

Appendix A.5 Folsom-Natoma St.

This site has been in operation since 1996. This site replaced the former Folsom-Leidesdorff Street site. Approximately 20 miles northeast of Downtown Sacramento, Folsom-Natoma St. site is the maximum summertime O₃ monitoring site within Sacramento County for days with prevailing afternoon southwesterly winds. This was a PAMS Type III site under the legacy PAMS network. It is now one of the two additional PAMS enhanced monitoring sites.

From mid-2019 through most of 2020, this air monitoring station was demolished and re-constructed to replace the 20-30 years old wooden shelter. The new shelter now sits in the footprint of the old shelter.

Table A-19 Folsom-Natoma St. Metadata

Site Name	Folsom-Natoma Street
AQS Site Number	06-067-0012
Geographic Coordinates	38.683304°N, 121.164457°W
Location	Folsom City Hall (parking lot), located 20 miles east-northeast of downtown Sacramento.
Address	50 Natoma Street, Folsom, CA 95630
County	Sacramento
Metropolitan Statistical Area	Sacramento--Arden-Arcade--Roseville, CA
Distance from Roadway	206 m
Annual Average Daily Traffic (Vehicles/Day)	Natoma St. at Coloma St (intersection total): 14,628 (City of Folsom, 2017)
Ground Cover	Vegetated

Figure 28 Folsom-Natoma St. Site Photo



Figure 29 Panoramic Photo Looking North from Folsom-Natoma St.



Figure 30 Panoramic Photo Looking East from Folsom-Natoma St.



Figure 31 Panoramic Photo Looking South from Folsom-Natoma St.



Figure 32 Panoramic Photo Looking West from Folsom-Natoma St.



Figure 33 Google Earth Satellite Image of Folsom-Natoma St.



Source: Google Earth, imagery date: 6/4/2021

The circle over Folsom-Natoma St. in Figure 33 indicates no trees exist within a 10 m radius, which satisfy the siting criterion that requires drip lines of trees to be at least 10 m away from probes and inlets (40 CFR Part 58, Appendix E). A site survey was conducted on 4/26/2023 to identify flow obstacle. Results are provided in provided in Table A-20 through Table A-22.

Table A-20 Distance between Object and Probe or Inlet at Folsom-Natoma St.

	Gaseous Probe	PM _{2.5} Inlet (Primary)	PM _{2.5} Inlet (Collocated)
Object A (Tower) ^(A)	N/A	N/A	N/A
Object B (Building)	10.8	9.7	6.9
Object C (Building)	8.7	7.7	9.7
Object D (Building)	4.5	4.4	9.7
Object E (Building)	9.9	8.9	5.6
Object F (Tree)	17.9	17.9	15.8
Object G (Tree)	30.9	30.9	30.9
Object H (Tree)	27.7	29.7	30.8
Object I (Tree)	24.9	25.9	24.9

All units are in meter
(A) This is an open lattice style communication tower, airflow is not obstructed by this structure

Table A-21 Object Protrusion Above Probe or Inlet at Folsom-Natoma St.

	Gaseous Probe	PM _{2.5} Inlet (north)	PM _{2.5} Inlet (south)
Object A (Tower)	N/A	N/A	N/A
Object B (Building)	-2.8	-2.9	-1.8
Object C (Building)	-2.7	-2.7	-2.7
Object D (Building)	-2.7	-2.8	-2.9
Object E (Building)	-2.1	-1.9	-2.6
Object F (Tree)	1.6	1.6	1.7
Object G (Tree)	1.5	1.6	1.6
Object H (Tree)	3.3	3.6	3.2
Object I (Tree)	1.5	1.7	1.6

All units are in meter

Table A-22 Distance vs. Protrusion Ratio at Folsom-Natoma St.

	Gaseous Probe	PM _{2.5} Inlet (north)	PM _{2.5} Inlet (south)
Object A (Tower)	N/A	N/A	N/A
Object B (Building)	N/A	N/A	N/A
Object C (Building)	N/A	N/A	N/A
Object D (Building)	N/A	N/A	N/A
Object E (Building)	N/A	N/A	N/A
Object F (Tree)	11.2	11.2	9.3
Object G (Tree)	20.6	19.3	19.3
Object H (Tree)	8.4	8.3	9.6
Object I (Tree)	16.6	15.2	15.6

Must be greater than or equal to 2 to meet U.S. EPA siting criteria; N/A indicates inlet or probe is taller than the object and airflow is not obstructed

Site	Folsom-Natoma St.				
Start Date	7/1/1996	7/1/1996	7/1/2011	7/1/1996	7/1/1996
Collecting Agency	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District
Analytical Lab	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	AAC
Reporting Agency	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District
Pollutant	O ₃	NO ₂	NOY ^(B)	Total NMHC	Speciated VOC ^(B)
Parameter Code	44201	42602	42600	43102	43102
Parameter Occurrence	1	1	1	1	2
Manufacturer/Model	TAPI 400E	TAPI200UP	TEI 42I-Y	TEI 55C	Xontech 910A/912
Sampling Method	Instrumental	Instrumental	Instrumental	Instrumental	6L Pressurized Canister
Method Code	087	200	674	164	123
Analysis Method	Ultraviolet Absorption	Photolytic-Chemiluminesc	Chemiluminescence	Flame Ionization Detector	Dual Flame Ionization Detector
FRM/FEM/ARM/Other	FEM	FEM	Other	Other	Other
Monitoring Objective	NAAQS comparison, public info	NAAQS comparison, public info	Public info, research	Public info, research	Research
Statement of Purpose	Measure highest summer O ₃ level downwind of urban area	Measures concentration downwind of urban area	Measures representative concentration	Measures concentration downwind of urban area	Measures concentration downwind of urban area
Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Affiliation	PAMS	PAMS	PAMS	PAMS	PAMS
Site Type	Max O ₃ Concentration, Population Exposure	Highest concentration	Population Exposure	Highest concentration	Highest concentration
Spatial Scale	Neighborhood	Neighborhood	Not applicable	Not applicable	Not applicable
Sampling Frequency	Continuous	Continuous	Continuous	Continuous	1 in 3 days
Sampling Season	Year Round	Year Round	Year Round	Year Round	July thru Sep
Distance from Supporting Structure or Roof	2.3	2.3	Not applicable	2.3	1.9
Distance from flow obstructions on roof (m)	No obstruction	No obstruction	No obstruction	No obstruction	No obstruction
Distance from flow obstructions not on roof (m)	No obstruction	No obstruction	No obstruction	No obstruction	No obstruction
Distance from nearest tree drip line (m)	15.5	15.5	14.6	15.5	15.5
Distance to furnace or incinerator flue (m)	No furnace/flue	No furnace/flue	No furnace/flue	No furnace/flue	No furnace/flue
Distance between collocated PM monitors (m)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Unrestricted airflow (deg)	360	360	360	360	360
Probe height (m, agl)	5.5	5.5	10.0	5.5	5.5
Probe material	FEP Teflon	FEP Teflon	FEP Teflon	FEP Teflon	Stainless Steel
Residence time (seconds)	17.9	17.9	9.0	13.7	3.0
Changes in next 18 months?	No	No	Yes	No	Yes
Frequency of 1-pt QC Check	Every other day	Every other day	Every other day	Every other day	Pre- and post-seasonally
Audit Date(s)	4/21/22	4/21/22	Not applicable	Temp. shutdown ^(A)	Not applicable

^(A) U.S. EPA Region 9 approved the temporary shut down on 12/1/17

^(B) U.S. EPA Region 9 approved the discontinuation on 3/20/23

Site	Folsom-Natoma St.	
Start Date	4/1/2013	7/1/2015
Collecting Agency	Sac Metro Air District	Sac Metro Air District
Analytical Lab	Sac Metro Air District	Sac Metro Air District
Reporting Agency	Sac Metro Air District	Sac Metro Air District
Pollutant	PM _{2.5} (Primary monitor)	PM _{2.5} (Audit monitor)
Parameter Code	88101	88101
Parameter Occurrence	3	4
Manufacturer/Model	Met One 1020 BAM	Met One 1020 BAM
Sampling Method	Very sharp cut cyclone	Very sharp cut cyclone
Method Code	170	170
Analysis Method	Beta Attenuation	Beta Attenuation
FRM/FEM/ARM/Other	FEM	FEM
Monitoring Objective	NAAQS comparison, public info, research	NAAQS comparison, public info, research
Statement of Purpose	Measures representative concentration	Collocated for QA purpose and provides substitute data if necessary
Monitor Type	SLAMS	SLAMS
Affiliation	None	None
Site Type	Population Exposure	Population Exposure
Spatial Scale	Neighborhood	Neighborhood
Sampling Frequency	Continuous	Continuous
Sampling Season	Year Round	Year Round
Distance from Supporting Structure or Roof	2.2	2.2
Distance from flow obstructions on roof (m)	No obstruction	No obstruction
Distance from flow obstructions not on roof (m)	No obstruction	No obstruction
Distance from nearest tree drip line (m)	13.0	12.0
Distance to furnace or incinerator flue (m)	No furnace/flue	No furnace/flue
Distance between collocated PM monitors (m)	1.8	1.8
Unrestricted airflow (deg)	360	360
Probe height (m, agl)	5.4	5.4
Probe material	Aluminum	Aluminum
Residence time (seconds)	Not applicable	Not applicable
Changes in next 18 months?	No	No
Frequency of flow rate verification	Bi-monthly	Bi-monthly
Audit Date(s)	4/21/22, 10/12/22	4/21/22, 10/12/22

Site	Folsom-Natoma St.				
Start Date	7/1/1996	7/1/1996	7/1/1996	7/1/1996	7/1/1996
Collecting Agency	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District
Analytical Lab	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District
Reporting Agency	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District	Sac Metro Air District
Pollutant	Outdoor Temperature	Relative Humidity	Solar Radiation	Wind Direction	Wind Speed
Parameter Code	62101	62201	63301	61104	61103
Parameter Occurrence	1	1	1	1	1
Manufacturer/Model	Climatronics 100093	Climatronics 101669	Climatronics 100848	Climatronics F-460	Climatronics F-460
Sampling Method	Instrumental	Instrumental	Instrumental	Instrumental	Instrumental
Method Code	042	012	011	020	020
Analysis Method	Machine Average	Hygroscopic Plastic Film	Pyranometer	Vector Summation	Vector Summation
FRM/FEM/ARM/Other	Other	Other	Other	Other	Other
Monitoring Objective	Public info	Public info	Public info	Public info, research	Public info, research
Statement of Purpose	Measures representative meteorology	Measures representative meteorology	Measures representative meteorology	Measures representative meteorology	Measures representative meteorology
Monitor Type	SLAMS	SLAMS	SLAMS	SLAMS	SLAMS
Affiliation	PAMS	PAMS	PAMS	PAMS	PAMS
Site Type	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Spatial Scale	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Sampling Frequency	Continuous	Continuous	Continuous	Continuous	Continuous
Sampling Season	Year Round	Year Round	Year Round	Year Round	Year Round
Distance from Supporting Structure or Roof	No supporting structure	No supporting structure	No supporting structure	No supporting structure	No supporting structure
Distance from flow obstructions on roof (m)	No obstruction	No obstruction	No obstruction	No obstruction	No obstruction
Distance from flow obstructions not on roof (m)	No obstruction	No obstruction	No obstruction	No obstruction	No obstruction
Distance from nearest tree drip line (m)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Distance to furnace or incinerator flue (m)	No furnace/flue	No furnace/flue	No furnace/flue	No furnace/flue	No furnace/flue
Distance between collocated PM monitors (m)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Unrestricted airflow (deg)	360	360	360	360	360
Probe height (m, agl)	10.0	10.0	10.0	10.0	10.0
Probe material	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Residence time (seconds)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Changes in next 18 months?	No	No	No	No	No
Frequency of 1-pt QC Check	N/A	N/A	N/A	N/A	N/A
Audit Date(s)	8/9/21 ^(A)	Not applicable	Not applicable	4/21/22	4/21/22

^(A) This monitor was malfunctioning during audit attempt in 2022