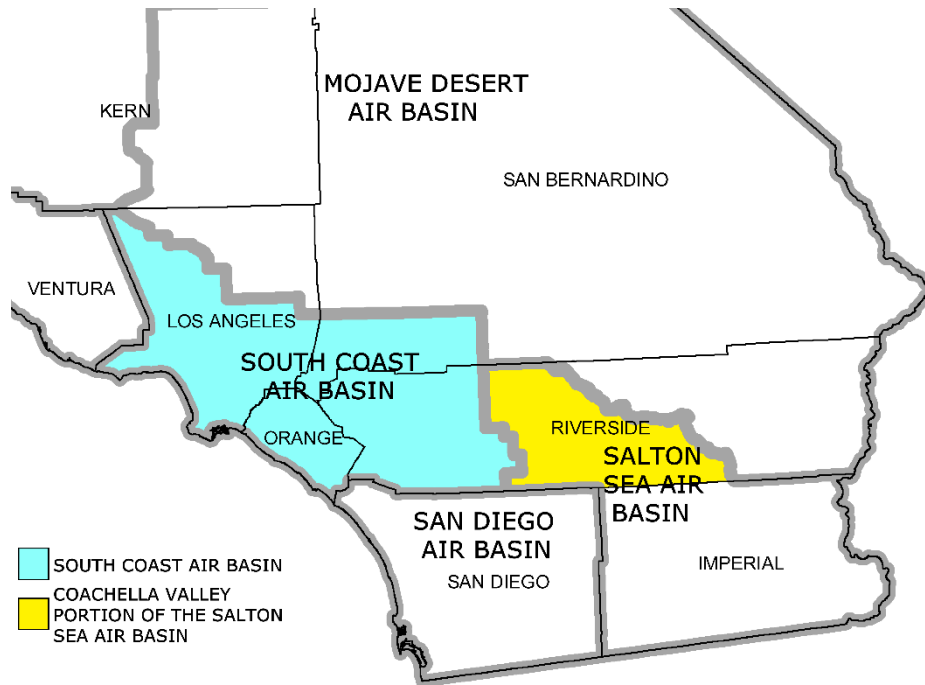
**Figure 3 - Difference of PM<sub>2.5</sub> species fractions over total PM<sub>2.5</sub> mass measured during firework days and days with no PM<sub>2.5</sub> exceedances.**

### **1.5. Climate and Geographical Setting<sup>3</sup>**

The South Coast AQMD has jurisdiction (Figure 4) over an area of approximately 10,743 square miles, consisting of Southern California's South Coast Air Basin (SoCAB or Basin), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and parts of the Mojave Desert Air Basin (MDAB). The Basin, which is a sub-region of the South Coast AQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It includes all of Orange County and major portions of Los Angeles, Riverside, and San Bernardino counties. The Basin has an area of 6,800 square miles with a population of approximately 17 million people. The Riverside County portion of the MDAB in the South Coast AQMD jurisdiction includes Joshua Tree National Park and the desert areas to the east, up to the edge of the Palo Verde Valley. The Riverside County portion of the SSAB encompasses the Coachella Valley and is bounded by the San Jacinto Mountains in the west and spans eastward to the western edge of Joshua Tree National Park. The Coachella Valley, shown in Figure 1, consists of approximately 2,500 square miles in central Riverside County, aligned northwest-southeast from the San Gorgonio Pass (often referred to as the Banning Pass) to the Salton Sea and bounded by the Little San Bernardino Mountains to the northeast and the San Jacinto Mountains to the southwest. The Santa Rosa Mountains are to the west of the northern part of the Salton Sea. The Coachella Valley is the most populated area in this desert region, encompassing several communities, including Palm Springs, Desert Hot Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, La Quinta, Indio, Coachella, Thermal, and Mecca.

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<sup>3</sup> Portions of this section was generated with ChatGPT and were edited for content and style, OpenAI, <https://chat.openai.com/chat>



**Figure 4 – The South Coast Air Basin and the Coachella Valley Portion of the Salton Sea Air Basin. (map adapted from the California Air Resources Board. Air Basin Boundaries identified with grey lines)**

### 1.5.1. South Coast Air Basin

The climate and geography of the South Coast Air Basin is highly conducive to poor air quality. The San Gabriel and San Bernardino Mountains to the north and the San Jacinto Mountains to the east create a natural barrier that inhibits ventilation into surrounding regions. Cool onshore breezes can reduce vertical mixing and trap emissions near the ground, leading to elevated pollutant levels. The South Coast Air Basin is home to several large population centers, as well as a significant amount of industrial activity, goods transport, traffic, and other sources of pollution. These sources emit a range of pollutants, including NO<sub>x</sub>, VOCs, and particulate matter, which can accumulate and lead to poor air quality.

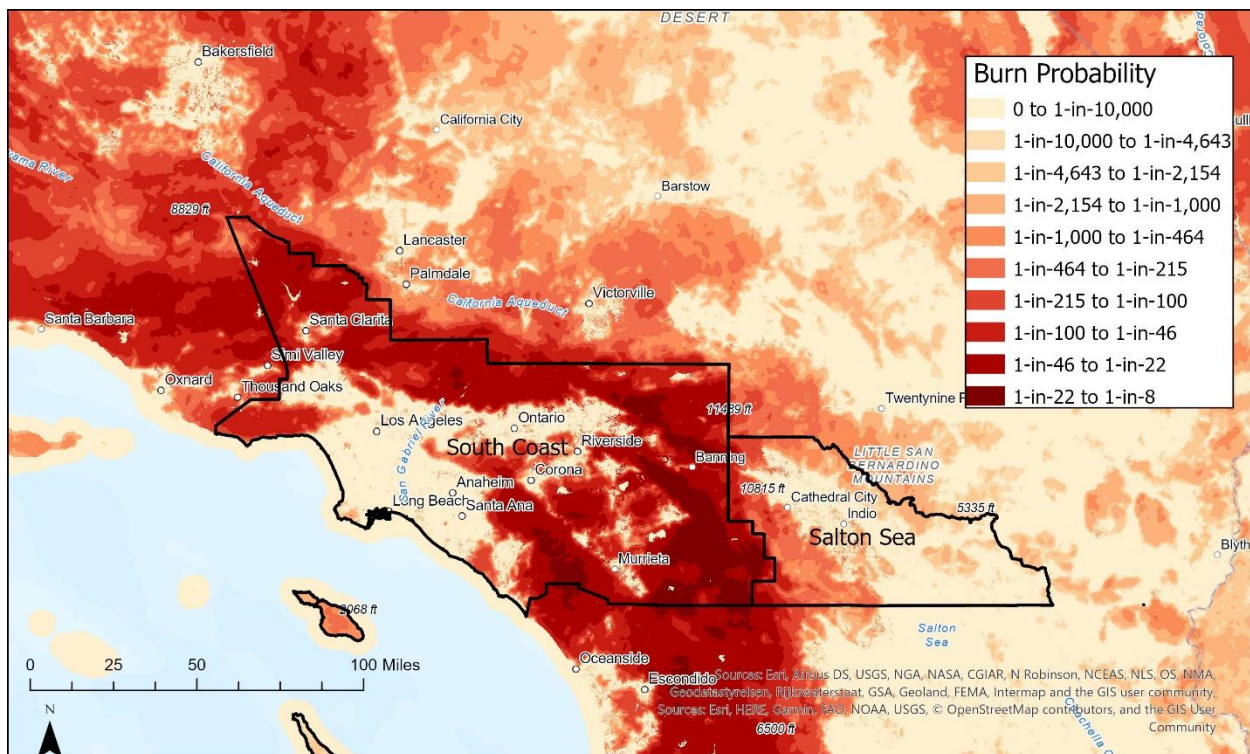
The region's climate also exacerbates the effects of air pollution. Most of the Basin is relatively arid, with very little rainfall and abundant sunshine during the summer months. It has light winds and poor vertical mixing compared to most other large urban areas in the U.S. The combination of poor air dispersion and abundant sunshine provides conditions especially favorable to the formation of photochemical smog and the trapping of particulates and other pollutants.

The sunny, warm and dry climate in the region creates ideal conditions for the formation of ground-level ozone, which is formed from the reaction of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight. During periods without precipitation, fine particle pollution (PM<sub>2.5</sub>) levels can also build up to unhealthy levels, especially in the winter months and around Independence Day, where fireworks use is ubiquitous. Limited ventilation, as is typical during the Independence Day holiday, traps PM<sub>2.5</sub> from fireworks in the Basin, requiring almost an entire day to bring PM<sub>2.5</sub> concentrations to normal summertime levels after most firework displays end on the evening of July 4<sup>th</sup>.

Southern California's geography also contributes to its susceptibility to wildfires. The region is home to many mountains, steep hills, and canyons, which are often covered in dense vegetation. This vegetation provides ample fuel for fires, as it is typically dry and highly flammable for large portions of the year; a distinct dry and rainy season leads to vegetation that is typically cured and highly flammable between the late spring and until rains arrive in the late fall.

Santa Ana winds bring hot and dry air from the desert southwest, which undergoes rapid heating as it descends in elevation into Southern California. These winds are strong, dry, and warm, and they blow from the inland areas toward the coast. The hot and dry air can quickly evaporate any moisture from vegetation, making it easier for fires to start and spread. Additionally, the strong winds can rapidly spread fires that are already burning, as high wind can carry embers over long distances. Santa Ana winds are more common during the winter months, but Santa Ana wind events that occur when fuels are at their driest in the fall have the largest potential to lead to rapid fire spread. Wildfires can be ignited by human activity such as power equipment aging and malfunctions and natural causes such as lightning.

Human activity also plays a role in the prevalence of wildfires in Southern California. The region is densely populated, with many homes and communities built in areas that are particularly vulnerable to wildfires. These areas are often located near the edges of wilderness areas, where the risk of fires is particularly high. Human activity can directly cause fires, either through accidental means (such as discarded cigarettes or campfires) or intentional ones (such as arson). The wildfire burn probability, representing the annual probability of a wildfire burning in a specific location is presented in Figure 5 below (Short et al. 2020). A large fraction of the region, especially at higher elevation, has a burn probability exceeding 1 in 100.



**Figure 5 – Wildfire Risk to Communities Burn Probabilities**

*South Coast Air Basin high-wind natural event meteorology*

Analyses of natural events in the Basin have shown that high PM10 concentrations due to strong winds are mainly associated with Santa Ana wind events that bring strong downslope flows to Southern California. These offshore flows are generated from high surface pressures to the north, over the Great Basin region, as well as thermal gradients and strong winds aloft. Strong westerly (onshore) winds can also generate windblown dust in the Basin, often caused by Pacific storm systems reaching the coast. On rare occasions, outflows from summertime thunderstorm complexes over the southwestern U.S. deserts or northern Mexico can bring entrained dust into the Basin from the south and east.

*South Coast Air Basin meteorology conducive to wildfires*

Predominantly hot and dry conditions and forested areas in the local mountains make the SoCAB susceptible to wildfires during the summer and into the early winter until wintertime moisture arrives. However, wildfires in the lower elevation shrublands can occur throughout the year. High temperatures and low humidity also dry out vegetative fuels quickly, making them more prone to ignition and fire spread. The area is also subject to Santa Ana winds as described in Section 1.5.1, mostly during fall and winter. Santa Ana wind events often cause critical fire weather.

*South Coast Air Basin Meteorology during Independence Day*

The meteorological conditions during Independence Day are usually similar to typical conditions in the summer months in the SoCAB. An upper-level ridge is typically situated to the east of the SoCAB, while an upper-level trough is typically located off the West Coast. This leads to increased surface temperatures and onshore wind flow throughout the entire Basin. In inland areas in the summer, sunny conditions typically lead to greater vertical heat flux and higher daytime mixing heights than in the winter. The high mixing heights coupled with typically higher wind speeds leads to greater ventilation during the summer than in the winter. Lower cloud cover during summer nights can decrease nighttime mixing heights relative to winter nights but this effect is mitigated by higher wind speeds and shear driven turbulence which increases vertical mixing. Fireworks are emitted into the nocturnal boundary layer throughout the SoCAB and the emissions are then typically transported inland. Concentrations typically peak at night or early morning due to the relatively lower nocturnal boundary layer height and then decrease when the daytime boundary layer grows. Sometimes low wind speed or stagnant conditions and low mixing heights occur which results in higher concentrations on July 5<sup>th</sup>. Solar radiation is usually strong this time of year, which favors the formation of the secondary organic aerosols and ground-level ozone during the day.

### **1.5.2. The Coachella Valley**

The climate and geography of the Coachella Valley also significantly impacts regional air quality. The Coachella valley is isolated from surrounding climates due to adjacent mountain ranges leading to a hot and dry desert with sparse vegetation. Severe drought, high winds and blowing sand, and air temperature inversions all impact air quality in the region. As the desert floor heats up during spring, cooler coastal air masses are drawn through the narrow San Geronio Pass into the desert. The narrow San Geronio Pass

creates a funnel effect, resulting in strong winds that frequently exceed 40 miles per hour and flow southeast. The wind can re-suspend, transport, and subsequently deposit large quantities of blowing sand and dust in the valley.

The local mountains within and surrounding the Coachella Valley are composed of erosive rock, which is deposited in drainages that cross the valley floor. These sediments are routinely driven aloft and transported by prevailing winds that blow through the San Gorgonio Pass and down the Coachella Valley, as well as winds generated by thunderstorms in the deserts of southeastern California, Arizona, Nevada, and Mexico. Most of the central valley floor has been designated as a “Blowsand Hazard Area” by the Coachella Valley Association of Governments and Riverside County.

The Coachella Valley is subject to many of the same high wind mechanisms as the Basin but is also impacted by unique conditions associated with the desert environment and the terrain that surrounds the Valley. The meteorological setting for the Basin and the Coachella Valley and the surrounding western deserts of North America have been extensively studied in past high-wind natural event analyses and other meteorological and air quality studies. Typical tools for analysis include weather charts, meteorological/air quality measurements and observations (e.g., winds, pressure gradients, and thermal profiles), trajectory analyses, radar data, and satellite imagery. Most of the wind mechanisms associated with high-wind PM10 events are described in the sections below. However, other mechanisms may still play a role in future exceptional events.

#### *Coachella Valley High-Wind Natural Event Meteorology*

Previous natural event analyses defined four meteorological mechanisms that lead to high-wind PM10 events in the Coachella Valley, including:

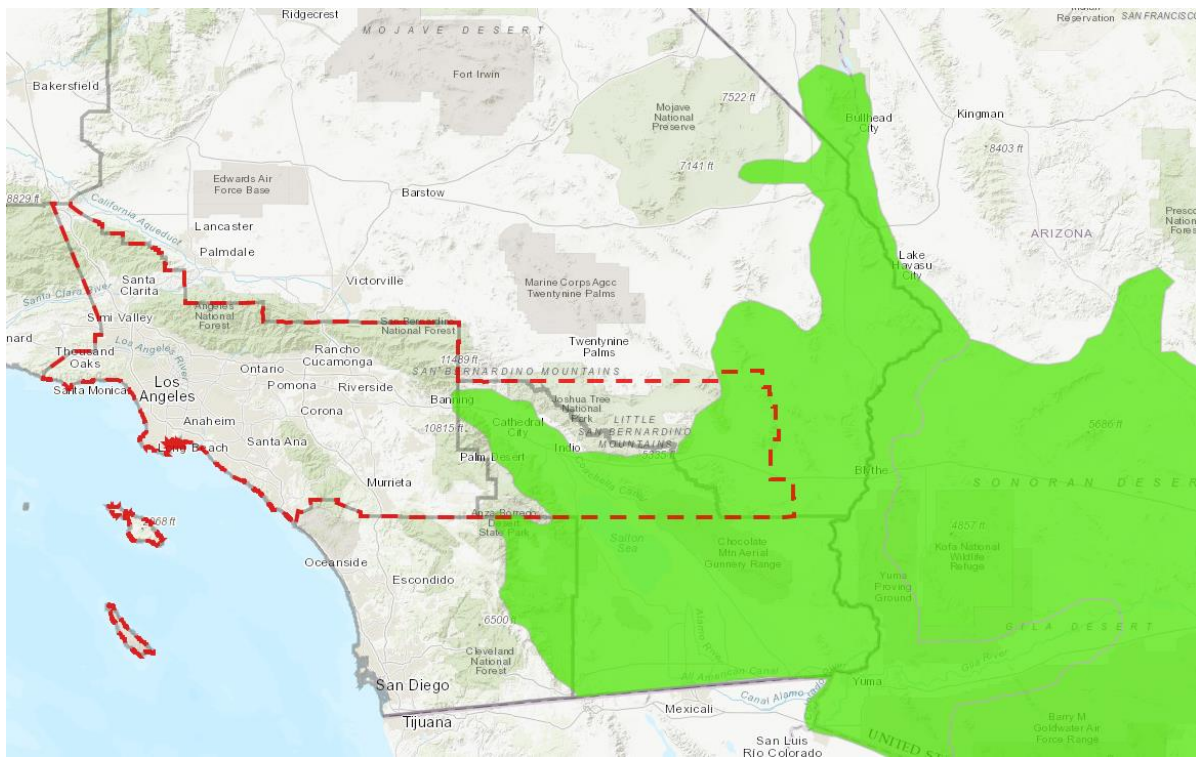
- **Type 1:** Strong pressure and density gradients forcing high winds through the San Gorgonio Pass
- **Type 2:** Storm system/frontal passages
- **Type 3:** Thunderstorm downbursts, outflow winds, and gust fronts from thunderstorms
- **Type 4:** Strong Santa Ana wind events.

In Type 1 high-wind events, low surface pressures in the desert cause cooler and denser ocean-modified air to move through the San Gorgonio Pass into the Coachella Valley. As synoptic weather patterns reinforce the localized regime through wind-inducing surface pressure gradients, strong and widespread winds result that frequently exceed 30 mph in the Coachella Valley. These winds can persist for many hours and are predominantly from the west-northwest. Type 1 events are most prevalent in the spring but can occur at other times of the year.

In Type 2 events, the passage of storm systems can similarly induce strong winds through the San Gorgonio Pass, as frontal passages cause surface wind shifts (wind shear) and wind speed increases. These storm passages often produce little or no precipitation in the Coachella Valley. The winds typically last only a few hours and tend to be associated with dynamic, fast-moving winter storms, but are also seen in the fall and spring. At times, considerable overlap of the meteorological mechanisms can occur, as the Type 1 and Type 2 mechanisms can combine to cause very strong winds in the Coachella Valley.

Type 3 wind events involve strong winds generated by summertime thunderstorms. The convective activity in thunderstorms produces strong downdrafts of cooler air, causing wind gusts that can exceed 60 mph. While the thunderstorms are usually localized events of relatively short duration, the associated downbursts and outflows can suspend large amounts of natural desert soil, which can be transported over large distances, even after the gusty winds subside. Also, a combination of thunderstorm cells can form strong thunderstorm complexes over the deserts of the southwestern U.S. and northern Mexico and produce widespread areas of windblown dust and sand, along with complicated wind flows. The entrained dust can be deeply suspended, transporting particulates to the Coachella Valley over significant distances, even under relatively weak local wind conditions in the Coachella Valley. The outflows from thunderstorms that occur during North American monsoons over the deserts of Mexico and the southwestern U.S. can create sand and dust storms of entrained particulates, which can reach as much as 3,000 feet deep in the atmosphere and span hundreds of miles. These large, strong dust storms are sometimes called ‘haboobs,’ especially when there is a visible wall of sediment at the gust front.

The Type 3 meteorological conditions lead to many of the highest PM10 episodes in the Coachella Valley. The causal condition, mainly the North American monsoon pattern, is relatively straightforward to identify and predict, with the presence of subtropical moisture from the southeast through northern Mexico and into the Sonoran Desert, mainly in northern Mexico and into the desert areas of the southwestern U.S. in Arizona and Imperial County, California. However, the ability to predict the behavior of thunderstorms and their outflows is a challenge for forecasters. Figure 6 shows the geographic extent of the Sonoran Desert. Besides the transported dust, some local material may also be added from the Coachella Valley due to the wind activity on both natural and anthropogenic sources.



**Figure 6 – The Geographical Extent of the Sonoran Desert (green shading) in the Southwestern United States.**

Type 4 wind events involve very strong Santa Ana wind events where high pressure and cold temperatures over the Great Basin cause strong northerly or north-northeasterly winds that accelerate downhill on the lee side of the San Bernardino Mountains. These relatively infrequent events can entrain blow sand from the Morongo Valley, as well as the San Gorgonio Pass and the northern Coachella Valley, leading to very high PM10 concentrations. These strong Santa Ana wind events mainly occur in late-fall or winter.

## **1.6. Attainment Status**

### **1.6.1. South Coast Air Basin PM10 Attainment Status**

In July 1987, U.S. EPA promulgated the 24-hour National Ambient Air Quality Standard (NAAQS) of 150 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for 24-hour PM10 and an annual average PM10 NAAQS of  $50 \mu\text{g}/\text{m}^3$ . The annual NAAQS ( $50 \mu\text{g}/\text{m}^3$ ) was revoked, effective December 18, 2006, and the 24-hour NAAQS ( $150 \mu\text{g}/\text{m}^3$ ) was retained. The South Coast Air Basin Attainment Redesignation Request and PM10 Maintenance Plan was approved by U.S. EPA on June 26, 2013, effective on July 26, 2013. The Basin meets the 24-hour NAAQS ( $150 \mu\text{g}/\text{m}^3$ ) in 2022 after removing exceedances caused by high winds in 2020 and 2021 that can be reasonably considered exceptional events based on criteria established by the U.S. EPA.

### **1.6.2. Coachella Valley PM10 Attainment Status**

On April 18, 2003, U.S. EPA approved the Coachella Valley State Implementation Plan (2003 SIP), which addressed future-year attainment of the annual average PM10 NAAQS with a 2006 attainment deadline.<sup>4</sup> This annual federal standard was revoked, effective December 15, 2006. The 2003 SIP also showed continued attainment of the 24-hour PM10 federal standard, except for uncontrollable natural events, and included an emission inventory update, most stringent measures analysis, control strategy, and attainment demonstration. It also updated the natural events action plan to address natural events and to protect public health. The Coachella Valley does not attain the 1987 PM10 24-hour NAAQS due to exceedances at the Mecca monitoring station. However, the vast majority of exceedances at this station are associated with high-wind events and would likely be approved as exceptional events. PM10 measurements at this station are routinely evaluated to better understand the causes of exceedances in this region. Additional monitoring as part of the AB617 program, a statewide environmental justice program designed to address air pollution in the most polluted communities, in the Eastern Coachella Valley<sup>5</sup> community may provide additional information to assist in bringing the region into attainment of the PM10 NAAQS.

### **1.6.3. South Coast Air Basin and Coachella Valley PM2.5 Attainment Status**

PM2.5 levels in the Basin have improved significantly since large-scale PM2.5 monitoring began in 1999. Since 2015, none of the monitoring stations in the Basin have recorded violations of the former 1997 annual PM2.5 NAAQS ( $15.0 \mu\text{g}/\text{m}^3$ ). On July 25, 2016, the U.S. EPA finalized a determination that the Basin attained the 1997 annual ( $15.0 \mu\text{g}/\text{m}^3$ ) and 24-hour PM2.5 ( $65 \mu\text{g}/\text{m}^3$ ) NAAQS, effective August 24, 2016.<sup>6</sup> However, the Basin does not currently meet the 2012 annual PM2.5 NAAQS ( $12.0 \mu\text{g}/\text{m}^3$ ). On the

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<sup>4</sup> <https://www.aqmd.gov/home/air-quality/clean-air-plans/coachella-valley-pm10-plan>

<sup>5</sup> <https://www.aqmd.gov/nav/about/initiatives/environmental-justice/ab617-134/eastern-coachella-valley>

<sup>6</sup> <https://www.federalregister.gov/d/2016-17410>



other hand, subject to concurrence of likely exceptional events recorded during the 2020-2022 period, the Basin does meet the 2006 24-hour standard ( $35 \mu\text{g}/\text{m}^3$ ).

The Coachella Valley attains the 2012 annual PM<sub>2.5</sub> NAAQS ( $12.0 \mu\text{g}/\text{m}^3$ ) and the 2006 24-hour PM<sub>2.5</sub> NAAQS ( $35 \mu\text{g}/\text{m}^3$ ).

## 40 CFR 51.930 Mitigation of Exceptional Events

### 2. Public Notification and Education

**51.930(b)(2) - Plan components. At a minimum, each mitigation plan...shall contain provisions for the following:**

**Requirement in Mitigation Plan:** Public notification to and education programs for affected or potentially affected communities. Such notification and education programs shall apply whenever air quality concentrations exceed or are expected to exceed a NAAQS with an averaging time that is less than or equal to 24-hours.

**Location in Federal Register:** 51.930(b)(2)(i)

South Coast AQMD is committed to disseminate current air quality information, research, and air quality programs to the public at large. Data from South Coast AQMD air monitoring stations is used for real-time public notification of air pollution events, air quality forecasting, air quality advisories, and the analysis and modeling for strategic plan development, including the preparation of the Air Quality Management Plan (AQMP). A relatively large number of air monitoring stations and consumer-grade sensors are used to adequately describe air quality and meteorology to capture large variation in demographics and geographical complexity in South Coast AQMD's jurisdiction. The South Coast AQMD air monitoring network successfully meets the needs for planning, public notification, and forecasting purposes.

#### *Real-time notifications of poor air quality*

South Coast AQMD maintains a robust real-time air monitoring network to support the accurate mapping of data and transmittal of episodic air quality alerts throughout the SoCAB and the Coachella Valley. The dissemination of this large quantity of current air quality information is accomplished through several mediums. Data from the criteria pollutants that are measured continuously are blended with air quality modeling data and quality controlled and calibrated PM<sub>2.5</sub> data from hundreds of consumer-grade sensors throughout the region using a peer-reviewed technique developed by the South Coast AQMD.<sup>7</sup> This data is updated hourly and is available at 5 km spatial resolution on the South Coast Website (<https://www.aqmd.gov>) and on the South Coast AQMD Mobile Application in English and Spanish (<https://www.aqmd.gov/mobileapp>). Mobile app users can also set up push notifications for any 5 x 5 km grid cell in the South Coast AQMD jurisdiction that are issued when the air quality index reaches a level set by the user. Data from South Coast AQMD regulatory monitors are also available through the U.S. EPA AirNow system (<http://www.airnow.gov>), and California Air Resources Board website (<https://ww2.arb.ca.gov/air-quality-and-emissions-resources>), as well as through the South Coast AQMD Interactive Voice Response (IVR) automated phone system (1-800-CUT-SMOG).

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<sup>7</sup> See <https://www.aqmd.gov/home/air-quality/current-air-quality-data/aqi-information-and-faqs#> for additional details.

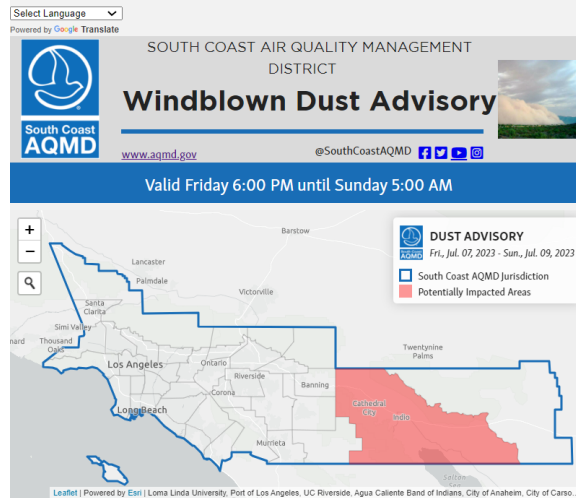
*Public notification of future air quality*

South Coast AQMD provides daily air quality forecasts to the public, predicting day-in-advance concentrations and Air Quality Index (AQI) values of ozone, PM<sub>2.5</sub>, PM<sub>10</sub>, CO, and NO<sub>2</sub> for 37 source-receptor areas throughout South Coast AQMD's jurisdiction, as well as the Antelope Valley and Mojave Desert Air Quality Management District jurisdictions. South Coast AQMD also provides high wind/windblown dust forecasts for the Coachella Valley in accordance with the South Coast AQMD Rule 403.1, agricultural and wildland prescribed fire burn forecasts and wintertime residential wood burning forecasts. South Coast AQMD air quality forecast tools utilize real-time monitoring data, empirical/statistical models, prognostic grid models, and forecaster experience. Current and historical air quality and meteorological data are critical to the forecasting process. The South Coast AQMD measurements are used to develop the empirical models and to provide current inputs during daily forecast preparation. The forecasts are disseminated to the public through the South Coast AQMD website, the South Coast AQMD mobile app, the U.S. EPA AirNow system, the South Coast AQMD IVR phone system, and through the news media, as well as by subscription via email using the U.S. EPA EnviroFlash alert system (<http://www.airalerts.org>), RSS feeds, and Twitter. Many schools, recreational facilities, sports organizations, and individuals subscribe to these services.

*Public notification during extreme air pollution events*

Air quality advisories describing current or forecasted extreme air pollution events are transmitted to the public via the South Coast AQMD website, EnviroFlash-based email, EnviroFlash-based text messages, recorded phone messages, press releases, and social media feeds, including Facebook, Twitter, Instagram, and Next Door. Air quality advisories on the South Coast AQMD website ([www.aqmd.gov/advisory](http://www.aqmd.gov/advisory)) are available in over 100 languages using an embedded Google Translate application. During these events, advisories are issued proactively to identify the affected areas, provide a forecast of future air quality, summarize past levels during prolonged events, and educate the public about how to reduce exposure. Air quality alerts are also issued by the South Coast AQMD and are relayed by the National Weather Service, resulting from a partnership between the San Diego, Los Angeles/Oxnard, and Phoenix offices and other air quality agencies in Southern California. These alerts reach a large audience through official National Weather Service channels. Advisories and air quality alerts are issued for windblown dust, windblown ash, wildfire smoke, fireworks, residential burning prohibitions, extreme ozone episodes, odor events, and other extreme events impacting air quality such as a large industrial fire. While these air quality advisories and alerts encourage public awareness and provides educational information on the health impacts of poor air quality during or in anticipation of events, similar educational information is available on the South Coast AQMD website. For example, see [www.aqmd.gov/smokesafety](http://www.aqmd.gov/smokesafety) or [www.aqmd.gov/aqi](http://www.aqmd.gov/aqi). Examples of air quality advisories for windblown dust, wildfire smoke, and Independence Day fireworks are shown in Figures 7, 8, and 9, respectively. Examples of air quality alerts developed by the South Coast AQMD and relayed by the National Weather Service for windblown dust, wildfire smoke, and Independence Day fireworks are shown in Figures 10, 11, and 12, respectively.

# Particulate Matter Exceptional Events Mitigation Plan for the South Coast Air Basin and Coachella Valley



## Forecasted Air Quality Impacts

- PM10 Dust Advisory is in effect from 6 PM Friday through 5 AM on Sunday morning due to strong winds in the Coachella Valley
- Information about High Wind Warnings and Wind Advisories posted by the National Weather Service (NWS) is available from NWS San Diego <https://www.weather.gov/sdx> and NWS Phoenix <https://www.weather.gov/psr>
- High winds can lift dust and soil and lead to poor air quality
- Blowing dust may result in Air Quality Index (AQI) levels that are **Unhealthy for Sensitive Groups** or worse
- Air quality can vary hour by hour and by location depending on wind conditions

To view current air quality in your neighborhood, download the [South Coast AQMD app](#) or visit [www.aqmd.gov/AQImap](http://www.aqmd.gov/AQImap).

**! If you are in an area impacted by windblown dust or ash:**

- Limit your exposure by remaining indoors with windows and doors closed or seeking alternate shelter.
- Avoid vigorous physical activity.
- Run your air conditioning and/or an air purifier. If possible, do not use swamp coolers or whole house fans that bring in outside air.
- Help minimize dust pollution by stabilizing loose soils and slowing down if driving on dirt roads.

For more information, see the [EPA Guide for Particle Pollution](#) (PDF).

**Figure 7 – Sample windblown dust advisory**

# Particulate Matter Exceptional Events Mitigation Plan for the South Coast Air Basin and Coachella Valley

Select Language ▼  
 Powered by Translate

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**  
**Wildfire Smoke Advisory**  
 www.aqmd.gov @SouthCoastAQMD

**Valid Friday 6:00 PM until Monday 5:00 AM**

**WILDFIRE SMOKE ADVISORY**  
 Fri., Jul. 07, 2023 - Mon., Jul. 31, 2023

- South Coast AQMD Jurisdiction
- Approximate Fire Location
- Areas of Potential Direct Smoke Impact

## Current Conditions

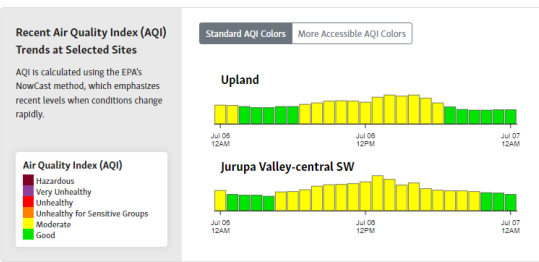
- The Fairview Wildfire is burning south of Hemet
- As of 11 AM on Tuesday, the burn area was 7,091 acres with 5% containment
- Current information is available from CAL Fire at <https://www.fire.ca.gov/incidents/2022/9/5/fairview-fire/>

## Past and Current Smoke and Ash Impacts

- The Fairview Fire is actively producing smoke on Wednesday morning based on satellite imagery, webcam imagery, social media posts, and air quality monitoring
- The smoke plume is rising vertically and moving towards the west
- Since Tuesday night, temporary monitors deployed by South Coast AQMD in San Jacinto and a low-cost sensor in Hemet recorded Air Quality Index (AQI) values that reached **Hazardous** levels, with the highest values in the early morning hours on Wednesday
- Smoke also affected other areas of the Inland Empire to a lesser extent with AQI levels in Temecula reaching **Unhealthy for Sensitive Groups**
- Please note that the AQI also reflects ozone concentrations, which are expected to be high in the afternoon hours due to the current heat wave and are unrelated to the fire. See <http://www.aqmd.gov/home/air-quality/air-quality-advisories>.

Conditions may change quickly due to fire activity and weather. Download the [South Coast AQMD app](#) or visit [www.aqmd.gov/AQImap](http://www.aqmd.gov/AQImap) to view current air quality in your neighborhood.

## Show recent air quality trends (up to Friday, 1:00 AM)



## Forecasted Smoke and Air Quality Impacts

- Areas immediately adjacent to the Fairview Fire will experience the highest AQI levels due to smoke impacts
- Smoke and ash impacts will be highly variable in both timing and location through Thursday

## Extended Smoke Outlook

- Smoke impacts will be heavily dependent on the progress of fire containment efforts
- There is a chance of wetting rains over the weekend, which could significantly reduce smoke impacts
- Overall, meteorological conditions may bring smoke and ash into portions of western Riverside County with more significant localized impacts near the Fairview Fire
- Very Unhealthy** or higher AQI levels due to PM2.5 concentrations are possible in areas of direct smoke impacts

## Detailed Forecast

Wednesday	Winds from the east and southeast near the Fairview Fire will push smoke west and northwest to cities in western Riverside County. PM2.5 concentrations may be elevated and AQI levels may reach <b>Very Unhealthy</b> or higher in Hemet, San Jacinto, Perris, Lake Elsinore, Murrieta, Temecula, and immediately surrounding areas. PM2.5 concentration in parts of the Inland Empire may be affected by both the Fairview and Radford Fires, and the AQI levels may reach <b>Unhealthy for Sensitive Groups</b> or higher. See <a href="http://www.aqmd.gov/advisory">www.aqmd.gov/advisory</a> for more information on smoke impacts from the Radford Fire.
Wednesday Night	Winds will be light. Areas in direct proximity to the fires will likely see the highest particulate matter levels overnight as smoke is likely to remain closer to the ground. AQI levels in Hemet and San Jacinto may reach <b>Unhealthy</b> or higher.
Thursday	As on Wednesday, winds from the east and southeast near the Fairview Fire will again push smoke west and northwest to cities in western Riverside County. AQI levels may reach the same levels as on Wednesday.

South Coast AQMD will issue an update if additional information becomes available.

## ! If you are in an area impacted by smoke:

- Limit your exposure by remaining indoors with windows and doors closed or seeking alternate shelter.
- Avoid vigorous physical activity.
- Run your air conditioning and/or an air purifier. If possible, do not use swamp coolers or whole house fans that bring in outside air.
- Avoid burning wood in your fireplace or firepit and minimize sources of indoor air pollution such as candles, incense, pan-frying, and grilling.
- If you must be outside, a properly fit N95 or P100 respirator may provide some protection.

For more information, visit [www.aqmd.gov/smokesafety](http://www.aqmd.gov/smokesafety).

Figure 8 – Sample wildfire smoke advisory

# Particulate Matter Exceptional Events Mitigation Plan for the South Coast Air Basin and Coachella Valley

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
**Particulate Advisory - Fireworks**  
 Valid Tuesday 5:00 PM until Wednesday 11:59 PM  
 PARTICULATE ADVISORY  
 Tue., Jul. 4, 2023 - Wed., Jul. 5, 2023  
 South Coast AQMD Jurisdiction  
 Potentially Impacted Areas

## Forecasted Air Quality Impacts

Poor air quality is likely in areas throughout the South Coast Air Basin on July 4th through July 5th due to fireworks related to Independence Day celebrations. The Air Quality Index (AQI) may reach the **Hazardous** AQI category from the evening of Tuesday, July 4th through the early afternoon on Wednesday, July 5th.

- Fireworks emit high levels of particle pollution (PM2.5 and PM10) as well as metal air pollutants, all of which can contribute to negative health effects
- Personal "backyard" fireworks may lead to localized fine particulate matter concentrations above observed regional levels
- Fine particle pollution levels on July 4th and July 5th are typically among the worst (highest) days of the year in the South Coast Air Basin
- The smoke and combustion products from fireworks add to the fine particles already present in the Basin that are primarily caused by transportation and industrial emissions
- The use of consumer grade "backyard" fireworks can also spark wildfires, which can be a major source of fine particle pollution

## Health Impacts

Breathing of fine particulate matter can lead to a wide variety of cardiovascular and respiratory health effects such as heart attacks, asthma aggravation, decreased lung function, coughing, or difficulty breathing and may lead to premature death in people with heart or lung disease.

To view current air quality in your neighborhood, download the [South Coast AQMD app](#) or visit [www.aqmd.gov/AQImap](http://www.aqmd.gov/AQImap).

## Detailed Forecast

July 4th Evening	Light winds and increased emissions from fireworks are expected in the Basin after dusk, increasing pollutant build-up. AQI may reach the <b>Hazardous</b> category at times.
July 5th	Particle pollution levels are expected to remain high into the morning and will decrease throughout the day. High levels will persist longer in Inland areas than at the coast.

South Coast AQMD will issue an update if additional information becomes available.

**⚠ During periods of poor air quality due to high particulate pollution:**

- Limit your exposure by remaining indoors with windows and doors closed or seeking alternate shelter.
- Avoid vigorous physical activity.
- Run your air conditioning and/or an air purifier. If possible, do **not** use swamp coolers or whole house fans that bring in outside air.
- Avoid burning wood in your fireplace or firepit and minimize sources of indoor air pollution such as candles, incense, pan-frying, and grilling.

For more information, see the [EPA Guide for Particle Pollution \(PDF\)](#).

**Figure 9 – Sample particulate fireworks advisory**

National Weather Service  
Watches, Warnings & Advisories  
Local weather forecast by "City, St" or zip code

### Air Quality Alert

CAZ061-065-230200-  
Coachella Valley-  
Including the cities of Indio, Palm Springs, Cathedral City, Palm Desert, Palm Desert Country, La Quinta, and Coachella  
San Geronio Pass Near Banning-  
Including the cities of Banning and Desert Hot Springs

1200 PM PST Tue Feb 21 2023

...AIR QUALITY ALERT DUE TO ELEVATED PARTICULATE MATTER LEVELS FROM WINDBLOWN DUST...

The South Coast AQMD has issued an air quality alert due to increased particulate matter from blowing dust. The air quality alert is in effect from 4 PM on Tuesday through 6 PM on Wednesday..

In areas directly impacted by high levels of windblown dust, limit your exposure by remaining indoors with windows and doors closed and avoiding vigorous physical activity. Run your air conditioner or an air purifier. If temperatures allow, avoid using whole house fans or swamp coolers that bring in outside air.

Exposure to high particle pollution levels can cause serious health problems, including asthma attacks, heart and lung disease symptoms, and increased risk of respiratory infections. People with heart or lung diseases should follow their doctor's advice for dealing with episodes of unhealthy air quality. Children, older adults, and people with respiratory or heart disease should avoid prolonged exposure and strenuous activities when particle pollution levels are high.

To help minimize outdoor particulate levels:

- Carpool, telecommute, reduce trips, or take public transportation
- Slow down if driving on dirt roads
- Stabilize loose soils

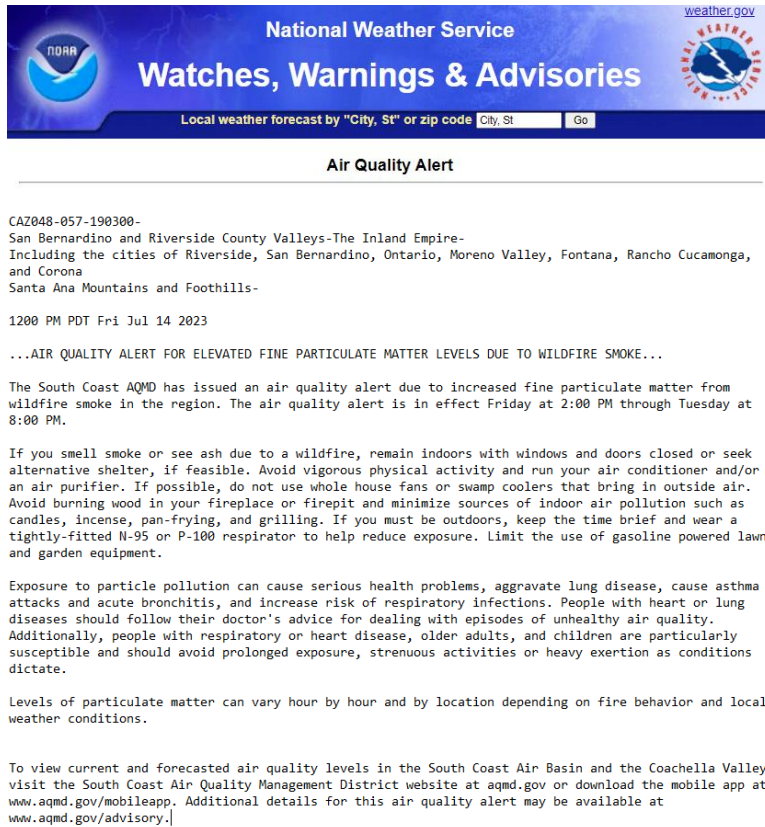
Levels of particulate matter can vary hour by hour and by location depending on wind conditions.

To view current and forecasted air quality levels, visit the South Coast Air Quality Management District website at [aqmd.gov](http://aqmd.gov) or download the mobile app at [www.aqmd.gov/mobileapp](http://www.aqmd.gov/mobileapp). Additional details for this air quality alert may be available at [www.aqmd.gov/advisory](http://www.aqmd.gov/advisory).

To view current and forecasted air quality levels, visit the Mojave Desert Air Quality Management District website at [mdaqmd.ca.gov](http://mdaqmd.ca.gov). Additional details for this air quality alert may be available at [www.mdaqmd.ca.gov/advisories](http://www.mdaqmd.ca.gov/advisories).

To view current and forecast air quality within Imperial County visit the Imperial County Air Quality website at <http://www.imperialvalleyair.org/> or follow ICAPCD on Twitter, Facebook or Instagram (@county\_air).

**Figure 10 – Sample air quality alert for windblown dust**



National Weather Service  
Watches, Warnings & Advisories  
Local weather forecast by "City, St" or zip code

**Air Quality Alert**

CAZ048-057-190300-  
San Bernardino and Riverside County Valleys-The Inland Empire-  
Including the cities of Riverside, San Bernardino, Ontario, Moreno Valley, Fontana, Rancho Cucamonga,  
and Corona  
Santa Ana Mountains and Foothills-

1200 PM PDT Fri Jul 14 2023

...AIR QUALITY ALERT FOR ELEVATED FINE PARTICULATE MATTER LEVELS DUE TO WILDFIRE SMOKE...

The South Coast AQMD has issued an air quality alert due to increased fine particulate matter from wildfire smoke in the region. The air quality alert is in effect Friday at 2:00 PM through Tuesday at 8:00 PM.

If you smell smoke or see ash due to a wildfire, remain indoors with windows and doors closed or seek alternative shelter, if feasible. Avoid vigorous physical activity and run your air conditioner and/or an air purifier. If possible, do not use whole house fans or swamp coolers that bring in outside air. Avoid burning wood in your fireplace or firepit and minimize sources of indoor air pollution such as candles, incense, pan-frying, and grilling. If you must be outdoors, keep the time brief and wear a tightly-fitted N-95 or P-100 respirator to help reduce exposure. Limit the use of gasoline powered lawn and garden equipment.

Exposure to particle pollution can cause serious health problems, aggravate lung disease, cause asthma attacks and acute bronchitis, and increase risk of respiratory infections. People with heart or lung diseases should follow their doctor's advice for dealing with episodes of unhealthy air quality. Additionally, people with respiratory or heart disease, older adults, and children are particularly susceptible and should avoid prolonged exposure, strenuous activities or heavy exertion as conditions dictate.

Levels of particulate matter can vary hour by hour and by location depending on fire behavior and local weather conditions.

To view current and forecasted air quality levels in the South Coast Air Basin and the Coachella Valley, visit the South Coast Air Quality Management District website at [aqmd.gov](http://aqmd.gov) or download the mobile app at [www.aqmd.gov/mobileapp](http://www.aqmd.gov/mobileapp). Additional details for this air quality alert may be available at [www.aqmd.gov/advisory](http://www.aqmd.gov/advisory).

**Figure 11 – Sample air quality alert for wildfire smoke**



National Weather Service  
Watches, Warnings & Advisories  
Local weather forecast by "City, St" or zip code

**Air Quality Alert**

CAZ373-380-370-378-366-548-362-367-088-375-372-379-060659-  
Eastern San Fernando Valley-  
Including the cities of Burbank, Glendale, and Universal City  
Eastern San Gabriel Mountains-  
Eastern Santa Monica Mountains Recreational Area-  
Interstate 5 Corridor-  
Los Angeles County Beaches-  
Including the cities of Santa Monica, Torrance, and Long Beach  
Los Angeles County San Gabriel Valley-  
Including the cities of Pasadena, San Gabriel, and Pomona  
Malibu Coast-  
Including the city of Malibu  
Palos Verdes Hills-  
Santa Clarita Valley-  
Including the cities of Santa Clarita, Newhall, and Valencia  
Santa Susana Mountains-  
in Los Angeles County only  
Western San Fernando Valley-  
Including the cities of Reseda, Woodland Hills, and Northridge  
Western San Gabriel Mountains and Highway 14 Corridor-

1215 PM PDT Mon Jul 3 2023

...AIR QUALITY ALERT DUE TO ELEVATED LEVELS OF FINE PARTICULATE MATTER...

The South Coast AQMD has issued an air quality alert in the South Coast Air Basin due to high levels of fine particulate matter. The air quality alert is in effect from 5 PM Tuesday through Wednesday evening.

Exposure to particle pollution can cause serious health problems, aggravate heart and lung disease, cause asthma attacks and acute bronchitis, and increase risk of respiratory infections. People with respiratory or heart disease, older adults, and children are particularly susceptible.

Check air quality levels and take appropriate action as needed. When air quality index (AQI) levels are Unhealthy for Sensitive Groups (orange), people with heart or lung disease, pregnant women, children, and older adults should limit prolonged or heavy outdoor exertion. When air quality reaches Unhealthy (red) AQI levels, everyone may experience adverse health effects and sensitive groups should avoid prolonged time outdoors. At Very Unhealthy (purple) AQI levels, sensitive groups should avoid all outdoor physical activity and everyone else should avoid prolonged or heavy outdoor exertion.

To help keep indoor air clean during periods of poor air quality, close all windows and doors and run your air conditioner and/or an air purifier. If possible, do not use whole house fans or swamp coolers that bring in outside air. Avoid burning wood in your fireplace or firepit and minimize sources of indoor air pollution such as candles, incense, pan-frying, and grilling. Limit the use of gasoline powered lawn and garden equipment.

To view current and forecasted air quality levels, visit the South Coast Air Quality Management District website at [aqmd.gov](http://aqmd.gov) or download the mobile app at [www.aqmd.gov/mobileapp](http://www.aqmd.gov/mobileapp). Additional details for this air quality alert may be available at [www.aqmd.gov/advisory](http://www.aqmd.gov/advisory).

To view current and forecasted air quality levels, visit the Mojave Desert Air Quality Management District website at [mdaqmd.ca.gov](http://mdaqmd.ca.gov). Additional details for this air quality alert may be available at [www.mdaqmd.ca.gov/advisories](http://www.mdaqmd.ca.gov/advisories).

To view current and forecasted air quality levels, visit the antelope Valley Air Quality Management District website at [www.avaqmd.ca.gov](http://www.avaqmd.ca.gov).

To view current and forecasted air quality levels, visit the San Diego County Air Pollution Control District website at [www.sdapcd.org/content/sdapcd/air-quality.html](http://www.sdapcd.org/content/sdapcd/air-quality.html). Additional details for this air quality alert may be available at [www.sdapcd.org/content/sdapcd/air-quality/smoke-advisory.html](http://www.sdapcd.org/content/sdapcd/air-quality/smoke-advisory.html)

**Figure 12 – Sample air quality alert for elevated levels of fine particulate matter (used on Independence Day)**

### 3. Emission Control Measures

#### 51.930(b)(2)(ii) - Steps to identify, study and implement mitigating measures, including approaches to address each of the following:

**Requirement in Mitigation Plan:** Measures to abate or minimize contributing controllable sources of identified pollutants.

**Location in Federal Register:** 51.930(b)(2)(ii)(A)

#### 3.1. Fugitive Dust Control Measures

South Coast AQMD adopted several rules designed to further reduce fugitive dust and the corresponding PM10 emissions as part of a comprehensive strategy to achieve and maintain attainment of State and federal air quality standards. These rules include *Rule 403 – Fugitive Dust* that applies to the SoCAB and SSAB, *Rule 1186 – PM10 Emissions from Paved and Unpaved Roads and Livestock Operation* that applies to the entire South Coast AQMD jurisdiction, *Rule 1157 – PM10 Emission Reductions from Aggregate and Related Operations* that applies to the entire South Coast AQMD jurisdiction, and *Rule 403.1 - Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources* that applies only in the Coachella Valley.

South Coast AQMD has also developed various rules that indirectly address fugitive PM10 emissions and apply to both the SoCAB and the Coachella Valley. These rules include: *Rule 1466 - Control of Particulate Emissions from Soils with Toxic Air Contaminants*; *Rule 1156 – Further Reductions of Particulate Emissions from Cement Manufacturing Facilities*.

South Coast AQMD rules are enforced by staff in the Compliance and Enforcement Division. Residents can alert Compliance and Enforcement staff of air quality concerns by filing a complaint through the South Coast AQMD complaint system. Complaints can be filed by calling 1-800-CUT-SMOG, using the online complaint system (<https://www.aqmd.gov/home/air-quality/complaints>) or the South Coast AQMD Mobile App.

At the State Level, Assembly Bill 1318 was passed in 2009 to establish requirements for the expenditure of the mitigation funds from the CPV Sentinel Energy Project power plant for emission reductions projects in the Coachella Valley. Among other projects, some of these funds were used to mitigate fugitive emissions from vehicular transport on unpaved roadways.<sup>8</sup>

A description of each of these rules and how they would protect public health from exceedances or violations of ambient air quality standards is provided below:

#### 3.1.1. Rule 403 (Fugitive Dust) and Rule 403.1 (Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources)

Fugitive dust is a generic term used to describe any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.

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<sup>8</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2013/2013-jan4-020.pdf>

Fugitive dust can vary in size and composition, depending on the location, wind direction, time of the day, and the time of season for its source. Rule 403 (Fugitive Dust) was adopted in 1976 and has been amended six times since adoption. The requirements in Rule 403 are applicable to the SoCAB and to the Coachella Valley portion of the SSAB. The purpose of Rule 403 is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic fugitive dust sources. Rule 403 requires implementation of control measures to prevent, reduce, or mitigate fugitive dust emissions and includes a performance standard that prohibits visible emissions from crossing any property line. Under Rule 403, large operations (projects greater than 50 acres and/or more than 5,000 cubic yards of daily earth-movement) are required to notify South Coast AQMD of the project location and implement specific control measures and maintain recordkeeping. Rule 403 can be viewed or downloaded at: <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf?sfvrsn=4>.

In spite of these requirements throughout the South Coast AQMD jurisdiction, ground disturbances, geological conditions, or meteorological conditions may result in dust generation that constitutes a chronic public nuisance, or would prevent attainment of federal PM10 standards. These limited areas may warrant additional dust control efforts by local governments. A local policy that requires preparation and approval of a dust control plan for all projects seeking a grading permit in such limited areas may be put in place in addition to the current Rule 403 requirements. Local governments may also choose to apply specific control measures crafted to address their chronic public nuisance dust problems or PM10 exceedances.

Numerous local governments in the Coachella Valley have adopted dust control ordinances that require approval of a dust control plan prior to local government issuance of grading permits. Many of these dust control ordinances were approved into the California SIP by the U.S. EPA effective on January 8, 1999. (See cf. 63 FR 67784-67787, dated December 9, 1998) These dust control ordinances, which were developed in response to the elevated levels of PM10 in the Coachella Valley, illustrates how local dust control plans can work to address areas with elevated particulate levels.

South Coast AQMD Rule 403.1 (Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources), adopted in 1993 and amended twice, is a companion regulation to Rule 403 that is only applicable to fugitive dust sources in the Coachella Valley. Rule 403.1 establishes special requirements for Coachella Valley fugitive dust sources under high-wind conditions and requires South Coast AQMD approval of dust control plans for sources not subject to local government ordinances (e.g., school districts). Rule 403.1 can be viewed or downloaded at: <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403-1.pdf?sfvrsn=4>.

A guidance handbook has been prepared to assist persons preparing and reviewing dust control plans.<sup>9</sup> This guidance handbook as well as a comprehensive overview of South Coast AQMD dust control requirements and strategies are covered in monthly classes held by South Coast AQMD staff. “Dust Control in the South Coast Air Basin” is a 2.5 hour training class that provides attendees with a comprehensive overview of South Coast AQMD dust control requirements and current strategies for preventing, mitigating, and controlling the release of airborne particulate matter emissions from earth moving activities undertaken within the South Coast Air Basin. “Dust Control in the Coachella Valley” is a

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<sup>9</sup> See <http://www.aqmd.gov/home/programs/business/training-403-403-1-403-2-fugitive-dust/documents-for-fugitive-dust-control-classes>.

3.5 hour training class that provides attendees with a comprehensive overview of South Coast AQMD dust control requirements, local jurisdiction ordinance requirements and current strategies for preventing, mitigating and controlling the release of airborne particulate matter emissions from man-made activities conducted within the Coachella Valley. More information about both of these classes is available at <http://www.aqmd.gov/home/programs/business/training-403-403-1-fugitive-dust>.

### **3.1.2. Rule 1157 (PM10 Emission Reductions from Aggregate and Related Operations)**

Rule 1157 – PM10 Emission Reductions from Aggregate and Related Operations was adopted in 2005 and amended once in 2006, to further reduce PM10 emissions from aggregate and related operations as part of the 2003 AQMP Control Measure BCM-08 – Further Emission Reductions from Aggregate and Cement Manufacturing Operations, which identified aggregate and cement operations as sources of PM10 emissions. Aggregate and related operations are also regulated by Rule 403- Fugitive Dust, however, Rule 403 allows a choice of compliance options for general fugitive dust source categories, while Rule 1157 seeks to further minimize particulate emissions from this industry by establishing source specific performance standards and specifying operational PM10 controls for various types of equipment, processes, storage piles, internal roadways at aggregate and related operations, and track-out of materials onto paved public roads.

Rule 1157 affects approximately 389 aggregate and related operations categorized as follows: 29 aggregate, 100 concrete batching, 152 concrete product, 45 hot-mix asphalt, 25 crushed miscellaneous base for concrete and asphalt recycling, and 38 "other" facilities (i.e., sand and cement blending and bagging, inert landfills handling construction and demolition debris, etc.). These facilities generate PM10 during their mining, processing, and handling (i.e., transporting, loading/unloading, conveying, crushing, screening, mixing, and storing) of the aggregates. Unpaved roads and track-out from these facilities are two other significant sources of PM10 emissions. Rule 1157 is available at <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1157.pdf?sfvrsn=4>.

### **3.1.3. Rule 1466 (Control of Particulate Emissions from Soils with Toxic Air Contaminants)**

Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants was adopted in 2017 and amended twice to reduce fugitive non-volatile toxic air contaminant emissions from sites conducting earth-moving activities. It applies to sites conducting earth-moving activities where soils contain applicable toxic air contaminants as determined and designated by U.S. EPA, California Department of Toxics Substances Control (DTSC), State Water Resources Control Board (State Water Board), or Regional Water Quality Control Boards (Regional Water Boards) or state, county, or local agency. Additionally, this

rule allows the Executive Officer to identify sites, based on a set of criteria, to be subject to the requirements of Rule 1466. For sites that meet the applicability requirements, Rule 1466 establishes a PM10 ambient dust concentration limit, dust control measures, and requires notification to the Executive Officer prior to beginning earth-moving activities as well as when ambient PM10 dust concentration limits are exceeded. Sites are required to install and maintain signage to inform the community and discourage unauthorized access. Records of monitoring readings and other site activities are also required. The rule also includes additional requirements for sites that are located at schools, early education centers, athletic areas, or joint use agreement properties. Rule 1466 is available at <http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1466.pdf?sfvrsn=25>.

#### **3.1.4. Rule 1156 (Further Reductions of Particulate Emissions from Cement Manufacturing Facilities)**

Rule 1156 was adopted on November 4, 2005 and amended twice in March 2009 and November 2015, and establishes requirements to reduce particulate matter emissions and minimize hexavalent chromium emissions from cement manufacturing operations and properties. The rule applies to cement manufacturing facilities, including but not limited to, kiln and clinker cooler, material storage, crushing, drying, screening, milling, conveying, bulk loading and unloading systems, internal roadways, material transport, and track-out. The rule includes provisions for visible emissions; material loading, unloading and transferring; cement manufacturing operations; material storage; air pollution control devices; internal roadways and areas; and track-out. Rule 1156 also has provisions for a Compliance Monitoring Plan; hexavalent chromium, PM10, and wind monitoring; and source testing. Additional provisions include Operation and Maintenance procedures; reporting and recordkeeping; and requirements after facility closure. Rule 1156 is applicable to only cement manufacturing facilities, addresses only hexavalent chromium, and does not apply to all earth-moving activities. Rule 1156 is available at <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1156.pdf>.

#### **3.1.5. Rule 1186 (PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations)**

Rule 1186 - PM10 Emissions from Paved and Unpaved Roads and Livestock Operations, was adopted in 1997 and was amended several times (December 1998, September 1999, April 2004, and July 2008) to implement the 1994 AQMP control measure BCM-01 (Control Emissions from Paved and Unpaved Roads). In general, Rule 1186 applies to the entire South Coast AQMD jurisdiction, with the exception of requirement 5, which addresses unpaved roads in the South Coast Air Basin. One of the Rule 1186 requirements is for governmental agencies to procure and use certified street sweepers for routine street sweeping activities. The provisions of this rule apply to specified land uses and activities conducted within the South Coast AQMD that result in fugitive dust. South Coast AQMD staff subsequently worked with industry to develop a testing protocol to certify street sweepers both in terms of pick-up efficiency and PM10 entrainment. After the certification testing protocol was approved by the Board, street sweeper manufacturers contracted with independent testing laboratories to certify street sweeping equipment.

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The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of vehicular travel on paved and unpaved public roads, and at livestock operations. Various South Coast AQMD regulations also require procurement of certified street sweepers to implement specific rule requirements. This list of equipment is updated periodically based on certifications test results and in response to new information. Rule 1186 is available at <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1186.pdf>.

### **3.1.6. Assembly Bill No. 1318 (South Coast Air Quality Management District: Emission Reduction Credits)**

Assembly Bill 1318 (2009), in conjunction with the construction of the Sentinel power plant, provided funding for emission reduction projects that include, among others, paving of roadways in the Coachella Valley. In particular, roadways leading to, in and around mobile home parks housing farmworkers were paved to reduce fugitive dust emissions arising from vehicular traffic on unpaved roads.

## **3.2. Wildfire Emissions Control Measures**

Wildfires themselves are difficult to control, but South Coast AQMD has several regulatory and incentive-based approaches to reduce the cumulative PM<sub>2.5</sub> exposure prior to and during such inevitable events.

### **3.2.1. Rule 444 (Open Burning)**

The use of prescribed fire is often considered a tool to reduce the threat of large wildfires. An approved smoke management plan is required by South Coast AQMD prior to authorizing prescribed burning on greater than 100 acres within its jurisdiction. Smoke management plans need to be updated annually, and must contain:

- i. Identification of meteorological conditions necessary for burning
- ii. Smoke management criteria the land manager will use for making burn ignition decisions
- iii. Projections, including a map, of where the smoke from burns is expected to travel both day and night
- iv. 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
- v. Evaluation of and consideration of emission reduction techniques including environmentally, economically, and logistically viable alternatives to burning
- vi. Discussion of public notification procedures

### **3.2.2. AB 836 Wildfire Smoke Clean Air Centers Pilot Program**

Assembly Bill (AB) 836 provided \$5 million in statewide funding to create the Wildfire Smoke Clean Air Centers for Vulnerable Populations Incentive Pilot Program to upgrade ventilation systems and/or deploy portable air cleaners to create a network of clean air centers for residents displaced by wildfires and other smoke events. South Coast AQMD received \$250,000 to deploy portable air cleaners at clean air centers in its jurisdiction. In May 2022, South Coast AQMD issued a request for proposals (RFP) #P2022-10 to solicit organizations to deploy portable air cleaners at Wildfire Smoke Clean Air Centers. RFP #P2022-10 was extended to August 2022 to obtain additional proposals. In September 2022, the IQAir Foundation and the Los Angeles and Orange County chapters of the American Red Cross (ARC)

were selected to deploy portable air cleaners at clean air centers set up by the American Red Cross during the fire season. In October 2022, South Coast AQMD released a Request for Quotation (RFQ) #Q2023-06 for purchase of portable air cleaners. Bids were received for 11 portable air cleaner models and 7 portable air cleaner models were included in a qualified vendor list. ARC chose to deploy IQAir ATEM X portable air cleaners, and these were delivered to the ARC warehouse in Bell on July 19, 2023 for deployment during the 2023 fire season. Data will be collected on locations of the wildfire smoke clean air centers, dates of deployment, estimated number of people served at each center, cumulative smoke burden, and proximity of vulnerable populations including distance from disadvantaged communities and prioritization to disadvantaged communities. This program will provide annual reporting on the deployment of portable air cleaners and a final report in July 2026 at the end of the program.

### **3.2.3. School Air Filtration**

South Coast AQMD has implemented school air filtration projects for over a decade to decrease the air pollution burden in disadvantaged and low-income communities. As of March 2022, air filtration systems have been installed in 97 schools and Early Education Centers through Supplemental Environmental Projects and penalty settlement funds from U.S. EPA, CARB, and South Coast AQMD. Community Air Protection Program incentives will provide additional funding for schools in South Coast AQMD jurisdiction to install and maintain air filtration systems, including panel filters and standalone units. These systems provide a reduction of indoor PM and provide public health benefits. South Coast AQMD staff has developed a School Air Filtration Project Plan (<http://www.aqmd.gov/home/programs/business/community-air-protection-incentives/public-school-air-filtration-incentives>) under the Community Air Protection Program for the installation and maintenance of air filtration systems in public schools (or school districts), daycare or childcare centers, preschools, community centers, and libraries in AB 617 Communities.

### **3.2.4. AB617 Air Filter Incentive Program**

This program aims to reduce residential exposure to particulate matter in the East Los Angeles, Boyle Heights, West Commerce, and Eastern Coachella Valley AB617 communities. Residents within these communities are eligible to apply for portable air filtration units and replacement filters. Details on this program are available at <http://www.aqmd.gov/home/programs/business/community-air-protection-incentives/residential-air-filtration-incentives>.

## **3.3. Fireworks Emissions Control Measures**

Local municipalities in Southern California take a varied approach towards fireworks regulation. While some cities have completely banned fireworks within their jurisdiction such as the City of Los Angeles, others permit the use of safe-and-sane fireworks during specific periods, typically around certain holidays. The consequences for illegally using fireworks can be severe, including fines, citations, and even criminal charges. Authorities actively enforce these regulations to ensure public safety and prevent accidents, wildfires, and disturbances. The cities listed below allow the use of the safe-and-sane fireworks. See Figure 13. All other cities in the South Coast AQMD jurisdiction completely banned firework use within their jurisdiction.

### **Los Angeles County**



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- Alhambra
- Artesia
- Azusa
- Baldwin Park
- Bellflower
- Carson
- Commerce
- Compton
- Cudahy
- Downey
- El Monte
- Gardena
- Hawaiian Gardens
- Hawthorne
- Huntington Park
- Industry
- Inglewood
- Irwindale
- La Mirada
- La Puente
- Lakewood
- Lawndale
- Lynwood
- Maywood
- Montebello
- Monterey Park
- Norwalk
- Palmdale
- Paramount
- Pico Rivera
- Rosemead
- Santa Fe Springs
- South El Monte
- South Gate
- Temple City
- Vernon

### **Orange County**

- Anaheim
- Buena Park
- Costa Mesa
- Fullerton
- Garden Grove
- Huntington Beach
- Santa Ana
- Stanton
- Villa Park

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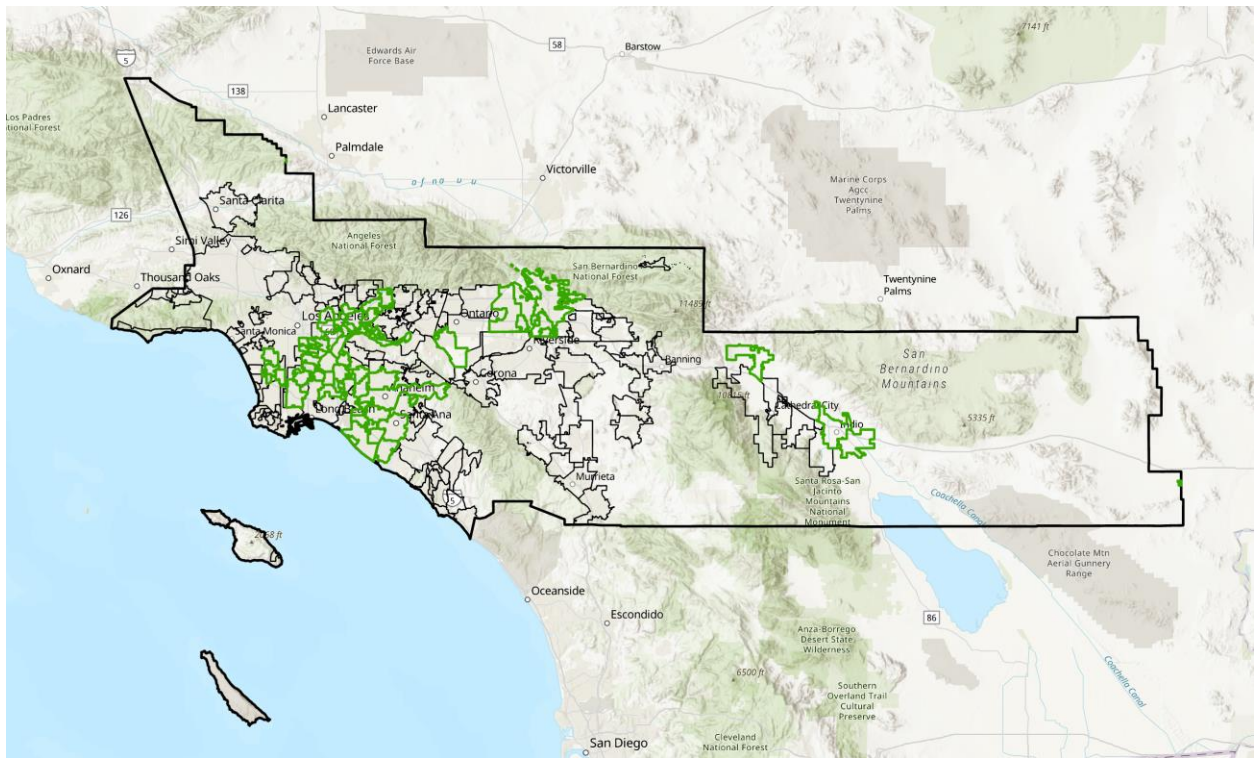
- Westminster

### Riverside County

- Blythe
- Coachella
- Desert Hot Springs
- Indio

### San Bernardino County

- Chino
- Colton
- Fontana
- Grand Terrace
- Rialto
- San Bernardino



**Figure 13 – Cities and unincorporated areas in the South Coast AQMD’s jurisdiction. Cities that allow the use of safe-and-sane fireworks are highlighted in green.**

#### 4. Methods to Minimize Public Exposure

**Requirement in Mitigation Plan:** Methods to minimize public exposure to high concentrations of identified pollutants.

**Location in Federal Register:** 51.930(b)(2)(ii)(B)

The notification and education programs that are routinely disseminated to minimize public exposure are listed below. Whenever air quality concentrations *exceed or are expected to exceed a NAAQS with an averaging time that is less than or equal to 24-hours*, additional notification programs are employed.

- Dissemination of current air quality information
  - The South Coast AQMD website (<http://www.aqmd.gov>)
  - The South Coast AQMD smartphone application (<https://www.aqmd.gov/mobileapp>)
  - U.S. EPA AirNow System (<http://www.airnow.gov>)
  - Real-time alerts subscription (<http://www.airalerts.org>), utilizing the U.S. EPA EnviroFlash system
  - California Air Resources Board Air Quality and Meteorological Information System (AQMIS2) website (<https://ww2.arb.ca.gov/air-quality-and-emissions-resources>)
  - The South Coast AQMD Interactive Voice Response (IVR) automated phone system (1-800-CUT-SMOG)
  - The Interagency Wildland Fire Air Quality Response Program's Fire and Smoke Map (<https://fire.airnow.gov/>)
  - Social Media, such as Twitter and Facebook
- Daily air quality forecast. The forecasts are disseminated to the public through:
  - The South Coast AQMD website (<http://www.aqmd.gov/forecast>)
  - The South Coast AQMD smartphone application (<https://www.aqmd.gov/mobileapp>)
  - U.S. EPA Air Now System (<http://www.airnow.gov>)
  - The South Coast AQMD Interactive Voice Response (IVR) automated phone system (1-800-CUT-SMOG)
  - News media
  - Subscription via email, text messaging, and Twitter, using the U.S. EPA EnviroFlash alert system (<http://www.airalerts.org>)
- Public notifications, advisories, alerts, and warnings of elevated pollutant concentrations whenever air quality concentrations exceed or are expected to exceed a NAAQS with an averaging time that is less than or equal to 24-hours through:

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- The South Coast AQMD website (<http://www.aqmd.gov/advisory>)
- Real-time alerts email subscription (<http://www.airalerts.org>), utilizing the U.S. EPA EnviroFlash system
- The South Coast AQMD smartphone application (<https://www.aqmd.gov/mobileapp>)
- Subscription via X (formerly known as Twitter)
- Press releases of air quality advisories
- Air Quality Alerts issued by the South Coast AQMD and relayed by the National Weather Service (<https://www.weather.gov/lox/>, <https://www.weather.gov/sgx/>, and <https://www.weather.gov/phx>)
- Public education (encouraging public awareness of the health impacts of PM10 and PM2.5) through:
  - The South Coast AQMD website (<http://www.aqmd.gov>, <http://www.aqmd.gov/aqi>, and <http://www.aqmd.gov/smokesafety>)
  - U.S. EPA websites (<http://www.epa.gov> and <http://www.airnow.gov>)
  - Informational brochures (<https://www.aqmd.gov/home/research/publications>)
  - Public meetings and conferences
  - Press releases of air quality advisories and related news stories (<http://www.aqmd.gov/home/news-events/news-and-media/current-news>)
  - Media interviews during periods of poor air quality
  - Resources for Students, Teachers, and Parents (<https://www.aqmd.gov/home/research/students-teachers>)
  - South Coast AQMD Videos (<https://www.aqmd.gov/all-videos>)

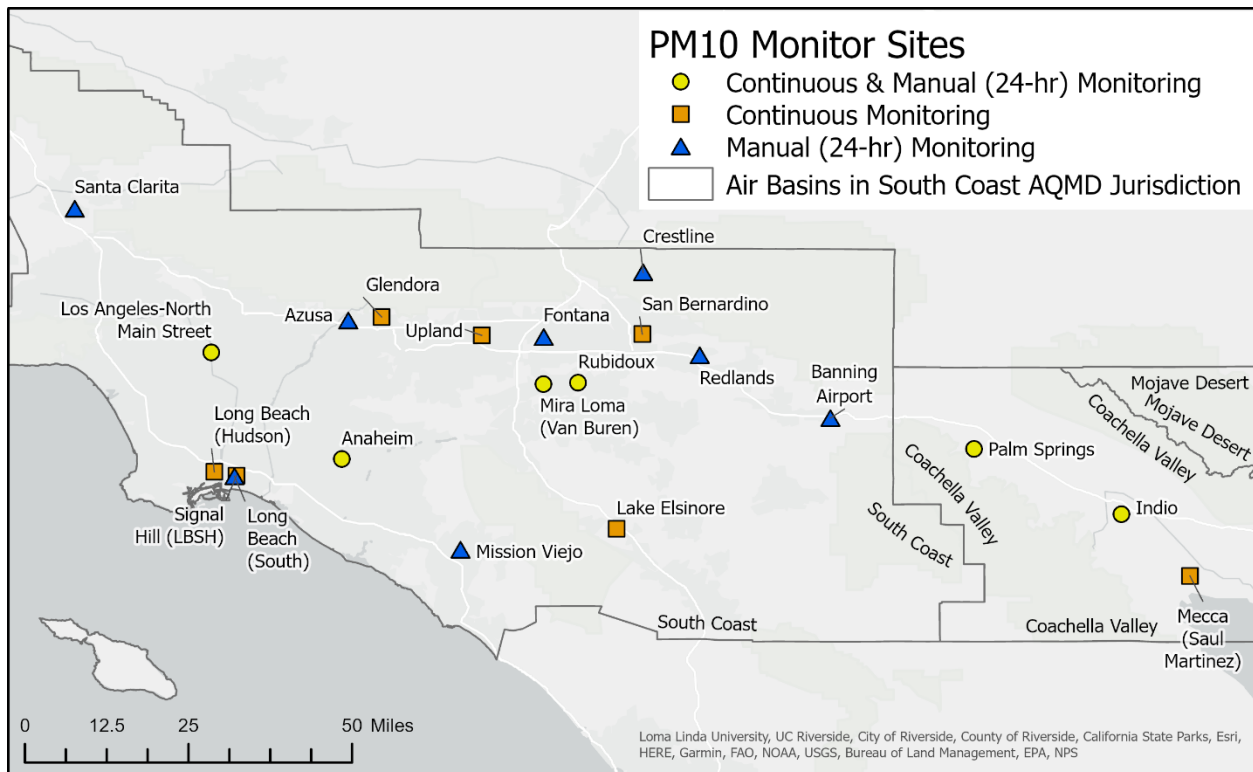
### **5. Processes to Collect and Maintain Data Pertinent to the Event**

**Requirement in Mitigation Plan:** Processes to collect and maintain data pertinent to the event.

**Location in Federal Register:** 51.930(b)(2)(ii)(C)

### 5.1. PM10 Monitoring Program

South Coast AQMD routinely monitors PM10 concentrations at 21 monitoring sites in the Basin and the Coachella Valley, as shown in Figure 14. The figure shows monitoring sites with monitors operating in 2022. Of the monitoring sites, 14 currently employ Federal Reference Method (FRM) filter samplers. The FRM PM10 minimum sampling schedule set by U.S. EPA requires one 24-hour filter sample every sixth day. At the Riverside-Rubidoux, Mira Loma, and Indio stations, the 24-hour filter sample is collected once every three days. In addition, 13 stations have continuous Federal Equivalent Method (FEM) PM10 monitors. The PM10 FEM and FRM measurements are used to determine the PM10 design value and the PM10 FEM monitors provide real-time hourly data for forecasting air quality, public notification of air quality events, and to provide the current air quality index to the public. The annual air monitoring network<sup>10</sup> plan has additional information about the PM10 monitoring program.



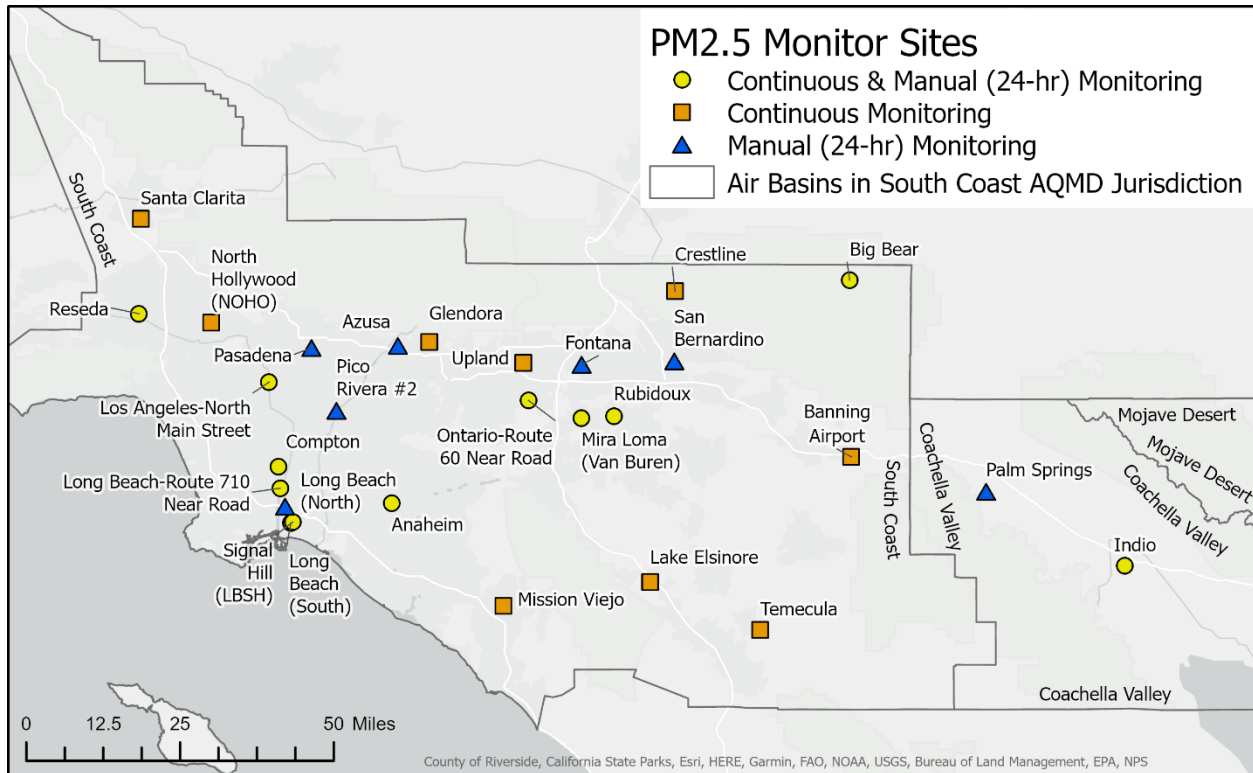
**Figure 14 – Location of PM10 Monitoring Stations in the South Coast AQMD Jurisdiction in 2022**

### 5.2. PM2.5 Monitoring Program

The South Coast AQMD uses federal reference method (FRM) gravimetric monitors and federal equivalent method (FEM) beta attenuation monitors (BAM) to measure PM2.5. Figure 15 shows the locations of PM2.5 monitoring sites that operated in the South Coast AQMD jurisdiction in 2022. There are 28 monitoring sites, with continuous hourly BAMs at 21 sites and 24-hour FRM monitors at 19 sites. The

<sup>10</sup> Monitoring network plan available at <http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>

PM2.5 FRM measurements and the PM2.5 FEM measurements, for those FEM monitors that meet the requirements for comparability with the federal reference method, are used to calculate the PM2.5 design value. PM2.5 FEMs also provide real-time hourly data for forecasting air quality, public notification of air quality events, and to provide the current air quality index to the public. The annual air monitoring network<sup>11</sup> plan has additional information about the PM2.5 monitoring program.



**Figure 15 – Location of PM2.5 Monitoring Stations in the South Coast AQMD Jurisdiction in 2022**

### 5.3. Record Keeping

As required in 40 CFR 58.16(a), data is reported to AQS including all ambient air quality data and associated quality assurance data for all criteria pollutants, including PM10 and PM2.5 FRM/FEM mass concentration, sampler-generated average daily temperature, and sampler-generated average daily pressure, meteorological data. Past daily air quality forecasts are archived internally, whereas historical air quality data and meteorological data are all easily accessible from online databases hosted by the South Coast AQMD, CARB, and U.S. EPA’s AirNow and AQS systems.

In addition to the air monitoring data, meteorological data, PM10 advisories, PM2.5 advisories, weather forecasts, and air quality forecasts during an exceptional event are saved on South Coast AQMD servers. Other pertinent information such as satellite data continue to remain available at their hosting websites or can be ordered through the National Climatic Data Center or other providers.

<sup>11</sup> Monitoring network plan available at <http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>

## **6. Inter Agency Collaboration**

**Requirement in Mitigation Plan:** Mechanisms to consult with other air quality managers in the affected area regarding the appropriate responses to abate and minimize impacts.

**Location in Federal Register:** 51.930(b)(2)(ii)(D)

A number of air quality agencies that are impacted by the same sources of PM<sub>10</sub> and PM<sub>2.5</sub> in the area maintain their own air quality regulations. These agencies are important partners in managing air quality programs, therefore, the South Coast AQMD and representatives from these agencies routinely communicate on a host of topics. The South Coast AQMD Air Quality Assessment/Meteorology team maintains contacts and shares information with the Mojave Desert AQMD, Antelope Valley Air Pollution Control District, Ventura County Air Pollution Control District, San Diego Air Pollution Control District, and Arizona Department of Environmental Quality, as well as CARB, U.S. EPA Region 9, Clark County Department of Air Quality, Imperial County APCD and others. In addition, South Coast AQMD staff shares forecasting data and provides a daily forecast for the Mojave Desert and Antelope Valley AQMDs.

The South Coast AQMD Air Quality Assessment/Meteorology team participates in a collaboration of Southern California air quality agencies and National Weather Service (NWS) offices to harmonize and distribute air quality alerts for most of Southern California. For this collaboration, the South Coast AQMD, Antelope Valley AQMD, Imperial County APCD, Mojave Desert AQMD, and San Diego APCD developed uniform language for common types of air quality alerts. The Air Quality Assessment/Meteorology team maintains a software program that air agencies participating in the collaboration use to generate consistent air quality alerts and to transmit the alerts to the NWS offices whose jurisdiction covers the alert area. The NWS offices, including San Diego, Los Angeles/Oxnard, and Phoenix, publish the alerts. The Air Quality Assessment/Meteorology team maintains contacts with the air districts and NWS offices to provide support and to integrate updates and feedback into the software program and the standard operating procedures. Automatically generated emails are also distributed to staff at all air agencies when an alert is issued and adjacent agencies can easily collaborate on alerts when events impact both jurisdictions. Through this collaboration, air quality alerts reach a broader swathe of the public than traditional air quality alert platforms as many weather websites and apps automatically integrate NWS alerts.

## **7. Periodic Review and Evaluation**

**Requirement in Mitigation Plan:** Provisions for periodic review and evaluation of the mitigation plan and its implementation and effectiveness by the State & interested stakeholders.

**Location in Federal Register:** 51.930(b)(2)(iii)

## Particulate Matter Exceptional Events Mitigation Plan for the South Coast Air Basin and Coachella Valley

The mitigation plan is posted online and is available to the public via South Coast AQMD website. South Coast AQMD will review and evaluate the mitigation plan every five years or sooner. In the event that significant South Coast AQMD rulemaking addressing windblown PM10, PM2.5 wildfire emissions, or PM2.5 fireworks emissions occurs within that five-year period, the mitigation plan will be updated in accordance with rule amendments. Any revisions will be forwarded to the U.S. EPA.



## **8. Public Comment Documentation**

**51.930(b)(2)(iii)(A) - With the submission of the initial mitigation plan according to the requirements in 51.930(b)(3) that contains the elements in 51.930(b)(2), the State must:**

**Requirement in Mitigation Plan:** Document that a draft version of the mitigation plan was available for public comment for a minimum of 30 days;

**Location in Federal Register:** 51.930(b)(2)(iii)(A)(1)

The mitigation plan and a request for public comment was posted on South Coast AQMD website in the Public Notice section on January 12, 2024 and the public comment period was held from January 12, 2024 to February 15, 2024. The mitigation plan along with a summary explaining its purpose were posted at <http://www.aqmd.gov/nav/about/public-notices/exceptional-events/mitigation-plans>. An email was also sent to the lists for Air Quality Management Plan/State Implementation Plan and related working groups, and AB 617 communities, notifying stakeholders from throughout the South Coast AQMD jurisdiction.

## **9. Public Comment Received**

**Requirement in Mitigation Plan:** Submit the public comments received along with its mitigation plan to the Administrator;

**Location in Federal Register:** 51.930(b)(2)(iii)(A)(2)

Following open comment period, South Coast AQMD received 1 public comment from Dr. Genghmun Eng from Torrance, CA. His public comment is included on the next two pages.

**Comments and Notes re:**

**Draft Particulate Matter Exceptional Events Mitigation Plan for the South Coast Air Basin and Coachella Valley**

Submitted by Dr. Genghmun Eng ("Citizen"), 5215 Lenore St., Torrance, CA 90503, 1/15/2024

Please add the following Notes/Comments {#PMEE-1 through #PMEE-9} to the Public Record for the the 2024 proposed: 'Particulate Matter Exceptional Events (PMEE) Mitigation Plan\_DRAFT'

**NOTE #PMEE-1:**

According to the Citizen's present understanding:

(1A) The need for separately considering non-Exceptional 'PM Normal (PMN) Events' and 'PM Exceptional Events (PMEE)', and the need for having a PMEE Mitigation Plan are good steps towards the overall protection of the Public Health and Safety;

(1B) PMN events are covered by the standard SCAQMD Rules, Regulations, and Requirements (RRR); while PMEE would not be considered as *prima facie* violations of those SCAQMD-RRR's;

(1C) Using a yearly calendar as a basis, PMEE events cover only those items that could reasonably be expected to recur, at least once during the calendar year. Thus, PMEE does not cover, industrial accidents or industrial hazardous materials releases, even if they are intermittent or recurrent;

(1D) Developing PMEE Mitigation Plans is more protective of the Public Health and Safety, compared to not having any PMEE Mitigation Plans;

(1E) An important part of the PMEE Mitigation Plans is to provide Education to the Public about these likely PMEE occurrences, and what the Public should or could do to lessen their potential Public Health and Safety impacts.

**NOTE #PMEE-2:**

The above (1C) should be explicitly called out in these PMEE Mitigation Plans, so as to clarify the scope of these PMEE Mitigation Plans.

**NOTE #PMEE-3:**

(3A) It is customary for the SCAQMD to perform quantitative assessments what residual Public Health and Safety risks remain for covered facilities and events, when operating at the limit of their SCAQMD regulated values, and to show those values are properly protective of the Public Health and Safety.

(3B) Citizen believes that it is also customary for the SCAQMD to perform quantitative assessments Public Health and Safety risks that have accrued when covered facilities substantially exceed their SCAQMD regulated values during PMN events, which covers: (3B1) Facility normal operations; (3B2) Facility anomalous or operations, including planned and unplanned events, such as associated with Refinery Flaring; (3B3) Industrial hazardous materials releases, even if they are intermittent or recur; and (3B4) Facility Significant and/or Major Industrial Accidents.

(3C) Citizen believes that one element the SCAQMD needs to add to the present Draft PMEE Mitigation Plan is that the SCAQMD will perform quantitative assessments of the Public Health and Safety impacts of PMEE. For nearly recurrent PMEE, the first impact assessment can be used as representative of similar follow-on PMEE, and those follow-on PMEE analyses can use the already developed 'first impact assessment' as a baseline, and scale those values for the new PMEE analysis.

(3D) Given (3C), the sum total of PMEE Public Health and Safety risks that have accrued during the year, over all PMEE occurrences, can then be calculated and reported. It will give both the SCAQMD and the Public an indication of the true amount of yearly risk. Those values can then be compared to

the total risk for the year for PMN operation. In this manner, the Public will know whether or not a few short-term high-risk PMEE have overshadowed the rest of the year's PMN operation.

**NOTE #PMEE-4:**

Requiring these (3A)-(3D) assessments should be part of this PMEE Mitigation Plan. Even if the above (3C) and (3D) are not part of an SCAQMD-RRR exceedance, it is important to develop and disseminate those results to the Public, as part of the SCAQMD Public Education Effort for these potential hazards. Thus, the above (3C) and (3D) are not out-of-scope for a PMEE Mitigation Plan.

**NOTE #PMEE-5:**

{p. 4-of-46} Section 1.3 on PM10, and Section 1.4 on PM2.5, should have an additional notes such as:

*"In addition, the PM material can form a substrate that attracts other gaseous materials, including other air pollutants, as well as enabling much smaller particles to adhere to its surface or near-surface regions, as a lot of PM material does not have a smooth exterior."*

**NOTE #PMEE-6:**

{p. 10-of-46} Before last paragraph, text should be added, such as: *"Lightning during thunderstorms, as well as 'Dry Lightning' without rain, both can cause forest fires. According to NOAA 'Dry Lightning' can be a larger forest fire risk than lightning during a thunderstorm, and the NOAA Storm Prediction Center routinely issues 'Dry Lightning' forecasts as advisories."*  
{see: <https://www.nssl.noaa.gov/education/svrwx101/lightning/FAQ/>}.

**NOTE #PMEE-7:**

{p. 10-of-46} In the last paragraph, after sentence starting 'Human activity', additional text should be added, such as: *"In addition, aging of electrically active structures, such as power poles and transmission lines, can create additional wildfire risks or occurrences, if they are not properly maintained or isolated from flammable vegetation."*

**NOTE #PMEE-8:**

{p. 14-of-46} Section 1.6.1 (after 'December 15, 2006') text should be added detailing the revoked and the present-day standard, such as: *"The revoked standard of \_\_\_\_\_ micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for PM10 and an annual average PM10 of \_\_\_\_\_  $\mu\text{g}/\text{m}^3$ . Since then, a PM10 NAAQS attainment standard for Coachella Valley of \_\_\_\_\_ micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for PM10 and an annual average PM10 of \_\_\_\_\_  $\mu\text{g}/\text{m}^3$  has been used by the SCAQMD."*

A one-word improvement of the next sentence is also suggested, along with some follow-on text, which could help justify the need for PMEE identification and for having a PMEE Mitigation Plan:

*"The 2003 SIP also showed continued attainment of the 24-hour PM10 federal standard, except for uncontrollable natural events. It highlighted the need for better identification and reporting of PMEE, so that the region could be evaluated as to whether it was meeting 24-hour PM10 federal standard exclusive of PMEE events. Separate reporting and analyses could then be routinely done, as to what those 24-hour PM10 exceedances were, the cumulative amounts for the year, how the PMEE impacted the Public Health and Safety, and how PMEE Mitigation Plans were addressing these PMEE."*

**NOTE #PMEE-9:**

{p. 10-of-46} Section 1.6.3. Similar text to the above NOTE #PMEE-8 for the Coachella Valley should be added regarding the South Coast Air Basin PM-2.5 Attainment Status. For document completeness, a discussion of the Coachella Valley PM-2.5 Attainment Status, and the South Coast Air Basin PM-10 Attainment Status should also be added to this PMEE Mitigation Plan.

## 10. Public Comment Responses

**Requirement in Mitigation Plan:** In its submission to the Administrator, for each public comment received, explain the changes made to the mitigation plan or explain why the State did not make any changes to the mitigation plan;

**Location in Federal Register:** 51.930(b)(2)(iii)(A)(3)

Staff appreciates the thoughtful comments delivered by Dr. Genghmun Eng. Responses to each of his specific comments are presented below:

### Response to Note #PMEE-1 and Note #PMEE-2

Staff agrees with Dr. Eng’s general sentiments but would like to clarify that PM exceptional events do not only include events that are reasonably expected to recur. The 2016 U.S. EPA Exceptional Events Rule specifies three statutory elements of an exceptional event: (1) The event affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation, (2) the event was not reasonably controllable or preventable, and (3) the event was caused by human activity that is unlikely to recur at a particular location or was a natural event.<sup>12</sup> While South Coast AQMD has never developed an exceptional event demonstration for an industrial accident or an industrial hazardous material release, these types of events are not explicitly precluded from the definition of an exceptional event as specified in the 2016 U.S. EPA Exceptional Events Rule.

### Response to Note #PMEE-3 and Note #PMEE-4

While a quantitative assessment of the public health and safety impacts of specific PM exceptional events could be informative, this type of analysis would be incredibly challenging and resource intensive and goes well beyond U.S. EPA requirements. PM exceptional events are typically widespread and would require sophisticated and intensive chemical transport modeling to quantify concentrations of various toxic species contained in smoke or dust to determine health impacts. The accuracy of speciated emissions from wildfires or dust storms in addition to the science of smoke chemistry and evolution in the atmosphere may not be sufficient to capture exposures in the impacted areas. In addition, while there are certainly health effects from breathing high levels of PM<sub>2.5</sub> and PM<sub>10</sub>, there is limited health exposure science quantifying the health effects of short-term exposures to PM, as would be seen during an exceptional event. For these reasons, quantitative assessments are not currently practical, but may become tenable in the future as the science and modeling techniques improve.

### Response to Note #PMEE-5

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<sup>12</sup> “Treatment of Data Influenced by Exceptional Events; Final Rule” (72 FR 13560, March 22, 2007).

The following statement was added to the text to address this: “Gasses can condense onto existing particles or nucleate new particles depending on conditions.”

**Response to Note #PMEE-6 and Note #PMEE-7**

The following statement was added to the text to address this: “Wildfires can be ignited by human activity such as power equipment aging and malfunctions and natural causes such as lightning.”

**Response to Note #PMEE-8**

Section 1.6.1 was revised to clarify which NAAQS (24-hour or annual) and the level of the NAAQS (150 ug/m<sup>3</sup> or 50 ug/m<sup>3</sup>) is referred to in the text. The statement “and the 24-hour NAAQS (150 µg/m<sup>3</sup>) was retained” has been added to clarify that the 24-hour NAAQS has not been revoked. The following statement been added to clarify the contents of the 2003 SIP: “The 2003 SIP also showed continued attainment of the 24-hour PM10 federal standard, except for uncontrollable natural events, and included an emission inventory update, most stringent measures analysis, control strategy, and attainment demonstration. It also updated the natural events action plan to address natural events and to protect public health.

**Response to Note #PMEE-9**

Information on the applicable PM2.5 NAAQS for the South Coast Air basin is included in section 1.6.3. The South Coast Air Basin attainment of PM10 standards is included in section 1.6.1. The following statement was added to the text to address the Coachella Valley attainment of PM2.5 standards: “The Coachella Valley attains the 2012 annual PM2.5 NAAQS (12.0 µg/m<sup>3</sup>) and the 2006 24-hour PM2.5 NAAQS (35 µg/m<sup>3</sup>).”

## **11. Periodic Review and Evaluation Process**

**Requirement in Mitigation Plan:** The State shall specify in its mitigation plan the periodic review and evaluation process that it intends to follow for reviews following the initial review identified in 51.930(b)(2)(iii)(A).

**Location in Federal Register:** 51.930(b)(2)(iii)(B)

Public comments and South Coast AQMD responses are posted online and are available to the public via the South Coast AQMD website. South Coast AQMD will review, evaluate, solicit public feedback, and respond to public comments on the mitigation plan every five years. In the event that significant South Coast AQMD rulemaking addressing windblown PM10, wildfire smoke, or firework emissions occurs within that five-year period, the mitigation plan will be updated in accordance with rule amendments. Any revisions will be forwarded to the U.S. EPA.

## **12. Submission of Mitigation Plan**

**Requirement in Mitigation Plan:** States shall submit their mitigation plans within 2 years of being notified they are subject to 51.930(b).

**Location in Federal Register:** 51.930(b)(3)(i)

The mitigation plan was submitted to U.S. EPA Administrator on March 20, 2024 within the 2 years period since being notified as of April 2022.

### **13. Exceptional Events Mitigation Plan Checklist**

*In order to ensure that this Exceptional Events Mitigation Plan meets all of the requirements of 40 CFR 51.930, a checklist is provided indicating the section in this document satisfying each of the requirements.*

Element Addressed	Plan Page Number	40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation	User Notes	EPA Review Notes
		51.930(a)	A State requesting to exclude air quality data due to exceptional events must take appropriate and reasonable actions to protect public health from exceedances or violations of the NAAQS. At a minimum, the State must:	
		51.930(a)(1)	Provide for prompt public notification whenever air quality concentrations exceed or are expected to exceed an applicable ambient air quality standard;	See above – 51.930(a).
		51.930(a)(2)	Provide for public education concerning actions that individuals may take to reduce exposures to unhealthy levels of air quality during and following an exceptional event; and	See above – 51.930(a).



Element Addressed	Plan Page Number	40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation	User Notes	EPA Review Notes
		51.930(a)(3)	Provide for the implementation of appropriate measures to protect public health from exceedances or violations of ambient air quality standards caused by exceptional events.	See above – 51.930(a).
		51.930(b)	Development of mitigation plans for areas with historically documented or known seasonal events.	EPA responsibility.
		51.930(b)(1)	Generally. All States having areas with historically documented or known seasonal events shall be required to develop a mitigation plan with the components identified in 51.930(b)(2) and submit such plan to the Administrator according to the requirements in 51.930(b)(3).	EPA responsibility (identification of areas).
		51.930(b)(1)(i)	For purposes of the requirements set forth in 51.930, historically documented or known seasonal events shall include those events of the same type and pollutant that recur in a 3-year period and meet any of the following:	EPA responsibility.
		51.930(b)(1)(i)(A)	Three events or event seasons for which a State submits a demonstration under the provisions of 40 CFR 50.14 in a 3-year period; or	EPA responsibility.

Element Addressed	Plan Page Number	40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation	User Notes	EPA Review Notes
		51.930(b)(1)(i)(B)	Three events or event seasons that are the subject of an initial notification of a potential exceptional event as defined in 40 CFR 50.14(c)(2) in a 3-year period regardless of whether the State submits a demonstration under the provisions of 40 CFR 50.14.	EPA responsibility.
		51.930(b)(1)(ii)	The Administrator will provide written notification to States that they are subject to the requirements in 51.930(b) when the Administrator becomes aware of applicability.	EPA responsibility.
		51.930(b)(2)	Plan components. At a minimum, each mitigation plan...shall contain provisions for the following:	State/local/tribal air agency responsibility.
	16-23 32-33	51.930(b)(2)(i)	Public notification to and education programs for affected or potentially affected communities. Such notification and education programs shall apply whenever air quality concentrations exceed or are expected to exceed a NAAQS with an averaging time that is less than or equal to 24-hours.	State/local/tribal air agency responsibility.

Element Addressed	Plan Page Number	40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation	User Notes	EPA Review Notes
	16-37	51.930(b)(2)(ii)	Steps to identify, study and implement mitigating measures, including approaches to address each of the following:	State/local/tribal air agency responsibility.
	24-31	51.930(b)(2)(ii)(A)	Measures to abate or minimize contributing controllable sources of identified pollutants.	State/local/tribal air agency responsibility.
	16-23 32-33	51.930(b)(2)(ii)(B)	Methods to minimize public exposure to high concentrations of identified pollutants.	State/local/tribal air agency responsibility.
	33-35	51.930(b)(2)(ii)(C)	Processes to collect and maintain data pertinent to the event.	State/local/tribal air agency responsibility.
	36-37	51.930(b)(2)(ii)(D)	Mechanisms to consult with other air quality managers in the affected area regarding the appropriate responses to abate and minimize impacts.	State/local/tribal air agency responsibility.
	36	51.930(b)(2)(iii)	Provisions for periodic review and evaluation of the mitigation plan and its implementation and effectiveness by the State & interested stakeholders.	State/local/tribal air agency responsibility.
	36-37	51.930(b)(2)(iii)(A)	With the submission of the initial mitigation plan according to the requirements in 51.930(b)(3) that contains the elements in 51.930(b)(2), the State must:	State/local/tribal air agency responsibility.

Element Addressed	Plan Page Number	40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation	User Notes	EPA Review Notes
	38	51.930(b)(2)(iii)(A)(1)	Document that a draft version of the mitigation plan was available for public comment for a minimum of 30 days;	State/local/tribal air agency responsibility.
	38-40	51.930(b)(2)(iii)(A)(2)	Submit the public comments received along with its mitigation plan to the Administrator; and	State/local/tribal air agency responsibility.
	41-42	51.930(b)(2)(iii)(A)(3)	In its submission to the Administrator, for each public comment received, explain the changes made to the mitigation plan or explain why the State did not make any changes to the mitigation plan.	State/local/tribal air agency responsibility.
	43	51.930(b)(2)(iii)(B)	The State shall specify in its mitigation plan the periodic review and evaluation process that it intends to follow for reviews following the initial review identified in 51.930(b)(2)(iii)(A).	State/local/tribal air agency responsibility.
		51.930(b)(3)	Submission of mitigation plans. All States subject to the provisions of 51.930(b) shall, after notice and opportunity for public comment identified in 51.930(b)(2)(iii)(A), submit a mitigation plan to the Administrator for review and verification of the plan components identified in 51.930(b)(2).	This provision is also described in section 51.930(b)(2)(iii)(A)(1).

Element Addressed	Plan Page Number	40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation	User Notes	EPA Review Notes
	43	51.930(b)(3)(i)	States shall submit their mitigation plans within 2 years of being notified they are subject to 51.930(b).	State/local/tribal air agency responsibility.
		51.930(b)(3)(ii)	The Administrator shall review each mitigation plan developed according to the requirements in paragraph (b)(2) of this section and shall notify the submitting State upon completion of such review.	EPA responsibility.
		50.14(b)(9)	Mitigation plans.	EPA responsibility.

Element Addressed	Plan Page Number	40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation	User Notes	EPA Review Notes
		50.14(b)(9)(i)	Except as provided for in 50.14(b)(9)(ii), where a State is subject to the requirements of 40 CFR 51.930(b), the Administrator shall not place a concurrence flag in the appropriate field for the data record in the AQS database, as specified in 50.14(c)(2)(ii), if the data are of the type and pollutant that are the focus of the mitigation plan until the State fulfills its obligations under the requirements of 40 CFR 51.930(b). The Administrator may nonconcur or defer action on such a demonstration.	EPA responsibility.
		50.14(b)(9)(ii)	The prohibition on placing a concurrence flag in the appropriate field for the data record in the AQS database by the Administrator stated in 50.14(b)(9)(i) does not apply to data that are included in an exceptional events demonstration that is:	EPA responsibility.
		50.14(b)(9)(ii)(A)	Submitted in accordance with 50.14(c)(3) that is also of the type and pollutant that is the focus of the mitigation plan; and	EPA responsibility.
		50.14(b)(9)(ii)(B)	Submitted within 2-year period allowed for mitigation plan development specified in 51.930(b)(3).	This provision is also described in section 51.930(b)(3)(i).



## 14. References

Analysis of Exceptional Events Contributing to High PM10 Concentrations in the Coachella Valley in 2008, South Coast AQMD, May 2011. [http://www.aqmd.gov/docs/default-source/public-notice/exceptional-events/ee2008cv-ch1\\_intro.pdf](http://www.aqmd.gov/docs/default-source/public-notice/exceptional-events/ee2008cv-ch1_intro.pdf)

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