



California Air Monitoring Network

Accurate Monitoring of Surface Ozone Virtual Workshop
October 6, 2020

Speaker Biography



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Monitoring & Laboratory
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(Task Group 2)



Quality Assurance Officer
at California Air
Resources Board
Monitoring & Laboratory
Division, Standards
Laboratory, Sacramento,
California



Oversee laboratory
functions. Operation of SRP
and verification of
photometers and other air
monitoring equipment.
Ensure NIST traceability



Over a decade in air
pollution research at
University of Davis,
California



Develop, maintain and
monitor performance data
quality systems to ensure
compliance with
regulations



Certificate from NIST in
Fundamentals of
Metrology and ISO/IEC
17025.



Bachelor of Science in
Animal Science from the
University of Davis,
California.

CARB TEAM at Workshop



Patrick Rainey
Organics Laboratory
Monitoring & Laboratory
Division
(Task Group 3)



Ranjit Bhullar
Quality Assurance
Monitoring & Laboratory
Division
(Task Group 1)



Jin Xu
Air Quality Analysis
Air Quality Planning &
Science Division
(Task Group 4)

Presentation Outline

- History and Background
- California's Air Quality Framework and Progress
- California Air Monitoring Network
- Primary Quality Assurance Organization (PQAO)
- Standards Laboratory

History and Background

- California Air Resources Board (CARB) established in 1967 authorized by Governor Ronald Reagan
 - Committing California to a unified, statewide approach to the serious issue of air pollution in the state
- Federal Air Quality Act (1967)
 - Provided California the ability to set its own more stringent air quality rules due to California's unique geography, weather and expanding number of people and vehicles
- Federal Clean Air Act (1970)
 - United States federal law designed to control air pollution on a national level
 - United States' first and most influential modern environmental laws, and one of the most comprehensive air quality laws in the world
 - Administered by U.S. Environmental Protection Agency (U.S. EPA), in coordination with state, local, and tribal governments
 - Led to the formation of CARB Primary Quality Assurance Organization (PQAO)



California's Air Quality Framework

- Large Population [16 million (1960) to 38 million today]
- Fanatic Car Culture [8 million (1960s) to 33 million registered vehicles today]
- Warm Climate & Wind Patterns
- Topography - Mountain-to-deep-valley
- 5th Largest Economy in the World – Emissions from trains, planes & ships

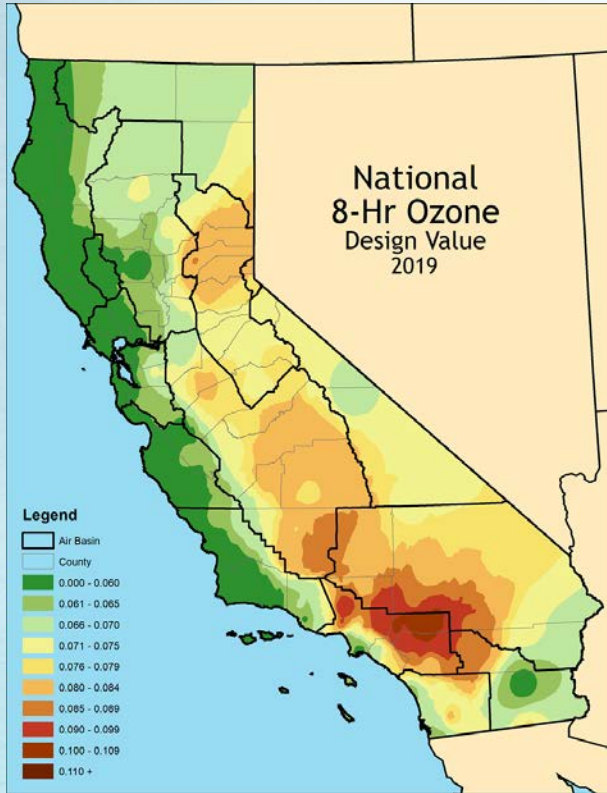
California wildfires since the beginning of August 2020



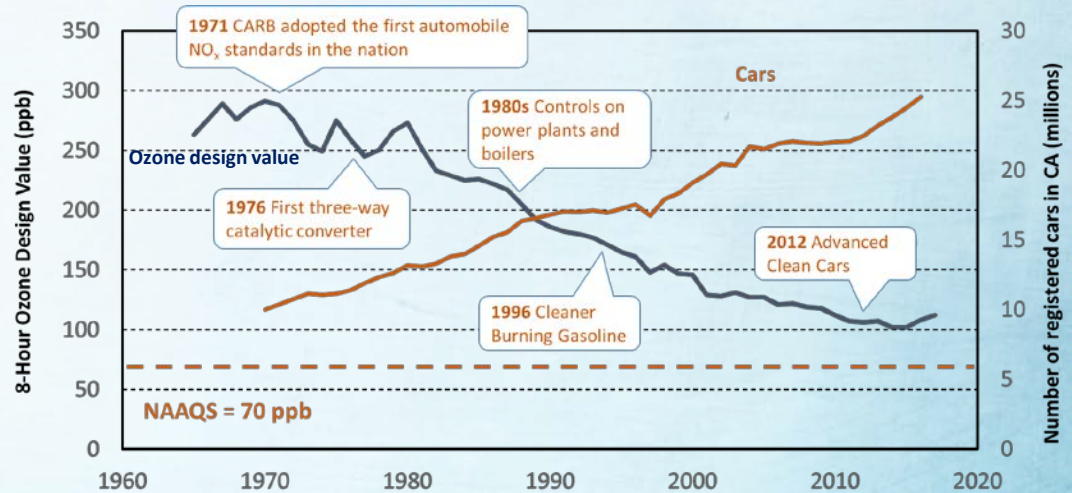
As of October 1st 2020, 4.4 million acres burned in California

Almost half the size of Switzerland

California's Ozone Progress



- Ozone levels decreased 78% since mid 1960's
- 10 of 11 nation's ozone nonattainment areas classified moderate or higher for the 0.070 ppm national ambient air quality standard
- 8 of the top 10 cities in United States with the highest ozone



Clean Air for All

Los Angeles 1960s



California 2035

Los Angeles 1998



Los Angeles 2020



Air Quality Management

Multiple Organizations Play a Role

U.S. EPA

CARB

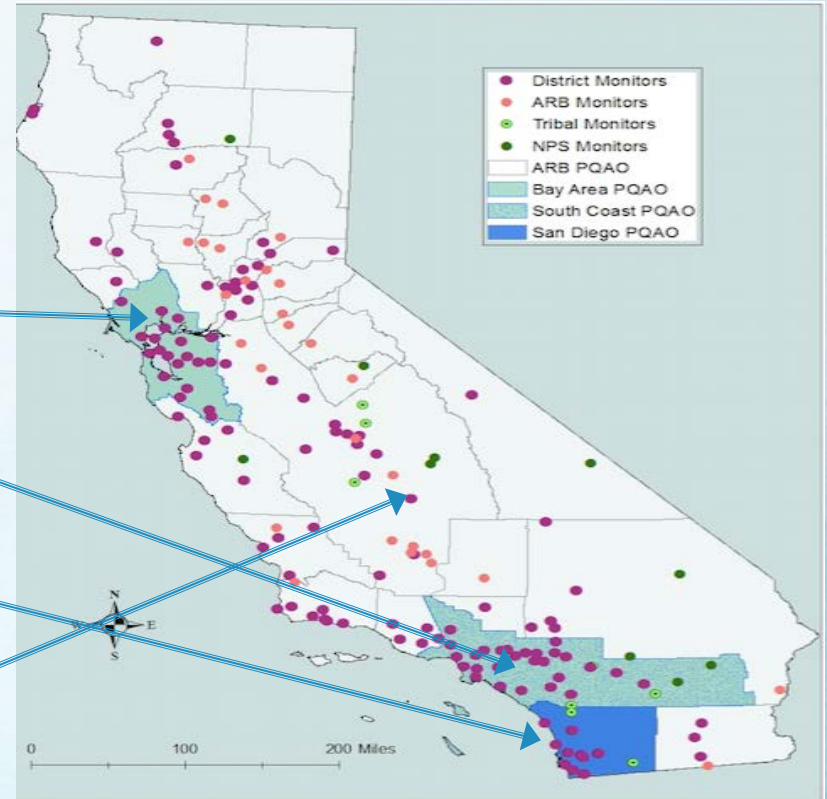
→MLD

→AQPSD


Local Monitoring
Agencies


California's Air Monitoring Network


- Over 250 sites and 28 local monitoring agencies
- One of the most extensive air quality monitoring networks in the nation
- 4 Major Primary Quality Assurance Organizations (PQAO)



About Primary Quality Assurance Organizations

 Organization responsible for a network monitoring the same pollutants

 Centralized Quality Assurance

 Data Collection: Consistent, Defensible, High Quality and Traceable

Each PQAO is responsible for:

- Operating the air monitoring network and performing laboratory analysis
- Managing a Quality Assurance Program
- Providing ambient air and QC/QA data to U.S. EPA's Air Quality System (AQS) database
- Meeting data quality objectives to define the nature and severity of pollution in California, determine attainment status with federal standards, identify pollution trends, support agricultural burn forecasting, and develop air models and emission inventories

Centralized PQAO with Shared Resources



Formalized roles and responsibilities, to collect consistent and reliable ambient air quality data



Documents are individualized for each monitoring organization



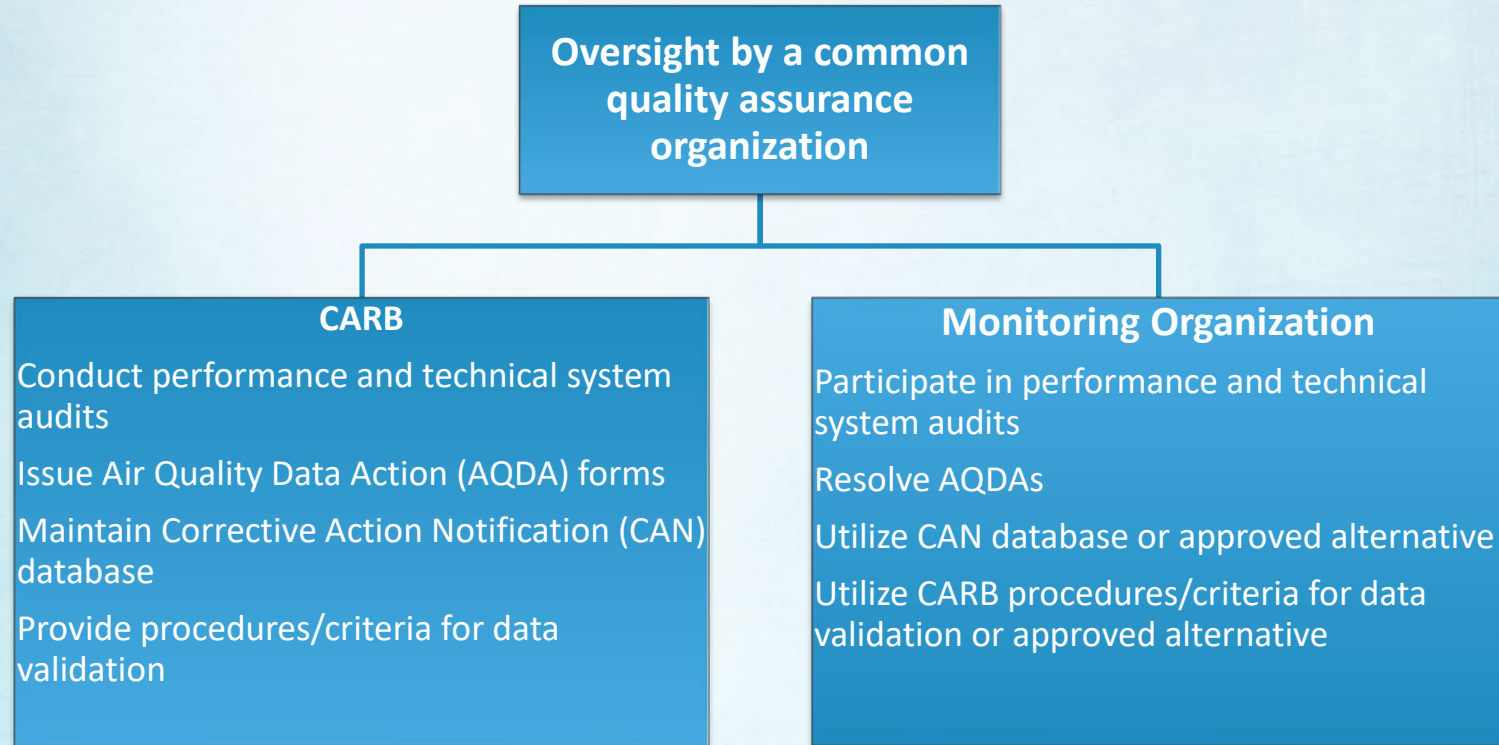
“Living” documents may change as CARB or monitoring organization responsibilities change



Collaboratively addresses five common factors



Roles and Responsibilities Example



Challenges

Large Number of Monitoring Organizations



Expansive Geographical Area

Varying Resources Amongst Monitoring Organizations

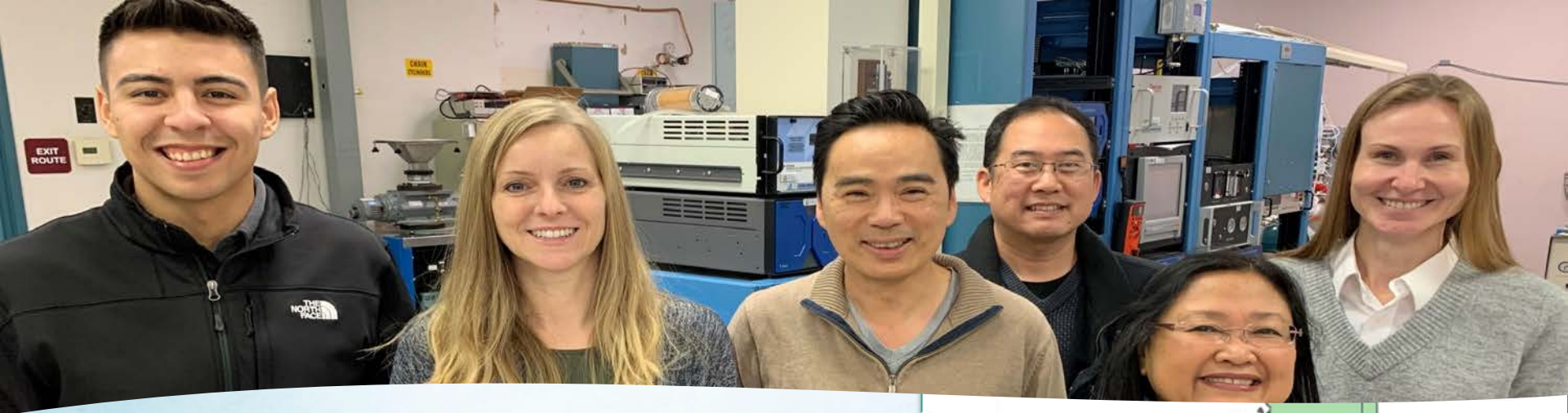
Previous Independence of Monitoring Organizations



Benefits

-  Reduction in Quality Assurance Efforts when Multiple Organizations Work as One PQAO
-  Cost Savings
 - Reduced audits
 - Co-location
-  Cooperation and Sharing of Expertise among Monitoring Organizations
-  Data Consistency & Traceability
-  Standardized Documentation
 - Greater consistency
 - Reduced workload in creation and review of QA documents



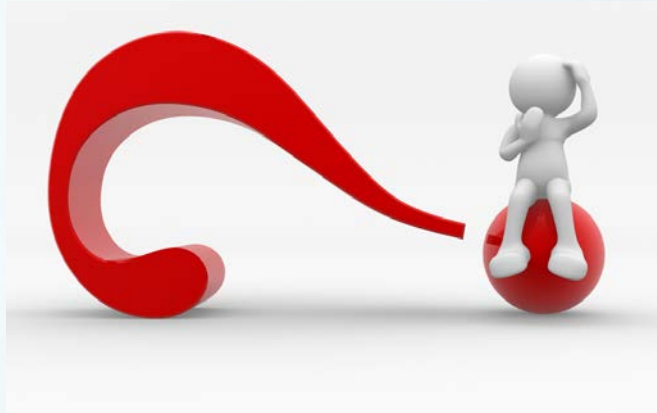


Standards Laboratory

- One of the 5 common factors – Common Calibration Facility and Standards
- Runs SRP #4
- Supports the western United States region: Alaska, Washington, Oregon, Hawaii, California, Mexico, Idaho, Nevada, Arizona



Thank You



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