



2026 CARB Annual Network Plan (ANP)

on Regulatory Monitoring Operations for Criteria Air Pollutants

Public Workshop
June 11, 2026

Logistics

- Presentation and Draft 2026 ANP are available online
[Annual Monitoring Network Report | California Air Resources Board](#)
- Draft 2026 ANP posted on May 21 for 30 days public comments.
Please submit your comments to
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Sunghoon Yoon at Sunghoon.Yoon@arb.ca.gov
- Problems during presentation
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Presentation Overview

- Annual Network Plan Summary
- Types of monitoring networks in California
- Regulatory monitoring network
- Annual Network Plan and requirement

What is the Annual Network Plan?

- Federal regulations require that state and local air agencies submit to U.S. EPA an Annual Network Plan
- As a Primary Quality Assurance Organization (PQAO), CARB is responsible for the monitoring networks for 32 local air districts
- provides an overview of regulatory monitoring for criteria pollutants and details :
 - ✓ How we are meeting minimum monitoring requirements for criteria air pollutants
 - ✓ Recent changes to the monitoring network
 - ✓ Planned changes to the monitoring network
 - ✓ Detailed site information

Ozone

PM

CO

SO₂

NO₂

Lead

Types of Monitoring Networks in California

- **Regulatory (criteria pollutants)**

- ✓ **Ground-level ozone (O_3)**

- ✓ **Particulate matter ($PM_{2.5}$ and PM_{10})**

- ✓ **Carbon monoxide (CO)**

- ✓ **Sulfur dioxide (SO_2)**

- ✓ **Nitrogen dioxide (NO_2)**

- ✓ **Lead (Pb)**

- Toxic air contaminants

- Greenhouse gas (e.g., CO_2 , CH_4 , and N_2O)

- Community-scale

Regulatory Monitoring Network

- Criteria pollutant monitoring
- Over 250 sites in California
- Operated by CARB, Districts, Tribes, and Federal Agencies
- Monitors audited by MLD and other operating agencies on annual or semi-annual basis
- Network Plans submitted on an annual basis to EPA
- Monitoring Network Assessments on a 5-year basis to EPA

Environmental Justice (EJ) in Regulatory Monitoring Network

- More than one third of the regulatory monitoring sites are located within disadvantaged communities and tribal communities
- Opportunities for community input on the monitoring network:
 - ✓ ANP network system modification process
 - ✓ Five-Year Monitoring Network Assessment

Regulatory Monitoring Objectives

40 Code of Federal Regulations (CFR) 58, Appendix D requires that the regulatory monitoring network be designed to:

- Support compliance with state and federal standards
- Provide air quality data to the general public
- Support air quality research

Federal Site Types

- Highest concentration
- Maximum precursor emissions impact
- Population exposure
- Source oriented
- Upwind background
- General/background
- Extreme downwind
- Regional transport
- Welfare related impacts
- Quality assurance
- Other

Spatial Scale of Different Site Types

Spatial Scale of Representativeness	Definition
Microscale	Several meters up to about 100 meters
Middle scale	About 100 meters to 0.5 kilometer
Neighborhood scale	0.5 to 4.0 kilometers range
Urban scale	On the order of 4 to 50 kilometers
Regional scale	From tens to hundreds of kilometers
National and global scales	Characterizing the nation and the globe as a whole

Regulatory Monitoring Stations

- Types of monitoring stations
 - ✓ **State and Local Air Monitoring Station (SLAMS)**
 - ✓ National Core Network (NCore)
 - ✓ Photochemical Assessment Monitoring Station (PAMS)
 - ✓ PM Chemical Speciation Network(CSN)
 - ✓ Special Purpose Monitor (SPM)
 - ✓ Interagency Monitoring of Protected Visual Environments (IMPROVE)
 - ✓ Clean Air Status and Trends Network (CASTNET)
- Types of regulatory monitors
 - ✓ Federal Reference Method (FRM)
 - ✓ Federal Equivalent Method (FEM)

Appendix C to 40 CFR Part 58–Ambient Air Quality Monitoring Methodology

Annual Monitoring Network Plan

Annual Monitoring Network Plan (ANP)

- Annual network plan
- Content of CARB annual network plan
- Federal minimum monitoring requirements
- Detailed site information
- Monitoring site changes
- Ozone waiver requests

Annual Network Plan Requirements

- Required under federal regulations – submitted to the U.S. EPA by July 1st of each year
- 40 CFR 58.10: Annual Monitoring Network Plan and periodic network assessment

“The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, D, and E of this part, where applicable.”

- 40 CFR 58, Appendix A: QA Requirements for Monitors
- 40 CFR 58, Appendix D: Network Design Criteria
- 40 CFR 58, Appendix E: Probe and Monitor Path Siting Criteria
- **It is more of a documentation tool than a planning tool.**

Areas Covered in the CARB ANP



- **Primary Quality Assurance Organization (PQAO) Drafting Their Own ANP**

CARB, Bay Area, South Coast, San Diego

- **CARB PQAO**

- ✓ **6 Districts Drafting Their Own ANP**

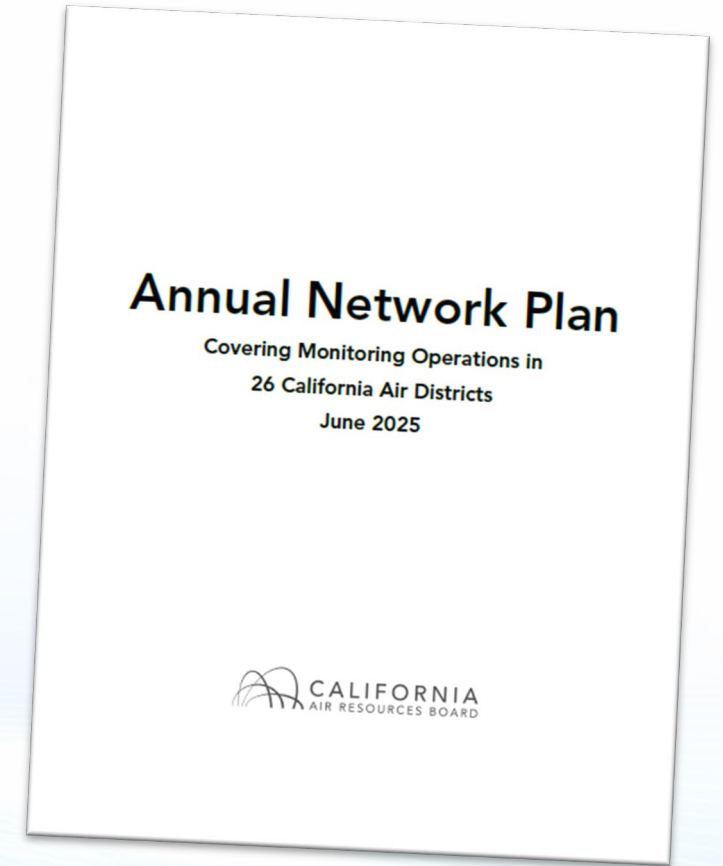
Great Basin, North Coast, Sacramento, San Joaquin Valley, San Luis Obispo County, Santa Barbara

- ✓ **26 Districts Included in the CARB ANP**

Amador County, Antelope Valley, Butte County, Calaveras County, Colusa County, Eastern Kern, El Dorado County, Feather River, Glenn County, Imperial County, Lake County, Lassen County, Mariposa County, Mendocino County, Modoc County, Mojave Desert, Monterey Bay, Northern Sierra, Northern Sonoma County, Placer County, Shasta County, Siskiyou County, Tehama County, Tuolumne County, Ventura County, Yolo-Solano

What is in the CARB ANP?

- Federal requirements
 - ✓ Minimum monitoring requirements
 - ✓ Quality assurance requirements
 - ✓ Particulate Matter collocation requirements
- Site information
 - ✓ Detailed information on each monitor
 - ✓ Recently implemented and proposed changes
 - ✓ Supporting documents
- Ozone waiver request
- Public Comments and CARB Responses



Federal Minimum Monitoring Requirements

- Each pollutant requires a minimum number of monitors based upon certain criteria

Pollutant	Minimum Monitor Criteria
Ozone, PM ₁₀ and PM _{2.5}	Metropolitan Statistical Area (MSA) Population, Design Value Concentration
NO ₂	MSA Population
Near Road NO ₂	MSA Population, Annual Average Daily Traffic
SO ₂	MSA Population, SO ₂ Emissions (tons/year)
Pb	Pb Emissions (NEI) - airports >1.0 tons/year - non-airport sources >0.50 tons/year

Federal Minimum Monitoring Requirements

Example: Ozone Minimum Monitoring Requirements

Metropolitan Statistical Area population	3-year design value concentrations $\geq 85\%$ of any Ozone NAAQS	3-year design value concentrations $< 85\%$ of any Ozone NAAQS
>10 million	4	2
4 - 10 million	3	1
350,000 - <4 million	2	1
50,000 - <350,000	1	0

- MSA: Sacramento-Roseville-Arden Arcade
- Population: 2,398,854
- Design Value: 0.075 ppm
- Design Value = 107 % of 0.070 ppm NAAQS

HOW MANY MONITORS ARE REQUIRED?

2

Federal Minimum Monitoring Requirements

Example: PM_{2.5} Minimum Monitoring Requirements

Population	DV exceeds $\geq$ 85% of any NAAQS	DV exceeds $<$ 85% of any NAAQS
> 1 million	3 sites	2 sites
500,000 - 1 million	2 sites	1 sites
50,000 - <500,000	1 sites	0 sites

- MSA: Bakersfield
- Population: 909,227
- Design Value: 42 $\mu\text{g}/\text{m}^3$ (24-hour) and 13.7 $\mu\text{g}/\text{m}^3$ (Annual)
- Design Value = 120% (24-hour) and 152% (Annual)

HOW MANY MONITORS ARE REQUIRED?

2

Minimum Monitoring Requirements

- Need more than minimum monitoring requirements?
 - ✓ State and Federal planning
 - ✓ Community needs
 - ✓ Emergency monitoring
 - ✓ Other Federal requirements
 - Highest concentration site
 - Background site
 - Transport site

Detailed Site Information

Local Site Name	Mojave - Pat Ave		
AQS ID	06-029-0020		
GPS Coordinates	35.04944, -118.18893		
Street Address	3200 Pat Avenue, Mojave, CA 93501		
County	Kern		
Distance to roadways (meters)	1,367 to SR-14		
Traffic Count (AADT, year)	17,000 (2017)		
Ground Cover	Dirt/Soil		
Representative statistical area name (i.e. MSA, CBSA, other)	Bakersfield Metropolitan Statistical Area		
Parameter Code	44201	81102	88101
Parameter Code	44201	81102	88101
Basic monitoring (diagnostics)	NAAQS	NAAQS	NAAQS
Site type(s)	Highest Concentration	Population Exposure	Highest Concentration
Monitor type(s)	SLAMS	SLAMS	SLAMS
Network affiliation(s)	N/A	N/A	N/A
Instrument manufacturer and model	Tekelene IPA 400	Met One SAM 1020	Met One SAM 1020
Method code	07	122	170
FRM/FEM/ARM/Other	FEM	FEM	FEM
Collecting Agency	CARB	CARB	CARB
Local/State Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A	N/A
Reporting Agency	CARB	CARB	CARB
Spatial scale	Regional	Regional	Urban
Monitoring start date	2/10/2013	2/10/2013	2/10/2013
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency including exceptional events	N/A	N/A	N/A
Sampling season	1-Jan - 31-Dec	1-Jan - 31-Dec	1-Jan - 31-Dec
Probe height (meters)	1.1	4.5	4.5
Distance from supporting structure (meters)	1.5	1.8	1.9
Distance from obstructions on roof (meters)	No obstructions	No obstructions	No obstructions
Height above probe for obstructions on roof (meters)	N/A	N/A	N/A
Distance from obstructions not on roof (meters)	No obstructions	No obstructions	No obstructions
Height above probe for obstructions not on roof (meters)	N/A	N/A	N/A
Distance to nearest tree line (meters)	>10	>10	>10
Distance to furnace or incinerator flue (meters)	N/A	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters)	N/A	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or % of monitoring path)	360	360	360
Probe material for reactive gases (NONOX/NOy, SO2, O3, PAMS, VOCS, Carbonyle (i.e. Pams, stainless steel, Teflon)	Teflon	N/A	N/A
Residence time for reactive gases (NONOX/NOy, SO2, O3, PAMS, VOCS, Carbonyle (seconds)	10.9	N/A	N/A
Will there be changes within the next 18 months?	No	No	No
Is it suitable for comparison against the annual PM2.5 NAAQS?	N/A	N/A	Yes
Frequency of flow rate verification for manual PM samplers, including P10 samplers	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Semi-Monthly	Semi-Monthly
Frequency of one-point QC check for gaseous instruments	Daily	N/A	N/A
Date of Annual performance evaluation conducted in the past calendar year for gaseous parameters	3/11/2025	N/A	N/A
Date of two semi-annual flow rate audits conducted in the past calendar year for PM monitors	N/A	3/11/2025 9/9/2025	3/11/2025 9/9/2025

Local Site Name	Mojave - Pat Ave
AQS ID	06-029-0020
GPS Coordinates	35.04944, -118.18893
Street Address	3200 Pat Avenue, Mojave, CA 93501
County	Kern
Distance to roadways (meters)	1,367 to SR-14
Traffic Count (AADT, year)	17,000 (2017)
Ground Cover	Dirt/Soil
Representative statistical area name (i.e. MSA, CBSA, other)	Bakersfield Metropolitan Statistical Area

Detailed Site Information *(Continued)*

Local File Name	Mojuve - Pal Ave		
AGS ID	06-029-0020		
GPS Coordinates	35.06444, -118.18893		
Street Address	2020 Pal Avenue, Mojave, CA 93501		
County	Inyo		
Distance to roadways (meters)	1,367 to SR-14		
Traffic Count (AADT/year)	17,000 (2017)		
Ground Cover	Desert		
Representative statistical area name (i.e. MSA, CSA, other)	Bakersfield Metropolitan Statistical Area		
QA-Audit	Source: 1	PM10.1	PM2.5
QA-Audit, Supplementary, or N/A	N/A	Primary	Primary
Parameter Code	44201	81102	88101
Basic monitoring objective(s)	NAAQS	NAAQS	NAAQS
Site type(s)	Highest Concentration	Population Exposure	Highest Concentration
Monitor type(s)	SLAMS	SLAMS	SLAMS
Network affiliation(s)	N/A	N/A	N/A
Instrument manufacturer and model	Teledyne API 400	Met One BAM 1020	Met One BAM 1020
Method code	87	122	170
FRM/FEM/ARM/Other	FEM	FEM	FEM
Collecting Agency	CARB	CARB	CARB
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A	N/A
Reporting Agency	CARB	CARB	CARB
Spatial scale	Regional	Regional	Urban
Monitoring start date	2/13/2023	2/13/2023	2/13/2023
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency including exceptional events	N/A	N/A	N/A
Sampling season	1-Jan - 31-Dec	1-Jan - 31-Dec	1-Jan - 31-Dec

Pollutant, POC	Ozone, 1	PM10, 2	PM2.5, 3
Primary, QA-Audit, Supplementary, or N/A	N/A	Primary	Primary
Parameter Code	44201	81102	88101
Basic monitoring objective(s)	NAAQS	NAAQS	NAAQS
Site type(s)	Highest Concentration	Population Exposure	Highest Concentration
Monitor type(s)	SLAMS	SLAMS	SLAMS
Network affiliation(s)	N/A	N/A	N/A
Instrument manufacturer and model	Teledyne API 400	Met One BAM 1020	Met One BAM 1020
Method code	87	122	170
FRM/FEM/ARM/Other	FEM	FEM	FEM
Collecting Agency	CARB	CARB	CARB
Analytical Lab (i.e. weigh lab, toxics lab, other)	N/A	N/A	N/A
Reporting Agency	CARB	CARB	CARB
Spatial scale	Regional	Regional	Urban
Monitoring start date	2/13/2023	2/13/2023	2/13/2023
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency including exceptional events	N/A	N/A	N/A
Sampling season	1-Jan - 31-Dec	1-Jan - 31-Dec	1-Jan - 31-Dec

Detailed Site Information *(Continued)*

Local file name	Moque - Pal Ave		
ACH ID	09-029-0020		
GPS Coordinates	35.04044, -118.18893		
Street Address	3200 Pal Avenue, Moque, CA 95051		
County	San		
Distance to roadways (meters)	1,367 to SR-14		
Traffic Count (AADT/year)	17,000 (2017)		
Ground Cover	Dirt/Soil		
Representative statistical area name (i.e. MSA, CBSA, other)	Bakersfield Metropolitan Statistical Area		
Parameter: POC	Comp. 1	PM10.2	PM2.5.1
Primary, QA-Audit, Supplementary, or N/A	N/A	Primary	Primary
Parameter Code	44201	81102	88101
Basic monitoring objectives	NAAQS	NAAQS	NAAQS
Site type(s)	Highest Concentration	Population Exposure	Highest Concentration
Monitor type(s)	SLAMS	SLAMS	SLAMS
Network affiliation(s)	N/A	N/A	N/A
Instrument manufacturer and model	Teledyne API 400	Met One SAM 1020	Met One SAM 1020
Method code	87	122	170
PRM/FEM/PM/Other	FEM	FEM	FEM
Collecting Agency	CARB	CARB	CARB
Analytical Lab (i.e. weigh lab, toxic lab, other)	N/A	N/A	N/A
Reporting Agency	CARB	CARB	CARB
Spatial scale	Regional	Regional	Urban
Monitoring start date	2/1/2023	2/1/2023	2/1/2023
Current sampling frequency	Continuous	Continuous	Continuous
Required sampling frequency including exceptional events	N/A	N/A	N/A
Sampling season	1-Jan - 31-Dec	1-Jan - 31-Dec	1-Jan - 31-Dec
Distance from supporting structure (meters)	1.5	1.8	1.9
Distance from obstructions on roof (meters)	No obstructions	No obstructions	No obstructions
Height above probe for obstructions on roof (meters)	N/A	N/A	N/A
Distance from obstructions not on roof (meters)	No obstructions	No obstructions	No obstructions
Height above probe for obstructions not on roof (meters)	N/A	N/A	N/A
Distance to nearest tree drip line (meters)	>10	>10	>10
Distance to furnace or incinerator flue (meters)	N/A	N/A	N/A
Distance between monitors fulfilling a QA collocation requirement (meters)	N/A	N/A	N/A
Unrestricted airflow (degrees around probe/inlet or % of monitoring path)	360	360	360
Probe material for reactive gases NO/NO2/NOy, SO2, O3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	Teflon	N/A	N/A
Residence time for reactive gases NO/NO2/NOy, SO2, O3; PAMS: VOCs, Carbonyls (seconds)	10.9	N/A	N/A
Will there be changes within the next 18 months?	No	No	No
Is it suitable for comparison against the annual PM2.5 NAAQS?	N/A	N/A	Yes
Frequency of flow rate verification for manual PM samplers, including Pb samplers	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Semi-Monthly	Semi-Monthly
Frequency of one-point QC check for gaseous instruments	Daily	N/A	N/A
Date of Annual performance evaluation conducted in the past calendar year for gaseous parameters	3/11/2025	N/A	N/A
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Probe height (meters)	4.1	4.4	4.5
Distance from supporting structure (meters)	1.5	1.8	1.9
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Distance to furnace or incinerator flue (meters)	N/A	N/A	N/A
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Probe material for reactive gases NO/NO2/NOy, SO2, O3; PAMS: VOCs, Carbonyls (e.g. Pyrex, stainless steel, Teflon)	Teflon	N/A	N/A
Residence time for reactive gases NO/NO2/NOy, SO2, O3; PAMS: VOCs, Carbonyls (seconds)	10.9	N/A	N/A
Will there be changes within the next 18 months?	No	No	No
Is it suitable for comparison against the annual PM2.5 NAAQS?	N/A	N/A	Yes
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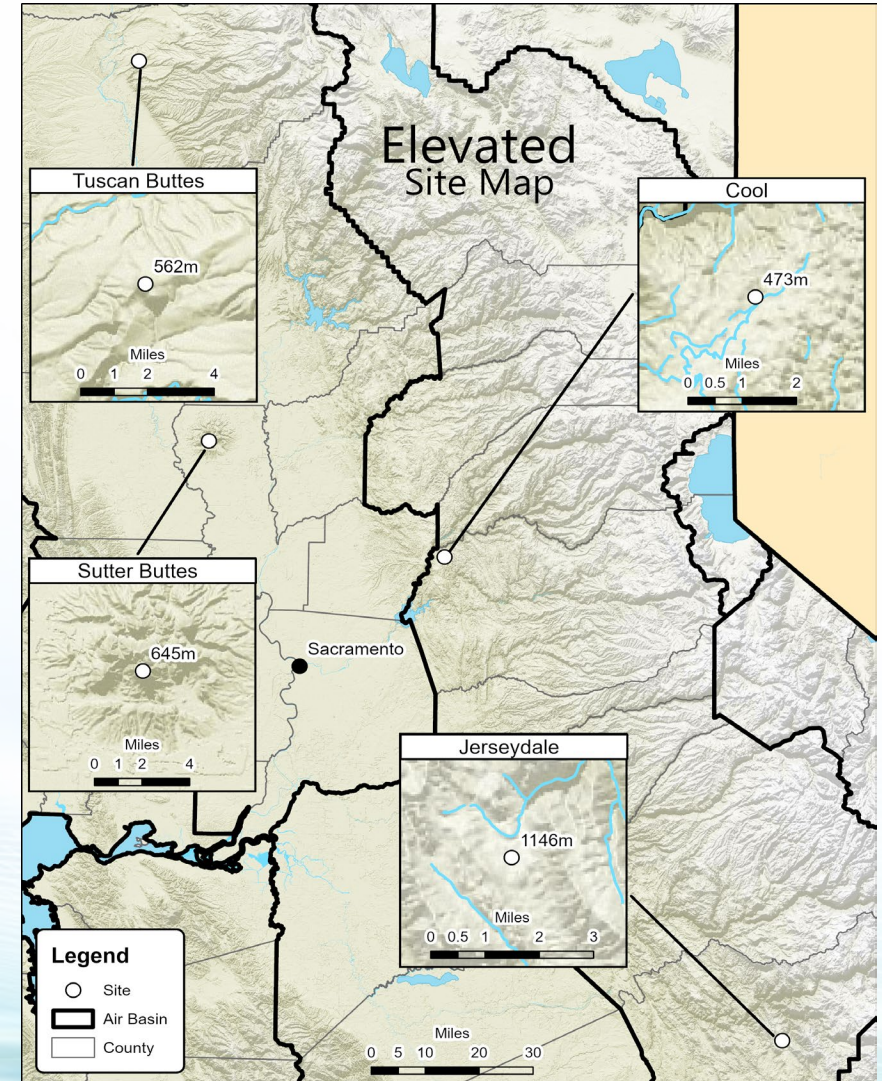
Monitoring Site Changes *(examples)*

- Site relocation
 - ✓ Shelter and power issues, area development, end of lease term, etc.
- Discontinuation
 - ✓ attainment during the previous 5 years
 - ✓ consistently measured lower concentration than other monitors in the same county during the previous 5 years
 - ✓ not required by an attainment or maintenance plan
- 40 CFR 58.14 – System modification

District	Site (AQS ID)	Comment
Butte County APCD	Paradise-Clark (060072003)	CARB has completed the consolidation of two Paradise monitoring stations to a single new location at 5913 Clark Road. Sampling at the new Paradise-Clark station began in May 2023, installation of the site meteorological tower is scheduled for Spring 2026.
Northern Sierra AQMD	Chester (06-063-1007)	District is in the process of obtaining approval to shut down the Chester site and anticipates completing the approval and shutdown in the first half of 2026.

Ozone Seasonal Monitoring Waiver Request

- Four seasonal monitoring sites:
 - ✓ Cool
 - ✓ Jerseydale
 - ✓ Sutter Buttes
 - ✓ Tuscan Butte
- April - October
- Justification:
 - ✓ O₃ concentrations are significantly lower in the early spring and late fall months
 - ✓ Located in remote, mountainous area
 - ✓ Winter weather conditions



Summary

- The CARB ANP provides detailed information about criteria pollutant monitoring sites and instruments operating in the regulatory monitoring network of 26 Air Districts within the CARB Primary Quality Assurance Organization (PQAO).
- The ANP also describes the proposed and recently implemented monitoring site changes.
- It shows that the monitoring sites in the areas covered by CARB ANP meet the federal air monitoring and quality assurance requirements of 40 CFR 58.10.

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Draft 2026 ANP and presentation available on-line

[Annual Monitoring Network Report | California Air Resources Board](#)

THANK YOU!