

CITY OF ALBUQUERQUE

Environmental Health Department

Mary Lou Leonard, Director



August 6, 2012

Ms. Maria Martinez
US EPA Region VI, 6 PD-Q
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Subject: Annual Network Assessment for the Albuquerque/Bernalillo County Ambient
Air Monitoring Program

Dear Ms. Martinez:

Environmental Health
Department

Enclosed is one copy of the Annual Network Assessment Plan. The document was given to Region VI staff and was posted on the Albuquerque website for public review on May 28, 2012.

Air Quality Division

As the result of discussions during the June TSA, the AQD was instructed to make a clarification on Page 7 and re-post for an additional 30 days of public review. The second posting began on July 5 and ended on August 4.

PO Box 1293

No comments have been received from the public. The attached document is therefore final and is being submitted in compliance with 40 CFR, Part 58, Subpart B.

Albuquerque

Please contact me if there any questions. Your support of our Ambient Air Monitoring Program is appreciated. Thank you for your time and consideration.

NM 87103

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Albuquerque Environmental Health Department (EHD)
Air Quality Division (AQD)
Ambient Air Monitoring Section
2012 Annual Network Review for Ambient Air Monitoring

Under 40 CFR, Part 58, Subpart B, The City of Albuquerque Air Quality Division (AQD) is required to submit an annual monitoring network review to the Environmental Protection Agency (EPA) regional office in Dallas, Texas. Our objective, when preparing the report, is to optimally apply limited resources to best protect public health.

The network plan describes the framework of the local air quality surveillance system, presents monitoring results over the past three years, provides comparisons to national standards, and discusses future plans. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA.

The following document represents the current network plan and proposed changes to the AQD air monitoring network for 2012.

This document represents the commitment of the AQD to effectively protect the health of the citizens of Albuquerque-Bernalillo County¹ through ambient air monitoring, by using the best affordable technology, and by communicating the data collected as quickly and accurately as possible. We will continue to meet our minimum requirements for each criteria pollutant. Some reductions and changes are proposed for this year. Monitoring changes will be discussed in each pollutant section and then summarized in tables at the end of this document.

Population Statistics

Albuquerque/Bernalillo County, including Rio Rancho and Los Lunas is the State's largest Metropolitan Statistical Area (MSA). According to 2010 U.S. Census Bureau estimates the population of the metropolitan statistical area (MSA) which includes the adjacent counties of Sandoval, Valencia, and Tarrant is approximately 897,146 (43.6% of the State) and is rapidly growing. As the regional center for employment, advanced education, retail commerce, and medical treatment, Albuquerque experiences extensive commuter traffic. The junction of major Interstate 25 (north/south) and Interstate 40 (east/west), adds significant heavy transport traffic between the port of Los Angeles and the East Coast, and between Denver, El Paso, and the US-Mexico Border.

The map in Figure 1 shows the physical location of all current monitoring sites currently operated by the Air Quality Division. Three sites (2ZH - North Valley, 2ZV - South Valley, and 2ZF - Double Eagle) are in Bernalillo County. All other sites are within the city limits of Albuquerque. Site designation corresponds to Table 1, Column 2, which lists the ambient air monitoring sites and the monitoring equipment operated at each site.

¹ Excluding Native American and Pueblo Lands within the County.

Table 1 Column 1 is the “AQS Site ID#,” a unique identification number assigned to each monitoring site in the network. The AQS (Air Quality System) is a national air monitoring database maintained by the EPA. Data collected from monitoring sites are input into the AQS database and made available to the public within 90 days following the end of each calendar quarter as required in the new monitoring regulations.

<<http://www.epa.gov/ttn/airs/aqsdatamart/access.htm>>

Column 2 gives the local site designation, name, and location. Site Longitude and latitude are in columns 3 and 4. Columns 5 through 9 list the monitors at each site and their associated parameters. Site photographs accompany the hard-copy version of this report on CD. During the public review period monitoring site photographs can be downloaded from the City of Albuquerque – Air Quality Division website

<http://www.cabq.gov/airquality/>

Table 1, shows the current monitoring network configuration. Table 1A indicates the network configuration if proposed changes are approved.



Figure 1: Albuquerque Ambient Air Quality Monitoring Network

Table 1 Albuquerque 2011 Ambient Air Monitoring Network

ACS Site ID#	Address/Location	Longitude	Latitude	Pollutants Measured	Monitor Type	Sampling Method	Analysis	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
35-001-1012	2ZF Double Eagle Elementary 8901 Lowell NE	-106.508	35.1852	O3	SLAMS	44201-1	UV photo-metric.	continuous	Highest Concentration	Urban	Yes	Abq.
				PM2.5	Special Purpose	88502-3	TEOM/	continuous	Population Exposure	Neighborhood	No	Abq.
35-001-1013	2ZH North Valley 9819a Second Street NW	-106.614	35.19324	O3	SLAMS	44201-1	UV photo-metric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				PM10	SLAMS	81102-3	TEOM	continuous	AQI – Non-Regulatory	Neighborhood	Yes	Abq.
				PM2.5	Special Purpose	88502-3	TEOM/FDMS	continuous	Population Exposure	Neighborhood	No	Abq.
				CO	SLAMS	42101-1	IR (Non-dispersive)	continuous seasonal	Population Exposure	Neighborhood	Yes	Abq.
35-001-0023-NCORE	2ZM Del Norte 4700a San Mateo NE	-106.586	35.13426	O3	SLAMS	44201-1	UV photo-metric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				CO	SLAMS	42101-1	Non-dispersive IR	continuous	Population Exposure	Neighborhood	Yes	Abq.
				NO2/NOx	SLAMS	42602-1	Chemluminescence	continuous	Population Exposure	Neighborhood	Yes	Abq.
				NOy	NCORE	42600	Chemluminescence	continuous	Population Exposure	Neighborhood	NA	Abq.
				SO2	SLAMS	42401	UV Fluorescence	continuous	Population Exposure	Neighborhood	Yes	Abq.
				Lead	SLAMS	14129	EQL-0710-192	Daily 1/6	Population Exposure	Neighborhood Scale	Yes	Abq.
				PM10	Special Purpose	122	Beta Absorption	continuous	Population Exposure	Neighborhood	No	Abq.
				PM10-2.5	NCORE	86101/	Dichotamus	continuous	Population Exposure	Neighborhood	NA	Abq.
				PM2.5	SLAMS	88101-1	Sequential	Daily 1/1	Population Exposure	Neighborhood	Yes	Abq.
				PM2.5 collocated	SLAMS	88101-2	Sequential	Daily 1/6	Population Exposure	Neighborhood	Yes	Abq.
Speciation	Special Purpose	68103	(multiple)	Daily 1/6	Special Study	NA	NA	Abq.				
Carbon Speciation	Special Purpose	88320, 88321	Multiple	Daily 1,6; 1/3 after 1/1/11	Special Study	NA	NA	Abq.				

Table 1 - Continued

AQS Site ID #	Address/ Location	Longitude	Latitude	Pollutants Measured	Monitor Type	Sampling Method	Analysis	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
35-001-0024	2ZN SE Heights 6000 Anderson Avenue SE	-106.579	35.0631	O3	SLAMS	44201-1	UV photometric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				PM2.5	SLAMS	88101-1	Sequential	Daily 1/3	Population Exposure	Neighborhood	Yes	Abq.
35-001-0026	2ZS Singer 3700 Singer NE	-106.605	35.1443	PM10	SLAMS	81102-3	TEOM	continuous	AQI – Non-Regulatory	Middle/Source-specific	No	Abq.
				PM10	SLAMS	81102-1	Gravimetric	Daily 1/1	Highest Concentration	Middle/Source-specific	Yes	Abq.
				PM10 collocated	SLAMS	81102-2	Gravimetric	Daily 1/6	Highest Concentration	Middle/Source-specific	Yes	Abq.
35-001-0027	2ZT Taylor Ranch 5100 Montano Blvd NW	-106.697	35.1539	O3	SLAMS	44201-1	UV photometric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				CO	SLAMS	42101-1	Non-dispersive IR	continuous	Highest Concentration	Microscale	Yes	Abq.
35-001-0029	2ZV South Valley 201 Prosperity SW	-106.657	35.01708	O3	SLAMS	44201-1	UV photometric.	continuous	Population Exposure	Regional Scale	Yes	Abq.
				CO	SLAMS	42101-1	Non-dispersive IR	continuous seasonal	Population Exposure	Regional Scale	Yes	Abq.
				PM10	SLAMS	81102-3	TEOM	continuous	AQI – Non-Regulatory	Other	YES	Abq.
35-001-0032	2ZW Westside 11850 Sunset Gardens SW	-106.761	35.0641	PM2.5	Special Purpose	88502-3	TEOM/FDMS	continuous	Other	Other	No	Abq.
				O3	SLAMS	44201-1	UV photometric.	continuous	Special Study	Neighborhood	Yes	Abq.
				PM10	Special Purpose	88101-3	TEOM	continuous	AQI – Non-Regulatory	Neighborhood	No	Abq.

Table 1A Proposed 2012 Changes to the Albuquerque Ambient Air Monitoring Network

AQS Site ID#	Address/Location	Longitude	Latitude	Pollutants Measured	Monitor Type	Sampling Method	Analysis	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
35-001-1012	2ZF Double Eagle Elementary 8901 Lowell NE	-106.508	35.1852	O3	SLAMS	44201-1 087	UV photometric.	continuous	Highest Concentration	Urban	Yes	Abq.
				PM2.5	Special Purpose	88502-3	TEOM/FDMS	continuous	Population Exposure	Neighborhood	No	Abq.
35-001-1013	2ZH North Valley	-106.614	35.19324	O3	SLAMS	44201-1 087	UV photometric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				PM10	SLAMS	81102-3	TEOM	continuous	AQI - Non-Regulatory	Neighborhood	Yes	Abq.
35-001-0023-NCORE	2ZM Del Norte 4700a San Mateo NE	-106.586	35.13426	PM2.5	Special Purpose	88502-3	TEOM/FDMS	continuous	Population Exposure	Neighborhood	No	Abq.
				O3	SLAMS/NCORE	44201-1 087	UV photometric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				HS CO	SLAMS/NCORE	42101-1 093	Non-dispersive IR	continuous	Population Exposure	Neighborhood	Yes	Abq.
				HS NO2, NOX	SLAMS/NCORE	42602-1 099	Chemluminescence	continuous	Population Exposure	Neighborhood	Yes	Abq.
				NOy	SLAMS/NCORE	42600	Chemluminescence	continuous	Population Exposure	Neighborhood	NA	Abq.
				HS SO2	SLAMS/NCORE	42401-1 100	UV Fluorescence	continuous	Population Exposure	Neighborhood	Yes	Abq.
				Lead	SLAMS/NCORE	14129 110	EQL-0710-192	Daily 1/6	Population Exposure	Neighborhood	Yes	Abq.
				PM10	SLAMS/NCORE	81102-1 127	Sequential	Daily 1/1	Population Exposure	Neighborhood	Yes	Abq.
				PM10 collocated	SLAMS/NCORE	81102-1 127	Sequential	Daily 1/6	Population Exposure	Neighborhood	Yes	Abq.
				PM10	NCORE	81102 122	Beta Absorption	continuous	Population Exposure	Neighborhood	Yes	Abq.
				PM2.5	NCORE	88101 170	Beta Absorption	continuous	Population Exposure	Neighborhood	Yes	Abq.
				PM2.5 collocated	SLAMS/NCORE	88101-2 118	Sequential	Daily 1/6	Population Exposure	Neighborhood	Yes	Abq.
Speciation	NCORE	68103	(multiple)	Daily 1/6, 1/3 after 1/1/11	Special Study	NA	Abq.					
Carbon Speciation	NCORE	88320, 88321	(multiple)	Daily 1,6; 1/3 after 1/1/11	Special Study	NA	Abq.					

^The two BAMS produce PM_{10-2.5} (PM_{coarse}) using EQPM-0709-185. The two BAMS are individually comparable to PM₁₀ and PM_{2.5} NAAQS but there is not a PM_{coarse} NAAQS against which one can compare.

Table 1A - Continued

AQS Site ID #	Address/ Location	Longitude	Latitude	Pollutants Measured	Monitor Type	Sampling Method	Analysis	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
35-001-0024	2ZN SE Heights 6000 Anderson Avenue SE	-106.579	35.0631	O3	SLAMS	44201-1087	UV photometric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				PM2.5	SLAMS	88101170	Beta Absorption	continuous	Population Exposure	Neighborhood	Yes	Abq.
35-001-0026	2ZS Singer 3700 Singer NE	-106.605	35.1443	PM10	SLAMS	81102-3	TEOM	continuous	AQI – Non-Regulatory population exp	Middle/Source-specific	No	Abq.
				PM10	SLAMS	81102-1127	Sequential	Daily 1/1	AQI – Non-Regulatory	Middle/Source-specific	Yes	Abq.
35-001-0027	2ZT Taylor Ranch 5100 Montano Blvd NW	-106.697	35.1539	O3	SLAMS	44201-1087	UV photometric.	continuous	Population Exposure	Neighborhood	Yes	Abq.
				O3	SLAMS	44201-1087	UV photometric.	continuous	Population Exposure	Regional Scale	Yes	Abq.
35-001-0029	2ZV South Valley 201 Prosperity SW	-106.657	35.01708	CO	SLAMS	42101-1	Non-dispersive IR	continuous seasonal	Population Exposure	Regional Scale	Yes	Abq.
				PM10	SLAMS	81102-3	TEOM	continuous	AQI – Non-Regulatory population exp	Neighborhood	Yes	Abq.
				PM2.5	Special Purpose	88502-3	TEOM/FDMS	continuous	Population Exposure	Neighborhood	No	Abq.
35-001-0032	2ZW Westside 11850 Sunset Gardens SW	-106.761	35.0641	O3	SLAMS	44201-1087	UV photometric.	continuous	Special Study	Neighborhood	Yes	Abq.
				PM10	*Special Purpose	88101-3	TEOM	continuous	AQI – Non-Regulatory	NA	No	Abq.

*Siting criteria are not good for PM SLAMS. Other than monitoring in conjunction with Ozone, purpose is to establish neighborhood baseline prior to development.

Summary of changes

Advanced Notification to Region VI. The construction of the new Del Norte High School which hosts the Del Norte monitoring site is completed. The construction had no effect on the monitors. Sometime during the summer of 2012 the old high school will be torn down and debris trucked away. The AQD does not anticipate any impact but the scope of the disturbance are unknown.

Per EPA guidance, the AQD proposes to discontinue CO monitoring at 2 sites: AQS 35-001-1013 (North Valley 2ZH), 35-001-0028 (Uptown San Pedro 2ZU).

In 2011 the AQD had a Thermo 1405DF Dichotamous sampler at 35-001-0023 (Del Norte 2ZM) that was intended to provide continuous PM_{10-2.5}. Due to problems that were communicated to the Region, the 1405 DF was returned under warranty and the AQD installed an R&P 2025 sampler to provide 24-hr PM_{coarse} for most of the year. In the past month we have installed two Met One BAM samplers, one with a 2.5 micron cut-off, so we are able to provide hourly PM_{coarse}. Note that the data capture for continuous PM_{coarse} was not met in 2011.

Partially related to the previous paragraph, the existing minimum network and collocation requirement for PM_{2.5} has been met by 2025 sequential samplers: two at 35-001-0023 (2ZM) and one at 35-001-0024 (2ZN). Since there is now a continuous BAM 1020 at 2ZM, the AQD proposes to purchase an identical BAM 1020 for 2ZN and discontinue one (1) 2025 sequential sampler at each site. (See Table 1A and Table 6.) This will reduce the cost for filters, weighing, and manhours to install/retrieve/document the filters.

Under the proposed new configuration the minimum and collocate requirements are still met at the same sites. The collocation requirement at 35-001-0023 (2ZM) will be met by one BAM 1020 and one Sequential sampler operating 1/6. More data will be provided because the BAM 1020 samplers are continuous rather than a 24-hr increment.

AQS Site 35-001-1013 no longer meets siting criteria for PM₁₀ and continuous PM_{2.5} monitoring. This matter has been discussed with Region VI. We propose to relocate the site sometime later this year after the primary Ozone season has ended. As noted in the first paragraph of this section, the CO monitor will be discontinued. The Anderson Hi-Vol was discontinued 2 years ago but was inadvertently left in the tables of this document and will now be deleted.

The AQD proposes to change the designation of AQS 35-001-0026 from “SLAMS” to Special Purpose “AQI – Non Regulatory.” The PM₁₀ FRM monitor (R&P 2025) will be moved to AQS 35-001-0023 (Del Norte, 2ZH) which will become the SLAMS collocated PM₁₀ site to fulfill minimum Network requirements.

Ground Level Ozone (O3)

Based on population, Table D-2 of Appendix D to Part 58, 40 CFR specifies a minimum of two (2) SLAMS (State and Local Air Monitoring Stations) ozone monitors.

Current – Currently the AQD exceeds the minimum requirements with seven (7) ozone monitors, all categorized as SLAMS.

The MSA experiences high levels of Ozone during the summer and non-attainment is a serious consideration. Our initial declaration in 2009 did not show exceedence of the standard but the question remains open.

The lack of large industrial sites in Albuquerque suggests that the aforementioned mobile source traffic is the source of Ozone precursors. We also suspect that Ozone transport is producing a very elevated “floor” under the locally produced Ozone. Our high elevation above sea level means thinner air. Ozone chemistry may vary with lower atmospheric pressure. Extremely low-humidity creates clear skies that filter out very little UV from sunlight. Elevations within the city vary from 4900 feet to over 6500 feet, and the highest ozone levels tend to occur at our higher elevation monitoring sites. This could result from elevation related affects or from terrain (air mass trapped against the Sandia Mountain). Insufficient NOx to support Ozone breakdown/titration at night is also possible in some localized areas.

Future –To produce effective reduction strategies (should non-attainment occur), AQD needs solid data that characterizes the problem. As a non-industrial city, our findings about “transport” could also be significant to other parts of the region.

The AQD proposes to maintain the seven current Ozone monitors, preserving locations that are producing the highest readings.

The monitor installed near the AQD building on the West side of Albuquerque (local designation 2ZW) sometimes measures high Ozone readings despite the fact that this site is far from any potential sources (traffic) and is predominantly upwind of the city in summer months (see Figure 2). This suggests “Ozone transport.”

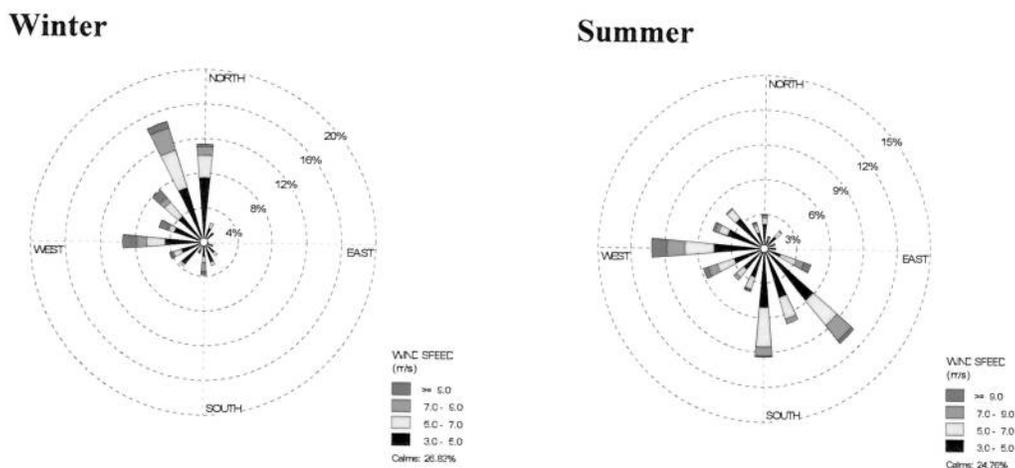


Figure 2: Seasonal Wind Roses for Albuquerque

PM_{2.5}

According to Table D-5 of Appendix D to Part 58, 40 CFR two SLAMS PM_{2.5} sites (3 monitors) are required in Albuquerque.

Current – AQD operates five PM_{2.5} monitoring sites in Albuquerque-Bernalillo County. (Table 2) Of seven (7) total monitors, five (5) are identified as SLAMS.

Two sites (35-001-0023 and 35-001-0024) operate Partisol 2025 sequential samplers with 2.5 micron inlet cutoff to record 24-hour averages PM_{2.5}. These samplers are Federal Reference Methods (FRM) and are comparable to the NAAQS. Both sites operate on a daily 1/1 schedule and the first site (35-001-0023) has a collocated sampler that operates every sixth day (1/6).

A Thermo 1405DF Dichotomous FEM monitor that was in operation in 2011 at 35-001-0023 has been eliminated due to multiple problems and because its FEM status for PM₁₀ was not forthcoming. In its place for most of the past year were two Thermo 2025 sequential samplers, one measuring PM₁₀ and the other measuring PM_{2.5}. Together these units provided PM_{coarse} on a 24-hour basis. Beginning January 2012, the 2025s were replaced by two BAM 1020 continuous monitors to report PM_{coarse} on an hourly basis.

Three additional sites monitor PM_{2.5} continuously using a 2.5 micron inlet TEOM² and an in-series FDMS³. The FDMS provides separate measurements of solid and volatile PM_{2.5}. The data from these monitors are used for the Air Quality Index (AQI) and report hourly averages that are sent to EPA's AIRNOW web page for real-time Air Quality particulate mapping.

Future – No changes are planned for PM_{2.5} in the coming year

The 2011 98th percentile data in Table 2 show an apparent increase over prior years. This is an anomaly caused by smoke from 3 large forest fires: The Wallow fire in Arizona, the Las Conchas Fire in the Jemez Mts. of New Mexico, and the Pacheco Canyon fire near Santa Fe. The month of June was notably bad for smoke and PM_{2.5}. Hopefully the 2012 fire season will be more merciful, although moisture conditions and the long range forecast are not encouraging.

² Tapered Element Oscillating Microbalance

³ Filter Dynamic Measurement System

Table 2: AQD PM_{2.5} Monitoring Sites

Site Name AQ#	Current Sampling schedule	Proposed Sampling Schedule	2009 Daily 98 th %	2010 Daily 98 th %	2011 Daily 98 th %	Design Value (% Daily NAAQS)	2009 Annual Arithmetic Mean	2010 Annual Arithmetic Mean	2011 Annual Arithmetic Mean	Design Value (% Annual NAAQS)	Co-located with continuous PM _{2.5} Sampler Yes or No
Del Norte 0023	1/1	1/1	13.1	15	21.9	47.8%	5.3	5.3	7.0	39.1%	Yes
Del Norte 0023 co- locate	1/6	1/6	12	9	52.3	69.8%	5.2	4.8	9.4	43.1%	Yes
Del Norte 0023 BAM 1020	Continuous/ Hourly	Continuous/ Hourly	Not availa ble	Not availa ble	Not availa ble		Not availa ble	Not availa ble	Not availa ble		
SE Heights 0024	1/1	1/1	16.6	17.5	22	53.4%	5.2	5.2	6.7	38.0%	No
Double Eagle 1012 TEOM/FDMS	Continuous/ Hourly	Continuous/ Hourly	8.87	8.63	17.3	NC	5.9	5.6	6.5	NC	
North Valley 1013 TEOM/FDMS	Continuous/ Hourly	Continuous/ Hourly	27.2	29.3	32.7	NC	7.6	5.9	8.0	NC	
South Valley 0029 TEOM/FDMS	Continuous/ Hourly	Continuous/ Hourly	28	29.9	38.1	NC	8.7	9.8	12.9	NC	

NC = Not Comparable but the data is used for the Air Quality Index

PM₁₀

Table 3 calculates the design values for each PM₁₀ monitor in the Albuquerque Network that has sufficient historical data. (Reference PM₁₀ SIP Development Guideline, US EPA-450/2-86-001, June 1987). Using the highest single monitor design value, the Network Design value is 114 ug/m³ which is 76% of the NAAQS or in the low range. Based on population, 40CFR, Part 58, Table D-4 of Appendix D specifies one-to-two sites as the minimum requirement for low concentration MSAs.

Table 3. PM₁₀ Design Values

2ZH North Valley			Observations	1st	2nd	3rd	4th
35-001-1013	3	2009	349	110	83	65	62
35-001-1013	3	2010	365	132	95	89	83
35-001-1013	3	2011	359	208	135	123	117
Total			1073	150.0	104.3	92.3	87.3
2ZM Del Norte			Observations	1st	2nd	3rd	4th
35-001-0023	1	2009	57	107	35	33	28
35-001-0023	1	2010	56	31	24	22	21
35-001-0023	1	2011	341	213	202	132	129
Total			454	117.0	87.0	62.3	59.3
2ZS Singer			Observations	1st	2nd	3rd	4th
35-001-0026	1	2009	343	137	113	107	95
35-001-0026	1	2010	313	164	102	89	79
35-001-0026	1	2011	329	155	153	128	113
Subtotal			985	152.0	122.7	108.0	95.7
35-001-0026	2	2009	53	105	75	72	67
35-001-0026	2	2010	54	66	65	59	56
35-001-0026	2	2011	54	171	95	80	78
Subtotal			161	114.0	78.3	70.3	67.0
35-001-0026	3	2009	360	183	119	115	94
35-001-0026	3	2010	359	110	106	106	92
35-001-0026	3	2011	363	219	165	145	138
Subtotal			1082	170.7	130.0	122.0	108.0
Total			2228	145.6	110.3	100.1	90.2
2ZV South Valley			Observations	1st	2nd	3rd	4th
35-001-0029	3	2009	237	91	75	64	62
35-001-0029	3	2010	363	245	122	115	101
35-001-0029	3	2011	365	419	91	85	77
Total			965	251.7	96.0	88.0	80.0

Current – Over the past year The AQD monitored PM₁₀ at five sites with a total of 7 monitors. At the beginning of the year two sites were NAAQS comparable, one was special purpose and two were used for AQI purposes. One of the NAAQS sites (35-001-1013 – 2ZH) no longer meets siting criteria due to changes on adjacent land. Discussions are underway with Region VI about site relocation after the 2012 Ozone season. When the relocation is complete (fall, 2012) the AQD will again meet the minimum requirement

The status of the PM10 monitor at 2ZV (AQS 35-001-0029) was upgraded to SLAMS starting 1/1/2011 after site remediation but does not have 3-years of valid data.

The site at AQS 35-001-0026 is special purpose “AQI non-Regulatory.”

The site at 2ZH (AQS 35-001-1013) developed siting problems and AQD is looking for a new location. The site is shown in Table 3 but until problems are remediated, the data for this site should not be compared to the NAAQS.

The AQD also operates a PM10 continuous monitor at 2ZW (AQS 35-001-0032), however, the PM siting criteria for this site are not met. The special purpose monitor is intended to characterize the background prior to anticipated development, and PM10 data will not be compared to the NAAQS. As a result, previous year data from the special purpose monitor do not appear in Table 3.

Because of terrain, extremely dry climate, and unusual weather patterns, Albuquerque frequently has very different wind conditions in various parts of the city. Westerly winds are the assumed weather pattern but that is only true during certain seasons of the year. (refer back to Figure 2) East canyon winds accelerate down-slope on the Sandia Mountain at speeds up to 65 miles per hour, blasting the NE quadrant of the city before slowing and dispersing. East winds can also affect South Valley (AQS 35-001-0029 SV) with silt particulates from the outflow of the Tijeras Canyon. The valley experiences North-South flow with a diurnal pattern. The west side of the city has very fine soils and large tracts of native vegetation are being removed for development. These factors can produce higher PM levels with any wind direction, but particularly in the winter months with winds from the North and West quadrant.

In previous years, the most common cause of AQI warning days in Albuquerque was high PM₁₀ values. PM₁₀ data is used to report the AQI, to accurately portray PM in neighborhoods, to enforce our local dust control regulation, and to issue high wind advisory or health alerts to protect the population. (For sensitive populations, extremely high hourly values are a concern, even if the 24 hour standard is not exceeded.)

Future

Other than designation changes, the AQD proposes no additional monitor changes for the upcoming year. There will be two SLAMS sites monitoring PM10.

Table 4. Proposed PM₁₀ Monitoring Configuration

PM ₁₀ Sites	Current Sampling Schedule	2009 Design Value	2010 Design Value	2011 Design Value	3 year Avg.	2008-10 Design Value %of NAAQS
¹ North Valley 1013	Continuous	62	*83	*117	87.3	58.2% NC
² Del Norte 0023	Continuous	†35	†24	†202	87.0	58.0%
² Del Norte 0023	1/1					
³ Singer - 0026	1/1	107	89	128	108.	72.0% NC
³ Singer - 0026	Continuous	94	92	138	108	72.0% NC
⁴ South Valley 0029	Continuous	^64	^115	85	88.0	58.6%

¹35-001-1013 does not currently meet PM siting criteria for PM₁₀. and If the proposed 1013 site move takes place, three years of data will not exist until the 2016 review.

²35-001-0023 The continuous monitor has been changed from a Thermo 1405DF to a BAMS 1020. The sequential sampler is a proposed new addition for a PM₁₀ collocate site. 3 Full years of data will not exist until the 2015 review.

³35-001-0026 is Middle Scale and Industry impacted.

⁴Site 35-001-0029 did not previously meet siting criteria for PM₁₀ but the data was used for the Air Quality Index. Three full years of valid for NAAQS comparison will not exist until the 2014 review

Sulfur Dioxide (SO₂), Oxides of Nitrogen (NO₂, NO_y), and Carbon Monoxide (CO)
Under 40 CFR part 58, appendix D4, there are no minimum requirements for the number of SO₂, NO₂, or CO sites, however, discontinuation of existing sites must be approved by the EPA Regional Administrator.

Sulfur Dioxide (SO₂)

The AQD did not monitor SO₂ until late 2010. While there are large sources in the state, none are close to Albuquerque and emissions are reduced by dispersion over distance. Thus far the SO₂ monitor is showing only trace levels (1 ppm annual average).

Oxides of Nitrogen (NO₂, NO_y)

Current – The AQD monitors NO, NO₂ and NO_x at, AQS 35-001-0023 - the NCore location. In the past NO_y⁴ monitoring was conducted at a second site on an experimental basis but the activity was discontinued at the end of the project.

Ozone levels are a potential problem pending the new Ozone NAAQS, and monitoring data to characterize NO_x sources and distribution are lacking. Significant Ozone formation occurs in summer months, and studies (by Sonoma Technology) indicate that the area is probably VOC limited. Suspected NO_x sources include mobile (both on and off road), the Airport, and natural gas combustion for hot water and residential heating. However, NO₂ levels are low. (Annual Arithmetic Mean at 0.13 ppm)

Associated with the new NO₂ NAAQS is a requirement to monitor NO₂ Roadway emissions. A new site will have to be located and built-up since none of the current sites are within 50-meters of the nearest traffic lane. The AQD identified several potential sites and participated in a national pilot program with passive sampling. The worst-case data from that study showed Albuquerque well within NAAQS annual limits and with a

⁴ NO_y envelopes all Oxides of Nitrogen, and are the most likely to be involved in the formation and breakdown of Ozone.

high statistically probability of staying below the 1-hour standard. As a result, Albuquerque is on the “build and hold” list.

Carbon Monoxide (CO)

Current – AQS Albuquerque/Bernalillo County was declared non-attainment for CO from 1978 – 1996. While levels have been controlled, the city remains in maintenance status until 2016.

The AQD currently operates four (4) CO monitors. In 2006, the AQD requested permission to operate four of the monitors during winter months only (October – March), and the change was approved by EPA Region VI. The AQD proposes to discontinue the seasonal CO monitors at AQS 35-001-1013 (2ZH) and AQS 35-001-0028 (2ZU).

CO monitors will continue to operate year around at AQS site 35-001-0029), and at the designated NCore site (AQS 35-001-0023). The conventional monitor at the latter site has been replaced by a high sensitivity monitor to comply with NCore requirements.

Lead (Pb)

Current – A TSP monitor was installed and operational by December 18, 2011. Analysis by ICPMS is done at the NM Scientific Laboratory Division (SLD). Documentation on analytical methods has been submitted to the Region but pending approval, exposed filters have been held since January 2012 and no data is available.

Non-SLAMS Special Purpose Monitors

PM_{2.5} Chemical Speciation

Current – CFR Part 58 regulations require the operation of a speciation sampler at approved NCore sites. The Del Norte (AQS 35-001-0023) site in Albuquerque operates a MetOne Super SASS and a URG EC/OC sampler. Speciation filters are sent to RTI, the EPA national analysis contractor in North Carolina, and data is reported to the AQS. The AQD also uses this data in local studies to correlate with data from other samplers.

Both samplers currently operate on the modified 1/3 schedule. EPA is working with equipment suppliers to implement hardware/software modifications that will enable the full 1:3 schedule.

Visibility

Current – Albuquerque-Bernalillo County does not have any Class I areas⁵. It exhibits good visibility much of the year but does experience a brown cloud in winter months, particularly during temperature inversions. For that reason, the AQD currently operates a Nephelometer and an Aethelometer at one site, (AQS 35-001-0023).

Community Scale Monitoring (CSM)

Current – In the past the AQD has participated previously in CSM studies, but there were none in –2011-2012.

⁵ AQCR 152 is in the Albuquerque MSA. It may be impacted by the Albuquerque airshed, just as we were impacted by the 2000 fires.

National Core Monitoring Network (NCore)

The NCore site has been fully operational and compliant since the 2010 start-up date. Individual NCore instruments have been addressed in the appropriate sections above. The 2ZM site also has NCore compliant meteorology.

Albuquerque – Bernalillo County Network Changes

Table 5 shows the network before this review.

Table 5: Albuquerque-Bernalillo Co. 2011 Air Monitoring Network

Station Description	Gases				TSP	PM10		PM2.5			Other				
	Ozone	CO	HS-NO2	HS-NOV		HS-SO2	Lead	Sequential	Continuous	Continuous	FDMS	Sequential	Speciation	Nephelometer	Aethelometer
Station Name (Site Code), AIRs #															
Dbl Eagle Elementary (2ZF), 35-001-1012	API 400A									R & P 1400	R & P 8500				
North Valley (2ZH), 35-001-1013	API 400A	API 300						R & P 1400	R & P 1400	R & P 8500					
Del Norte (2ZM), 35-001-0023	API 400E	API 300 EU	API 200 EU	API 501 EU	API 100 EU	TE-5170		BAM 1020	BAM 1020		Partisol 2025 2 Col. 1/1, 1/6	MetOne Super SASS & URG Carbon	Optec NGN-2	McGee AE2	
SE Heights (2ZN), 35-001-0024	API 400A														
Singer (2ZS), 35-001-0026							Partisol 2025 Col 1/1 & 1/6	R & P 1400a							
Taylor Ranch (2ZT), 35-001-0027	API 400A														
Uptown San Pedro (2ZU), 35-001-0028		API 300													
South Valley (2ZV), 35-001-0029	API 400A	API 300						R & P 1400a	R & P 1400	R & P 8500					
AQD Westside (2ZW), 35-001-0032	API 400A							R & P 1400							
	NCORE														
			SLAMS			Special Purpose									
			Seasonal												

Albuquerque – Bernalillo County Network after changes

Table 6 shows the network configuration for 2012, presuming that the Region accepts the proposed changes.

Table 6. Albuquerque-Bernalillo Co. 2012 Air Monitoring Network - Alternative A

Station Description	Gases					TSP	PM10		PM2.5			Other			
	Ozone	CO	HS-NO2	HS-NOy	HS-SO2		Lead	Sequential	Continuous	FDMS	Continuous	Sequential	Specialion	Nephelometer	Aethelometer
Station Name (Site Code), AIRs #															
Dbl Eagle Elementary (2ZF), 35-001-1012	API 400A								R & P 1400	R & P 8500					
North Valley (2ZH), 35-001-1013	API 400A							R & P 1400	R & P 1400	R & P 8500					
Del Norte (2ZM), 35-001-0023	API 400E	API 300 EU	API 200 EU	API 501 EU	API 100 EU	TE-5170	Partisol 2025 Col 1/1 & 1/6	BAM 1020	* BAM 1020		*Partisol 2025 Col. 1/6	MetOne Super SASS & URG Carbon	Optec NGN-2	McGee AE2	
SE Heights (2ZN), 35-001-0024	API 400A								BAM 1020						
Singer (2ZS), 35-001-0026							Partisol 2025 1/1	R & P 1400a							
Taylor Ranch (2ZT), 35-001-0027	API 400A														
South Valley (2ZV), 35-001-0029	API 400A	API 300						R & P 1400a	R & P 1400	R & P 8500					
AQD Westside (2ZW), 35-001-0032	API 400A							R & P 1400							
	NCORE		SLAMS		Special Purpose										

* Note that in this configuration the two BAM 1020s at ZM provide PM_{coarse} or PM_{10-2.5} while Partisol 2025 and the BAM 1020 constitute the required PM2.5 network collocate. The PM10 collocate site is moved to ZM. A single Partisol 2025 remains at ZS for FEM measurement to confirm the R&P 1400

Summary

Any comments pertaining to this document should be sent to:

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This document was posted to the AQD website from July 5 through August 4, 2012 for public review. No comments were received.

After completing its review EPA will either approve the document or return comments. EPA's response and the final Network Review document will then be posted on the Air Quality Website.