

sensitive to the availability of nitric acid in the environment (Atmospheric and Environmental Research, Inc., 1998).¹¹ Nitric acid is a secondary component that is formed in the atmosphere via one of two pathways. One pathway involves reaction with hydroxyl radicals and the other involves reaction with NOx. Studies are currently being conducted to better understand the chemical reactions associated with these two pathways.

The average phase partition of ammonia has been observed to be 43 percent in PM_{2.5}, according to the conceptual model of a particulate matter pollution study conducted in the San Joaquin Valley in 1998. The formation of ammonium nitrate is influenced by meteorology, chemical reaction, and deposition. Warm temperatures aloft curtail vertical mixing, resulting in stagnant conditions, which are considered a major cause of high particulate matter. Fog causes a net removal of particulate matter by wet deposition, between 40 to 50 percent of ammonia by mass may be removed due to fog episodes. Dry deposition may also be a removal pathway of particulate matter precursors.

On July 18, 1997, the EPA promulgated new National Ambient Air Quality Standards for PM_{2.5}.¹² At that time, a national PM_{2.5} monitoring network had not yet been established, although there were existing PM₁₀ monitors nationwide. CARB staff worked closely with the U.S. EPA to expeditiously assemble PM_{2.5} monitors throughout California. There are currently 82 PM_{2.5} monitoring sites in California (CARB, 2001). On June 30, 1998, CARB and local air pollution control and air quality management districts (air districts) first submitted the 1998 California Particulate Matter Monitoring Network Description to U.S. EPA. Three annual updates, the 1999 California Particulate Matter Monitoring Network Description, the 2000 California Particulate Matter Monitoring Network Description, and the 2001 California PM_{2.5} Monitoring Network Description have been submitted to U.S. EPA.

The goal of the PM_{2.5} monitoring program in California is to provide ambient data that support the State's air quality programs, including mass measurements and speciation data, pursuant to Title 40 of the Code of Federal Regulations. Data from the PM_{2.5} monitoring program will be used to identify nonattainment areas, develop and track implementation plans, assess regional haze, assist in health effects studies, and support other ambient aerosol research activities. Three years of monitoring data are necessary to designate attainment status for a particular area. The National Ambient Air Quality

¹¹ The observation was based on a January 1996 episode.

¹² The U.S. Court of Appeals for the District of Columbia circuit initially ruled that: 1) the revised ozone and new PM_{2.5} standards were improperly adopted; 2) U.S. EPA is prohibited from enforcing the revised ozone standard; and 3) it is in the process of determining the course of action for PM_{2.5}. In February 2001, the U.S. Supreme Court unanimously overturned a lower court opinion voiding the revised NAAQS for ozone and PM_{2.5}. However, the case must first go back to the U.S. Court of Appeals for resolution of other issues not decided by the Supreme Court. In addition, the Supreme Court is requiring EPA to develop a new implementation plan for ozone (California Environmental Insider, 2001).