



Air Pollution Control District  
San Luis Obispo County

**TO:** Air Pollution Control District Board  
**FROM:** Larry R. Allen, Air Pollution Control Officer  
**DATE:** January 26, 2013  
**SUBJECT:** Final Report on the South County Community Monitoring Project

**SUMMARY**

The South County Community Monitoring Project was designed and implemented to map the spatial extent and concentration gradient of the dust plume from the Oceano Dunes to better understand its impacts on Nipomo Mesa and Oceano neighborhoods. The data collected was used to facilitate the preparation of more detailed air quality forecasts for those areas and enhance the ability of local residents to determine if or when protective actions might be needed on high dust days. The attached report documents the findings and recommendations of the study.

**RECOMMENDATION**

That your Board review, receive and file the attached South County Community Monitoring Project report.

**DISCUSSION**

The San Luis Obispo County Air Pollution Control District (APCD) has been investigating elevated particulate levels on the Nipomo Mesa for the past decade. Studies performed by the APCD in the area have shown the source of the elevated particulate matter (PM) pollution to be windblown dust from the open sand areas of the Oceano Dunes State Vehicular Recreation Area (SVRA), and that emissions are increased by off road vehicle activity. Additionally, previous studies have shown elevated airborne particulates are present near Pier Avenue in Oceano.

While working to reduce the particulate emissions at the source, the APCD also recognizes the need to provide the most accurate information available to residents of the area regarding the impacts of the windblown dust to their community. That was a primary impetus behind the design and implementation of the South County Community Monitoring Project. The goal of this project was to map the spatial extent and concentration gradient of the dust plume to better understand its impacts on Nipomo Mesa and Oceano neighborhoods. The data collected was ultimately intended to facilitate the preparation of more detailed air quality forecasts for those areas and enhance the ability of local residents to individually determine if or when protective actions might be needed on high PM days.

Better knowledge of the plume path and downwind concentrations would also help inform the development of dust controls at the SVRA.

The data gathered from the Nipomo Mesa study area provides a detailed and comprehensive picture of the path, concentration gradient and influence of different wind conditions on the dust plume. Most dust episodes showed a remarkable similarity in plume extent and downwind dispersion, with the main variable being the severity of the event. Some subtle differences were noted on specific episodes, with the most significant variable appearing to be changes in wind direction as the plume moves inland. Wind data shows that during the strong northwest winds when the dust events typically occur, the wind direction is quite constant near the coast, resulting in only small changes in the plume characteristics on the western portion of the Nipomo Mesa. However, the wind direction farther inland becomes much more variable, resulting in more variations in the plume path as it moves inland. Analysis of the project data also demonstrated that the dust plume from the coastal dunes often extends inland to Santa Maria.

Data gathered from the Oceano area showed elevated particulate concentrations are present during high northwesterly winds at monitors in close proximity to any area of disturbed open sand; these sand areas include the beach as well as Pier Avenue where sand is commonly tracked out of the SVRA by vehicles exiting the park. The project data showed the extent of the plume from these open sand areas to be quite small, with particulate concentrations diminishing quickly downwind. A 40% drop in PM<sub>10</sub> concentration was observed just 0.1 mile downwind of the Pier Avenue monitoring site, while almost no plume presence was detectable at a site less than 0.4 miles downwind from the beach area.

Careful analysis of the study data and the particulate concentration relationships between each monitoring site under various meteorological conditions was used to generate more detailed forecast maps than previously possible for both the Nipomo Mesa and Oceano areas. The attached report presents in depth information on the results of the comprehensive air monitoring and data analyses performed for this study and documents the findings and recommendations of the study team.

## **OTHER AGENCY INVOLVEMENT**

Monitoring equipment for the study was loaned to the District by several sister agencies, including a number of other air districts, the California Air Resources Board and the federal Environmental Protection Agency. Peer review of the study report was provided by the Midwest Research Institute, the Great Basin Unified Air Quality Management District and the former Chief Meteorologist and Scientist for the South Coast Air Quality Management District. The California Department of Parks and Recreation provided funding support.

## **FINANCIAL CONSIDERATIONS**

The total cost of the project, not including staff time, was \$68,521. Funding for this project was approved by the Board in the Fiscal Year 2012/2013, and included a \$20,000 contribution from the Off-Highway Vehicle Division of the California Department of Parks and Recreation.

Attachment