DOCKET
01-AFC-7C
DATE JUL 16 2007
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July 16, 2007

California Energy Commission
Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket No. 01-AFC-7C

Dear Docket Unit:

Enclosed for filing with the California Energy Commission are one (1) original and twelve (12) copies of the **Intervener's Prehearing Conference Statement, for the Russell City Energy Center(01-AFC-7C)**

Sincerely,

Paul N. Haavik

Paul N. Haavik
25087 Eden Avenue
Hayward, CA 94545
510-427-9057

State of California
Energy Resources Conservation
And Development Commission

In the matter of	)	Docket No. 01-AFC-7C
	)	
	)	
Russell City Energy Center	)	
	)	Intervener's Prehearing Conference Statement

Paul N. Haavik, Intervener, in accordance with 20 CCR sub-section 1718.5 and the Committee Order dated June 28, 2007, hereby files the Prehearing Conference Statement in the matter of the Russell City Energy Center. The intervener is prepared to proceed to the evidentiary hearing on all topic areas in the Staff Assessment Part 1 and 2. The attached table (table 1) presents a summary (by topic area) of:

Whether or not disputes between the intervener and parties concerning the subject area exists including a description of the nature of each dispute;

Identity of witnesses, and

Time estimate for direct and cross-examiation.

Also attached is the List of Exhibits for reference.

Air Quality - AQ-SC12

As described on page 4.1-12 of the Staff Assessment, a fireplace retro-fit program is proposed. As of this date 7/16/07, the Owner, has not provided a plan for this program. A brief description has been done by the staff.

Mr. David Stark, Director, Governmental Affairs for the Bay East Association of Realtors will provide testimony of the possibility of property value decline and real estate resale with this retro-fit program in place.

Questions will be asked of history with real estate in other affected retro-fit areas and his expert opinion on the affect of these programs on home values.

Air Quality – AQ-SC13

As indicated on page 4.1-13, paragraph 1 and 2 there is a lack of Air Monitoring Stations to accurately calculate ambient air quality.
Also as described in the 2006 Air Monitoring Network Plan from the Bay Area Air Quality Management District, pages 8, 16 and 53, the local Hayward Station is only a partial station.

Questions will be asked of Mr. Tuan Ngo, P.E., about the lack of monitoring and possible need for a full monitoring station in Hayward, in view of the possibility of two (2) power plant projects being considered.

Hazardous Materials – HAZ-2

The condition for HAZ -2 indicates that the owner will provide a Risk Management Plan and a Hazardous Materials Business Plan.

Dr. Alvin J. Greenberg, Ph.D., will be questioned as to the appropriateness of a Hazardous Materials Response team or equivalent near the proposed site. Dr. Greenberg will be asked to provide his expert testimony.

Public Health – Cumulative Impacts, Mitigation and Conclusion

The proposed RCEC site will be located approximately ½ mile from the proposed Eastshore Energy Center. There has been a similar assessment of the cumulative nature of close-by plants in San Francisco but not with the RCEC and EEC sites.

Dr. Alvin J. Greenberg, Ph.D. will be questioned about the San Francisco assessment and its appropriate application to the RCEC and EEC sites.

Visual Resources – Conclusions – VIS-8

Visible water vapor plumes are considered to be well below 20 percent of seasonal daylight clear hours. There has been no discussion about visible plumes, at anytime, that may obscure a pilot's vision during direct fly overs.

Eric Knight, Energy Commission Staff will be asked about the possibility of visual plumes obscuring the pilots view as well as the plume being a basic eye soar to general public.

Land Use – Summary of Conclusions

The summary of conclusions paragraph 3 and 4, indicates the potential to endanger the maneuverability of aircraft.

Ms. Carol Ford, Vice President, Region #3, California Pilots Association and a licensed pilot will provide testimony as to the congested airspace in the immediate area of the RCEC. Ms. Ford will give here expert testimony as to safety of aviation in and around the Hayward Executive Airport, taking into consideration two (2) possible power plant sites.

It is anticipated that 30 – 45 minutes be provided for testimony and final statements. Several items are for information only and not in opposition of either party.

It is respectfully recommended that at the conclusion of the evidentiary hearing that the Committee can provide a determination in a timely manner.

Sincerely,

Paul N. Haavik,
Intervener

TABLE 1

Topic Area	Disputes w/parties	Witness	Testimony Summary	Direct Est.	Cross Est.
Air Quality	Yes	David Stark	Fireplace Retro-fit	5 minutes	none
Air Quality	No	Tuan Ngo, P.E.	Monitoring	5 minutes	none
Hazardous Materials	No	Alvin J. Greenberg	Haz Mat Handling	5 minutes	none
Public Health	Yes	Alvin J. Greenberg	Cumulative Impacts & Mitigation	10 minutes	none
Visual Resources	No	Eric Knight	Visible Plume	5 minutes	none
Land Use	Yes	Carol Ford	Navigable Air Space & Safety	10 minutes	none

Exhibits List

01-AFC-7C

Prehearing Conference and Hearing

#200 – 2006 Air Monitoring Network Plan-BAAQMD
Reference pages-8, 16 and 53

#201 – SA Part 1-2 Air Quality page #4.1-12

#202 – SA Part 1-2 Air Quality page #4.1-13

#203 – SA Part 1-2 Public Health pages #4.7-6 & 7

#204 – SA Part 1-2 Hazardous Materials Management
Page #4.4-6

#205 – SA Part 1-2 Visual Resources page #4.12-37

#206 – SA Part 1-2 Land Use page #4.5-1

NOTE: Due to File size, the Staff Assessment Part 1-2 Will not be attached. Please reference existing copy filed 6/29/07.

Paul N. Haavik
25087 Eden Avenue
Hayward, CA 94545
510-427-9057

State of California
Energy Resources Conservation
And Development Commission

In the matter of	)	Docket No. 01-AFC-7C
	)	
	)	
Russell City Energy Center	)	
	)	List of Exhibits
	)	

July 16, 2007

DATE

/s/

Paul N. Haavik

Exhibits List

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#203 – SA Part 1-2 Public Health pages #4.7-6 & 7

#204 – SA Part 1-2 Hazardous Materials Management
Page #4.4-6

#205 – SA Part 1-2 Visual Resources page #4.12-37

#206 – SA Part 1-2 Land Use page 4.5-1

NOTE: Due to File size, the Staff Assessment Part 1-2 Will not be attached. Please reference existing copy filed 6/29/07.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

Amendment to the APPLICATION FOR CERTIFICATION OF THE RUSSELL ENERGY CENTER POWER PLANT PROJECT	**Docket No. 01-AFC-7C PROOF OF SERVICE (Revised 6/6/07)**

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 01-AFC-7C
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DECLARATION OF SERVICE

I, Paul N. Haavik declare that on July 16, 2007, I deposited copies of the attached Prehearing Conference Statements in the United States mail at Hayward, California, with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5 and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

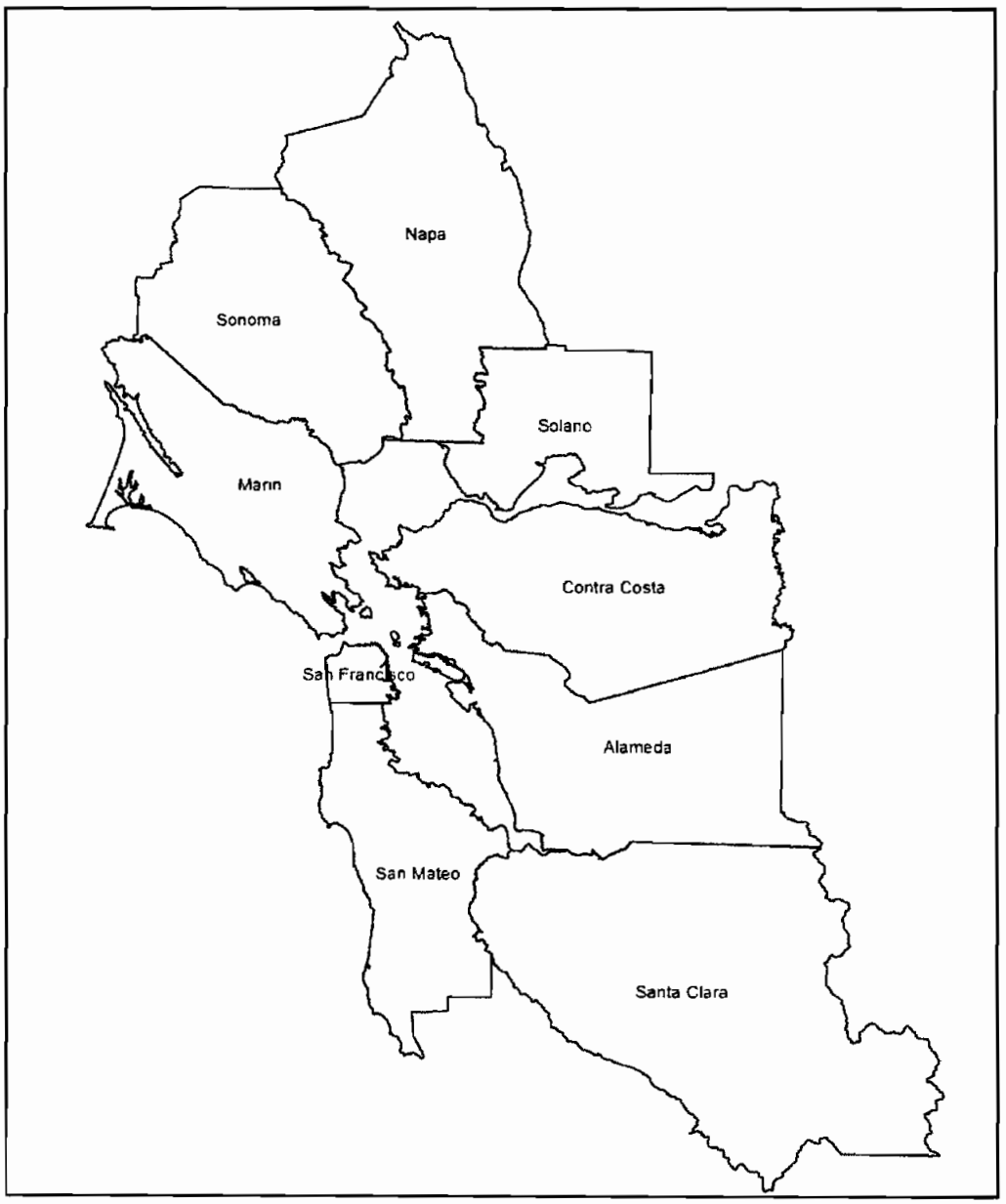
Paul N. Haavik

Exhibit - #200

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

2006 Air Monitoring Network Plan

Submitted: July 1, 2007



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Definition of Terms

ADT ..... Average Daily Traffic
Air District ..... Bay Area Air Quality Management District
AQS ..... Air Quality System
BAAQMD ..... Bay Area Air Quality Management District
BAM ..... Beta Attenuation Monitor, a type of continuous PM2.5 monitor
CFR ..... Code of Federal Regulations
CO ..... Carbon Monoxide
CH4 ..... Methane
EPA ..... U. S. Environmental Protection Agency
FRM ..... Federal Reference Method
GIS ..... Geographic Information System
HC ..... Hydrocarbons, including CH4 and NMOC
HiVol ..... High Volume
KM ..... Kilometer (0.62 miles per kilometer)
M ..... Meters
MSA ..... Metropolitan Statistical Area
N/A ..... Not Applicable
NAAQS ..... National Ambient Air Quality Standards
NMOC ..... Non-methane Organic Carbon
NO2 ..... Nitrogen Dioxide
O3 ..... Ozone
PM ..... Particulate Matter
PM2.5 ..... Particulates less than or equal to 2.5 microns in size
PM10 ..... Particulates less than or equal to 10 microns in size
RAAS ..... Reference Ambient Air Sampler
S ..... Seconds
SIP ..... State Implementation Plan – A Plan submitted by states to EPA that outlines how the NAAQS will be met for a particular region.
SLAMS ..... State and Local Air Monitoring Station
SO2 ..... Sulfur Dioxide

Overview of Network Operation

Network Design

The Bay Area Air Quality Management District (BAAQMD) is the public agency responsible for air quality management in nine Bay Area counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma. The BAAQMD operates air monitoring stations in each of these nine counties. The BAAQMD began measuring air quality in the San Francisco Bay Area in 1957. In 2006 there were 26 permanent stations in the BAAQMD air monitoring network, and one station operated by the California Air Resources Board, for a total of 27.

The San Francisco Bay Area contains over 100 cities. Although resources do not allow placement of air pollution monitors in every city, it can be demonstrated that air pollution levels, in the absence of significant local sources, are similar within geographical areas. That is, cities within each of the major valleys of the Bay Area can have similar air quality levels. Consequently, a few sites can characterize an area. Generally, locations for permanent air monitoring sites are initially based on knowledge of population density and local wind patterns, while the final site selection is determined after analyzing preliminary air quality measurements collected from field studies, temporary monitoring studies, and mobile monitoring data.

In addition to the 27 permanent stations, the BAAQMD is enhancing its air monitoring network by starting a program of short term monitoring studies. The BAAQMD has built one re-locatable monitoring trailer and is working on a second. These trailers are typically sited at a location of interest and collect air quality data for a minimum period of one year and then moved to a different location. A minimum of one year of monitoring adequately characterizes the air quality in a location and shows how the air quality compares with other locations. Two such relocatable trailers will be installed and operated in 2007.

The BAAQMD monitoring network was designed to meet five monitoring objectives:

- To determine representative concentrations in areas of high population density.
- To determine highest concentrations expected to occur in the area of the network.
- To determine the impact from significant sources.
- To determine general background concentration levels.
- To determine the extent of regional pollutant transport.

<u>Population Oriented</u>

Since the primary purpose of air quality standards is to protect the public health, air monitoring stations have been placed in areas with high population density to determine the air pollution levels to which the majority of the population is exposed. In most cases these are within the largest cities of each county. Because people spend more time at home than at work, air monitoring sites have been generally located in residential areas rather than downtown locations.

Highest Concentration

EPA regulations require that air quality in areas where the public has access be reduced to levels below the national ambient air standards. Consequently, monitoring must also be done at locations expected to have the highest concentrations, even if populations are sparse in that area. High concentrations may be found close to major sources, or further downwind if pollutants are emitted from tall stacks. High concentrations may also be found at distant downwind locations when the pollutants such as ozone or secondary particulate matter are a result of chemical reactions in the atmosphere.

Source Impact

There are five refineries within the BAAQMD: Chevron, Shell, Tesoro, ConcocoPhillips, and Valero. Because these sources have the potential to emit significant amounts of SO_2 and H_2S, the Air District operates SO_2 and H_2S monitoring stations near these sources. When the monitors show concentrations above the applicable standards or Air District Regulation 9, Rules 1 and 2, a notice of violation may be issued to the sources when the monitors are downwind of the source.

General Background

The BAAQMD also operates stations in areas that have no significant emissions from mobile, area, or industrial sources. At these sites, the measured concentrations reflect the transported air quality levels from upwind areas. When designing control strategies to reduce pollution levels, it is important to know if areas outside the boundaries of the BAAQMD are contributing to high pollutant levels within the Air District. Where there are no significant emission sources upwind of a site, then the site is considered to be a general background site.

Regional Transport

The BAAQMD shares a common boundary with six other air districts: Monterey Bay Unified APCD, San Joaquin Valley APCD, Sacramento Metropolitan AQMD, Yolo-Solano AQMD, Lake County AQMD, and Northern Sonoma County APCD. When upwind areas have significant air pollution sources, pollutants transported into the Bay Area Air District result in overall higher air pollution levels in the Bay Area. The BAAQMD operates monitoring stations near the borders of the Air District to measure the air pollution concentrations transported into and out of the Bay Area Air District.

Each monitoring objective is associated with a spatial scale for each site. For example, a regional transport site is meant to represent air quality levels over a large area, while a highest concentration site may represent a spatial scale of no more than a few blocks or so, in size. Spatial scales are defined in 40 CFR, Part 58, Appendix D. They are: micro scale – having dimensions of several meters up to 100 meters; middle scale – having dimensions of 100 meters to 0.5 km; neighborhood scale – having dimensions of 0.5 km to 4.0 km; urban scale – having dimensions of 4 to 50 km; and regional scale – having dimensions of up to hundreds of km.

Each monitoring objective has a limited range of spatial scales. For example, for population oriented sites the appropriate spatial scales are neighborhood and urban, while for highest concentration sites the appropriate spatial scales are micro, middle, and neighborhood. Table 1 lists the appropriate scales for each monitoring objective.

Table 1: Monitoring Objectives and Appropriate Spatial Scales.

Monitoring Objective	Appropriate Spatial Scale
1. Highest Concentration	Micro, middle, neighborhood
2. Population Oriented	Neighborhood, urban
3. Source Impact	Micro, middle, neighborhood
4. General Background	Urban, regional
5. Regional Transport	Urban, regional

The desired spatial scale of a monitoring site must conform to established rules for the distance from roadways, based on traffic volumes. There are different distance requirements for each pollutant, which can be found in 40 CFR, Part 58, Appendix D. Additionally, the spatial scale can also be affected if trees or obstructions are too close to the monitoring probe. The goal in siting monitoring stations is to match the spatial scale with the desired monitoring objective.

The following map shows the locations of the Air District monitoring sites. Table 2 lists the pollutants measured at each site. Tables 3, 4 and 5 list the minimum number of monitors required within the network for each pollutant. The section following Table 5 describes recent changes to the monitoring network, and proposed changes to the monitoring network.

The final section provides detailed descriptions of the monitoring objectives for each air monitoring site and a brief explanation for choosing the type of monitor at each site.

Map of Bay Area Air Quality Management District Monitoring Network for 2006

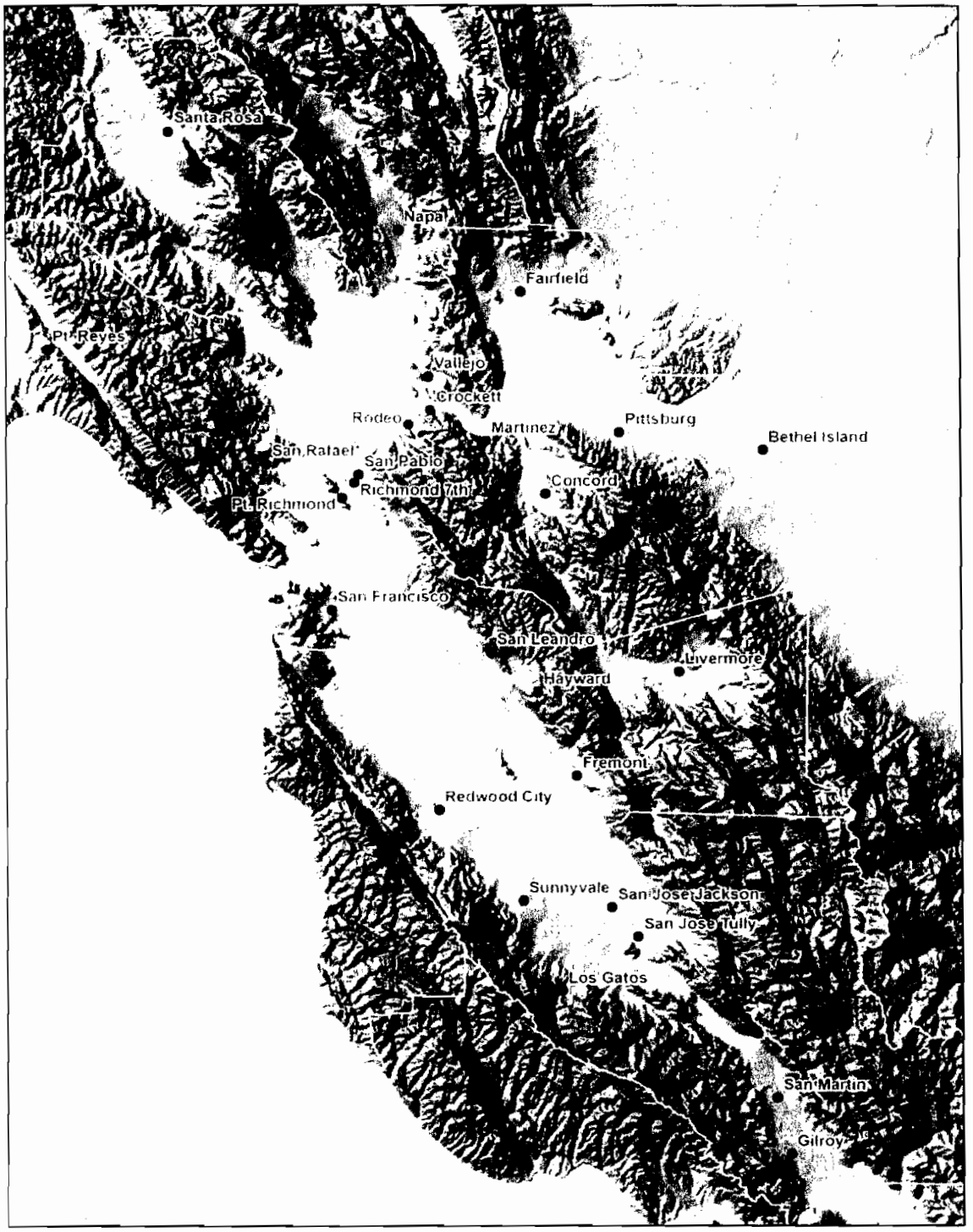

Table 2. List of Monitoring Sites within the BAAQMD for 2006

Site	Full Stations	Monitoring Objective	Pollutants Monitored
1	Bethel Island	Regional Transport& Highest Concentration	O3, NO2, SO2, CO, PM10
2	Concord	Population Oriented, Highest Concentration	O3, NO2, SO2, CO, HC, PM10, PM2.5
3	Fremont	Population Oriented	O3, NO2, CO, HC, PM10, PM2.5
4	Livermore	Population Oriented & Highest Concentration	O3, NO2, CO, HC, PM10, PM2.5, BAM
5	Napa	Population Oriented	O3, NO2, CO, PM10, BAM
6	Pittsburg	Population Oriented	O3, NO2, SO2, CO, PM10
7	Redwood City	Population Oriented	O3, NO2, CO, PM10, PM2.5, BAM
8	San Francisco	Population Oriented	O3, NO2, SO2, CO, HC, PM10, PM2.5, BAM
9	San Jose Jackson	Population Oriented & Highest Concentration	O3, NO2, CO, HC, PM10, PM2.5, BAM
10	San Pablo	Population Oriented	O3, NO2, SO2, CO, PM10
11	San Rafael	Population Oriented	O3, NO2, CO, PM10
12	Santa Rosa	Population Oriented	O3, NO2, CO, PM10, PM2.5
13	Vallejo	Population Oriented	O3, NO2, SO2, CO, PM10, PM2.5, BAM

Site	Partial Stations	Monitoring Objective	Pollutants Monitored
14	Crockett	Source Impact	SO2
15	Fairfield	Population Oriented & Regional Transport	O3
16	Gilroy	Population Oriented, Highest Concentration, & Regional Transport	O3
17	Hayward	Population Oriented & Regional Transport	O3
18	Los Gatos	Population Oriented & Highest Concentration	O3
19	Martinez	Source Impact	SO2
20	Pt Reyes*	General Background	BAM
21	Pt Richmond	Source Impact	H2S
22	Richmond 7th	Source Impact	SO2, H2S
23	Rodeo	Source Impact	H2S
24	San Jose Tully	Population Oriented & Highest Concentration	PM10, PM2.5
25	San Leandro	Population Oriented	O3
26	San Martin	Highest Concentration	O3
27	Sunnyvale	Population Oriented	O3

* Operated by the California Air Resources Board

Minimum Monitoring Requirements

The Air District monitoring network meets the minimum monitoring requirements for all criteria pollutants.
(See Tables 3, 4, 5).

Table 3. Minimum Monitoring Requirements for Ozone.

MSA	County	Pop. (2005)	8-hour Design Value (ppb) (04-06)	No. of Monitors Required	No. of Monitors Active	No. of Additional Monitors Needed
San Francisco Oakland Fremont	Alameda Contra Costa Marin San Francisco San Mateo	4,152,688	80	3	11	0
San Jose Sunnyvale Santa Clara	Santa Clara	1,699,052	76	2	5	0
Santa Rosa Petaluma	SE portion of Sonoma	400,587	47	1*	1	0
Vallejo Fairfield	SW portion of Solano	284,915	69	1	2	0
Napa	Napa	132,764	60	0*	1	0

*Requirements based on design value concentrations <85% of ozone National Ambient Air Quality Standards.

Ozone monitors required for SIP or Maintenance Plan: None required.

Table 4. Minimum Monitoring Requirements for PM2.5

MSA	County	Pop. (2005)	Ann. Design Value (04-06)	Daily Design Value (04-06)	No. of Monitors Required	No. of Monitors Active	No. of Additional Monitors Needed
SF-Oak-Fremont	SF, San Mateo, Alameda, Marin, Contra Costa	4,152,688	9.79	35	3	5	0
San Jose-Sunnyvale-Santa Clara	Santa Clara, San Benito	1,754,988	11.39	39	3	3*	0
Santa Rosa-Petaluma	Sonoma	400,587	8.35	29	1	1	0
Vallejo-Fairfield	Solano	284,915	10.19	36	1	1	0
Napa	Napa	132,764	N/A	N/A	0	0	0

$PM_{2.5}$ monitors required for SIP or Maintenance Plan: None required. Because the District has never been designated as non-attainment for $PM_{2.5}$, there have not been any SIP or maintenance plans prepared.

* One of the monitors is located in Hollister in San Benito County and is operated by the Monterey Bay Unified Air Pollution Control District.

Table 5. Minimum Monitoring Requirements for PM10

MSA	County	Pop. (2005)	Daily Design Value (04-06)	No. of Monitors Required	No. of Monitors Active	No. of Additional Monitors Needed
SF Oak Fremont	SF, San Mateo, Alameda, Marin, Contra Costa	4,152,688	83.6	2	9	0
San Jose Sunnyvale Santa Clara	Santa Clara	1,699,052	103.9	2	2	0
Santa Rosa Petaluma	Sonoma	400,587	87.1	0	1	0
Vallejo Fairfield	Solano	284,915	50.8	0	1	0
Napa	Napa	132,764	59.2	0	1	0

PM_{10} monitors required for SIP or Maintenance Plan: None required. Because the Air District has never been designated as non-attainment for PM_{10}, there have not been any SIP or maintenance plans prepared.

Minimum Monitoring Requirements for NO_2

40 CFR, Part 58, Appendix D, Section 4.3 states that there are no minimum requirements for the number of NO_2 monitoring sites. Monitors required for SIP or Maintenance Plan: None required. Because the Air District has never been designated as non-attainment for NO_2, there have not been any SIP or maintenance plans prepared. The BAAQMD operates 13 NO_2 monitors in its network.

Minimum Monitoring Requirements for SO_2

40 CFR, Part 58, Appendix D, Section 4.4 states that there are no minimum requirements for the number of SO_2 monitoring sites. Monitors required for SIP or Maintenance Plan: None required. Because the District has never been designated as non-attainment for SO_2, there have not been any SIP or maintenance plans prepared. The BAAQMD operates 10 SO_2 monitors in its network.

Minimum Monitoring Requirements for CO

40 CFR, Part 58, Appendix D, Section 4.2 states that there are no minimum requirements for the number of CO monitoring sites. Monitors required for SIP or Maintenance Plan: None required. The Air District was re-designated attainment for the 8-hour average CO NAAQS in 1998. The Air District carbon monoxide maintenance plan is contained within the

California Air Resource Board document "2004 Revision to the California State Implementation Plan for Carbon Monoxide." The maintenance plan does not specify the number of CO monitors needed. The BAAQMD operates 13 CO monitors in its network.

Modifications Made to Network in 2006

San Jose

On September 30, 2006 the Air District closed the San Jose Tully $PM_{2.5}$ monitor. Analyses of the $PM_{2.5}$ data collected at San Jose Tully over a period of 9 years showed that the data were highly correlated with the $PM_{2.5}$ data collected at our San Jose Jackson site and were therefore not providing any additional information. The monitor was re-located to Gilroy in 2007 to access $PM_{2.5}$ levels in this growing community.

Proposed Modifications to Network in 2007

Gilroy

The Air District installed a $PM_{2.5}$ monitor at the existing air monitoring site in Gilroy on March 1, 2007. It was placed in Gilroy to measure $PM_{2.5}$ levels in the growing city of Gilroy and to measure particulate levels representative of Southern Santa Clara County. The monitor is intended to be operated permanently at Gilroy.

Benicia

The Air District installed a temporary air monitoring station in Benicia on April 1, 2007 that will be operated for one year. Monitoring includes O_3, SO_2, NO_2, NO, CO, continuous $PM_{2.5}$, PM_{10}, and toxics. The purpose of the monitoring study is to determine the air quality levels in Benicia near the Valero Refinery.

Berkeley

The Air District plans to locate an air monitoring station in Berkeley for one year beginning in 2007. The purpose the monitoring is to determine air quality in West Berkeley downwind of Pacific Steel Casting. Monitoring will include O_3, NO_2, NO, CO, continuous $PM_{2.5}$, PM_{10}, and toxics.

Oakland

The Air District plans to locate two air monitoring stations in Oakland in 2007. One station will be downwind of the Port of Oakland and will measure continuous and filter-based $PM_{2.5}$, PM_{10} and toxics. The other station will be located in central Oakland and will measure O_3, NO_2, NO, CO, filter-based PM_{10} and $PM_{2.5}$, and toxics. Both stations are intended to be long-term sites.

San Jose

The Air District plans to close the PM_{10} monitor at San Jose Tully in 2007 because continued construction activity near the site makes the data non-representative of the area. Also, the groundcover currently does not meet EPA siting requirements. PM_{10} data collected before the construction activity began show that Tully is highly correlated with SJ Jackson.

Review of Changes to PM2.5 Monitoring Network

When the Air District proposes changes to the $PM_{2.5}$ network that would impact the location of a violating $PM_{2.5}$ monitor or the creation/change to a community monitoring zone, the proposed changes are included in the annual monitoring network plan. The annual monitoring network plan is posted on the Air District web site for 30 days for public comment on the proposed changes to the $PM_{2.5}$ network. After the public comment period, the Air District reviews and considers the comments before making a final decision. The Air District then submits the Plan and any comments received to the EPA Region IX Regional Administrator for approval before making any changes.

Data Submission Requirement

- Precision/Accuracy reports are submitted monthly to the EPA AQS database.
- The 2006 annual data certification letter was submitted to EPA Region 9 on June 14, 2007.

Detailed Site Information – Full Stations

Bethel Island

Bethel Island was chosen for an air monitoring site to measure pollutant transport between the California Central Valley and the San Francisco Bay Area. The site lies in the only sea-level gap between the two regions, in the Sacramento-San Joaquin River Delta, just east of the Carquinez Strait region. The local contribution to air quality is low due to the rural nature of the area and the lack of any industrial sources within 6 miles of the site. The nearest town is Bethel Island, 0.6 miles to the north, with a 2000 population estimate of 2,312. The site is located in a public-storage facility, surrounded by grassy fields. Ozone and NO_2 are measured because the area is in the transport corridor between the San Francisco Bay Area and the California Central Valley, both of which are major sources of ozone, ozone precursors, and particulates. Traffic is low in the area, so carbon monoxide measurements tend to be representative of natural background levels, or regional transport. SO_2 is measured because the area is downwind from numerous refineries, which can be large sources of SO_2. PM_{10} is measured because easterly winds occasionally transport particulates from the Central Valley. This site recorded exceedances of the national 8-hour ozone standard and the California 24-hour PM_{10} standard in the most recent 3 years. No exceedances of any SO_2 standards were measured in the most recent 3 years.

EPA siting criteria specifies that the probe be located at least 10 meters from the drip line of all trees. A tree to the east has a drip line 4.2 meters from the probe. The predominant wind direction at the site is WNW during the summer and the year. Since the tree is outside of the 180 degree arc of unrestricted airflow in the predominant wind direction, and because the site meets EPA's requirement for 270 degree unrestricted airflow exposure around the probe and particulate inlet, it has little influence on pollutant measurements. Previously the Air District managed this tree by trimming it to keep the height below the probe height. Recently, the Air District received permission to remove this tree and did so on June 21, 2007.

Bethel Island Site Information

Site Name	Bethel Island - 2021
AQS ID	06-013-1002
GIS coordinates	37.9360° N, 122.0262° W
Location	Trailer in parking lot
Address	5551 Bethel Island Rd, Bethel Island CA 94511
County	Contra Costa
Distance to road from gaseous probe	Bethel Island Rd: 63 meters Sandmound Blvd: 110 meters
Traffic count	Bethel Island Rd: 5,849 ADT (2006) Sandmound Blvd: 1,567 ADT (2006)
Groundcover	Gravel surrounded by grassy fields
Representative Area	San Francisco-Oakland-Fremont MSA

Bethel Island Monitor Information

Pollutant	O3	CO	NO/NO2	SO2	PM10
Monitoring Objective	Regional Transport & Highest Conc.	General Background	Regional Transport	Regional Transport	Regional Transport
Spatial scale	Regional	Regional	Regional	Regional	Regional
Sampling method	TECO 49C	TECO 48A	TECO 42C	TECO 43C	Andersen HiVol 1200
PM filter analysis method	N/A	N/A	N/A	N/A	Weighed by BAAQMD
Start date	02/28/81	03/01/81	NO2: 03/01/81 NO: 01/01/94	03/01/81	11/05/86
Operation schedule	Continuous	Continuous	Continuous	Continuous	1 in 6
Sampling season	All year	All year	All year	All year	All year
Probe height (AGL)	6.7 m	6.7 m	6.7 m	6.7 m	5.2 m
Probe height above roof	3.0 m	3.0 m	3.0 m	3.0 m	1.5 m
Distance from obstructions on roof	None	None	None	None	None
Distance from obstructions not on roof	None	None	None	None	None
Distance from tree (DL)	4.2 m	4.2 m	4.2 m	4.2 m	5.1 m
Distance to furnace or incinerator flue	None	None	None	None	None
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	270°	270°	270°	270°	270°
Probe material	Teflon	Teflon	Teflon	Teflon	N/A
Residence time	14 s	15 s	14 s	14 s	N/A
Will there be changes within the next 18 mos?	No	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A	Annually
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily	N/A
Last Annual Performance Evaluation (gaseous)	11/20/06	11/20/06	11/20/06	11/20/06	N/A
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A	11/20/06 08/16/06

Concord

Concord was chosen for an air monitoring site because it is the largest city in Contra Costa County, with a 2005 population estimate of 123,252; and because of the high pollution potential due to locally emitted and transported pollutants into the area. Since Concord is located in a valley, the Diablo Valley, locally emitted pollutants can become trapped when winds are light. Large emission sources in the valley include two major freeways, Interstate 680 and California Highway 4; and two refineries at the north end of the valley. The air monitoring site is located in a shopping center, near the intersection of two major streets, and surrounded by residential neighborhoods. There is no industry in the immediate vicinity. Ozone and its precursors, NMOC/CH_4 and NO_2, are measured because of significant local emissions and frequent transport of ozone and precursors from either the central San Francisco Bay Area or the Central Valley. Carbon Monoxide is measured because the site is near two major roads, Treat Blvd and Oak Grove Road. SO_2 is measured because the site is 6 miles downwind from the Tesoro and the Shell Refineries, both potential major sources of SO_2. PM_{10} and $PM_{2.5}$ are measured because light winds combined with surface-based inversions during the winter months can cause elevated particulate levels in the valley. This site recorded exceedances of the national 8-hour ozone standard, the national 24-hour $PM_{2.5}$ standard, and the California 24-hour PM_{10} standard in the most recent 3 years. No exceedances of any SO_2 standards were measured in the most recent 3 years.

Concord Site Information

Site Name	Concord - 2036
AQS ID	06-013-0002
GIS coordinates	37.9360° N, 122.0262° W
Location	One story commercial building
Address	2956-A Treat Blvd, Concord CA 94518
County	Contra Costa
Distance to road from gaseous probe	Treat Blvd: 180.7 meters Oak Grove Rd: 244.2 meters
Traffic count	Treat Blvd: 41,218 ADT (2005) Oak Grove Rd: 26,742 ADT (2005)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Concord Monitor Information

Pollutant	O3	CO	NO/NO2	SO2	CH4/NMOC
Monitoring Objective	Population oriented & Highest Conc.	Population oriented	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Urban	Neighborhood
Sampling method	TECO 49A	TECO 48A	TECO 42C	TECO 43C	TECO 55C
PM filter analysis method	N/A	N/A	N/A	N/A	N/A
Start date	04/08/80	02/21/80	NO2: 02/01/80 NO: 01/01/87	02/01/80	CH4:12/31/99 NMOC: 05/10/06
Operation schedule	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year	All year
Probe height (AGL)	9.2 m	9.2 m	9.2 m	9.2 m	9.2 m
Probe height above roof	3.1 m	3.1 m	3.1 m	3.1 m	3.1 m
Distance from obstructions on roof	None	None	None	None	None
Distance from obstructions not on roof	None	None	None	None	None
Distance from tree (DL)	24 m	24 m	24 m	24 m	24 m
Distance to furnace or incinerator flue	None	None	None	None	None
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon	Teflon
Residence time	12 s	14 s	13 s	14 s	13 s
Will there be changes within the next 18 mos?	No	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily	Daily
Last Annual Performance Evaluation (gaseous)	09/14/06	09/14/06	09/14/06	09/14/06	9/14/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A	N/A

Concord Monitor Information

Pollutant	PM10	FRM PM2.5
Monitoring Objective	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood
Sampling method	Andersen HiVol 1200	Andersen RAAS 300
PM filter analysis method	Weighed by BAAQMD	Weighed by BAAQMD
Start date	11/04/86	03/19/99
Operation schedule	1 in 6	Apr-Sep: 1in 6 Oct-Mar: daily
Sampling season	All year	All year
Probe height (AGL)	5.8 m	5.9 m
Probe height above roof	1.5 m	2 m
Distance from obstructions on roof	None	None
Distance from obstructions not on roof	None	None
Distance from tree (DL)	15 m	11 m
Distance to furnace or incinerator flue	None	None
Distance between collocated monitors	N/A	3.4 m
Distance between PM10 and PM2.5 monitors	N/A	Primary: 4.3 m Col: 7.7 m
Unrestricted airflow	360°	360°
Probe material	N/A	N/A
Residence time	N/A	N/A
Will there be changes within the next 18 mos?	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	Yes
Frequency of flow rate verification for manual PM samplers	Annually	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly
Frequency of one-point QC check (gaseous)	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	11/17/06 08/30/06	11/17/06 08/30/06

Fremont

Fremont was chosen for an air monitoring site because it is the second largest city in Alameda County, with a 2005 population estimate of 200,428, and because it is downwind of large sources of ozone and ozone precursors. Studies have shown that on high ozone days, ozone is transported southward along the East Bay Hills into Fremont, with concentrations that may exceed the ozone standards. Fremont also has potential for high levels of particulate in the winter due to local emissions. The monitoring site is centrally located in Fremont, in a residential and commercial area. Ozone and its precursors, NMOC/CH_4 and NO_2, are measured because the area is downwind of populated and industrial portions of the San Francisco Bay Area, which can be large sources of ozone precursor emissions. Carbon monoxide is measured because of the high volume of traffic in the city, which includes two major freeways. PM_{10} and $PM_{2.5}$ are collected because light winds combined with surface based-based inversions during the winter months can cause elevated particulate levels. This site recorded exceedances of the California one-hour and 8-hour ozone standards, the national 24-hour $PM_{2.5}$ standard, and the California 24-hour PM_{10} standard in the most recent 3 years.

Fremont Site Information

Site Name	Fremont - 1014
AQS ID	06-01-1001
GIS coordinates	37.5359° N, 121.9618° W
Location	One story commercial building
Address	40733 Chapel Way, Fremont CA 94538
County	Alameda
Distance to road from gaseous probe	Fremont Boulevard: 120.0 meters Chapel Way: 31.0 meters
Traffic count	Fremont Boulevard: 30,8000 ADT (2005) Chapel Way: 500 ADT (estimate)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Fremont Monitor Information

Pollutant	O3	CO	NO/NO2	CH4/NMOC
Monitoring Objective	Population oriented	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TECO 49A	TECO 48A	TECO 42C	TECO 55C
PM filter analysis method	N/A	N/A	N/A	N/A
Start date	07/29/76	01/01/71	NO: 07/01/76 NO2: 04/12/74	CH4: 01/01/94 NMOC: 05/25/06
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height (AGL)	6.7 m	6.7 m	6.7 m	6.7 m
Probe height above roof	2.7 m	2.7 m	2.7 m	2.7 m
Distance from obstructions on roof	None	None	None	None
Distance from obstructions not on roof	None	None	None	None
Distance from tree (DL)	25.9 m	25.9 m	25.9 m	25.9 m
Distance to furnace or incinerator flue	3.7 m	3.7 m	3.7 m	3.7 m
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon
Residence time	12 s	13 s	13 s	12 s
Will there be changes within the next 18 mos?	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily
Last Annual Performance Evaluation (gaseous)	12/07/06	12/07/06	12/07/06	12/07/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A

Fremont Monitor Information

Pollutant	PM10	FRM PM2.5
Monitoring Objective	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood
Sampling method	Andersen HiVol 1200	Andersen RAAS 300
PM filter analysis method	Weighed by BAAQMD	Weighed by BAAQMD
Start date	03/23/89	01/03/99
Operation schedule	1 in 6	Apr-Sep: 1 in 6 Oct-Mar: 1 in 3
Sampling season	All year	All year
Probe height (AGL)	6.2 m	6.2 m
Probe height above roof	2.2 m	2.2 m
Distance from obstructions on roof	None	None
Distance from obstructions not on roof	None	None
Distance from tree (DL)	28.8 m	26.8 m
Distance to furnace or incinerator flue	7.0 m	4.9 m
Distance between collocated monitors	N/A	N/A
Distance between PM10 and PM2.5 monitors	4.9 m	4.9 m
Unrestricted airflow	360°	360°
Probe material	N/A	N/A
Residence time	N/A	N/A
Will there be changes within the next 18 mos?	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	Yes
Frequency of flow rate verification for manual PM samplers	Annually	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly
Frequency of one-point QC check (gaseous)	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	11/29/06 07/12/06	11/29/06 07/12/06

Livermore

Livermore was chosen for an air monitoring site because it is the largest city in eastern Alameda County, with a 2005 population estimate of 78,409, and because measurements have shown this area often has the highest ozone levels in the Bay Area. Livermore is located within the Livermore Valley, an east-west oriented inland valley between the San Francisco Bay and the Central Valley. Air flow analyses on high ozone days have shown ozone precursors to move into this valley from the region surrounding the San Francisco Bay through the Hayward and Niles Canyon Gaps to the west, and from the San Ramon Valley to the north. The air monitoring site is situated west of the city center, in an area of residential neighborhoods. The station is located in a small one-story shopping center, with a parking lot in front of the station and a city park behind it. There are no industrial sources in the immediate vicinity. Ozone and its precursors, CH_4/NMOC and NO/NO_2, are measured because the area is downwind of large sources of ozone precursors. Although traffic levels near the station are low, carbon monoxide is measured because the city has significant traffic, and Interstate 580 is only 0.87 miles to the north of the site. PM_{10} and $PM_{2.5}$ are measured because light winds combined with surface based-based inversions within the valley during the winter months cause elevated particulate levels. This site recorded exceedances of the national 8-hour ozone standard, the national 24-hour $PM_{2.5}$ standard, and the California 24-hour PM_{10} standard in the most recent 3 years.

Livermore Site Information

Site Name	Livermore - 1023
AQS ID	06-001-0007
GIS coordinates	37.6875° N, 121.7842° W
Location	One story commercial building
Address	793 Rincon Avenue, Livermore CA 94551
County	Alameda
Distance to road from gaseous probe	Rincon Ave: 66.7 meters Pine St: 93 meters Interstate 580: 1,400 meters
Traffic count	Rincon Ave: 2,400 ADT (2005) Pine St: 4,800 ADT (2005) Interstate 580: 183,000 ADT (2005)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Livermore Monitor Information

Pollutant	O3	CO	NO/NO2	CH4/NMOC
Monitoring Objective	Population oriented & Highest Conc.	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TECO 49C	TECO 48A	TECO 42C	TECO 55C
PM filter analysis method	N/A	N/A	N/A	N/A
Start date	01/01/00	12/31/99	NO2:12/31/99 NO: 01/01/00	CH4: 12/31/99 NMOC: 04/20/05
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height (AGL)	6.1 m	6.1 m	6.1 m	6.1 m
Probe height above roof	3.3 m	3.3 m	3.3 m	3.3 m
Distance from obstructions on roof	None	None	None	None
Distance from obstructions not on roof	None	None	None	None
Distance from tree (DL)	51 m	51 m	51 m	51 m
Distance to furnace or incinerator flue	17.7 m	17.7 m	17.7 m	17.7 m
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon
Residence time	10 s	10 s	11 s	10 s
Will there be changes within the next 18 months?	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily
Last Annual Performance Evaluation (gaseous)	09/26/06	09/26/06	09/26/06	09/26/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A

Livermore Monitor Information

Pollutant	**PM10**	**FRM PM2.5**	**Continuous PM2.5 (BAM)**
Monitoring Objective	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Andersen HiVol 1200	Andersen RAAS 300	Met One BAM 1020
PM filter analysis method	Weighed by BAAQMD	Weighed by BAAQMD	N/A
Start date	12/08/99	12/02/99	01/01/04
Operation schedule	1 in 6	Apr-Sep: 1in 6 Oct-Mar: daily	Continuous
Sampling season	All year	All year	All year
Probe height (AGL)	4.7 m	5.1 m	5.1 m
Probe height above roof	1.5 m	2 m	2 m
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from tree (DL)	53 m	55 m	52 m
Distance to furnace or incinerator flue	15 m	15 m	18 m
Distance between collocated monitors	N/A	N/A	N/A
Distance between PM10 and PM2.5 monitors	PM_{10} to $PM_{2.5}$: 5 m PM_{10} to BAM: 6.25 m	$PM_{2.5}$ to PM_{10}: 5 m $PM_{2.5}$ to BAM: 5.9 m	BAM to PM_{10}: 6.25 m BAM to $PM_{2.5}$: 5.9 m
Unrestricted airflow	360°	360°	360°
Probe material	N/A	N/A	N/A
Residence time	N/A	N/A	N/A
Will there be changes within the next 18 mos?	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	Yes	No – not reference or equivalent method
Frequency of flow rate verification for manual PM samplers	Annually	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly	Bi-Weekly
Frequency of one-point QC check (gaseous)	N/A	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	11/17/06 08/30/06	11/17/06 08/30/06	11/11/06 08/30/06

Napa

Napa was chosen for an air monitoring location because it is the largest city in Napa County with a 2005 population estimate of 74,782. The city is located in the Napa Valley where emissions from local agricultural burning and fireplaces during the fall and winter can result in high particulate levels. Also, Napa can have elevated ozone levels when central Bay Area ozone precursors are transported into the valley. The air monitoring site is situated about a mile up the valley from downtown Napa in a mixed residential and commercial neighborhood. There are no industrial sources in the immediate vicinity. Ozone, NO, and NO_2 are measured because south winds carry ozone and its precursors into Napa. Carbon Monoxide is measured because the Napa Valley is a major tourist attraction with resulting high traffic volumes through the city. PM_{10} is measured because of agricultural and wood burning. This site recorded exceedances of the California 8-hour ozone and 24-hour PM_{10} standards within the most recent three years.

EPA suggests that the appropriate spatial scale for population oriented sites should be neighborhood or urban. Using the current EPA methodology to determine spatial scales, the air monitoring site in Napa would be characterized as middle scale. However, BAAQMD believes the spatial scale of the site would be better characterized as neighborhood scale. This is because EPA's distance requirements from roads are based on 1979 vehicle emission levels, while current vehicle emission levels are much lower.

Napa Site Information

Site Name	Napa - 4001
AQS ID	06-055-0003
GIS coordinates	38.3110° N, 122.2961° W
Location	One story commercial building
Address	2552 Jefferson St, Napa CA 94558
County	Napa
Distance to road from gaseous probe	Jefferson St: 15 meters
Traffic count	Jefferson St: 22,220 ADT (estimate)
Groundcover	Paved
Representative Area	Napa MSA

Napa Monitor Information

Pollutant	O3	CO	NO/NO2	PM_{10}
Monitoring Objective	Population oriented	Population oriented	Population oriented	Population oriented
Spatial scale	Middle	Middle	Middle	Middle
Sampling method	TECO 49C	TECO 48A	TECO 42C	Andersen HiVol 1200
PM filter analysis method	N/A	N/A	N/A	Weighed by BAAQMD
Start date	07/01/76	07/01/73	07/01/73	11/04/86
Operation schedule	Continuous	Continuous	Continuous	1 in 6
Sampling season	All year	All year	All year	All year
Probe height (AGL)	8.9 m	8.9 m	8.9 m	5.5 m
Probe height above roof	5.2 m	5.2 m	5.2 m	1.5 m
Distance from obstructions on roof	None	None	None	None
Distance from obstructions not on roof	None	None	None	None
Distance from tree (DL)	25 m	25 m	25 m	21 m
Distance to furnace or incinerator flue	5.7 m	5.7 m	5.7 m	Primary: 5 m Col: 3.4 m
Distance between collocated monitors	N/A	N/A	N/A	2.9 m
Unrestricted airflow	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	N/A
Residence time	8 s	7 s	8 s	N/A
Will there be changes within the next 18 mos?	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	Annually
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	N/A
Last Annual Performance Evaluation (gaseous)	09/13/06	09/13/06	09/13/06	N/A
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	12/15/06 09/13/06

Pittsburg

Pittsburg was chosen for an air monitoring site because the city and adjacent area have a large population, and it is downwind of three refineries and three power plants. It was originally selected in 1968 to be representative of air quality levels in the northeast corner of the Air District. More recently, air monitoring sites in Bethel Island and Fairfield fill that role. The city of Pittsburg has a 2005 population estimate of 62,547 and the adjacent city of Antioch to the east has a population of 100,631. Pittsburg-Antioch is located in the Carquinez Strait Region, the only sea-level gap between San Francisco Bay and the Central Valley of California. During the warmer months of the year, the sea breeze often moves through this gap, carrying ozone and its precursors into the Central Valley. A reverse flow can also occur carrying ozone in the summer and particulates in the winter from the Central Valley into the San Francisco Bay Area. The air monitoring site is located northwest of the city center, about a mile south of the Suisun Bay, in what was formerly an industrial area. Currently, the area has become residential on the south side of Tenth Street, while remaining industrial on the north side. Ozone and NO_2 are measured because the area is downwind of both the central San Francisco Bay Area and the Central Valley, which are large sources of ozone precursors. Additionally, local power plants are large sources of NO, which is converted to NO_2 in the atmosphere. Carbon monoxide is measured because the Pittsburg-Antioch area has a high traffic volume and the site is near Highway 4. SO_2 is measured because there can be significant sources of SO_2 from two refineries and ships upwind of Pittsburg. PM_{10} is measured because the power plants were a significant source of particulates when they burned oil. Now that the power plants are fuel by natural gas, particulate emissions are low, but the PM_{10} monitor continues to record exceedances of the California 24-hour PM_{10} standard. This site also recorded exceedances of the national 8-hour ozone standard in the most recent 3 years. No exceedances of any SO_2 standards were measured in the most recent 3 years.

Pittsburg Site Information

Site Name	Pittsburg - 2010
AQS ID	06-013-3001
GIS coordinates	37.9360° N, 122.0262° W
Location	One story building
Address	583 West Tenth Street, Pittsburg CA 94565
County	Contra Costa
Distance to road from gaseous probe	West Tenth Street: 10.6 meters Highway 4: 1,075 meters
Traffic count	West Tenth Street: 10,150 ADT (2005) Highway 4: 126,000 ADT (2005)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Pittsburg Monitor Information

Pollutant	O3	CO	NO/NO2	SO2	PM10
Monitoring Objective	Population oriented	Population oriented	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Urban	Neighborhood
Sampling method	TECO 49C	TECO 48A	TECO 42C	TECO 43C	Andersen GUV-16HBLA
PM filter analysis method	N/A	N/A	N/A	N/A	Weighed by BAAQMD
Start date	06/01/76	12/03/68	12/03/68	01/18/72	08/04/99
Operation schedule	Continuous	Continuous	Continuous	Continuous	1 in 6
Sampling season	All year	All year	All year	All year	All year
Probe height (AGL)	8.7 m	8.7 m	8.7 m	8.7 m	5.6 m
Probe height above roof	5.2 m	5.2 m	5.2 m	5.2 m	1.5 m
Distance from obstructions on roof	None	None	None	None	None
Distance from obstructions not on roof	None	None	None	None	None
Distance from tree (DL)	>50 m	>50 m	>50 m	>50 m	>50 m
Distance to furnace or incinerator flue	5 m	5 m	5 m	5 m	5.7 m
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon	N/A
Residence time	7 s	7 s	8 s	7 s	N/A
Will there be changes within the next 18 mos?	No	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A	Annually
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily	N/A
Last Annual Performance Evaluation (gaseous)	09/19/06	09/19/06	09/19/06	09/19/06	N/A
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A	10/31/06 08/29/06

Redwood City

Redwood City was chosen for an air monitoring site because it is one of the largest cities in San Mateo County, with a 2005 population estimate of 73,114. Being approximately midway between San Francisco and San Jose it is well positioned to monitor the progression of ozone precursors and ozone moving southward down the peninsula as they are channeled by the Santa Cruz Mountains. Generally, Redwood City characterizes an area between South San Francisco and Palo Alto, which has a low air pollution potential due to the frequent presence of the sea breeze. Although the sea breeze typically keeps pollution levels low, occasionally light wind conditions causes high levels of ozone precursors, ozone, or particulate to occur due to the large number of sources in the area. The air monitoring site is located in a commercial/industrial zone bordered by US Highway 101 on one side and residential areas on the other three sides. Ozone and NO_2 are collected because the area is a large source of ozone and ozone precursor emissions. Carbon monoxide is monitored because of the high volume of traffic in the area, and US Highway 101 is only 0.3 miles north of the site. PM_{10} and $PM_{2.5}$ are collected because light winds combined with surface-based inversions during the winter months can cause particulate levels to become elevated. This site recorded an exceedance of the California one-hour ozone standard and exceedances of the national 24-hour $PM_{2.5}$ standard and the California PM_{10} standard in the most recent 3 years.

Redwood City Site Information

Site Name	Redwood City - 6004
AQS ID	06-081-1001
GIS coordinates	37.4830° N 122.2036° W
Location	One-story commercial building
Address	897 Barron Ave, Redwood City CA 94063
County	San Mateo
Distance to road from gaseous probe	Barron Ave: 13 meters Bay Road: 26 meters US Highway 101: 462 meters
Traffic count	Barron Ave: 1,000 ADT (2007) Bay Road: 12,500 ADT (2007) US Highway 101: 199,000 ADT (2005)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Redwood City Monitor Information

Pollutant	O3	CO	NO/NO2
Monitoring Objective	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	TECO 49	TECO 48	TECO 42C
PM filter analysis method	N/A	N/A	N/A
Start date	01/01//76	01/01/67	01/01/67
Operation schedule	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year
Probe height (AGL)	8.0 m	8.0 m	8.0 m
Probe height above roof	4.9 m	4.9 m	4.9 m
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from tree (DL)	46 m	46 m	46 m
Distance to furnace or incinerator flue	12.7 m	12.7 m	12.7 m
Distance between collocated monitors	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°
Probe material	Teflon	Teflon	Teflon
Residence time	10 s	11 s	13 s
Will there be changes within the next 18 mos?	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily
Last Annual Performance Evaluation (gaseous)	11/21/06	11/21/06	11/21/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A

Redwood City Monitor Information

Pollutant	PM10	FRM PM2.5	Continuous PM2.5 (BAM)
Monitoring Objective	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Andersen HiVol 1200	Andersen RAAS 300	Met One Model 1020
PM filter analysis method	Weighed by BAAQMD	Weighed by BAAQMD	N/A
Start date	01/01/86	01/01/99	01/01/04
Operation schedule	1 in 6	Apr-Sep: 1in 6 Oct-Mar:1in 3	Continuous
Sampling season	All year	all year	All year
Probe height (AGL)	4.8 m	5.1 m	5.2 m
Probe height above roof	1.5 m	2.0 m	2.1 m
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from tree (DL)	46.3 m	45.7 m	47.9 m
Distance to furnace or incinerator flue	13.6 m	11.0 m	13.6 m
Distance between collocated monitors	2.0 m	N/A	N/A
Distance between PM_{10} and $PM_{2.5}$ samplers	PM_{10} to $PM_{2.5}$: 3.0 m PM_{10} to BAM: 2.9 m	$PM_{2.5}$ to PM_{10}: 3.0 m $PM_{2.5}$ to BAM: 2.8 m	BAM to PM_{10}: 2.9 m BAM to $PM_{2.5}$: 2.8 m
Unrestricted airflow	360°	360°	360°
Probe material	N/A	N/A	N/A
Residence time	N/A	N/A	N/A
Will there be changes within the next 18 mos?	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	Yes	No – not reference or equivalent method
Frequency of flow rate verification for manual PM samplers	Annually	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly	Bi-Weekly
Frequency of one-point QC check (gaseous)	N/A	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	11/8/06 6/5/06	11/8/06 6/5/06	11/8/06 6/5/06

San Francisco

San Francisco was chosen for an air monitoring site because it is the second largest city in the San Francisco Bay Area, with a 2005 population estimate of 739,426. Although the sea breeze typically keeps pollution levels low, light wind conditions can result in high levels of ozone precursors or particulates due to the large number of sources in the city. The east side of the city was selected for a monitoring site because it is more densely populated (including a large number of daytime visitors and commuters), has some industry, and as a transportation hub, has generally higher traffic volume. The site is located near the fringe of the central business district, in an area of light industry that is close to a residential area and two major freeways. Ozone is measured because of the very high population density of the city. NO/NO_2 and $NMOC/CH_4$ are measured because this is a source area for these ozone precursors. Carbon monoxide is measured because of the high traffic volume. SO_2 is measured because of potential emissions from a nearby power plant and other small sources in the area, such as sewage treatment plants and ships. PM_{10} and $PM_{2.5}$ are measured because stagnant days combined with surface based-based inversions can cause elevated particulate levels, and because of the contribution of heavy vehicular traffic to PM levels. This site recorded exceedances of the national 24-hour $PM_{2.5}$ standard, and the California 24-hour PM_{10} standard in the most recent 3 years. No exceedances of any SO_2 standards were measured in the most recent 3 years.

San Francisco Site Information

Site Name	San Francisco – 5011
AQS ID	06-075-0005
GIS coordinates	37.7660° N, 122.3992° W
Location	One story commercial building
Address	10 Arkansas St, Suite N, San Francisco CA 94107
County	San Francisco
Distance to road from gaseous probe	16th St: 32.0 meters Arkansas St: 17.0 meters Interstate 280: 300 meters U.S. Highway 101: 504 meters
Traffic count	16th St: 12,275 ADT (2006) Arkansas St: 400 ADT (estimate) Interstate 280: 95,000 ADT (2005) U.S. Highway 101: 233,000 (2005)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

San Francisco Monitor Information

Pollutant	O3	CO	NO/NO2	SO2	CH4/NMOC
Monitoring Objective	Population oriented	Population oriented	Population oriented	Source impact	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TECO 49C	TECO 48	TECO 42	TECO 43C	TECO 55C
PM Filter Analysis method	N/A	N/A	N/A	N/A	N/A
Start date	01/01/86	01/01/86	NO: 01/01/87 NO2: 01/01/86	01/01/86	CH4: 01/01/94 NMOC: 07/12/06
Operation schedule	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year	All year
Probe height (AGL)	10.5 m	10.5 m	10.5 m	10.5 m	10.5 m
Probe height above roof	4.4 m	4.4 m	4.4 m	4.4 m	4.4 m
Distance from obstructions on roof	None	None	None	None	None
Distance from obstructions not on roof	None	None	None	None	None
Distance from tree (DL)	15.3 m	15.3 m	15.3 m	15.3 m	15.3 m
Distance to furnace or incinerator flue	5.2 m	5.2 m	5.2 m	5.2 m	5.2 m
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon	Teflon
Residence time	11 s	11 s	12 s	12 s	11 s
Will there be changes within the next 18 mos?	No	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily	Daily
Last Annual Performance Evaluation (gaseous)	08/02/06	08/02/06	08/02/06	08/02/06	08/02/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A	N/A

San Francisco Monitor Information

Pollutant	PM10	FRM PM2.5	Continuous PM2.5 (BAM)
Monitoring Objective	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Andersen HiVol 1200	Andersen RAAS 300	Met One BAM 1020
PM Filter Analysis method	Weighed by BAAQMD	Weighed by BAAQMD	N/A
Start date	11/16/86	01/01/1999	01/01/2004
Operation schedule	1 in 6	Apr-Sep: 1 in 6 Oct-Mar: daily	Continuous
Sampling season	All year	All year	All year
Probe height (AGL)	7.6	8.0	8.3
Probe height above roof	1.5 m	2 .0 m	2.2 m
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from tree (DL)	17.5 m	16.5 m	13.8 m
Distance to furnace or incinerator flue	7.0 m	7.3 m	3.4 m
Distance between collocated monitors	N/A	N/A	N/A
Distance between PM10 and PM2.5 samplers	PM_{10} to $PM_{2.5}$: 2.3 m PM_{10} to BAM: 3.8 m	$PM_{2.5}$ to PM_{10}: 2.3 m $PM_{2.5}$ to BAM: 3.9 m	BAM to PM_{10}: 3.8 m BAM to $PM_{2.5}$: 3.9 m
Unrestricted airflow	360°	360°	360°
Probe material	N/A	N/A	N/A
Residence time	N/A	N/A	N/A
Will there be changes within the next 18 mos?	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	Yes	No – not reference or equivalent method
Frequency of flow rate verification for manual PM samplers	Annually	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly	Bi-Weekly
Frequency of one-point QC check (gaseous)	N/A	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	11/15/06 08/01/06	11/15/06 08/01/06	11/15/06 08/01/06

San Jose Jackson

San Jose was chosen for an air monitoring site because it is the largest city in Santa Clara County as well as being the largest city in the Bay Area, with a 2005 population of 912,332. Ozone precursors emitted within the central San Francisco Bay Area are often carried into the San Jose area by the prevailing northwesterly winds. The northern half of the Santa Clara Valley is densely populated and the associated activities of the residents also adds significant pollutant emissions into the air. The air monitoring site is located in the center of northern Santa Clara Valley, in a commercial and residential part of downtown San Jose. This area is completely encircled by major freeways, and has a large airport just to the northwest. The air quality in this location is representative of a large part of the valley due to the diurnal up valley and down valley air flow, which mixes the pollutants throughout the valley. NO/NO_2, NMOC, CH_4 and ozone are monitored because of the large amount of ozone precursor emissions near the area as well as from upwind areas. Carbon monoxide is measured because of the significant traffic volume near the site. PM_{10} and $PM_{2.5}$ are monitored because light winds combined with surface based inversions within the valley during winter months can cause elevated particulate levels. This site recorded an exceedance of the national 8-hour ozone standard, and many exceedances of the national 24-hour $PM_{2.5}$ standard and the California PM_{10} standard in the most recent 3 years.

San Jose Jackson Site Information

Site Name	San Jose Jackson – 7032
AQS ID	06-085-0005
GIS coordinates	37.3484° N, 121.8949° W
Location	Top floor of two-story commercial building
Address	158 E. Jackson St, San Jose CA 95112
County	Santa Clara
Distance to road from gaseous probe	Jackson St: 16 meters 4th St: 40 meters
Traffic count	Jackson St: 3,991 ADT (2007) 4th St: 6,400 ADT (2005)
Groundcover	Paved
Representative Area	San Jose-Sunnyvale-Santa Clara MSA.

San Jose Jackson Monitor Information

Pollutant	O3	CO	NO/NO2	CH4/NMOC
Monitoring Objective	Population oriented	Population oriented & Highest concentration	Population oriented & Highest concentration	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TECO 49	TECO 48TL	TECO 42C	TECO 55C
PM filter analysis method	N/A	N/A	N/A	N/A
Start date	11/01/02	11/01/02	11/01/02	07/06/06
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height (AGL)	11.0 m	11.0 m	11.0 m	11.0 m
Probe height above roof	3.2 m	3.2 m	3.2 m	3.2 m
Distance from obstructions on roof	None	None	None	None
Distance from obstructions not on roof	None	None	None	None
Distance from tree (DL)	14.3	14.3	14.3	14.3
Distance to furnace or incinerator flue	4.6	4.6	4.6	4.6
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon
Residence time	10 s	12 s	10 s	10 s
Will there be changes within the next 18 mos?	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily
Last Annual Performance Evaluation (gaseous)	11/02/06	11/02/06	11/02/06	11/02/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A

San Jose Jackson Monitor Information

Pollutant	**PM10**	**FRM PM2.5**	**Continuous PM2.5 (BAM)**
Monitoring Objective	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Andersen HiVol 1200	Andersen RAAS 300	Met One Model 1020
PM filter analysis method	Weighed by BAAQMD	Weighed by BAAQMD	N/A
Start date	10/05/02	10/05/02	01/01/04
Operation schedule	1 in 6	Apr-Sep: 1in 6 Oct-Mar: daily	Continuous
Sampling season	All year	All year	All year
Probe height	8.3 m	8.7 m	9.8m
Probe height above roof	1.5 m	2.0 m	2.0 m
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from tree (DL)	11.0 m	14.9 m	13.1 m
Distance to furnace or incinerator flue	1.5	3.0	3.4
Distance between collocated monitors	N/A	N/A	N/A
Distance between PM_{10} and $PM_{2.5}$ samplers	PM_{10} to $PM_{2.5}$: 3.1 m PM_{10} to BAM: 3.5 m	$PM_{2.5}$ to PM_{10}: 3.1 m $PM_{2.5}$to BAM: 3.9 m	BAM to PM_{10}: 3.5 m BAM to $PM_{2.5}$: 3.9 m
Unrestricted airflow	360°	360°	360°
Probe material	N/A	N/A	N/A
Residence time	N/A	N/A	N/A
Will there be changes within the next 18 mos?	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	Yes	No – not reference or equivalent method
Frequency of flow rate verification for manual PM samplers	Annually	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly	Bi-Weekly
Frequency of one-point QC check (gaseous)	N/A	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	11/02/06 07/12/06	11/02/06 07/11/06	11/02/06 07/11/06

San Pablo

San Pablo was chosen for an air monitoring site because the area is the most populated portion of western Contra Costa County. San Pablo, with a 2005 population estimate of 31,004, is almost completely surrounded by the city of Richmond, with a 2005 population estimate of 102,186. This area has heavy industry, high traffic volume, including two major freeways, and it is very close to the Chevron Refinery. Ozone and NO_2 are measured because the area is downwind of the central San Francisco Bay Area, which is a large source of ozone precursor emissions. Carbon monoxide is measured because the high traffic volume in the area. SO_2 is measured because the site is 1.2 miles downwind of the Chevron refinery, which can be a significant source of SO_2 emissions. PM_{10} is measured because stagnant days in the fall and winter can result in elevated particulate levels. This site recorded exceedances of the California 1-hour ozone standard and the California 24-hour PM_{10} standard in the most recent 3 years. No exceedances of any SO_2 standards were measured in the most recent 3 years.

EPA suggests that the appropriate spatial scale for population oriented sites should be neighborhood or urban. Using the current EPA methodology to determine spatial scales, the air monitoring site in San Pablo would be characterized as middle scale. However, BAAQMD believes the spatial scale of the site would more appropriately be characterized as neighborhood scale. This is because EPA's distance requirements from roads are based on 1979 vehicle emission levels, while current vehicle emission levels are much lower.

San Pablo Site Information

Site Name	San Pablo - 2035
AQS ID	06-013-1004
GIS coordinates	37.9604° N, 122.3568° W
Location	One story commercial building
Address	1865-D Rumrill Blvd, San Pablo CA 94806
County	Contra Costa
Distance to road from gaseous probe	Rumrill Blvd: 17.0 meters
Traffic count	Rumrill Blvd: 18,018 ADT (2006)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

San Pablo Monitor Information

Pollutant	O3	CO	NO/NO2	SO2	PM10
Monitoring Objective	Population oriented	Population oriented	Population oriented	Source Impact	Population oriented
Spatial scale	Middle	Middle	Middle	Neighborhood	Middle
Sampling method	TECO 49A	TECO 48A	TECO 42C	TECO 43C	Tisch Env. HiVol TE-6070-V-BL
PM filter analysis method	N/A	N/A	N/A	N/A	Weighed by BAAQMD
Start date	09/13/02	09/13/02	09/13/02	09/13/02	09/23/02
Operation schedule	Continuous	Continuous	Continuous	Continuous	1 in 6
Sampling season	All year	All year	All year	All year	All year
Probe height (AGL)	9.8 m	9.8 m	9.8 m	9.8 m	6.4 m
Probe height above roof	5.6 m	5.6 m	5.6 m	5.6 m	2.2 m
Distance from obstructions on roof	None	None	None	None	None
Distance from obstructions not on roof	None	None	None	None	None
Distance from tree (DL)	>50 m	>50 m	>50 m	>50 m	>50 m
Distance to furnace or incinerator flue	3.5 m	3.5 m	3.5 m	3.5 m	7.0 m
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon	N/A
Residence time	10 s	10 s	11 s	11 s	N/A
Will there be changes within the next 18 mos?	No	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A	Annually
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily	N/A
Last Annual Performance Evaluation (gaseous)	10/04/06	10/04/06	10/04/06	10/04/06	N/A
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A	10/03/06 08/07/06

San Rafael

San Rafael was chosen for an air monitoring site because it is the largest city in Marin County with a 2005 population estimate of 55,716. The city's climate and air quality is representative of that found throughout the populous northeastern part of the county. Afternoon sea breezes typically keep pollution levels low. However, when the sea breeze is absent, local sources can cause elevated pollution levels. The monitoring site is located in commercial building about a block east of the US Highway 101 transportation corridor and the downtown San Rafael business district. There is no industrial activity in the immediate area. Ozone and NO_2 are measured to monitor general population exposure to these pollutants. Carbon Monoxide and PM_{10} are measured because the site is close to a major transportation corridor. PM_{10} is also collected because light winds combined with wood burning and surface based-based inversions during the winter months can cause elevated particulate concentrations. This site recorded exceedances of the California 24-hour PM_{10} standard within the most recent three years.

EPA suggests that the appropriate spatial scale for population oriented sites should be neighborhood or urban. Using the current EPA methodology to determine spatial scales, the air monitoring site in San Rafael would be characterized as middle scale. However, BAAQMD believes the spatial scale of the site would be better characterized as neighborhood scale. This is because EPA's distance requirements from highways are based on 1979 vehicle emission levels, while current vehicle emission levels are much lower.

San Rafael Site Information

Site Name	San Rafael - 3005
AQS ID	06-041-0001
GIS coordinates	37.9723° N, 122.5201° W
Location	Second floor of two-story commercial building
Address	534 4th Street, San Rafael CA 94901
County	Marin
Distance to road from gaseous probe	4th St: 18 meters Irwin St: 48 meters US Highway 101: 112 meters
Traffic count	4th St: 8,000 ADT (estimate) Irwin St: 20,261 ADT (1999) US Highway 101: 132,000 ADT (2005)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

San Rafael Monitor Information

Pollutant	O3	CO	NO/NO2	PM10
Monitoring Objective	Population oriented	Population oriented	Population oriented	Population oriented
Spatial scale	Middle	Middle	Middle	Middle
Sampling method	TECO 49A	TECO 48A	TECO 42C	Andersen HiVol 1200
Analysis method	N/A	N/A	N/A	Weighed by BAAQMD
Start date	07/01/76	10/01/67	NO: 01/01/68 NO2:10/01/67	11/04/86
Operation schedule	Continuous	Continuous	Continuous	1 in 6
Sampling season	All year	All year	All year	All year
Probe height (AGL)	11.9 m	11.9 m	11.9 m	7.0 m
Probe height above roof	5.2 m	5.2 m	5.2 m	1.9 m
Distance from obstructions on roof	None	None	None	None
Distance from obstructions not on roof	21 m	21 m	21 m	20 m
Distance from tree (DL)	15 m	15 m	15 m	14 m
Distance to furnace or incinerator flue	3.5 m	3.5 m	3.5 m	2.3 m
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	N/A
Residence time	10 s	10 s	11 s	N/A
Will there be changes within the next 18 mos?	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	Annually
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	N/A
Last Annual Performance Evaluation (gaseous)	12/21/06	12/21/06	12/21/06	N/A
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	12/05/06 09/12/06

Santa Rosa

Santa Rosa was chosen for an air monitoring site because it is the largest city in Sonoma County with a 2005 population estimate of 153,158. The city's climate is strongly influenced by the Pacific Ocean and the marine air flow typically keeps pollution levels low. However, during light winds or overnight temperature inversions, local sources can cause elevated pollution levels. The monitoring site is located just east of the downtown urban core and 0.5 miles east of Highway 101. There are no industrial sources in the immediate area. Ozone and NO_2 are measured to monitor general population exposure to these pollutants. Carbon monoxide is measured because of the local urban traffic volume and proximity to the Highway 101 transportation artery. PM_{10} and FRM $PM_{2.5}$ are measured because light winds combined with wood burning, vehicular traffic, and surface based-based inversions during the winter months can cause elevated particulate concentrations. This site recorded exceedances of the national 24-hour $PM_{2.5}$ standard and the California 24-hour PM_{10} standard within the most recent three years.

Santa Rosa Site Information

Site Name	Santa Rosa - 9004
AQS ID	06-097-0003
GIS coordinates	38.4435° N, 122.7102° W
Location	Second floor of two-story commercial building
Address	837 5th St, Santa Rosa CA 95404
County	Sonoma
Distance to road from gaseous probe	5th St: 24 meters E St: 79 meters College Ave: 210 meters Brookwood Ave: 228 meters US Highway 101: 918 meters
Traffic count	5th St: 2,608 ADT (2004-2006) E St: 7,804 ADT (2004-2006) College Ave: 19,062 ADT (2004-2006) Brookwood Ave: 21,297 ADT (2004-2006) US Highway 101: 121,000 ADT (2005)
Groundcover	Paved
Representative Area	Santa Rosa-Petaluma MSA

Santa Rosa Monitor Information

Pollutant	O3	CO	NO/NO2	PM10	FRM PM2.5
Monitoring Objective	Population oriented	Population oriented	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TECO 49A	TECO 48A	TECO 42C	Andersen HiVol 1200	Andersen RAAS 300
Analysis method	N/A	N/A	N/A	Weighed by BAAQMD	Weighed by BAAQMD
Start date	04/17/81	04/17/81	NO: 01/01/87 NO2:01/17/81	07/13/94	01/24/99
Operation schedule	Continuous	Continuous	Continuous	1 in 6	Apr-Sep: 1in 6 Oct-Mar: 1in 3
Sampling season	All year	All year	All year	All year	All year
Probe height (AGL)	10.7 m	10.7 m	10.7 m	8.1 m	7.5 m
Probe height above roof	5.2 m	5.2 m	5.2 m	2.6 m	2.0 m
Distance from obstructions on roof	None	None	None	None	None
Distance from obstructions not on roof	21 m	21 m	21 m	21 m	21 m
Distance from tree (DL)	13.7 m	13.7 m	13.7 m	14.6 m	12.5 m
Distance to furnace or incinerator flue	4.7 m	4.7 m	4.7 m	5.7 m	4.9 m
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A
Distance between PM10 and PM2.5 monitors	N/A	N/A	N/A	3.0 m	3.0 m
Unrestricted airflow	360°	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	N/A	N/A
Residence time	11 s	13 s	12 s	N/A	N/A
Will there be changes within the next 18 mos?	No	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A	Yes
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	Annually	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A	Monthly
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	N/A	N/A
Last Annual Performance Evaluation (gaseous)	08/24/06	08/24/06	08/24/06	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	12/15/06 08/23/06	12/15/06 08/23/06

Vallejo

Vallejo was chosen for an air monitoring site because it is the largest city in Solano County with a 2005 population estimate of 117,483. Vallejo's climate is influenced by marine air flow through the Bay Area and the Carquinez Strait that typically keeps pollution levels low. However, Vallejo has the potential to be impacted by pollution from three directions: daytime southwest winds bringing ozone and ozone precursors from the San Francisco Bay Area, nighttime north winds bringing particulates from the Napa Valley, and east winds bring ozone and particulates from the Central Valley. The monitoring site is located in a mixed commercial and residential neighborhood one mile east of downtown and 0.5 miles west of Interstate 80. Ozone, NO, and NO_2 are measured because south winds can transport ozone and its precursors into Napa from the heavily populated central Bay Area. Ozone also can be transported from the Central Valley through the Carquinez Strait during easterly winds. PM_{10} and $PM_{2.5}$ are measured because high concentrations typically occur during the winter when nighttime valley drainage winds, wood burning, and shallow temperature inversions trap pollutants from local sources and Napa Valley to the north. East winds can also transport higher PM concentrations into Vallejo through the Carquinez Strait from the Central Valley. Carbon monoxide is measured because Interstate 80 passes through the middle of the urban area east of the monitoring site. Local geography also forces traffic to funnel through the Vallejo area on several other major roads. SO_2 is measured at Vallejo to monitor general population exposure and because refineries located to the south and east can be significant sources of SO_2. This site recorded exceedances of the national 24-hour $PM_{2.5}$ standard, and the California 24-hour PM_{10} and 1-hour ozone standards within the most recent 3 years. No exceedances of any SO_2 standards were measured in the most recent 3 years.

Vallejo Site Information

Site Name	Vallejo - 8004
AQS ID	06-095-0004
GIS coordinates	37.1025° N, 122.2379° W
Location	One story commercial building
Address	304 Tuolumne St, Vallejo CA 94590
County	Solano
Dist. to road from probe	Tuolumne St: 20 meters Capitol St: 31 meters Solano Ave: 36 meters Interstate 80: 700 meters
Traffic count	Tuolumne St: 9,530 ADT (estimate) Capitol St: 500 ADT (estimate) Solano Ave: 7,880 ADT (estimate) Interstate 80: 147,000 ADT (2005)
Groundcover	Paved
Representative Area	Vallejo-Fairfield MSA

Vallejo Monitor Information

Pollutant	O3	CO	NO/NO2	SO2
Monitoring Objective	Population oriented	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	TECO 49C	TECO 48	TECO 42	TECO 43
PM Filter Analysis method	N/A	N/A	N/A	N/A
Start date	07/01/76	07/01/76	07/01/76	07/01/76
Operation schedule	Continuous	Continuous	Continuous	Continuous
Sampling season	All year	All year	All year	All year
Probe height (AGL)	9.6 m	9.6 m	9.6 m	9.6 m
Probe height above roof	4.3 m	4.3 m	4.3 m	4.3 m
Distance from obstructions on roof	None	None	None	None
Distance from obstructions not on roof	None	None	None	None
Distance from tree (DL)	32 m	32 m	32 m	32 m
Distance to furnace or incinerator flue	3.7 m	3.7 m	3.7 m	3.7 m
Distance between collocated monitors	N/A	N/A	N/A	N/A
Unrestricted airflow	360°	360°	360°	360°
Probe material	Teflon	Teflon	Teflon	Teflon
Residence time	12 s	13 s	12 s	16 s
Will there be changes within the next 18 mos?	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily	Daily	Daily
Last Annual Performance Evaluation (gaseous)	10/16/06	10/16/06	10/16/06	10/16/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A	N/A	N/A

Vallejo Monitor Information

Pollutant	PM10	FRM PM2.5	Continuous PM2.5 (BAM)
Monitoring Objective	Population oriented	Population oriented	Population oriented
Spatial scale	Neighborhood	Neighborhood	Neighborhood
Sampling method	Andersen GUV-16HBLA	Andersen RAAS 300	Met One BAM 1020
PM Filter Analysis method	Weighed by BAAQMD	Weighed by BAAQMD	N/A
Start date	11/04/94	03/10/99	01/01/04
Operation schedule	1 in 6	Apr-Sep:1in 6 Oct-Mar:1in 3	Continuous
Sampling season	All year	All year	All year
Probe height AGL	5.7 m	6.1 m	5.9 m
Probe height above roof	1.7 m	2.1 m	1.9 m
Distance from obstructions on roof	None	None	None
Distance from obstructions not on roof	None	None	None
Distance from tree (DL)	35 m	32 m	33 m
Distance to furnace or incinerator flue	4.7 m	5.0 m	3.0 m
Distance between collocated monitors	N/A	N/A	N/A
Distance between PM10 and PM2.5 samplers	PM_{10} to $PM_{2.5}$: 4.7 m PM_{10} to BAM: 3.5 m	$PM_{2.5}$ to PM_{10}: 4.7 m $PM_{2.5}$to BAM: 3.0 m	BAM to PM_{10}: 3.5 m BAM to $PM_{2.5}$: 3.0 m
Unrestricted airflow	360°	360°	360°
Probe material	N/A	N/A	N/A
Residence time	N/A	N/A	N/A
Will there be changes within the next 18 mos?	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	Yes	No – not reference or equivalent method
Frequency of flow rate verification for manual PM samplers	Annually	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly	Bi-Weekly
Frequency of one-point QC check (gaseous)	N/A	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	10/10/06 07/26/06	10/10/06 07/26/06	10/10/06 07/26/06

Detailed Site Information – Partial Stations

Crockett

Crockett was chosen for SO_2 source impact monitoring because it is downwind of the ConocoPhillips Refinery. Prevailing winds in the area are from the west, which transport SO_2 emissions from the refinery over the town of Crockett, a predominately residential community with a 2000 estimated population of 3,194. The monitoring site is located on the west side of Crockett 0.9 miles northeast of the refinery boundary. The only other industry in the area is C&H Sugar in Crockett, which is usually downwind from the monitoring site; but this facility is not a significant source of SO_2 emissions. No exceedances of any SO_2 standards were measured in the most recent 3 years.

EPA siting criteria specifies that the probe be located at least 10 meters from the drip line of all trees. A tree to the northeast of the site has a drip line 1.2 meters from the probe, but since the direction of the tree is outside of the required 180 degree arc of unrestricted airflow for source impact monitoring as determined by the predominant wind direction and the direction of the refinery, it has little influence on measurements. The Air District is currently negotiating with the property owner for the removal of this tree and 2 other trees to the southwest of the probe.

Crockett Site Information

Site Name	Crockett - 2017
AQS ID	06-013-1001
GIS Coordinates	38.0549° N, 122.2333° W
Location	Pump house
Address	End of Kendall Avenue, Crockett CA 94525
County	Contra Costa
Distance to road from gaseous probe	San Pablo Ave: 68.4 meters
Traffic count	San Pablo Ave: 8,820 ADT (2002)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Crockett Monitor Information

Pollutant	**SO2**
Monitor Objective	Source impact
Spatial scale	Neighborhood
Sampling method	TECO 43C
PM filter analysis method	N/A
Start date	01/01/79
Operation schedule	Continuous
Sampling season	All year
Probe height (AGL)	6.2 m
Probe height above roof	2.4 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	1.2 m*
Distance to furnace or incinerator flue (m)	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	270°
Probe material	Teflon
Residence time	10 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers audit	N/A
Frequency of flow rate verification for automated PM analyzers audit	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	08/15/2006
Last two semi-annual flow rate audits for PM monitors	N/A

* Tree is outside of the required 180 degree arc of unrestricted air flow for source impact monitoring.

Fairfield

Fairfield was chosen for monitoring ozone transport between the San Francisco Bay Area and the Sacramento Valley. Fairfield lies in the northeast part of the District in the Carquinez Strait Region, the only sea level gap between the Bay Area and the Central Valley. Prevailing southwesterly winds carry ozone and its precursors into the Sacramento Valley. Occasionally, easterly winds transport elevated ozone levels into this region from the Sacramento Valley. Over the past decade the Fairfield/Suisun City urban area has grown considerably with a combined 2005 estimated population of 131,238, the largest urban area in Solano County. As a result, Fairfield is also a population oriented ozone monitoring site. The monitoring site is located in a rural area normally upwind (southwest) of the urban area. This site recorded exceedances of the national 8-hour ozone standard within the last three years.

Fairfield Site Information

Site Name	Fairfield - 8007
AQS ID	06-095-0005
GIS coordinates	38.2271° N, 122.0757° W
Location	Small trailer in open field
Address	1010 Chadborne Rd, Fairfield CA 94534
County	Solano
Distance to road from gaseous probe	Cordelia Rd: 194 meters
Traffic count	Cordelia Rd: 3,800 ADT (estimate)
Groundcover	Vegetative
Representative Area	Vallejo-Fairfield MSA

Fairfield Monitor Information

Pollutant	O3
Monitoring Objective	Regional transport & Population oriented
Spatial scale	Regional
Sampling method	TECO 49C
Analysis method	N/A
Start date	05/29/02
Operation schedule	Continuous
Sampling season	Apr 1-Nov 30
Probe height (AGL)	3.7 m
Probe height above roof	1.0 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	>50 m
Distance to furnace or incinerator flue	None
Unrestricted airflow	360°
Probe material	Teflon
Residence time	5 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	10/31/06
Last two semi-annual flow rate audits for PM monitors	N/A

Gilroy

Gilroy was chosen to monitor ozone transport out of the southern part of the Air District. As prevailing northwesterly afternoon winds carry ozone and ozone precursors from the San Jose area, sunlight and warm temperatures cause the precursors to react and form high ozone levels downwind over the Gilroy area. The original interest in measuring ozone in Gilroy was an expectation that it would record some of the highest ozone in the Air District, and to determine ozone levels being transported out of the Air District. Recently, Gilroy's population has grown considerably, and now has an estimated 2005 population of 45,718. Because of the large population, Gilroy is also considered a population oriented monitoring site. The monitor is located in a residential area on the west side of Gilroy. Air quality studies have shown that the west side of Gilroy has higher ozone levels than the east side. This is due to elevated terrain sheltering the western part of Gilroy from cool, southerly winds produced by the Monterey Bay sea breeze. This site recorded exceedances of the national 8-hour ozone standard in the most recent 3 years.

Gilroy Site Information

Site Name	Gilroy - 7015
AQS ID	06-085-0002
GIS coordinates	36.9995° N 121.5747° W
Location	Air monitoring shelter next to water pump station
Address	9th and Princevalle St, Gilroy CA 95020
County	Santa Clara
Distance to road from gaseous probe	Princevalle St: 14.3 meters 9th St: 13.7 meters
Traffic count	Princevalle St: 5,300 ADT (2006) 9th St: 1,000 ADT (estimate)
Groundcover	paved
Representative Area	San Jose-Sunnyvale-Santa Clara MSA.

Gilroy Monitor Information

Pollutant	O3
Monitoring Objective	Regional Transport, Highest Concentration, Population oriented
Spatial scale	Neighborhood
Sampling method	TECO 49C
PM filter analysis method	N/A
Start date	01/01/81
Operation schedule	Continuous
Sampling season	Apr 1 – Nov 30
Probe height (AGL)	4.0 m
Probe height above roof	2.1 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	26 m
Distance to furnace or incinerator flue	14.3 m
Distance between collocated monitors	N/A
Unrestricted airflow	270°
Probe material	Teflon
Residence time	14 s
Will there be changes within the next 18 mos?	Yes[1]
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	11/02/06
Last two semi-annual flow rate audits for PM monitors	N/A

[1] See Proposed Modifications to the Network, Gilroy

Hayward

The Hayward air monitoring site was chosen to measure ozone at a higher elevation. Located on the east side of Hayward at an elevation of 951 feet, it is the highest air monitoring site in the Air District. Studies had shown that on high ozone days, a cloud of ozone and precursors moves southward from Oakland on the west side of the East Bay Hills. Because ozone monitoring sites were already in place in the low-lying areas of the East Bay, i.e. in San Leandro and Fremont, this site was chosen between them, but at a higher elevation. Thus, the site gives an indication of ozone levels aloft. The Hayward site is also important because it provides air quality forecasting information concerning residual ozone from the previous day. Although there is a large water tank onsite in the upwind direction, the instrument probe is high enough to avoid the tank being an obstacle. The scale of this site is considered to be regional because it is representative of ozone levels aloft. This site recorded exceedances of the California 1-hour and 8-hour ozone standards in the most recent 3 years.

Hayward Site Information

Site Name	Hayward - 1015
AQS ID	06-001-2001
GIS coordinates	37.6545° N, 122.0316° W
Location	Pump house near water tank
Address	3466 La Mesa Drive, Hayward CA 94542
County	Alameda
Distance to road from gaseous probe	Hayward Drive: 26.2 meters La Mesa Dr: 38 meters
Traffic count	Hayward Drive: 4,400 ADT (2005) La Mesa Dr: 500 ADT (estimate)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Hayward Monitor Information

Pollutant	O3
Monitoring Objective	Population oriented, Regional transport
Spatial scale	Regional
Sampling method	TECO 49A
PM filter analysis method	N/A
Start date	05/31/77
Operation schedule	Continuous
Sampling season	April 1-November 30
Probe height (AGL)	6.7 m
Probe height above roof	3.2 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	11.4 m
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	Teflon
Residence time	13 s
Will there be changes within the next 18 months?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	10/20/06
Last two semi-annual flow rate audits for PM monitors	N/A

Los Gatos

Los Gatos was chosen for an ozone monitoring site because prevailing northerly winds transport ozone and ozone precursors from the densely populated area around the South Bay down the west side of the Santa Clara Valley. Mobile sampling studies as well as long-term monitoring in the Saratoga and Los Gatos areas showed Los Gatos to have the highest ozone levels in the area. These high ozone levels are in part due to Los Gatos being situated at the base of the Santa Cruz Mountains, which act as a barrier to the movement of polluted air. The monitoring site is located near the downtown area at a fire station surrounded by residential neighborhoods. The city of Los Gatos has an estimated 2005 population of 28,029. This site recorded exceedances of the national 8-hour ozone standard and the California 1-hour ozone standard over the most recent three years.

Los Gatos Site Information

Site Name	Los Gatos - 7006
AQS ID	06-085-1001
GIS coordinates	37.2267° N 121.9796° W
Location	Top of fire station's hose drying tower
Address	306 University Ave, Los Gatos CA 95030
County	Santa Clara
Distance to road From gaseous probe	University Ave: 37.2 meters Bentley Ave: 26.5 meters State Route 17: 291 meters
Traffic count	University Ave: 13,600 ADT (2005) Bentley Ave: 400 ADT (estimate) State Route 17: 68,000 ADT (2005)
Groundcover	Paved
Representative Area	San Jose- Sunnyvale- Redwood City MSA

Los Gatos Monitor Information

Pollutant	O3
Monitoring Objective	Population oriented & Highest concentration
Spatial scale	Neighborhood
Sampling method	TECO 49
PM filter analysis method	N/A
Start date	04/01/72
Operation schedule	Continuous
Sampling season	All year
Probe height (AGL)	11.0 m
Probe height above roof	3.2 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	15.5 m
Distance to furnace or incinerator flue	4.3 m
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	Teflon
Residence time	13 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	10/23/06
Last two semi-annual flow rate audits for PM monitors	N/A

Martinez

Martinez was chosen for SO_2 source impact monitoring because the Shell Oil Refinery is on its eastern border. Additionally, the Tosoro Refinery lies 2.5 miles further east. Although the prevailing winds in the area are from the west, east winds can transport SO_2 emissions from the refineries over populated areas in the city. The monitoring site is located near downtown Martinez and 0.5 miles west of the Shell Refinery property. The town of Martinez has a 2005 population of 35,916. Except for the refineries, there are no industrial activities or SO_2 sources in the area. No exceedances of any SO_2 standards were measured in the most recent 3 years.

EPA siting criteria specifies that the probe be located at least 10 meters from the drip line of all trees. A tree to the southwest of the probe has a drip line 9 meters from the probe. However, the tree is not between the refineries and the probe, so it is expected to have little influence on the measurements. With prevailing westerly winds, the tree does lie within the arc of unrestricted airflow for the predominant wind direction; however no significant SO_2 sources exist in that direction. The Air District plans to move the probe further away from the tree in July 2007.

Martinez Site Information

Site Name	Martinez - 2014
AQS ID	06-013-2001
GIS coordinates	38.0129° N, 122.1345° W
Location	Small sampling shelter next to fire station
Address	521 Jones St, Martinez CA 94553
County	Contra Costa
Distance to road from gaseous probe	Jones St: 22 meters Alhambra Ave: 19 meters
Traffic count	Jones St: 300 ADT (estimate) Alhambra Ave: 8,200 ADT (estimate)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Martinez Monitor Information

Pollutant	**SO2**
Monitoring Objective	Source Impact
Spatial scale	Neighborhood
Sampling method	TECO 43C
Analysis method	N/A
Start date	07/02/73
Operation schedule	Continuous
Sampling season	All year
Probe height (AGL)	7.2 m
Probe height above roof	2.7 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	9.0 m
Distance to furnace or incinerator flue	None
Unrestricted airflow	360°
Probe material	Teflon
Residence time	10 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	08/28/06
Last two semi-annual flow rate audits for PM monitors	N/A

Point Reyes

Point Reyes was chosen for an air monitoring site because it is representative of background $PM_{2.5}$ levels. Air pollution levels at this site are usually low due to the rural nature of the area, and because the upwind air flow is generally from the Pacific Ocean 2.5 miles to the west. The site is located within the Point Reyes National Seashore. Within the park are scattered dairy farms. There are no industrial sources within 20 miles of the park. Between the ocean and the air monitoring site the land is relatively flat with low vegetation. The air monitoring site is located behind a ranger residence at the north end of the park. The closest towns are Marshall, 3 miles to the northeast with a population of a few hundred; and Inverness 3.5 miles to the southeast with a 2005 population estimate of 1,500. This site recorded values that would exceed the national 24-hour $PM_{2.5}$ standard on 3 days in the most recent 3 years.

This site uses a continuous, beta attenuation monitor (BAM) to measure $PM_{2.5}$. However, only filter-based $PM_{2.5}$ measurements may be used for comparison with the national $PM_{2.5}$ standards. BAM $PM_{2.5}$ data can not be used to determine violations of the national $PM_{2.5}$ standards, or its attainment status. This site is operated by the California Air Resources Board.

Pt Reyes Site Information

Site Name	Pt Reyes
AQS ID	06-041-0003
GIS coordinates	38.1269° N, 122.9138° W
Location	At ground level behind a ranger residence
Address	170 Pierce Point Rd, Pt Reyes CA 94956
County	Marin
Distance to road from probe	Pierce Point Rd: 101 meters
Traffic count	Pierce Point Rd: 223 ADT (2006)
Groundcover	Grass
Representative Area	San Francisco-Oakland-Fremont MSA

Point Reyes Monitor Information

Pollutant	**Continuous PM2.5 (BAM)**
Monitoring Objective	General Background
Spatial scale	Regional
Sampling method	Met One BAM 1020
PM filter analysis method	N/A
Start date	12/01/00
Operation schedule	Continuous
Sampling season	All year
Probe height (AGL)	3.0 m
Probe height above ground	3.0 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	35 m
Distance to furnace or incinerator flue	>50 m
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	N/A
Residence time	N/A
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	No – not reference or equivalent method
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	2 times per month
Frequency of one-point QC check (gaseous)	N/A
Last Annual Performance Evaluation (gaseous)	N/A
Last two semi-annual flow rate audits for PM monitors	09/14/06 12/08/05

Point Richmond

Point Richmond was chosen for H_2S source impact monitoring because the Chevron Refinery is on the northern boundary of this part of Richmond. Although prevailing winds in the area are from the south southwest, occasional northerly winds will transport H_2S emissions from the refinery over the town. The town of Point Richmond, which is actually a neighborhood of the city of Richmond, has an estimated population of 1300 as of 2000. The monitoring site is located in downtown Point Richmond, 0.2 miles south of the Chevron Refinery boundary. The site recorded 1 exceedance of the California 1-hour H_2S standard in the most recent 3 years.

Point Richmond Site Information

Site Name	Point Richmond - 2013
AQS ID	06-013-0005
GIS coordinates	37.9262° N, 122.3856° W
Location	Air monitoring shelter next to fire station
Address	140 W. Richmond Ave, Richmond CA 94801
County	Contra Costa
Distance to road From gaseous probe	W. Richmond Ave: 10.2 meters Interstate 580: 266 meters
Traffic count	W. Richmond Ave: 1,340 ADT (2003) Interstate 580: 78,000 ADT (2005)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont (MSA)

Point Richmond Monitor Information

Pollutant	H2S
Monitoring Objective	Source impact
Spatial scale	Neighborhood
Sampling method	TECO 45C
PM filter analysis method	N/A
Start date	01/01/99
Operation schedule	Continuous
Sampling season	All year
Probe height (AGL)	3.4 m
Probe height above roof	0.9 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	17 m
Distance to furnace or incinerator flue	7.3 m
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	Teflon
Residence time	5 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	08/15/06
Last two semi-annual flow rate audits for PM monitors	N/A

Richmond 7th

Richmond 7th was chosen for H_2S and SO_2 source impact monitoring because it is near the eastern boundary of the Chevron Refinery. Normally, monitoring is done downwind of the prevailing wind direction. However, the prevailing winds are from the south, and carry emissions over San Pablo Bay. Since it is impractical to monitor over San Pablo Bay, a monitoring site was chosen downwind of the secondary wind direction, 0.5 miles east of the refinery boundary, where the monitor is expected to measure the highest concentrations in an area where the public has access. This site recorded one exceedance of the California 1-hour H_2S standard, and no exceedances of any SO_2 standard in the most recent 3 years.

Richmond 7th Site Information

Site Name	Richmond 7th - 2019
AQS ID	06-013-0006
GIS coordinates	37.9482° N, 122.3649° W
Location	Fire station
Address	1065 7th Street, Richmond CA 94801
County	Contra Costa
Distance to road from gaseous probe	7th St: 21.5 meters Hensley St: 29.9 meters
Traffic count	7th St: 3,000 ADT (estimate) Hensley St: 2,000 ADT (estimate)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont MSA

Richmond 7th Monitor Information

Pollutant	SO2	H2S
Monitoring Objective	Source impact	Source impact
Spatial scale	Neighborhood	Neighborhood
Sampling method	TECO 43C	TECO 45C
PM filter analysis method	N/A	N/A
Start date	07/01/80	10/01/99
Operation schedule	Continuous	Continuous
Sampling season	All year	All year
Probe height (AGL)	8.4 m	8.4 m
Probe height above roof	2.8 m	2.8 m
Distance from obstructions on roof	None	None
Distance from obstructions not on roof	None	None
Distance from tree (DL)	10 m	10 m
Distance to furnace or incinerator flue	12.2 m	12.2 m
Distance between collocated monitors	N/A	N/A
Unrestricted airflow	360°	360°
Probe material	Teflon	Teflon
Residence time	9 s	10 s
Will there be changes within the next 18 mos?	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A
Frequency of flow rate verification for manual PM samplers	N/A	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	N/A
Frequency of one-point QC check (gaseous)	Daily	Daily
Last Annual Performance Evaluation (gaseous)	10/18/06	10/18/06
Last two semi-annual flow rate audits for PM monitors	N/A	N/A

Rodeo

Rodeo was chosen for H_2S source impact monitoring because the ConocoPhillips Refinery is on the eastern boundary of the town of Rodeo. Although the prevailing winds in the area are from the southwest, northeast winds can transport H_2S emissions from the refinery over the populated area of the town. The rapidly growing community of Rodeo had a population of 8,717 in 2000. The monitoring site is located in a residential area 0.6 miles southwest of the ConocoPhillips Refinery boundary. No exceedances of the California H_2S standard were measured in the most recent 3 years.

Rodeo Site Information

Site Name	Rodeo - 2034
AQS ID	06-013-0007
GIS coordinates	38.0343° N, 122.2704° W
Location	Single story storage area at fire station
Address	326 Third Street, Rodeo CA 94572
County	Contra Costa
Distance to road from gaseous probe	Third St: 13.3 meters Parker St: 249.0 meters
Traffic count	Third St: 500 ADT (estimate) Parker St: 11,836 ADT (2000)
Groundcover	Paved
Representative Area	San Francisco-Oakland-Fremont (MSA)

Rodeo Monitor Information

Pollutant	**H2S**
Monitoring Objective	Source impact
Spatial scale	Neighborhood
Sampling method	TECO 45C
PM filter analysis method	N/A
Start date	04/01/02
Operation schedule	Continuous
Sampling season	All year
Probe height (AGL)	6.7 m
Probe height above roof	2.0 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	>50 m
Distance to furnace or incinerator flue	10.9 m
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	Teflon
Residence time	71 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers audit	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	09/20/06
Last two semi-annual flow rate audits for PM monitors	N/A

San Jose Tully

San Jose Tully was chosen to monitor PM_{10} to satisfy an EPA requirement to have more than one PM_{10} monitoring site in the San Jose MSA. The site was chosen to be outside of the downtown area, in a neighborhood where particulate levels were expected to be representative of a high concentration area. San Jose Tully is southeast of the Air District's downtown site, in an area with high traffic volumes, surrounded by light industrial and residential areas and next to the Santa Clara County Fairgrounds. Later in 1999 a $PM_{2.5}$ monitor was added to meet EPA $PM_{2.5}$ monitoring requirements. This site recorded exceedances of the national 24-hour $PM_{2.5}$ standard and the California 24-hour PM_{10} standard in the most recent 3 years.

Analysis of nine years of monitoring $PM_{2.5}$ at Tully Road has shown that $PM_{2.5}$ levels at this site are well correlated with $PM_{2.5}$ levels measured at the downtown San Jose site. Therefore the $PM_{2.5}$ air quality at Tully Road is well represented by the downtown San Jose site. Consequently the $PM_{2.5}$ monitor was relocated to Gilroy, an area where there is a growing population and no previous $PM_{2.5}$ monitoring.

San Jose Tully Site Information

Site Name	San Jose Tully- 7019
AQS ID	06-085-2003
GIS coordinates	37.3061° N 121.8489° W
Location	One-story garage
Address	528 Tully Road, San Jose CA 95111
County	Santa Clara
Distance to road from closest PM sampler	Tully Road: 56 meters Senter Road: 176 meters
Traffic count	Tully Road: 31,000 ADT (2005) Senter Road: 35,000 ADT (2005)
Groundcover	Paved
Representative Area	San Jose-Sunnyvale-Santa Clara MSA

San Jose Tully Monitor Information

Pollutant	PM10	FRM PM2.5
Monitoring Objective	Population oriented, Highest concentration	Population oriented
Spatial scale	Neighborhood	Neighborhood
Sampling method	Andersen GUV-16HBLA	Andersen RAAS 300
PM filter analysis method	Weighed by BAAQMD	Weighed by BAAQMD
Start date	01/05/90	01/01/99
Operation schedule	1 in 6	Apr-Sep: 1 in 6 Oct-Mar: Daily
Sampling season	All year	all year
Probe height (AGL)	6.1 m	6.2 m
Probe height above roof	1.5 m	2 m
Distance from obstructions on roof	None	None
Distance from obstructions not on roof	None	None
Distance from tree (DL)	13.2 m	11.3 m
Distance to furnace or incinerator flue	15.8 m	16.5 m
Distance between collocated monitors	N/A	N/A
Distance between PM_{10} and $PM_{2.5}$ samplers	2.7 m	2.7 m
Unrestricted airflow	360°	360°
Probe material	N/A	N/A
Residence time	N/A	N/A
Will there be changes within the next 18mos	Yes[2]	Yes[3]
Is it suitable for comparison against the annual PM2.5?	N/A	Yes
Frequency of flow rate verification for manual PM samplers	Annually	N/A
Frequency of flow rate verification for automated PM analyzers	N/A	Monthly
Frequency of one-point QC check (gaseous)	N/A	N/A
Last Annual Performance Evaluation (gaseous)	N/A	N/A
Last two semi-annual flow rate audits for PM monitors	10/05/06 06/13/06	11/09/06 06/13/06

[2] See Proposed Modifications to the Network, San Jose
[3] See Recent Modifications to the Network

San Leandro

San Leandro was chosen for an ozone air monitoring site because it is centered in the densely populated western part of Alameda County, and because it is downwind of a large source of ozone and ozone precursors from the central Bay Area. Studies have shown that ozone can be transported southward along the East Bay Hills to San Leandro, at levels that may exceed the ozone standards. San Leandro has an estimated 2005 population of 78,178. The site is located in southeast San Leandro, close to the base of the East Bay Hills on the grounds of the Fairmont Hospital surrounded by a residential area. There are no significant industrial emissions in the immediate area, although the site is 0.28 miles from Interstate 580. This site recorded exceedances of the California 1-hour ozone standard in the most recent 3 years.

San Leandro Site Information

Site Name	San Leandro - 1022
AQS ID	06-001-0006
GIS coordinates	37.7102° N, 122.1169° W
Location	Trailer
Address	15400 Foothill Boulevard, San Leandro CA 94578
County	Alameda
Distance to road from gaseous probe	Foothill Blvd: 402 meters Fairmont Dr: 353 meters Interstate 580: 453 meters
Traffic count	Foothill Blvd: 4,720 ADT (2004) Fairmont Dr: 9,170 ADT (2006) Interstate 580: 151,000 ADT (2005)
Groundcover	Gravel
Representative Area	San Francisco-Oakland-Fremont MSA

San Leandro Monitor Information

Pollutant	O3
Monitoring Objective	Population oriented
Spatial scale	Neighborhood
Sampling method	TECO 49A
PM filter analysis method	N/A
Start date	08/01/90
Operation schedule	Continuous
Sampling season	April 1-November 30
Probe height (AGL)	4.7 m
Probe height above roof	1.9 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	13.2 m
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	Teflon
Residence time	13 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	10/20/06
Last two semi-annual flow rate audits for PM monitors	N/A

San Martin

San Martin was chosen for an ozone air monitoring site because earlier field measurements showed this area to have the highest ozone concentrations in the Santa Clara Valley. Prevailing winds transport ozone and ozone precursors down the valley from the densely populated San Jose area as well as the surrounding San Francisco Bay. San Martin is located in an agricultural area at the south end of the Santa Clara Valley approximately 24 miles southeast of downtown San Jose. The town has a small population of 4,230 (2000 Census) and no industrial sources. The air monitoring site is located at the South County Airport, near the centerline of the valley and about 0.3 miles west of US Highway 101. This site recorded exceedances of the national 8-hour ozone standard in the most recent 3 years.

San Martin Site Information

Site Name	San Martin - 7022
AQS ID	06-085-2006
GIS coordinates	37.0794° N 121.6000° W
Location	Air monitoring shelter next to maintenance shed
Address	13030 Murphy Ave, San Martin CA 95046
County	Santa Clara
Distance to road from gaseous probe	Murphy Ave: 38.1 meters US Highway 101: 455 meters
Traffic count	Murphy Ave: 880 ADT (estimate) US Highway 101: 112,000 ADT (2005)
Groundcover	Vegetative
Representative Area	San Jose- Sunnyvale- Santa Clara MSA

San Martin Monitor Information

Pollutant	O3
Monitoring Objective	Highest concentration
Spatial scale	Neighborhood
Sampling method	TECO 49
PM filter analysis method	N/A
Start date	04/30/94
Operation schedule	Continuous
Sampling season	Apr 1 – Nov 30
Probe height (AGL)	5.3 m
Probe height above roof	3.2 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	23 m
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	Teflon
Residence time	10 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	10/30/06
Last two semi-annual flow rate audits for PM monitors	N/A

Sunnyvale

Sunnyvale was chosen for an ozone monitoring site because it is located within the densely populated South Bay Area and is midway between monitoring sites at Redwood City and downtown San Jose. Ozone measurements were made in the past at nearby Mountain View to determine if ozone was moving down the west side of the Santa Clara Valley, similar to what had been observed on the east side of the Santa Clara Valley. The Mountain View site had to be closed due to demolition of the structure containing the site, and it was desirable to continue measuring ozone in the area because ozone exceedances had been recorded at Mountain View. A suitable monitoring site was found close by in Sunnyvale, which was expected to record similar ozone levels. The site is located south of downtown Sunnyvale in a residential area. Sunnyvale does not have any major industry. The Sunnyvale site recorded exceedances of the California 1-hour and 8-hour ozone standards in the most recent 3 years.

Sunnyvale Site Information

Site Name	Sunnyvale - 7030
AQS ID	06-085-2007
GIS coordinates	37.3555° N 122.0509° W
Location	Shelter alongside fire station wall
Address	910 Ticonderoga Drive, Sunnyvale CA 94087
County	Santa Clara
Distance to road from gaseous probe	Mary Ave: 20.7 meters
Traffic count	Mary Ave: 13,000 ADT (2001)
Groundcover	Paved
Representative Area	San Jose-Sunnyvale-Redwood City MSA

Sunnyvale Monitor Information

Pollutant	O3
Monitoring Objective	Population oriented
Spatial scale	Neighborhood
Sampling method	TECO 49
PM filter analysis method	N/A
Start date	04/01/01
Operation schedule	Continuous
Sampling season	Apr 1 – Nov 30
Probe height (AGL)	5.6 m
Probe height above fire station roof	1.2 m
Distance from obstructions on roof	None
Distance from obstructions not on roof	None
Distance from tree (DL)	14.3 m
Distance to furnace or incinerator flue	5.3 m
Distance between collocated monitors	N/A
Unrestricted airflow	360°
Probe material	Teflon
Residence time	10 s
Will there be changes within the next 18 mos?	No
Is it suitable for comparison against the annual PM2.5?	N/A
Frequency of flow rate verification for manual PM samplers	N/A
Frequency of flow rate verification for automated PM analyzers	N/A
Frequency of one-point QC check (gaseous)	Daily
Last Annual Performance Evaluation (gaseous)	10/23/06
Last two semi-annual flow rate audits for PM monitors	N/A

Exhibit #201

owner has proposed to mitigate half of the project annual limits of 86.8 tons with only 43.4 tons of wintertime PM10 emission reductions (CH2MHILL 2007a).

The project owner proposed to mitigate the wintertime PM10 emissions through a wood stove/fireplace improvement program (RC2002a). The proposed program would be open to any Hayward resident who wished to participate on a voluntary basis. Each participant could replace or retrofit their existing wood stove or fireplace with a natural gas-fired unit. The rebate or incentive would be at least $300 and could be used to either replace the existing wood stove with a modern stove with improved combustion and emission controls, or retrofit the existing fireplace with an insert or artificial gas log. Staff estimates that to mitigate the RCEC wintertime 43.4 tons of PM10 emissions, the project owner needs to have 933 Hayward participants that currently own a wood stove (at 93 lbs PM10/unit), or 8,346 participants who own a fireplace (at 10.4 lbs PM10/unit), or a combination of the two as long as the total emission reductions achieve 43.4 tons of PM10.

Identical stove and fireplace replacement programs were implemented in the Bay Area with highly localized and uneven results; therefore, staff recommends the project owner develop a plan to implement the woodstove/fireplace replacement program as the project mitigation measure. This plan must be submitted to the Compliance Project Manager (CPM) for approval and must incorporate specific milestones into the program to track its progress. Staff recommends that milestones include: 15 percent of the tons per year at six months, 30 percent of the tons per year at nine months, 50 percent of the tons per year at one year, 80 percent of the tons per year at 18 months, and a completion milestone, in tons per year for the program at the end of year two, which would be approximately coincident with the completion of construction and initiation of commissioning activities. The mitigation plan and its specific milestones are specified in staff recommended Condition of Certification **AQ-SC12**.

Additionally, staff believes that gas logs and fireplace inserts are not the most efficient means to heat homes. Thus, even though these gas logs offer the necessary PM10 emission reductions, they represent a waste of non-renewable resources and a potential ongoing cost to the user. This is because much of the heat generated in these devices is lost through the chimney. Staff recommends an optional element be added to the woodstove and fireplace replacement program that allows the participant to use the "offered rebate" toward improvement or replacement of the participant's natural gas or electric central heating units.

Staff also recommends adoption of a backstop mitigation plan should the woodstove/fireplace improvement program not work or does not meet the milestones specified in **AQ-SC13**. Based on input from the project owner (CH2MHILL 2007a), in case the woodstove/fireplace improvement program fails to achieve the PM10 reductions, SOx ERCs would be used to mitigate the project's PM10 emission contribution to the atmospheric PM10. The project owner provided an analysis[10] of the

[10] The analysis assumed equilibrium exists between sulfur compounds and sulfur based particulate matter in the area ambient air. Therefore, by examining the measured ambient concentrations of PM10, sulfur dioxide, and sulfate-based particulate matter; one can derive a ratio that can be used as a basis to determine the appropriate interpollutant trading ratio for SOx to PM10.

EXHIBIT # 202

ambient air quality data collected from the nearest air quality monitoring station (Concord, CA) as well as incomplete ambient air quality data collected in the Fremont, Richmond and San Jose areas. According to this analysis of atmospheric inventories, the SOx for PM10 inter-pollutant trading ratio can range from 1.5 (in San Jose) to 7.24 (in Fremont) pounds of SOx for every pound of PM10 emissions. The project owner believes that the average of 1.5 and 7.24, which is approximately 3 to 1, should be used.

Staff does not agree with the project owner's analysis, as the ratios were determined with only one complete data set from the Concord monitoring station and the rest of the data used in the analysis were, at best, extrapolated data. Staff attempted to duplicate the submitted analysis with complete ambient air quality data collected from the Concord, San Pablo, and San Francisco areas, which staff believes better represent the overall air pollution levels and chemical equilibriums for the area surrounding the project site. Using these ambient air quality data, staff calculated that the inter-pollutant trading ratio of SOx for PM10 can range from 4.66 to 5.91, or 5.3 to 1 on average.

Based on staff's analysis, staff recommends that if the project owner wants to use the SOx for PM10 interpollutant trading to mitigate the project's 86.8 tons of PM10 per year with SOx ERCs, the necessary SOx credits would total 460 tons of SOx per year[11]. Note that the District issues ERCs on an annual basis, and would not be able to separate out the winter season portion of annual ERCs. Therefore, to achieve a PM10 emission reduction, in pounds per day that matches the project's potential to emit in pound per day, the owner would need to submit ERCs that mitigate the annual project PM10 emissions. This requirement is shown in **AIR QUALITY Table 4** and incorporated into Condition of Certification **AQ-SC13**.

In summary, staff tabulated the project annual emission limits and the proposed offset mitigations, in the form of ERCs, or woodstove/fireplace improvement program, in **AIR QUALITY Table 4**. The project owner has purchased ERCs for NOx, POC and SO_2, in the form of District issued banking certificates, from sources of offsets located in the San Francisco and Hercules areas to mitigate the project's new emissions. The project owner proposes to initiate a woodstove/fireplace improvement program to mitigate the project's PM10 emissions. If these not work, they will use ERCs of SO_2 to trade for the project's PM10 emissions. Staff recommends a "5.3 to 1" ratio, i.e., for every pound of new PM10 emissions from the proposed facility, 5.3 pounds of SO_2 are purchased to offset such increase.

GREENHOUSE GASES

The generation of electricity can produce air emissions known as greenhouse gases (GHGs) in addition to the criteria air pollutants. GHGs are known to contribute to the warming of the earth's atmosphere. These include primarily carbon dioxide, nitrous oxide (N_20, not NO or NO_2, which are commonly know as NOx or oxides of nitrogen), and methane (unburned natural gas). Also included are sulfur hexafluoride (SF_6) from

[11] 86.4 TPY of PM10 emissions from the project times the interpollutant trading ratio of 5.29 = 460 TPY of SOx that should be surrendered.

limited to proper dosage amounts, appropriate application procedures and effective monitoring.

In order to ensure that Legionella growth is kept to a minimum, thereby protecting both nearby workers as well as members of the public, staff has proposed Condition of Certification **PUBLIC HEALTH-1**. The condition would require the project owner to prepare and implement a biocide and anti-biofilm agent monitoring program to ensure that proper levels of biocide and other agents are maintained within the cooling tower water at all times, that periodic measurements of Legionella levels are conducted, and that periodic cleaning is conducted to remove bio-film buildup. Staff believes that with the use of an aggressive antibacterial program coupled with routine monitoring and biofilm removal, the chances of Legionella growing and dispersing would be reduced to an insignificant level.

CUMULATIVE IMPACTS AND MITIGATION

Cumulative risks of the proposed facility and existing emissions sources were not quantitatively evaluated in the Amendment or by staff. However, staff has qualitatively addressed cumulative impacts for this project and has quantitatively addressed them for another project in the recent past.

The maximum cancer risk for emissions from the RCEC (calculated by staff) is 4.1 in one million. (The project owner calculated a maximum risk of 1.4 in a million.) The maximum impact location occurs where pollutant concentrations from the RCEC would theoretically be the highest. Even at this location, staff does not expect any significant change in lifetime risk to any person, and the increase does not represent any real contribution to the average lifetime cancer incidence rate due to all causes (environmental as well as life-style and genetic). Project-related risks at residential locations which are more distant were found to be even lower, and actual risks are expected to be much lower still, since worst-case estimates are based on conservative assumptions and thus overstate the true magnitude of the risk expected. Therefore, staff does not consider the incremental impact of the additional risk posed by the RCEC to be individually significant. The worst-case long-term noncancer health impact from the RCEC (0.057 hazard index) is well below the significance level of 1.0 at the location of maximum impact. At this level, staff does not expect any noncancer health impacts to be the result of emissions from the proposed power plant. As with cancer risk, long-term hazard would be lower at all other locations.

The BAAQMD has in the past examined the issue of cumulative impacts from facilities affecting the same neighborhood. The BAAQMD concluded that elevated concentrations of toxic air contaminants from stationary sources tend to be quite localized and that cumulative risks are likely to occur only when multiple facilities with substantially low-elevation emissions are immediately adjacent to, or very close to, one another (BAAQMD 1993).

The proposed RCEC would be located about one-half mile away from the proposed Eastshore Energy Center and thus staff examined the potential impact of both power plants operating. Staff recently (2006) assessed a similar situation in San Francisco where a proposed power plant would be located less than ½-mile from an existing plant.

EXHIBIT #203

Staff conducted a detailed public health cumulative risk assessment of emissions of toxic air contaminants from the power plants and other facilities located in the vicinity of the proposed power plant. Twenty (20) facilities were included in the analysis: three power plants, one water treatment control plant, three dry cleaners, ten gasoline dispensing service stations, a steel drum facility, a printing facility and SF Petroleum. A total of 50 sources were evaluated using CARB's Hot Spots Analysis and Reporting Program (HARP). The results showed that the emission from the proposed power plant did not add to a significant cumulative cancer or noncancer impact. Based upon that assessment, staff would expect that if the same quantitative assessment was conducted for the RCEC, the results would be the same and that no significant cumulative impact on public health would exist.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

None received.

CONCLUSIONS

Staff concludes that the proposed RCEC amendment does not significantly change the analysis conducted for the original project in the area of public health. However, since the certification of this project in 2002, staff has developed a standard condition of certification that addresses the risk of impacts to public health as a result of bacterial contamination of cooling tower water. Therefore, the mitigation measure proposed by staff is sufficient to reduce impacts to public health to insignificant.

AMENDED AND PROPOSED CONDITIONS OF CERTIFICATION

PUBLIC HEALTH-1 The project owner shall develop, implement, and submit to the CPM for review and approval a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept to a minimum. The Plan shall be consistent with either staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelines but in either case, the Plan must include sampling and testing for the presence of Legionella bacteria at least every six months. After two years of power plant operations, the project owner may ask the Compliance Project Manager (CPM) to re-evaluate and revise the Legionella bacteria testing requirement.

Verification: At least 60 days prior to the commencement of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.

EXHIBIT # 204

copy to the Hayward Fire Department, at least 30 days before the change is needed, to the CPM for approval.

HAZ-2 The project owner shall provide a Risk Management Plan (RMP) and a Hazardous Materials Business Plan (HMBP), (that shall include the proposed building chemical inventory as per the UFC) to the City of Hayward Fire Department and the CPM for review at the time the RMP plan is first submitted to the U.S. Environmental Protection Agency (EPA). The project owner shall include all recommendations of the City of Hayward Fire Department and the CPM in the final documents. A copy of the final plans, including all comments, shall be provided to the City of Hayward and the CPM once EPA approves the RMP.

Verification: At least 60 days prior to construction of hazardous materials storage facilities and control systems, the project owner shall provide the final plans (RMP and HMBP) listed above and accepted by the City of Hayward to the CPM for approval.

HAZ-3 The project owner shall develop and implement a Safety Management Plan (SMP) for delivery of ammonia. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of aqueous ammonia with incompatible hazardous materials.

Verification: At least sixty days prior to the delivery of aqueous ammonia to the ammonia storage tanks, the project owner shall provide a ~~Safety Management Plan~~ SMP as described above to the CPM for review and approval.

HAZ-4 The aqueous ammonia storage facility shall be designed and built to either the ASME Pressure Vessel Code and ANSI K61.6 or to API 620. In either case, the storage tank shall be protected by a secondary containment basin capable of holding 125 percent of the storage volume or the storage volume plus the volume associated with 24 hours of rain assuming the 25-year storm, and shall be covered so that only drain holes or spaces or vents are open to the atmosphere. The aqueous ammonia tanker truck transfer pad shall be designed so that any spill drains to the covered secondary containment structure. The final design drawings and specifications for the ammonia storage tank, the tanker truck transfer pad, and secondary containment basin shall be submitted to the CPM.

Verification: At least sixty (60) days prior to delivery of aqueous ammonia to the facility, the project owner shall submit final design drawings and specifications for the ammonia storage tank, the tanker truck transfer pad, and secondary containment basin(s) to the CPM for review and approval.

HAZ-5 The project owner shall ensure that no combustible or flammable material is stored, used, or transported within ~~100~~ 50 feet of the sulfuric acid tank.

Verification: At least sixty (60) days prior to receipt of sulfuric acid on-site, the project owner shall provide to the CPM for review and approval copies of the facility design drawings showing the location of the sulfuric acid storage tank and the location

EXHIBIT #205

and that both the original and revised designs are forecast to be well below the 20% of seasonal daylight clear hours impact study threshold trigger

CONCLUSIONS

Visible water vapor plumes from the proposed amended RCEC gas turbine/HRSG exhausts are expected to occur infrequently, well below 20 percent of seasonal daylight clear hours. Therefore, no further visual impact analysis of the expected plume sizes has been completed.

The project owner's request to delete the **VIS-8** requirements for an economizer bypass would not create a significant visual impact and the revised version of **VIS-8** shown in the Amendment No. 1 documentation is acceptable.

REFERENCES

RCEC (Russell City Energy Company, LLC.). 2006. Russell City Energy Center, Hayward, CA, Amendment No. 1. Submitted to the California Energy Commission, November 2006.

EXHIBIT #206

LAND USE

Testimony of Shaelyn Strattan

SUMMARY OF CONCLUSIONS

- The Russell City Energy Center (RCEC) project, as amended, is consistent with all federal and state laws, ordinances, regulations, and standards (LORS); would not physically disrupt or divide an established community or conflict with any applicable habitat conservation plan or natural community conservation plan; result in any impacts to existing agricultural operations or future use; convert Farmland to non-agricultural use; or conflict with existing agricultural zoning or Williamson Act contracts. The project is consistent with the applicable 2002 General Plan policies and strategies and the project's proposed location is zoned Industrial, which is consistent with the Industrial Corridor General Plan land use designation. Full implementation of all project conditions of certification, including **LAND-1**, would make the off-site parking component of the proposed project, as amended, consistent with all applicable LORS.

- Power plant operation, as proposed in this Amendment, is consistent with the primary use classification of "manufacturing" in the Industrial Zone, but would normally require a conditional use permit (CUP). Energy Commission staff is unable to make the CUP-required findings that the proposed use would not be detrimental to the public health, safety, or general welfare or that the proposed use is in harmony with applicable City policies and the intent and purpose of the zoning district involved, due to the potential for the project to introduce an aviation safety hazard into the Hayward Executive Airport operational airspace. Approval of the RCEC project, as amended, without meeting the requirements for a CUP, would be inconsistent with the HMC §10-1.1620(b)(1)(a) and §10-1.3225.

- Based on information received to date, it appears that the thermal plumes generated by the RCEC project have the potential to endanger the maneuverability of aircraft within the Hayward Airport Approach Zoning Plan boundaries; Hazard Protection Zone (HPZ); proposed Airport Influence Area (AIA), and transitional airspace for the Hayward Executive Airport. Therefore, siting of this project at the proposed location would be inconsistent with HMC §10-6.35, the current ALUPP, and proposed draft ALUCP.

- Generation of thermal plumes that could jeopardize the safety of aircraft operating within this airspace or persons living or working in the vicinity of the airport is considered by Energy Commission staff to be more objectionable than other uses within the Industrial District that do not create a similar hazard. Therefore, based on information available to date, siting of the project at the proposed location is inconsistent with HMC §10-1.140.

If the Energy Commission elects to grant certification for this project, as amended, Energy Commission staff recommends modification of both original Land Use conditions of certification, as indicated in the **Proposed Modifications to Conditions of Certification** included in this section of the Staff Assessment. However, in Energy