MONITORING & TECHNICAL SERVICES DIVISION

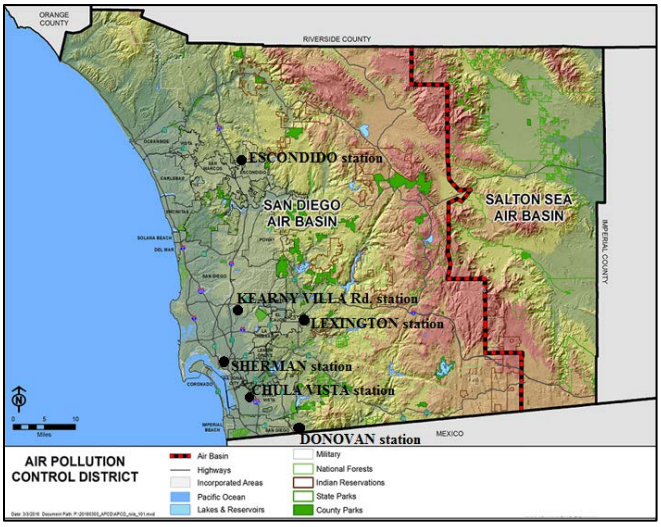
AMBIENT AIR QUALITY SECTION

58.14 REPORT

FOR

THE DECOMMISSIONING OF PM_{10} SAMPLING AT THE DOWNTOWN/SHERMAN ELEMENTARY SCHOOL STATION

July 10, 2018



Authors:

David N. Shina
Senior Chemist, Ambient Air Quality Section

Adam Canter
Associate Meteorologist, Meteorology and Modeling Section

San Diego APCD Formal Request to Decommission PM_{10} Sampling at the Downtown/Sherman Elementary School Station

Request:
The San Diego Air Pollution Control District (District) is requesting the decommissioning of the PM_{10} sampler at the Downtown/Sherman Elementary School (SES) station that is designated to measure ambient levels of particulate air pollution.

Reason(s):

1. The measured levels of PM_{10} concentrations at this location are less than 80% of the NAAQS.
2. According to the 40 CFR Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring," Section 4, "Pollutant-Specific Design Criteria for SLAMS Sites," part 4.6 "Particulate Matter (PM_{10}) Design Criteria," the District is only required to operate the following PM_{10} samplers (See Table 1 PM_{10} Minimum Monitoring Requirements-Summary).

Monitor/Station Decommissioning Requirements

- Monitors are eligible based on 40 CFR 58.14 (c)(1)
- No longer needed/measure concentrations well below the NAAQS - 40 CFR 58.14(c).

Other Information
Table 1 below, summarizes the PM_{10} minimum monitoring requirements.

Table 1 PM_{10} Minimum Monitoring Requirements - Summary

MSA (name)	County (name)	Population Estimated from 2010 Census (#)	Is the Design Value Site Low/Medium/High Concentration?	Number of PM_{10} Samplers Required (#)	Number of PM_{10} Samplers Active (#)	Number of PM_{10} Samplers Needed (#)
San Diego	San Diego	3.4 million	Low	2 - 4	2*	None

* By late-2018/early-2019, one more station, Escondido should be active and it will have a PM_{10} sampler, bringing the total to three (3) stations, Donovan, Lexington Elementary School, and Escondido.

Please note: the District submitted a 58.14 request in the 2017 Annual Network Plan to decommission the PM_{10} samplers from the Kearny Villa Road and Chula Vista Stations. This report takes into account that request for decommissioning. Table 2 is a summary of all the PM_{10} samplers and their status.

The Sherman Elementary School station (Sherman) is a relocation of the Perkins Elementary School station (Perkins). We were evicted from Perkins for school expansion reasons. The Sherman site is being built and is about 0.70 miles north east (downwind) of the Perkins site. All the data to support the decommissioning of the PM_{10} sampler at Sherman Elementary School will be from Perkins Elementary School.

A $PM_{2.5}$-sequential (filter-based) sampler and $PM_{2.5}$-continuous analyzer will be at the new Sherman site, which will give more prescient information than the PM_{10}-sequential (filter-based) sampler. Furthermore, a $PM_{2.5}$ Elemental Carbon-sequential (filter-based) sampler and $PM_{2.5}$ Black Carbon-continuous analyzer will be at the Sherman site.

Table 2 PM_{10} Minimum Monitoring Requirements – Projected Summary of PM_{10} Samplers after Decommissioning.

Station Name (name)	Status	Comments	Request to Decommission (yes/no)
Donovan	Active	Design Value site & QA/Collocation site	no
Lexington Elementary School	Active	NCore (required) Low flow PM_{10}	no
Escondido	Under Construction	is located downwind of our traditional wild fire area	no
Chula Vista	Request for Decommissioning	Originally sited to monitor a now defunct power plant	YES
Kearny Villa Rd.	Request for Decommissioning	Legacy sampler when network required more samplers	YES
Sherman Elementary School	Under Construction	Analogous concentrations to Chula Vista	YES

Calculation Information

An accounting of the last five (5) years of data for the monitors/samplers that are regulatory and can be compared to the NAAQS.

- All data are from AQS
- Student's t-value for n-1 degrees of freedom at 90% confidence interval
  (5 trials-1= 4) at 90% confidence interval= 2.132
- Probability of less than 10% of exceeding 80%

  Average + {[(Student's t-value for n-1 degrees of freedom at 90% confidence interval) * Standard deviation)] ÷ (Sqrt (n))}

Sampler Decommission Applicability for Perkins Elementary School/Sherman Elementary School

An accounting of the last five (5) years of data for the samplers that are regulatory and can be compared to the NAAQS are in Tables 3a-3b. Please note: the District was evicted from the Perkins Elementary School location in 2017, so 2016 is the last full year of data, therefore the 5-year count is descending from 2016.

Table 3a Perkins Elementary School PM_{10} Sampler Maximum 24-hr Concentration

Pollutant	NAAQS	2012 ($\mu g/m_3$)	2013 ($\mu g/m_3$)	2014 ($\mu g/m_3$)	2015 ($\mu g/m_3$)	2016 ($\mu g/m_3$)	Average ($\mu g/m_3$)	Std Dev	Units	n	t	NAAQS ($\mu g/m_3$)
PM_{10}	24-Hr	45	90	40	53	49	55.4	19.93	ppm	5	2.132	150.0

Table 3b Perkins Elementary School PM_{10} Sampler Eligibility for Decomissioning

Pollutant	NAAQS	80% NAAQS	(c)(1) Probability		
PM_{10}	24-Hr	120.0	74.4	µg/m3	yes

As a point of comparison, the data from the 2017 Annual Network Plan 58.14 Kearny Villa Road and Chula Vista PM_{10} Sampler Decommissioning Request have been included below, Tables 4 and 5, respectively.

Table 4a Kearny Villa Rd. PM_{10} Sampler Maximum 24-hr Concentration

Pollutant	NAAQS	2013 ($\mu g/m_3$)	2014 ($\mu g/m_3$)	2015 ($\mu g/m_3$)	2016 ($\mu g/m_3$)	2017 ($\mu g/m_3$)	Average ($\mu g/m_3$)	Std Dev	Units	n	t	NAAQS ($\mu g/m_3$)
PM_{10}	24-Hr	39	39	39	36	47	40.0	4.12	ppm	5	2.132	150.0

Table 4b Kearny Villa Rd. PM_{10} Sampler Eligibility for Decomissioning

Pollutant	NAAQS	80% NAAQS	(c)(1) Probability		
PM_{10}	24-Hr	120.0	43.9	µg/m3	yes

Table 5a Chula Vista PM_{10} Sampler Maximum 24-hr Concentration

Pollutant	NAAQS	2013 ($\mu g/m_3$)	2014 ($\mu g/m_3$)	2015 ($\mu g/m_3$)	2016 ($\mu g/m_3$)	2017 ($\mu g/m_3$)	Average ($\mu g/m_3$)	Std Dev	Units	n	t	NAAQS ($\mu g/m_3$)
PM_{10}	24-Hr	38	37	46	48	59	45.6	8.91	ppm	5	2.132	150.0

Table 5b Chula Vista PM_{10} Sampler Eligibility for Decomissioning

Pollutant	NAAQS	80% NAAQS	(c)(1) Probability		
PM_{10}	24-Hr	120.0	54.1	µg/m3	yes