

2008 AMBIENT AIR MONITORING NETWORK PLAN



Monitoring and Compliance Division
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1. Introduction

The San Luis Obispo County Air Pollution Control District (SLOAPCD) 2008 Ambient Air Monitoring Network Plan is an annual examination and evaluation of the SLOAPCD's network of air pollution monitoring stations. The annual review of our State and Local Air Monitoring Stations (SLAMS) network is required by Title 40, Code of Federal Regulations, Part 58.10 (40 CFR 58.10). The review process helps ensure continued consistency with the network's specific monitoring objectives defined in the regulations and confirms that the information in the state and federal monitoring records accurately and properly classify each station. Information is provided for all ambient air pollution monitoring which occurred in the county including sites operated by the California Air Resources Board (ARB). Data for ARB sites was obtained from that agency and are accurate to the best of our knowledge.

This report is a directory of existing and proposed monitoring in the SLOAPCD's network of SLAMS and special purpose monitoring stations (SPM) and serves as a progress report on the recommendations and issues raised in earlier network reviews. The review period of this report looks back to June 2007 (the publication of the 2007 Ambient Air Monitoring Network Review) and looks forward eighteen months to December 2009 anticipating any changes to the network. New changes to the Code of Federal Regulations require specific detailed monitoring network information be included in this report along with a 30-day public review period prior to submittal of the report to the USEPA.

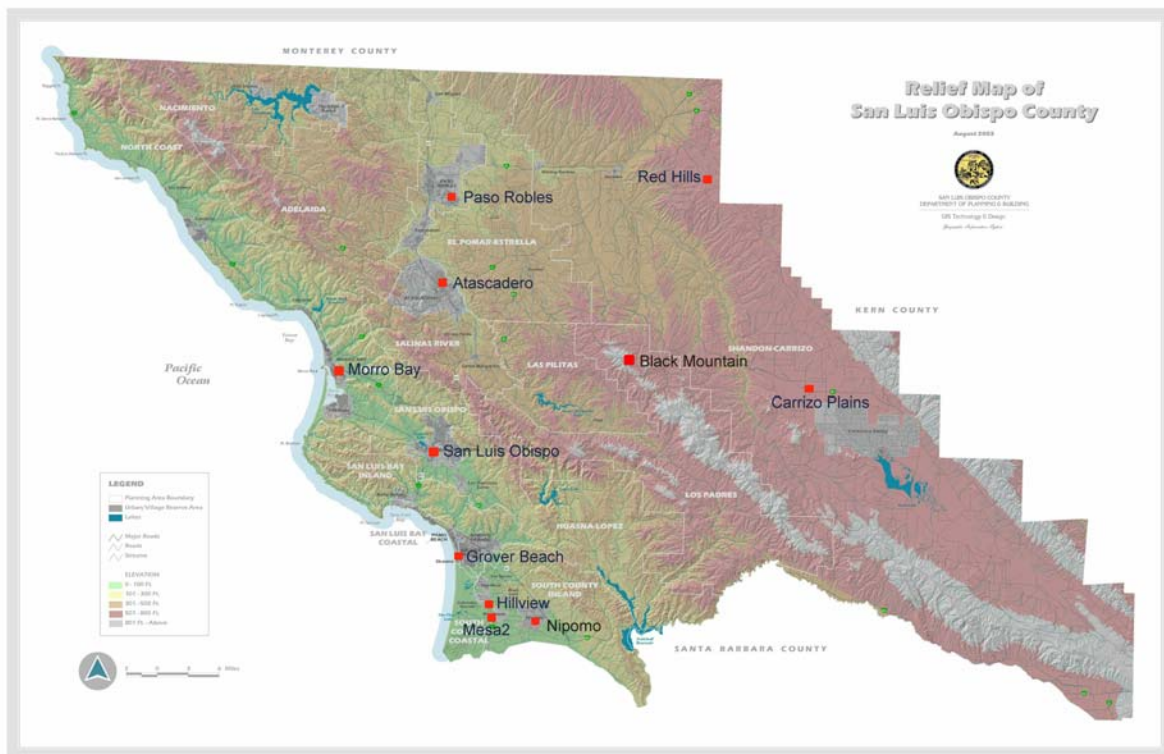


Figure 1: Map of Ambient Air Monitoring Stations in San Luis Obispo County in 2007/2008

2. Overview of Network Operation

2.1 Air Monitoring Network Design - Monitoring Objectives and Spatial Scales

Federal regulations require that a SLAMS network be designed to meet a minimum of six basic ambient air monitoring objectives:

1. To determine the highest concentration expected to occur in the area covered by the network;
2. To determine representative concentrations in areas of high population density;
3. To determine the impact on ambient pollution levels of significant sources or source categories;
4. To determine general background concentration levels;
5. To determine the extent of regional pollutant transport among populated areas, and in support of secondary standards.
6. To determine the welfare-related impacts in more rural and remote areas (such as visibility impairment and effects on vegetation).

The goal in designing a SLAMS network is to establish monitoring stations that will provide data to meet these monitoring objectives. The physical siting of the air monitoring station must achieve a spatial scale of representativeness that is consistent with the monitoring objective. The spatial scale results from the physical location of the site with respect to the pollutant sources and categories. It estimates the size of the area surrounding the monitoring site that experiences uniform pollutant concentrations. The categories of spatial scale are:

- Microscale - An area of uniform pollutant concentrations ranging from several meters up to 100 meters.
- Middle Scale – uniform pollutant concentrations in an area of about 110 meters to 0.5 kilometer.
- Neighborhood Scale – an area with dimensions in the 0.5 to 4 kilometer range.
- Urban Scale – Citywide pollutant conditions with dimensions of from 4 to 50 kilometers.
- Regional Scale – An entire rural area of the same general geography (this area ranges from tens to hundreds of kilometers).

Table 1: Relationship Among Monitoring Objectives And Scale Of Representativeness.

Monitoring Objective	Appropriate Spatial Scale
Highest concentration	Micro, middle, neighborhood (sometimes urban)
Population	Neighborhood, urban
Source impact	Micro, middle, neighborhood
General/Background	Neighborhood, urban, regional
Regional transport	Urban, regional
Welfare-related impacts	Urban, regional

2.2 Ambient Air Monitoring Network in San Luis Obispo County

Figure 1 shows a map of all currently operating ambient air monitoring stations in San Luis Obispo County. Table 2 lists these stations, the agency or company which operates them, and the pollutant or meteorological parameters which are monitored at each location, and the monitoring objective.

There are currently nine permanent ambient air monitoring stations in San Luis Obispo County. Seven of these stations are operated by the APCD as part of our SLAMS network. The ARB operates two stations in the county as part of their SLAMS network: one at Paso Robles and one in San Luis Obispo.

The District is performing a special study on the Nipomo Mesa in 2008 to investigate the possible contribution of the Oceano Dunes State Vehicular Recreation Area to the high particulate concentrations regularly monitored at permanent monitoring stations downwind. None of the monitoring data generated by the study will be reported to state or federal databases but will be used by the District in its planning, compliance and air quality management activities. The Nipomo Mesa Phase 2 Particulate Study Plan has been included in Appendix C of this document.

Changes to the Monitoring Network

This section lists changes made to the District's network as a result of the recommendations from the 2007 Ambient Air Monitoring Network Plan.

1. Establish sulfur dioxide monitoring near the Woodlands area:
This task is still pending. The Woodlands site is still under construction.
2. Establish PM10 sampling at the Woodlands area:
This task is still pending. The Woodlands site is still under construction.

Changes to the ARB network:

The ARB network is separate from the District's and is administered by the ARB in Sacramento.

1. No changes to the ARB network are anticipated.

Ozone Monitoring Network

All ambient air monitoring stations in the county, except for MESA2, monitor for ozone (see Table 2). The SLAMS network in San Luis Obispo County features ozone monitors located in Atascadero, Red Hills, Carrizo Plains, Paso Robles, Morro Bay, San Luis Obispo, and Nipomo. Ozone monitoring was performed at Black Mountain until the end of 2006 when the site was closed.

Atascadero – Operated by the SLOAPCD since 1988, this population-oriented neighborhood scale ozone monitor is located near the central business district of downtown Atascadero and is bounded on two sides by elementary schools. It provides a measurement of representative ozone concentration for the City of Atascadero. Ozone concentrations at this site exhibit strong diurnal fluctuations caused by titration of ozone by oxides of nitrogen from nearby mobile and residential sources. Measured concentrations at this site are often similar to those recorded at Paso Robles and are some of the highest in the SLAMS network. The highest ozone concentrations at Atascadero occur when high pressure over the interior southwest U.S. causes

transport of “old” ozone and other pollutants into SLO County from the east. Under these infrequent conditions transported ozone enhanced by local pollutants can cause highly elevated concentrations. The prevailing West or Northwest winds from the coast help keep ozone levels at Atascadero low most of the time.

Paso Robles – Operated by ARB since 1974, this population-oriented neighborhood scale ozone monitor provides a representative ozone concentration for the suburban areas of the City of Paso Robles. The conditions under which elevated ozone levels occur and the location’s prevailing winds are similar to Atascadero. NO_x monitoring is not performed at this site so the degree of removal of ambient ozone by titration is not known here, but is believed to be similar to that of other cities in the county.

Morro Bay – Operated since 1975 by SLOAPCD, this site provides regional scale and General/Background ozone monitoring. Located in downtown Morro Bay, the monitor generally measures background levels of ozone from the predominant northwest winds blowing off of the Pacific Ocean. Under unusual meteorological conditions noted in section 2.2 the Morro Bay site can record elevated ozone concentrations transported from urban areas as far south as the Los Angeles basin.

San Luis Obispo – Operated by ARB since 1970, this population-oriented, neighborhood scale ozone monitor provides a representative ozone concentration for the City of San Luis Obispo. The monitor is located near the downtown center where ozone concentrations are significantly affected by the process of depletion by titration with local mobile and stationary NO_x sources. As a result the concentrations recorded here are often lower than at Morro Bay. The site is scheduled in 2005 to be relocated to a site in town which will likely be more representative of a neighborhood or regional scale.

Table 2: Ambient Air Quality Parameters Monitored in San Luis Obispo County in 2007/2008

O ₃	NO	NO ₂	NO _x	SO ₂	PM ₁₀	PM _{2.5}	TEOM	WS	WD	ATM
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APCD Permanent Stations

Atascadero	P	P,C	P,C	P,C		P	P	P	X	X	X
Morro Bay	B	S	S	S		P			X	X	
Nipomo Regional Park	B	B	B	B	P,S	P			X	X	X
Carrizo Plains	B					B			X	X	
Grover Beach									X	X	

APCD Research Stations

Black Mountain	C								X	X	X
Red Hills	C								X	X	X
Hillview						C					

ARB Stations

San Luis Obispo	P	P	P	P		P	P		X	X	X
Paso Robles	P					P			X	X	X

APCD Operated Station

MESA2					S	S			X	X	X
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Acronyms:

O₃ Ozone
 NO Nitric Oxide
 NO₂ Nitrogen Dioxide
 NO_x Oxides of Nitrogen

C Maximum Concentration
 SO₂ Sulfur Dioxide
 CO Carbon Monoxide
 TEOM Particulates <10 microns (monitored continuously)

P Population
 PM₁₀ Particulates < 10 microns (samples every sixth day)
 PM_{2.5} Particulates < 2.5 microns (samples every sixth day)

B Background Concentration
 WS Wind Speed
 WD Wind Direction
 ATM Ambient Temp

Table 3: Air Quality Parameters and Monitoring Objectives in SLO County in 2007/2008

	Parameter	Monitoring Objective				
		Highest Conc.	Pop.	Source	General Background	Transport
OZONE	Atascadero		x			
	Morro Bay				x	
	Nipomo				x	
	Carrizo	x				x
	Black Mtn.	x				x
	Red Hills	x				x
	SLO		x			
	Paso		x			
NITROGEN DIOXIDE	Atascadero	x	x			
	Morro Bay			x		
	Nipomo				x	
	SLO		x			
SULFUR DIOXIDE	Nipomo		x	x		
	MESA2			x		
PARTICULATES	Atascadero		x			
	Morro Bay		x			
	Nipomo		x			
	SLO		x			
	Paso		x			
	MESA2			x		
	Carrizo				x	
	Hillview	x				

Nipomo Regional Park – Operated by SLOAPCD since 1998, this station provides monitoring of background levels of ozone on a regional scale. The station was relocated in 1998 from Wilson Street several miles away. The ozone concentrations measured here are representative of interior portions of the Nipomo Mesa and are the highest recorded in the coastal region of San Luis Obispo County.

Red Hills – Operated by SLOAPCD since 2000, this station is located on the summit of the Red Hills near the community of Shandon at an elevation of about 2000 feet. This site consistently records the highest and most persistent ozone concentrations in the county.

Carrizo Plains – Operated by SLOAPCD since January 2006 this station monitors background levels and ozone transport on a regional scale. The monitor is located in an outbuilding at the Carrizo Plains School. The ozone concentrations recorded here are second only to Red Hills in concentration and persistence.

The SLAMS monitoring objectives met by the existing ozone network are:

- 1) Highest Concentration – The Red Hills and Carrizo Plains stations consistently record the highest ozone concentrations in the county. The high ozone levels tend to occur in the interior areas of the county during summer, either following long periods of wind

stagnation, or as a result of offshore winds which can transport pollutants from interior regions to the northeast.

- 2) High Population Exposure – The Paso Robles, Atascadero and San Luis Obispo monitors provide a good representation of the ozone levels in the major cities of the county.
- 3) Source Impact – Because ozone is a secondary pollutant the effect of emissions from any single source are experienced 5 to 7 hours later and often many miles distant. As a regional pollutant, monitoring for specific sources of ozone is not performed.
- 4) General/Background – The monitors at Morro Bay and Nipomo Regional Park provide regional background ozone levels.
- 5) Regional Transport – The stations located at Carrizo Plains and Red Hills provide excellent surveillance of regional transport of ozone in the interior part of the county. Coastal monitoring stations have provided evidence in the past of regional transport of ozone over water from distant urban sources.

Welfare-related impacts are not currently addressed in the District's SLAMS ozone network and are not thought to be significant.

Nitrogen Dioxide Monitoring Network

The SLAMS network in San Luis Obispo County features nitrogen dioxide (NO₂) monitors at Atascadero, Morro Bay, and Nipomo Regional Park. NO₂ levels have always been well below the state and federal standards at all locations in our county. For this reason, except in the case of Morro Bay, NO₂ monitoring is most useful here as an indicator of depletion of ambient ozone through titration with nitric oxide. Having at least one NO₂ monitor in each geographical region of the county also serves a long-term air quality surveillance role.

Atascadero – Operated by SLOAPCD since 1990, this population-oriented monitor is considered neighborhood scale and highest concentration for NO₂. This, the only NO₂ monitor in the Salinas River air basin, records the highest NO, NO₂ and NO_x levels in the county. The monitor's location downtown has established a strong diurnal inverse relationship between ozone and NO₂ levels caused by local mobile sources and residential and commercial combustion of natural gas.

Morro Bay – Operated by SLOAPCD since 2001 this monitor is neighborhood scale and monitors emissions from a specific source: the Morro Bay power plant, located less than a mile upwind.

Nipomo Regional Park – Operated by the SLOAPCD since 1998, this monitor is regional in scale and is representative of background concentrations on the Nipomo Mesa. The site's location in a large natural area away from local or mobile sources makes it ideal for regional surveillance of NO₂. NO₂ monitoring had also been performed at the previous location of the Nipomo monitoring station on Wilson Street.

The SLAMS monitoring objectives met by the existing NO₂ network are:

- 1) Highest Concentration – The Atascadero monitor historically has measured the highest NO₂ concentrations in the county. NO₂ levels are the result of titration of ambient ozone by local sources of nitric oxide and as a result values are always relatively low.
- 2) General/Background – With no significant local sources present the monitor at Nipomo Regional Park provides an excellent measure of background NO₂ levels on the Nipomo Mesa.
- 3) Source Impact – The monitor at Morro Bay is placed to monitor local impacts of emissions from the Morro Bay Power Plant, the single greatest stationary source of oxides of nitrogen in the county.

Regional Transport and Welfare-Related impacts of NO₂ are not currently addressed by the District's SLAMS network and are not thought to be significant.

Sulfur Dioxide Monitoring Network

The sulfur dioxide (SO₂) monitoring network in San Luis Obispo County currently consists of one station: MESA2. More extensive SO₂ monitoring has been performed in the past and included monitors at Nipomo, Morro Bay, Grover Beach and (in now-decommissioned stations at MESA and Ralcoa Way) on the Nipomo Mesa.

MESA2 – Operated by private contractors since 1989 this is a special purpose monitor (SPM) for surveillance of a nearby oil refinery and coke calciner. It is considered middle scale and highest concentration for SO₂. Since it is located close to a major source for SO₂ emissions it is representative only of the immediate locality. The station was sited to optimize surveillance of the nearby coke calciner which has recently shut down. The highest historical SO₂ levels were measured at the two decommissioned stations: MESA and Ralcoa Way.

The SLAMS SO₂ monitoring objectives met by the network are:

- 1) Highest Concentration – The monitor at MESA2 currently records the highest SO₂ levels in the county. Higher historical levels were measured at two nearby but now decommissioned stations: MESA and Ralcoa Way. The Mesa 2 station is not optimally sited for measuring the highest possible SO₂ concentrations from the nearby refinery.
- 3) Source Impact – The monitor at MESA2 is invaluable in determining the SO₂ source impact upon the region.

Monitoring objectives not addressed by the existing SO₂ network are: General/Background; Population; Regional Transport; and Welfare-Related. Historical SO₂ monitoring performed elsewhere in the county has provided good evidence that monitoring for these objectives is not needed

PM₁₀ and PM_{2.5} Particulate Monitoring Network

The particulate monitoring network in San Luis Obispo County consists of PM₁₀ monitors (at Paso Robles, Atascadero, Morro Bay, San Luis Obispo, Mesa 2, Hillview, and Nipomo Regional Park) and PM_{2.5} monitors (at Atascadero and San Luis Obispo). The PM₁₀ network has been in place since 1988. Originally, all particulate monitoring in the county was performed as part of ARB's network. In the past ten years, however, the District's PM₁₀ sampling program has become independent with our own processing facilities and operating procedures. Today, the

Paso Robles and San Luis Obispo PM₁₀ samplers remain part of ARB's network while District and contractor PM₁₀ samplers in the county are in the District's network. The PM_{2.5} monitors at Atascadero are currently part of the ARB network but are operated by the SLOAPCD. The PM_{2.5} samplers began operation in 1999 in response to the establishment of a new federal particulate standard for PM_{2.5} in 1997.

Paso Robles – Operated by ARB since 1991 this PM₁₀ monitor is urban in scale and representative of the city of Paso Robles.

Atascadero – Operated by SLOAPCD. The PM₁₀ monitor has been operated since 1988 and the PM_{2.5} monitor since 1999. Both are urban in scale and representative of particulate concentrations in the city of Atascadero. The PM_{2.5} samplers are collocated providing an important precision measurement for the ARB PM_{2.5} monitoring program

Morro Bay – Operated by SLOAPCD since 1986 This monitor is neighborhood scale and representative of particulate concentrations in Morro Bay. The monitor was originally placed to measure source impacts from the Morro Bay power plant. Due to the monitors proximity to the coast it is possibly biased by the particulate present in marine aerosols.

San Luis Obispo – Operated by ARB, the PM₁₀ sampler has been in place since 1988, and the PM_{2.5} sampler since 1999. These population-oriented monitors are neighborhood in scale and represent particulate concentrations in the City of San Luis Obispo.

MESA2 – Operated by various private contractors since 1996, this site features collocated PM₁₀ samplers. The site monitors source impacts from the nearby oil refinery and coke calciner and is middle scale. These monitors record the highest particulate levels in the county and are thought to be strongly influenced by their proximity to extensive coastal sand dunes in the direction of the prevailing wind.

Hillview – Originally established as part of the Nipomo Mesa Particulate Study, this site was retained in our SLAMS network because it records the highest PM₁₀ concentrations in the county. Located in a neighborhood on the Nipomo Mesa, unusual for having dirt access roads, it is representative of only the local area.

Nipomo Regional Park – Operated at this location by SLOAPCD since 1998, it was previously located at Wilson Street in Nipomo where it had been in place since 1990. At this location the monitor is regional in scale and is representative of PM₁₀ concentrations on the Nipomo Mesa.

2.3 Air Quality Data

All of the ambient air monitoring stations in the county are registered with the USEPA and regularly report data to the EPA's AIRS/AQS database. The data generated at these stations are public information and are available in various formats from the respective agencies. Table 4 below lists some popular sources for air quality data.

Table 4: Some Sources Of Ambient Air Quality Data

Agency	Address For Data Requests	Internet address	Data Available
San Luis Obispo County APCD	3343 Roberto Court San Luis Obispo, CA. 93422 attn: Jay Courtney	www.sloaped.dst.ca.us www.slocleanair.org/air/data.asp	San Luis Obispo County only
California Air Resources Board	P.O. Box 2815 Sacramento, CA. 95812 attn: Xiaomang Pan	www.arb.ca.gov www.arb.ca.gov/aqd/aqdpage	California Air Monitoring Data
United States Environmental Protection Agency	Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460	www.epa.gov www.epa.gov/ttn/airs/airsaqs/index	National Air Monitoring Data

2.4 Proposed Network Changes and Improvements

The District plans to establish PM2.5 monitoring at the Mesa2 station on the Nipomo mesa by splitting-up the collocated PM2.5 samplers at the Atascadero monitoring station and moving one sampler to the new site. This change is scheduled to occur during the summer of 2008

Site and Structural:

Grover Beach: The trailer which houses the Grover Beach monitors is in need of replacement. The trailer will be removed and replaced with a small weatherproof structure to house the electronic equipment. No significant data loss is anticipated from this action. No changes to the EPA/AQS database will be necessary.

Energy Efficiency Improvements:

The SLOAPCD has embarked on a project to make all of our air monitoring stations as energy efficient as possible. We plan to employ innovative and inexpensive ideas and technologies to redesign our stations for minimal energy consumption. More information about the SLOAPCD's energy efficiency project may be found at the following website:

http://www.c-5.org/Efficiency_Project/

Appendix A: Minimum Monitoring Requirements

The SLOAPCD monitoring network meets the minimum monitoring requirements for all criteria pollutants measured as established in 40 CFR 58. Tables 2-6 list the criteria used to determine compliance with federal regulations.

Table 2: Minimum Monitoring Requirements for Ozone

MSA	County	Population	8-hour Design Value (years)	Minimum # of Monitors Required	Number of Active Monitors	Monitors Needed
7460 San Luis Obispo-Atascadero-Paso Robles	San Luis Obispo	241,600 (1999)	0.101 ppm 2004-06	1-2	9	0

Monitors required for SIP or Maintenance Plan: None

Table 3: Minimum Monitoring Requirements for PM2.5

MSA	County	Pop.	Annual Design Value (years)	Daily Design Value (years)	Minimum Number of Monitors Required	Number of Active Monitors	Monitors Needed
San Luis Obispo-Atascadero-Paso Robles	San Luis Obispo	241,600 (1999)	22ug/m3 (2004)	22.2 (2006)	1-2	3	0

Monitors required for SIP or Maintenance Plan: None

Table 4: Minimum Monitoring Requirements for PM10

MSA	County	Population	Daily Design Value (years)	Minimum Number of Monitors Required	Number of Active Monitors	Monitors Needed
San Luis Obispo-Atascadero-Paso Robles	San Luis Obispo	241,600 (1999)	69.7ug/m3 (2006)	0-1	6	0

Monitors required for SIP or Maintenance Plan: None

Table 5: Minimum Monitoring Requirements for NO₂

MSA	County	Population	Daily Design Value (years)	Minimum Number of Monitors Required	Number of Active Monitors	Monitors Needed
San Luis Obispo-Atascadero-Paso Robles	San Luis Obispo	241,600 (1999)	.021 ppm (2004-2006)	0	3	0

Monitors required for SIP or Maintenance Plan: None

Table 6: Minimum Monitoring Requirements for SO₂

MSA	County	Population	Daily Design Value (years)	Minimum Number of Monitors Required	Number of Active Monitors	Monitors Needed
San Luis Obispo-Atascadero-Paso Robles	San Luis Obispo	241,600 (1999)	.012 ppm (2004 & 2006)	0	1	0

Monitors required for SIP or Maintenance Plan: None

Data Submission Requirements

Federal regulations require air monitoring organizations to submit Precision and accuracy data for the data reported to federal and state databases. SLOAPCD air monitoring precision data are submitted to the USEPA AIRS/AQS database on a quarterly basis and are up to date as of the publication of this report. Accuracy data are reported to the USEPA by ARB.

Federal regulations also require the air monitoring organization to annually submit a letter certifying that data has been submitted for that year to the EPA AIRS/AQS database and that the data accurately represents the air quality in the county. The SLOAPCD certified its 2007 data in June 2008.

Appendix B: Detailed Site Information

This appendix presents detailed site information the reporting of which is required by federal regulation.

Site Name	Paso Robles	
AQS ID	06-079-0005	
GIS Coordinates	35°36'53", 120°39'28"	
Location	Trailer	
Address	235 Santa Fe Avenue, Paso Robles	
Distance to Road	92 meters	
Traffic Count	4000	
Groundcover	Paved	
Representative Area	7460 Paso Robles, Atascadero, San Luis Obispo	
Pollutant	Ozone	PM10
Monitoring Objective	Population	Population
Spatial Scale	Urban	Urban
Sampling Method	API 400	Hivol
Analysis Method	UV photometric	Gravimetric
Start Date	9/1/1991	9/1/1991
Operation Schedule	Continuous	1-6
Sampling Season	All year	All year
Probe Height	4 meters	4 meters
Distance From Supporting Structure	n/a	n/a
Distance From Obstructions On Roof	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a
Distance from trees	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a
Distance between collocated monitors	n/a	n/a
Unrestricted airflow	360 deg	360 deg
Probe material	Teflon	n/a
Residence time	8.9 sec	n/a
Will there be changes within the next 18 months	No	No
Frequency of flow rate verification for PM analyzers	n/a	Monthly
Frequency of one-point QC check (gases)	Daily	n/a
Last annual performance evaluation (gases)	5/8/2007	n/a

Site Name	Grover Beach
AQS ID	06-079-2001
GIS Coordinates	35°7'26", 120°37'56"
Location	Trailer
Address	9 Le Sage Drive, Grover Beach
Distance to Road	10 meters
Traffic Count	100
Groundcover	Roof
Representative Area	None
Pollutant	None- meteorology only

Site Name	Mesa 2	
AQS ID	06-079-2004	
GIS Coordinates	35°1'15", 120°33'50"	
Location	Trailer	
Address	1300 Guadalupe Road, Nipomo	
Distance to Road	80 meters	
Traffic Count	1500	
Groundcover	Vegetated	
Representative Area	None	
Pollutant	SO ₂	PM ₁₀
Monitoring Objective	Source	Source
Spatial Scale	Middle	Middle
Sampling Method	Teco 43C	Hivol
Analysis Method	UV florescence	Gravimetric
Start Date	9/21/2005	9/19/2005
Operation Schedule	Continuous	1-6
Sampling Season	All year	All year
Probe Height	4 meters	4 meters
Distance From Supporting Structure	n/a	n/a
Distance From Obstructions On Roof	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a
Distance from trees	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a
Distance between collocated monitors	n/a	n/a
Unrestricted airflow	360 deg	360 deg
Probe material	Teflon	n/a
Residence time	8.9 sec	n/a
Will there be changes within the next 18 months	No	No
Suitable for comparison against the annual PM _{2.5}	n/a	n/a
Frequency of flow rate verification for PM analyzers	n/a	Monthly
Frequency of one-point QC check (gases)	Daily	n/a
Last annual performance evaluation (gases)	5/15/2006	n/a

Site Name	San Luis Obispo		
AQS ID	06-079-2006		
GIS Coordinates	35°15'23", 120°40'08"		
Location	Building		
Address	3220 Higuera Street, San Luis Obispo		
Distance to Road	30 meters		
Traffic Count	6000		
Groundcover	Roof		
Representative Area	7460 Paso Robles, Atascadero, San Luis Obispo		
Pollutant	Ozone	PM ₁₀	PM _{2.5}
Monitoring Objective	Population	Population	Population
Spatial Scale	Urban	Urban	Urban
Sampling Method	API 400	Hivol	Partisol
Analysis Method	UV photometric	Gravimetric	Gravimetric
Start Date	9/21/2005	9/19/2005	9/19/2005
Operation Schedule	Continuous	1-6	1-6
Sampling Season	All year	All year	All year
Probe Height	12.5 meters	12.5 meters	12.5 meters
Distance From Supporting Structure	n/a	n/a	n/a
Distance From Obstructions On Roof	n/a	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a	n/a
Distance from trees	n/a	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a	n/a
Unrestricted airflow	360 deg	360 deg	360 deg
Probe material	Teflon	n/a	n/a
Residence time	8.9 sec	n/a	n/a
Will there be changes within the next 18 months	No	No	No
Suitable for comparison against the annual PM _{2.5}	n/a	n/a	Yes
Frequency of flow rate verification for PM analyzers	n/a	Monthly	Monthly
Frequency of one-point QC check (gases)	Daily	n/a	n/a
Last annual performance evaluation (gases)	5/10/2007	n/a	n/a
Last two semi-annual flow rate audits for PM _{2.5} monitors.	n/a	n/a	3/12/2007 9/19/2006

Site Name	Morro Bay		
AQS ID	06-079-3001		
GIS Coordinates	35°21'59", 120°50'34"		
Location	Trailer		
Address	899 Morro Bay Blvd., Morro Bay		
Distance to Road	20 meters		
Traffic Count	3000		
Groundcover	Paved		
Representative Area	None		
Pollutant	Ozone	Nitrogen Dioxide	PM ₁₀
Monitoring Objective	Background	Source	Background
Spatial Scale	Regional	Neighborhood	Regional
Sampling Method	API 400	API 200A	Hivol
Analysis Method	UV photometric	Chemiluminescence	Gravimetric
Start Date	1/1/1981	6/1/2001	9/19/2005
Operation Schedule	Continuous	Continuous	1-6
Sampling Season	All year	All year	All year
Probe Height	4 meters	4 meters	4 meters
Distance From Supporting Structure	n/a	n/a	n/a
Distance From Obstructions On Roof	n/a	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a	n/a
Distance from trees	n/a	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a	n/a
Distance between collocated monitors	n/a	n/a	n/a
Unrestricted airflow	360 deg	360 deg	360 deg
Probe material	Teflon	Teflon	n/a
Residence time	9.8 sec	10.2 sec	n/a
Will there be changes within the next 18 months	No	No	No
Frequency of flow rate verification for PM analyzers	n/a	n/a	Monthly
Frequency of one-point QC check (gases)	Daily	Daily	n/a
Last annual performance evaluation (gases)	5/16/2007	5/16/2007	n/a

Site Name	Nipomo Regional Park		
AQS ID	06-079-4002		
GIS Coordinates	35°1'54", 120°30'3"		
Location	Trailer		
Address	W Tefft St. & Pomeroy Road, Nipomo		
Distance to Road	200		
Traffic Count	1500		
Groundcover	Vegetated		
Representative Area	None		
Pollutant	Ozone	Nitrogen Dioxide	PM ₁₀
Monitoring Objective	Background	Background	Background
Spatial Scale	Regional	Regional	Regional
Sampling Method	API 400a	API 200a	Hivol
Analysis Method	UV photometric	Chemiluminescence	Gravimetric
Start Date	11/1/1998	11/1/1998	11/1/1998
Operation Schedule	Continuous	Continuous	1-6
Sampling Season	All year	All year	All year
Probe Height	4 meters	4 meters	4 meters
Distance From Supporting Structure	n/a	n/a	n/a
Distance From Obstructions On Roof	n/a	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a	n/a
Distance from trees	n/a	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a	n/a
Distance between collocated monitors	n/a	n/a	n/a
Unrestricted airflow	360 deg	360 deg	360 deg
Probe material	Teflon	Teflon	n/a
Residence time	5.1 sec	3.8 sec	n/a
Will there be changes within the next 18 months	No	No	No
Frequency of flow rate verification for PM analyzers	n/a	n/a	Monthly
Frequency of one-point QC check (gases)	Daily	Daily	n/a
Last annual performance evaluation (gases)	5/17/2007	5/17/2007	N/A

Site Name	Hillview	
AQS ID	06-079-2006	
GIS Coordinates	35°04'04", 120°56'82"	
Location	CSD pump station	
Address	Hillview Road, Nipomo	
Distance to Road	25 meters	
Traffic Count	100	
Groundcover	Vegetated	
Representative Area	None	
Pollutant	PM ₁₀	
Monitoring Objective	Population	
Spatial Scale	Urban	
Sampling Method	Hivol	
Analysis Method	Gravimetric	
Start Date	1/1/2007	
Operation Schedule	1-6	
Sampling Season	All year	
Probe Height	2 meters	
Distance From Supporting Structure	n/a	
Distance From Obstructions On Roof	n/a	
Distance From Obstructions Not On Roof	n/a	
Distance from trees	n/a	
Distance to Furnace or incinerator flue	n/a	
Distance between collocated monitors	n/a	
Unrestricted airflow	360 deg	
Will there be changes within the next 18 months	No	
Frequency of flow rate verification for PM analyzers	Monthly	

Site Name	Atascadero			
AQS ID	06-079-8001			
GIS Coordinates	35°29'30", 120°40'05"			
Location	Trailer			
Address	6005 Lewis Avenue, Atascadero			
Distance to Road	30 meters			
Traffic Count	2000			
Groundcover	Paved			
Representative Area	7460 Paso Robles, Atascadero, San Luis Obispo			
Pollutant	Ozone	Nitrogen Dioxide	PM ₁₀	PM _{2.5}
Monitoring Objective	Population	Population	Population	Population
Spatial Scale	Neighborhood	Neighborhood	Urban	Urban
Sampling Method	API 400a	API 200a	Hivol	Partisol
Analysis Method	UV photometric	Chemiluminescence	Gravimetric	Gravimetric
Start Date	10/1/1988	8/1/1990	10/1/1988	1/1/1999
Operation Schedule	Continuous	Continuous	1-6	1-6
Sampling Season	All year	All year	All year	All year
Probe Height	5.8 meters	5.8 meters	5.1 meters	4.9 meters
Distance From Supporting Structure	n/a	n/a	n/a	n/a
Distance From Obstructions On Roof	n/a	n/a	n/a	n/a
Distance From Obstructions Not On Roof	n/a	n/a	n/a	n/a
Distance from trees	n/a	n/a	n/a	n/a
Distance to Furnace or incinerator flue	n/a	n/a	n/a	n/a
Distance between collocated monitors	n/a	n/a	n/a	2 meters
Unrestricted airflow	360 deg	360 deg	360 deg	360 deg
Probe material	Teflon	Teflon	n/a	n/a
Residence time	4.3 sec	3.8 sec	n/a	n/a
Will there be changes within the next 18 months	No	No	No	No
Suitable for comparison against the annual PM _{2.5}	n/a	n/a	n/a	Yes
Frequency of flow rate verification for PM analyzers	n/a	n/a	Monthly	Monthly
Frequency of one-point QC check (gases)	Daily	Daily	n/a	n/a
Last annual performance evaluation (gases)	5/15/2007	5/15/2007	n/a	n/a
Last two semi-annual flow rate audits for PM _{2.5} monitors.	n/a	n/a	n/a	3/12/2007 9/19/2006

Site Name	Red Hills	
AQS ID	06-079-8005	
GIS Coordinates	35°64'42", 120°23'00"	
Location	Trailer	
Address	3601 Gillis Canyon Road, Shandon	
Distance to Road	1000 meters	
Traffic Count	40	
Groundcover	Vegetated	
Representative Area	None	
Pollutant	Ozone	
Monitoring Objective	Transport-Highest Conc.	
Spatial Scale	Regional	
Sampling Method	API 400	
Analysis Method	UV photometric	
Start Date	7/1/2000	
Operation Schedule	Continuous	
Sampling Season	All year	
Probe Height	4 meters	
Distance From Supporting Structure	n/a	
Distance From Obstructions On Roof	n/a	
Distance From Obstructions Not On Roof	n/a	
Distance from trees	n/a	
Distance to Furnace or incinerator flue	n/a	
Distance between collocated monitors	n/a	
Unrestricted airflow	360 deg	
Probe material	Teflon	
Residence time	11.9 sec	
Will there be changes within the next 18 months	No	
Suitable for comparison against the annual PM _{2.5}	n/a	
Frequency of flow rate verification for PM analyzers	n/a	
Frequency of one-point QC check (gases)	Daily	
Last annual performance evaluation (gases)	7/24/07	

Site Name	Carrizo Plains	
AQS ID	06-079-2006	
GIS Coordinates	35°22'00", 120°04'00"	
Location	Building	
Address	9640 Carrizo Highway	
Distance to Road	40 meters	
Traffic Count	300	
Groundcover	vegetated	
Representative Area	None	
Pollutant	Ozone	
Monitoring Objective	Background	
Spatial Scale	Regional	
Sampling Method	API 400	
Analysis Method	UV photometric	
Start Date	1/1/2006	
Operation Schedule	Continuous	
Sampling Season	All year	
Probe Height	4 meters	
Distance From Supporting Structure	n/a	
Distance From Obstructions On Roof	n/a	
Distance From Obstructions Not On Roof	n/a	
Distance from trees	n/a	
Distance to Furnace or incinerator flue	n/a	
Distance between collocated monitors	n/a	
Unrestricted airflow	360 deg	
Probe material	Teflon	
Residence time	9.5 sec	
Will there be changes within the next 18 months	No	
Suitable for comparison against the annual PM _{2.5}	n/a	
Frequency of flow rate verification for PM analyzers	n/a	
Frequency of one-point QC check (gases)	Daily	
Last annual performance evaluation (gases)	7/23/2007	

Appendix C: Nipomo Mesa/South County Particulate Study – Phase 2 Study Plan

This appendix presents the study plan for the Nipomo Mesa/South County Particulate Study – Phase 2.