

Chapter 6: Community Air Monitoring Plan (CAMP) Summary

The Community Air Monitoring Plan (CAMP) for the Eastern Coachella Valley (ECV) community has been developed through close collaboration between the Community Steering Committee (CSC) and South Coast AQMD staff. It outlines the objectives and strategies for monitoring air pollution in ECV based on the air quality priorities identified by the CSC. Air monitoring will play an important role in improving our understanding of air pollution in ECV, will help support the emissions and exposure reduction strategies developed in the Community Emissions Reduction Plan (CERP), and will track the progress of the CERP actions in this community. Specific air monitoring strategies are included in the actions described in Chapter 5 of the CERP: Chapters 5b Salton Sea, 5c Pesticides, 5d Fugitive Road Dust, 5e Open Burning and Illegal Dumping, 5f Diesel Mobile Sources, and 5g Greenleaf Desert View Power Plant. Overall, while the CERP and CAMP are separate documents, they work together to help achieve and track emissions and exposure reductions designed to improve local air quality in ECV.

Air monitoring provides information that can help address specific questions about pollutant concentrations in the community. To achieve the community-specific air monitoring objectives described in the CERP and CAMP, it is critical to develop a sound air monitoring approach and use appropriate monitoring methods and equipment specific for each purpose. The general monitoring approach in ECV consists of expanding the existing air monitoring network and deploying additional air monitoring equipment, including regulatory monitors and air quality sensors, to enhance the overall geographical coverage of measurements. Most of the air quality priorities in ECV, such as dust emissions from the Salton Sea and surrounding deserts and fugitive road dust, and smoke from open burning, are intermittent in nature and impact relatively large areas. Therefore, air monitoring at fixed locations provides an opportunity to capture both long-term and short-term trends, identify periods when these sources impact the community, and help pinpoint the most critical locations of concern.

A detailed description of air pollutants to be measured and types of monitoring methods and technologies to be deployed in ECV is provided below and in the CAMP. Overall, community air monitoring will implement the recommendations provided in CARB's "Community Air Protection Blueprint"ⁱ, support the implementation of the CERP, and track the progress towards improved air quality in the ECV community.

ⁱ CARB (2018) *Community Air Protection Blueprint*. Available at: <https://ww2.arb.ca.gov/our-work/programs/community-air-protection-program/community-air-protection-blueprint>.

Air Quality Priorities in the Eastern Coachella Valley Community

Each community has unique air quality challenges, and local community members have first-hand knowledge of important information, including emission sources and sensitive receptor locations. In order to ensure a collaborative process in developing and implementing a successful CERP and CAMP, it is critical to understand the specific air quality concerns in ECV. The CSC meetings provided a forum for identifying community-specific air quality priorities and potential contributing sources of air pollution to develop consensus and a shared understanding of specific air pollution challenges. In addition to actively collaborating with the CSC, the South Coast AQMD engages in a robust public process to provide additional opportunities for broad engagement both during CAMP development and throughout its implementation. This is achieved through periodic community meetings, workshops, South Coast AQMD Committee meetings and Governing Board meetings. Input and feedback provided by the CSC and the public will continue to be incorporated to improve and update the monitoring strategies throughout the implementation of this CAMP.

South Coast AQMD staff gathered information on the main CSC air quality concerns through a series of community meetings. As a result, the following categories have been selected as the highest air quality priorities: Salton Sea, Pesticides, Open Burning and Illegal Dumping, Fugitive Road Dust, Diesel Mobile Sources, and Greenleaf Desert View Power Plant (formerly Colmac Energy, Inc.). A detailed description on each of these categories is provided in the following sections.

Salton Sea

The Salton Sea is the largest lake in California and, as its shorelines continue to recede and expose the sediments deposited at the bottom of the Sea (also referred to as the “playa”), emissions from the Salton Sea contribute to poor air quality for ECV residents. The CSC has expressed their concerns about the Salton Sea, mainly with respect to odors caused by emissions of hydrogen sulfide (H₂S) and inhalable dust / particulate matter (PM₁₀; particles with diameters of 10 microns or smaller). Elevated levels of H₂S result from natural processes in the Salton Sea; these can lead to strong foul odors that negatively affects the quality of life of local residents and at high levels can cause acute health effects (e.g., headaches and nosebleeds). Dust emissions from the Salton Sea occur when the playa sediments get blown off by strong gusty winds and contribute to PM₁₀ emissions in the area, further deteriorating air quality. The CSC is also concerned that the soil from the playa may contain residuals of pesticides and other pollutants from agricultural runoff (toxic elements and metals, such as selenium (Se), cadmium (Cd), and nickel (Ni)), which can pose a risk to human health. Moreover, the CSC has conveyed that additional monitoring and improvements to notification systems are needed to better understand emissions from the Salton Sea.

The main monitoring strategy to address CSC concerns regarding H₂S emissions from the Salton Sea includes enhancement of the existing H₂S monitoring network in ECV to expand its geographical coverage, provide real-time H₂S data at more locations, and inform the community members about the odors they smell and where they come from, including a notification system for when ambient levels exceed the State standard. Currently, H₂S monitoring is being conducted at two fixed-site monitoring stations within the ECV community boundary; at the Mecca and Salton Sea Near-Shore air monitoring stations. A notification system for H₂S exceedances at these sites is available through “The Salton Sea Hydrogen Sulfide Monitoring” websiteⁱⁱ. As part of this monitoring strategy, South Coast AQMD staff will work with the CSC

ⁱⁱ <https://saltonseaodor.org/>

to identify opportunities to expand its air monitoring network. Continuous wind speed and wind direction data will also be collected to help better identify the location(s) of the odors. The expansion of the H₂S monitoring network will lead to covering a larger part of the ECV community and will help assess community impact and the extent to which the odors may be transported in the community and beyond.

Currently, PM₁₀ monitoring is being conducted at six fixed monitoring stations within the ECV community boundary. Two of these sites (Mecca and Indio) are operated by the South Coast AQMD. One of these stations, 29 Palms, has been established by a partnership between Twenty-Nine Palms Band of Mission Indians and the Cabazon Band of Mission Indians in the ECV community through an AB 617 Community Air Grant awarded by CARB to the tribes.ⁱⁱⁱ One monitoring station has been established by Torres-Martinez Desert Cahuilla Indians. The Salton Sea Park and Salton Sea Near-Shore monitoring stations are operated by the Imperial Irrigation District. The location of these stations is shown in figure 6-1 and the pollutants monitored at each site are presented in Table 6-1.



Figure 6-1. Current air monitoring stations in the ECV community

ⁱⁱⁱ Twenty-Nine Palms Tribal EPA, Air Quality: <https://www.29palmstribes.org/epa-air-quality>

Table 6-1- Pollutants monitored at each station in the ECV community

| Station Name | Site Location | Agency | Monitored Pollutants |
|---|---|---|--------------------------------|
| Indio | 46990 Jackson Street Indio, CA 92201 | South Coast AQMD | Ozone, PM2.5, PM10 |
| Mecca (Saul-Martinez Elementary School) | 65705 Johnson Street Mecca, CA 92254 | South Coast AQMD | H ₂ S, PM10 |
| Torres-Martinez Tribal | 66-725 Martinez Road, Thermal, CA 92274 | Torres-Martinez Cahuilla Indians | PM10 |
| Salton Sea Near Shore | Lincoln Ave. & 73rd Ave., Mecca CA 92254 | Imperial Irrigation District | H ₂ S*, PM2.5, PM10 |
| Salton Sea Park | 100-225 State Park Rd., North Shore CA 92254 | Imperial Irrigation District | PM2.5, PM10 |
| 29 Palms | 33.719724, -116.189578 | Twenty-Nine Palms Band of Mission Indians | PM2.5, PM10 |

* H₂S monitor is operated by the South Coast AQMD

As part of our efforts to better characterize PM10 emissions from the Salton Sea, South Coast AQMD staff will work with the CSC to identify opportunities to expand the PM10 monitoring network in ECV to provide additional air quality information in residential areas that do not currently have such measurement data. This, together with continuous wind speed and wind direction data, will help gain a better understanding of dust emissions and distinguish between windblown dust from desert areas and playa dust emissions from the Salton Sea. It can also help track the concentration trends of PM10 over the course of the AB 617 program to help assess the effectiveness of dust suppression projects. Data from this monitoring network will be provided in near real-time to inform community members of PM10 levels in ECV, and if emissions Federal and/or State standards.

The above-mentioned monitoring network will be supplemented by a network of PM10 sensors to enhance the spatial coverage of PM10 measurements at more locations of interest. Data from these sensors will provide real-time information and improve our understanding of the variations in PM10 levels across the ECV community. This will help identify the source(s) of PM10 emissions and their origin (e.g., fugitive road dust and wind-blown desert dust). Air quality sensors will be co-located with a reference PM10 monitor at one of the South Coast AQMD air monitoring stations to verify sensor performance prior to deployment. A data calibration and correction protocol has been developed to systematically enhance the data quality of the PM10 sensors after deployment. The sensor deployment process will be carried out in close collaboration with the South Coast AQMD Air Quality Sensor Performance Evaluation Center (AQ-SPEC). AQ-SPEC is the most comprehensive sensor evaluation program in the United States that provides community residents, scientists and other sensor users with unbiased information on sensor performance based on rigorous field and laboratory testing^{iv}.

These measurements will be accompanied by baseline monitoring to better characterize the chemical composition of dust in the ECV community. Chemical composition data will be beneficial in characterizing

^{iv} Air Quality Sensor Performance Evaluation Center (AQ-SPEC): <http://www.aqmd.gov/aq-spec>

the relative contributions of playa dust emissions and dust from other sources (e.g., fugitive road dust and wind-blown desert dust) to the ambient concentrations of PM₁₀ measured in ECV. Baseline measurements will also help track the trends of key indicator pollutants of Salton Sea emissions and address specific CSC concerns about the chemical composition and potential toxicity of playa dust emissions.

Lastly, South Coast AQMD staff will pursue a collaborative partnership with other organizations (e.g., University of California – Riverside) to support the ongoing study of soil chemical and microbiome composition of the Salton Sea playa dust samples.

Pesticides

Pesticides are unique among air toxic substances because they are produced specifically for their toxicity to a target pest and purposely introduced into the environment. Pesticides play a major role in agricultural production all around the world to help protect crops from pests. Farming operations in the ECV commonly use pesticides on agricultural land. Pesticide regulations do not only focus on assessing their toxicity and potentially banning pesticides but also on protecting people by reducing the risk of harmful exposure.

The CSC expressed their concerns about the health impacts of pesticides used in agriculture, including exposure to farm workers, in residential areas (e.g., odor nuisance and pesticide exposure from wind drift or runoff), and in schools that are close to application sites. The CSC also emphasized their apprehension regarding the lack of information on the actual amount of pesticides being used in ECV, and the dates when pesticides are being applied. This information is critical for the public when planning to participate in outdoor activities.

Federal, State, and local regulatory agencies are responsible for ensuring safe use of pesticides in California. At the Federal level, the U.S. Environmental Protection Agency (EPA) approves the use of each pesticide. At the State level, the California Department of Pesticide Regulation (DPR) has legal authority to regulate and enforce rules that address the sale and use of pesticides in California. In addition, DPR monitors the levels of pesticides in the air, water and produce. The information regarding pesticides usage and the measured levels is reported periodically on DPR's public website^v.

South Coast AQMD staff will pursue collaboration with DPR, California Air Resources Board (CARB) and Riverside County Agricultural Commissioner (CAC) to assess currently available pesticide data and develop a monitoring strategy for studying and characterizing this air quality priority.

For the evaluation of pesticide data, South Coast AQMD staff will collaborate with DPR, CARB, and other agencies that currently have information for identifying the potential impact of pesticides on the community. This analysis will be based on currently available data, such as annual pesticide usage, pesticide toxicity and volatility, season and method of application. This screening evaluation will identify the pesticides that are most impactful in this community and will provide information for focusing subsequent air monitoring efforts. South Coast AQMD staff will also reach out to the CSC, members of the public and local growers to gather feedback on the collected data and any other information that may help inform the pesticide monitoring efforts.

^v <https://www.cdpr.ca.gov/docs/pur/purmain.htm>

South Coast AQMD staff will present the results of the data evaluation to the CSC and community members. Following this screening process, staff will work with the CSC to select the most relevant pesticides in the community and identify representative locations and periods for monitoring pesticides levels. South Coast AQMD staff will consult with DPR and CARB to evaluate which sampling and analysis techniques will be used, as appropriate. Air monitoring will be conducted to determine if specific pesticides are present and at what levels. If elevated levels of pesticides are found in ambient air, South Coast AQMD staff will work with DPR, CARB and the Riverside CAC to identify potential exposure reduction measures and/or to develop new use restrictions or regulations to be enforced by the Riverside CAC. The screening analysis and the outcome results from this monitoring plan will lay the foundation for future assessments of the impact of pesticides on the ECV community and the effectiveness of regulations.

Open Burning and Illegal Dumping

The ECV community has a large agricultural industry, including the production of grapes, dates, citrus and other crops. With such a large agricultural industry in the area, the burning of agricultural waste is a common method of disposal. In some cases, burning may occur to prevent crops from freezing. The CSC also identified illegal dumping of various waste materials, which can subsequently catch fire, as an air quality priority. The open burning can cause smoke, impacting schools, childcare centers and homes.

The main strategy to characterize emissions from open burning in this community will center around the deployment of a network of air quality sensors to measure PM_{2.5}. Due to the sporadic nature of open burning, fixed monitors are necessary to capture the spatial and temporal variability of emissions. Fixed monitoring using air quality sensors will provide real-time air quality data to gain a better understanding of the locations, frequency, and magnitude of PM emissions from open burning, help identify the locations impacted by the smoke, and improve overall public information on PM_{2.5} levels in the community.

South Coast AQMD staff will work with the CSC to effectively deploy these sensors at appropriate locations. South Coast AQMD staff will also pursue opportunities to augment one of the existing and/or new monitoring stations with a black carbon monitor to better characterize emissions. Black carbon is a by-product of biomass burning but can also be emitted from diesel mobile sources.

Fugitive Road Dust

The CSC identified emissions from fugitive road dust as an air quality priority in ECV. Fugitive road dust in this community is generated when vehicles travelling on paved and unpaved roads kick up loose solid materials deposited on the surface and make them airborne. The CSC has expressed concerns about dust emitted from unpaved roadways when there are windy conditions or when off-road vehicles drive on these roads. Community residents are also concerned about the potential health effects associated with exposure to high PM₁₀ levels resulting from fugitive road dust emissions.

Currently, six air monitoring stations in the ECV community (Table 6-1) measure PM₁₀. The Indio and Mecca air monitoring stations are operated by the South Coast AQMD, while the rest of the stations are operated by other agencies.

The monitoring strategy for fugitive road dust includes expanding the current South Coast AQMD PM₁₀ monitoring network in ECV, which will provide near real-time PM₁₀ and wind data to inform community members about PM₁₀ levels and if they exceed Federal and/or State standards. These measurements will help track the concentration trends of PM₁₀ levels over time to help determine the effectiveness of emission reduction strategies.

South Coast AQMD staff will seek new opportunities and work with the CSC to create an air quality sensor network to augment the fixed monitoring network for PM₁₀ measurements to cover a larger area in the community, prioritizing areas where the public spends a significant amount of time (e.g. schools and residential areas) and areas close to sources of fugitive dust. Data from these sensors will provide near real-time data and improve our understanding of the spatial and temporal variability in PM₁₀ levels across ECV. This information will help better distinguish where the PM₁₀ emissions are coming from (e.g. dust emissions from the Salton Sea or wind-blown dust from surrounding deserts). Air quality sensors will also provide more opportunities for community engagement in different aspects of the air monitoring process. All sensors will be co-located at one of the air monitoring stations with reference PM₁₀ monitors to check their performance prior to deployment. It should be noted that the sensors for PM₁₀ measurements usually show a good performance at the lower concentration levels while their uncertainty increases significantly during regional dust events with high PM₁₀ levels. A systematic data calibration and correction protocol has been developed and will be implemented to improve data quality for the entire sensor network. During dust events, which have regional impacts, the reference monitors can help determine the community impact.

Diesel Mobile Sources

The CSC has expressed concerns about exposure to diesel emissions from several mobile sources and locations in the ECV community including heavy-duty trucks traveling along the State highways 111 and 86, school buses, and heavy-duty agricultural equipment (e.g., tractors and harvesting equipment). Diesel truck emissions are complex and are comprised of a variety of toxic gases and particles. Pollutants associated with diesel exhaust include PM_{2.5}, and nitrogen dioxide (NO₂). Diesel exhaust also contains the toxic air contaminant diesel particulate matter (DPM), which is a component PM_{2.5}. DPM cannot be monitored directly but is estimated by measuring black carbon (BC or “soot”).

Two existing air monitoring stations (Indio station operated by the South Coast AQMD and 29 Palms monitoring station operated by Twenty-Nine Palms Band of Mission Indians) measure PM_{2.5} within the community (Figure 6-1 and Table 6-1). The proposed monitoring strategy to address this priority consists of creating a sensor network that can measure PM_{2.5} and NO₂. South Coast AQMD staff will work with the CSC to effectively deploy these sensors at appropriate locations. This additional data will help quantify emissions from truck traffic to better understand the impact of diesel emissions in the community and to help track the effectiveness of emission reduction strategies outlined in the CERP. South Coast AQMD will also pursue opportunities to augment one of the existing or new monitoring stations with a stationary BC monitor. If necessary, short-term BC monitoring will be conducted at locations where sensor data indicate relatively high diesel emissions.

Greenleaf Desert View Power Plant

The CSC expressed concerns regarding the Greenleaf Power Desert View Power Plant (formerly Colmac Energy, Inc.), because of visible emissions and smoke from the facility. This facility is a biomass electrical generation facility that has been operating since 1992 and is located on the Cabazon Band of Mission Indians Reservation at 62300 Gene Welmas Dr, Mecca, CA 92254. This plant is subject to U.S. EPA regulations and uses emission control devices and measures to reduce nitrogen oxides (NO_x), sulfur oxides (SO_x) and PM emissions.

To address CSC concerns, South Coast AQMD staff will evaluate currently available combustion-related emissions data to help assess how emissions from the Greenleaf power plant contribute to the overall

pollution burden in ECV. Based on these findings and if additional monitoring is necessary, South Coast AQMD staff will implement an appropriate monitoring strategy that focuses on measuring relevant pollutants near the facility and close to sensitive receptors (e.g., schools).

This power plant is operating all year round and, therefore, a monitoring strategy based on fixed monitoring will be adopted. Fixed monitoring allows for a more comprehensive characterization of air pollution trends over an extended period of time, although it only provides air quality information when the monitoring locations are downwind of the source. Currently, South Coast AQMD operates one fixed monitoring site (Mecca air monitoring station) near the Greenleaf power plant; this site is located within the perimeter of Saul Martinez elementary school and approximately one mile southeast to the power plant. An analysis of the wind direction gathered during the last three years shows that the air monitoring station in Mecca was downwind of the power plant more than 50% of the time and, hence, this is a suitable site for exploring the impact of Greenleaf emissions on the surrounding community.

Since the general monitoring approach for ECV relies on creating an air quality sensor network, South Coast AQMD will work with the CSC to identify strategic locations for deploying these sensors to capture potential PM_{2.5} emissions from this facility, if appropriate, under variety of wind conditions.