

## Data Quality

The air quality data in this book describe how much, or how little, pollution is found in the ambient air at a given time and place. The measurements that the data represent are made year-round at more than 250 locations. The quality of these measurements is important, because the data are used to trigger actions, such as emission controls, to protect or improve air quality, and to measure progress toward healthful air.

The staffs of ARB and the air districts operate the monitoring instruments, sampling equipment, and analytical instruments to make these measurements. An essential part of their mission is to provide accurate measurements of air pollutants.

The accuracy necessary in a measurement depends on how it will be used. For instance, rigorous quality requirements have been established for criteria pollutant data. This is because those data determine, per state and federal laws, how much must be done (and how soon) in a specific area to reduce emissions to achieve healthful air—that is, to attain the ambient air quality standards. In contrast, data for toxic air contaminants are collected to establish the presence and general concentrations of these pollutants. The need for and extent of emissions reductions of toxic pollutants are determined in other ways.

The data for criteria pollutants make up what is called a “controlled” data set. State and federal regulations call out specific requirements for the operation of the measurement system. Criteria for the accuracy, precision, completeness, and sensitivity (detection level) of the measurement methods must be met and documented for the data to be used in a regulatory setting. These criteria and the means by which they are met are described in documents available on ARB’s web site at <http://www.arb.ca.gov/aaqm/qmosqual/qamanual/qamanual.htm>, or from Jeff Cook, Chief of the Quality Management Branch, at (916) 322-3726. These documents include the Quality Assurance Manual and the analytical method standard operating procedures.

In addition, the overall performance of the measurement system (sampling and analysis) must be evaluated periodically. This is done with regular audits (evaluations). Information on both our laboratory and our through-the-probe audits is available on ARB’s website at <http://www.arb.ca.gov/aaqm/qmosqual/qmosqual.htm>, or from Merrin Wright, Manager of the Quality Assurance Section, at (916) 324-6191. These activities ensure that the data continue to meet the quality requirements and are adequate to be used as intended—for instance, to make attainment designations.

The air toxics data are, in contrast, considered a “descriptive” data set. Because there are no formal data quality objectives or requirements, the measurements are made as accurately as possible in consideration of resource availability. This is done in consultation with the principal data user(s) to ensure that the data meet the need for which they are being collected. In a descriptive dataset, the data quality parameters (accuracy, precision, and sensitivity) are documented and reported with the data. The

data user is responsible for determining whether the quality of the data set is adequate for the intended use.

Whether air quality monitoring data are part of a controlled dataset, or a descriptive one, considerable effort is expended to provide reliable, well-documented data that can be used with confidence.