Environmental Health Department
Mary Lou Leonard, Director

July 1, 2016

Mr. Hanson
US EPA Region VI, 6 PD-Q
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Subject: Annual Network Monitoring plan for Albuquerque/Bernalillo County for 2015

Dear Mr. Hansen:

Enclosed is one copy of the Annual Network Assessment Plan. The document posted on the Albuquerque website for public review on 06/01/2016

As of 06/30/2016, no comments have been received from the general public. The attached document is therefore is being submitted in compliance with 40 CFR, Part 58, Subpart B.

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

Danny Nevarez, Deputy Director
Albuquerque Environmental Health Department,
(505) 768-2639

CC: Frances Verhalen, P.E., Chief Air Monitoring and Grants Section, US EPA Region 6, 6PDS
Fabian Macias, AEHD, Air Quality Programs, Air Quality Official
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Dan Gates QAO, AEHD, Air Quality Assurance Officer

Albuquerque Environmental Health Department (EHD)

Air Quality Program (AQP)

2016 Annual Network Review

July 1, 2016

Albuquerque Environmental Health Department (EHD)
Air Quality Programs (AQP)
Ambient Air Monitoring Section
2016 Annual Network Review for Ambient Air Monitoring

Under 40 CFR, Part 58, Subpart B, The City of Albuquerque Air Quality Programs (AQP) 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 and conduct a thorough Annual Network Review (ANR)

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 formal submission to EPA. (Anticipated dates are June 1 – June 30, 2016.)

This document shows the current network configuration and proposed changes for 2015. It represents the commitment of the AQP to effectively protect the health of the citizens of Albuquerque-Bernalillo County[1] through ambient air monitoring, by using the best affordable technology, and by communicating the data collected as quickly and accurately as possible.

Population Statistics
Albuquerque/Bernalillo County, Sandoval, Valencia and Torrance make the State's largest Metropolitan Statistical Area (MSA). The US Census Bureau estimates the 2015 population of the metropolitan statistical area (MSA) which includes portions of the adjacent counties of Sandoval, Valencia, and Torrance as approximately 907,301 (43.5% of the State). http://quickfacts.census.gov/qfd/index.html# As the regional center for employment, advanced education, retail commerce, and medical treatment, Albuquerque experiences non-local 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. However, this traffic is less significant when compared major metropolitan areas.

The map in Figure 1 shows the physical location of all current monitoring sites currently operated by the Air Quality Programs. Two sites are within the city limits of Albuquerque (2ZM – Del Norte and 2ZS – Jefferson). Three other sites (2ZV - South Valley, 2ZW Westside, and 2ZF - Foothills) are in Bernalillo County.

[1] Excluding Native American and Pueblo Lands within the County.

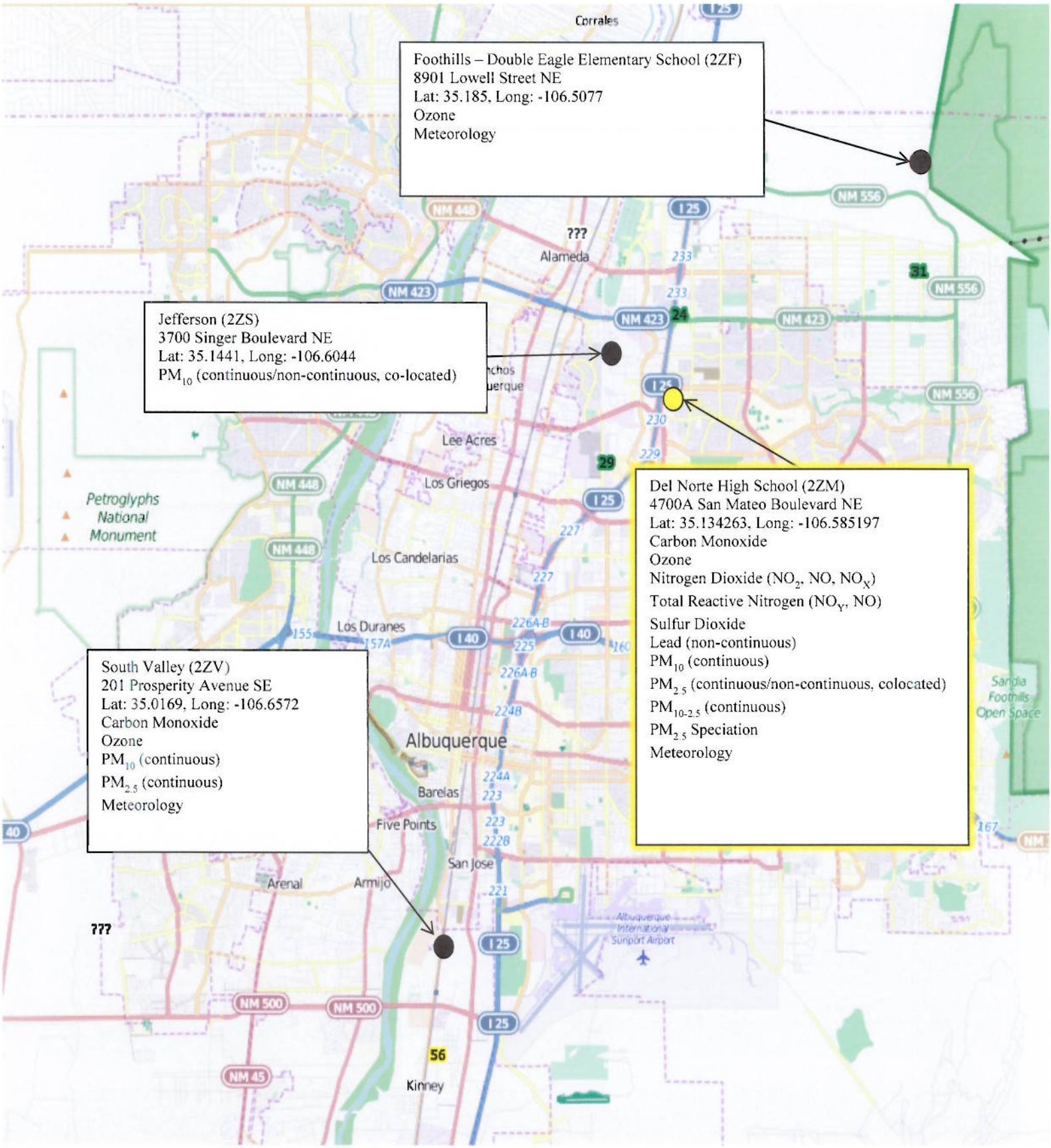

Foothills – Double Eagle Elementary School (2ZF)
8901 Lowell Street NE
Lat: 35.185, Long: -106.5077
Ozone
Meteorology
Jefferson (2ZS)
3700 Singer Boulevard NE
Lat: 35.1441, Long: -106.6044
PM10 (continuous/non-continuous, co-located)
Del Norte High School (2ZM)
4700A San Mateo Boulevard NE
Lat: 35.134263, Long: -106.585197
Carbon Monoxide
Ozone
Nitrogen Dioxide (NO2, NO, NOX)
Total Reactive Nitrogen (NOY, NO)
Sulfur Dioxide
Lead (non-continuous)
PM10 (continuous)
PM2.5 (continuous/non-continuous, colocated)
PM10-2.5 (continuous)
PM2.5 Speciation
Meteorology
South Valley (2ZV)
201 Prosperity Avenue SE
Lat: 35.0169, Long: -106.6572
Carbon Monoxide
Ozone
PM10 (continuous)
PM2.5 (continuous)
Meteorology
Corrales
Alameda
Lee Acres
Los Griegos
Los Candelarias
Los Duranes
Albuquerque
Barelas
Five Points
San Jose
Arenal
Armijo
Kinney
Petroglyphs National Monument
Sandia Foothills Open Space
Albuquerque International Sunport Airport
I 25
I 40
NM 448
NM 423
NM 556
NM 500
NM 45

Figure 1: Albuquerque Ambient Air Quality Monitoring Network

Table 1 shows the current network configuration and lists the monitoring equipment operated at each site. 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 within 90 days following the end of each calendar quarter. <http://www.epa.gov/ttn/airs/aqsdatamart/access.htm>

Column 2 gives the local site designation, name, location, and "affiliation." 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 Programs website http://www.cabq.gov/airquality/

Table 1 Albuquerque 2016 Ambient Air Monitoring Network

AQS Site ID#	Address/ Location	Longitude	Latitude	Pollutants Measured	Monitor Type	Sampling Method	Sampling Method	AQS Analysis	Operating Schedule	Monitoring Objective	Spatial Scale	NAAQS Comparable	MSA
35-001-0012	2ZF Foothills 8901 Lowell NE	-106.508	35.1852	O3	SLAMS	44201-1087	UV Photometric	Ultra Violet Absorption	continuous	Highest Concentration	Neighborhood	Urban Scale	ABQ
35-001-0023	2ZM Del Norte 4700A San Mateo NE Affilation: Ncore	-106.586	35.13426	O3	SLAMS	44201-1087	UV Photometric	Ultra Violet Absorption	continuous	General Background	Population Exposure	Yes	ABQ
				HS CO	SLAMS	42101-1593	Non Dispersive IR	Gas Filter Correlation Teledyne T300U	continuous	General Background	Unknown	Yes	ABQ
				NO2	SLAMS	42602-1600	Chemiluminescence	Gas Phase Chemiluminescence	continuous	General Background	Unknown	Yes	ABQ
				NOy	SLAMS	42600 599	Chemiluminescence	Teledyne API T200U/501	continuous	General Background	Neighborhood	NA	ABQ
				HS SO2	SLAMS	42406 600	UV fluorescence	UV Fluorescence E100U	continuous	General Background	Population Exposure	Yes	ABQ
				Lead	SLAMS	14129-1110	EQL-0710-192	Emission Spectra ICAP (ICP-OES) EPA	Daily 1/6	General Background	Population Exposure	Yes	ABQ
				PM10	SLAMS	81102 122	Beta Absorption	Beta Attenuation	continuous	General Background	Population Exposure	Yes	ABQ
				PM2.5	SLAMS	88101 170	Beta Absorption	Beta Attenuation	continuous	General Background	Population Exposure	Yes	ABQ
				PM2.5 collocated	SLAMS	88101-2118	Gravimetric	Gravimetric	Daily 1/3	General Background	Other	Yes	ABQ
				Speciation	Special Purpose	68103	Multiple	810-MetOne SASS 811MetOne SASS Teflon 812-MetOne SASS Nylon	Daily 1/3	General Background	Mixture of Other, Population Exposure, General	NA	ABQ
				Carbon Speciation	Special Purpose	88320 88321	Multiple	826, 831, 839, 840, 841, 842 URG 300N w/Pall Quartz filter and cyclone inlet	Daily 1/3	General Background	Mixture of Other, Population Exposure, General	NA	ABQ
				PM10-PM2.5	SLAMS	86101-185	Beta Absorption	Beta Attenuation	continuous	General Background	Population Exposure	Yes	ABQ

Table 1 – Continued

35-001-0026	2ZS Jefferson 3700 Singer NE	-106.605	35.1443	PM10	SLAMS	88102-1 127	Gravimetric	Gravimetric	Daily 1/1	Significant Source	Middle	Yes	ABQ
				PM10	SLAMS	88102-2 122	Beta Absorption	Beta Attenuation	continuous	Significant Source	Middle	Yes	ABQ
35-001-0029	2ZV South Valley 201 Prosperity SW	-106.657	35.01708	O3	SLAMS	44201-1 087	UV Photometric	Ultra Violet Absorption	continuous	General Background	Neighborhood	Yes	ABQ
				HS CO	SLAMS	42101-1 593	Non Dispersive IR	Gas Filter Correlation Teledyne	continuous	Highest Concentration	Neighborhood	Yes	ABQ
				PM10	SLAMS	81102-3 122	Beta Absorption	Beta Attenuation	continuous	General Background	Neighborhood	Yes	ABQ
				PM2.5	SLAMS	88101 170	Beta Absorption	Beta Attenuation	continuous	General Background	Neighborhood	Yes	ABQ

Summary of changes
The City of Albuquerque's Air Quality Programs does not propose any changes for 2016.

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 AQP exceeds the minimum requirements with three (3) ozone monitors, all categorized as SLAMS.

Table 2: Ozone Design Value by site, part per million (ppm)

	2013	2014	2015	
Site Name AQS #	4th highest 8-hr avg.	4th highest 8-hr avg.	4th highest 8-hr avg.	3 -year design value
Del Norte 0023	0.070	0.064	0.065	0.066
Tramway 1012	0.065	0.061	0.067	0.064
South Valley 0029	0.067	0.064	0.068	0.066

Table 3: Ozone Designation by MSA, parts per million (ppm)

Site	2013 4th Highest 8-hr (ppm)	2014 4th Highest 8-hr (ppm)	2015 4th Highest 8-hr (ppm)	3 year Design Value part per million (ppm)	2015 Federal Standard part per million (ppm)	% of the 2015 Federal Standard
Del Norte 0023	.070	.064	.065	.066	.070	94.2

Future – No further changes are being considered at this time.

$PM_{2.5}$
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 – AQP operates four $PM_{2.5}$ monitoring sites in Albuquerque-Bernalillo County with three (3) total monitors, all of which are identified as SLAMS.

The 2ZM site (35-001-0023) operates a continuous Met One BAM 1020 as the Primary sampler and a Partisol 2025 sequential sampler with 2.5 micron inlet cutoff to record 24-hour averages $PM_{2.5}$ on a 1/3 schedule as a co-located sampler.

The site 2ZF (AIRS 35-001-1012) operates a Met One BAM 1020 and is classified for AQI purposes only.

Table 4: $PM_{2.5}$ Design Value, microgram per cubic meter (ug/m3)

Site Name AQS #	Sampling Schedule	24-hour design value	Annual Design Value	Design Value (% Daily NAAQS)	Design Value (% Annual NAAQS)	Collocated with continuous PM2.5
Del Norte 0023	Continuous	15	6.2	42.9%	51.9%	Yes
South Valley 0029	Continuous	18	7.5	51.4%	62.5%	No

Future – No further changes are being considered at this time.

PM_{10}

PM data is used by the AQP to accurately portray PM in neighborhoods, to enforce our local dust control regulation, and to issue high wind advisory and health alerts. High PM values are the most common cause of AQI warning days in Albuquerque.

Current – We currently operate at four sites with a total of 5 monitors. At this time, three of the sites and four monitors are NAAQS comparable.

The 2ZM NCore site (AQS 35-001-0023) operates a continuous FEM that produces data used for both PM_{10} and $PM_{10-2.5}$.

The 2ZS Jefferson site (AQS 35-001-0026) has one PM_{10} FRM (Primary- Partisol 2025) with a sampling frequency of 1/1, and a BAM FEM continuous monitor at 2ZS (35-001-0029) (Co-located), which are NAAQS comparable. The POC 2 FRM located at 2ZS Jefferson site was shut down effective May 1, 2015.

The status of the PM10 monitor at 2ZV (AQS 35-001-0029) was upgraded to SLAMS starting 1/1/2011 after site remediation and has 4-years of valid data.

Table 5 calculates the design concentrations for each comparable PM10 site 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 Concentration is 110.7ug/m3 which is 73.78% of the NAAQS. Based on population, 40CFR, Part 58, Table D-4 of Appendix D specifies two-to-four sites as the minimum requirement for low concentration MSA.

Table 5. PM_{10} Design Concentrations, ug/m3

					Maximum Values				
2ZM Del Norte		POC	year	# of Observations	1st	2nd	3rd	**4th**	5th
	35-001-0023	1	2013	356	104	92	88	**85**	75
	35-001-0023	1	2014	344	118	106	95	**90**	82
	35-001-0023	1	2015	359	44	43	40	**40**	40
				1059	88.7	80.3	74.3	**71.7**	65.7
				4th high					
					Maximum Values				
2ZS Singer			year	# of Observations	1st	2nd	3rd	**4th**	5th
	35-001-0026	1	2013	353	114	98	94	**93**	87
	35-001-0026	1	2014	342	127	123	115	**115**	115
	35-001-0026	1	2015	356	61	56	55	**53**	52
				1051	100.7	92.3	88.0	**87.0**	84.7
				4th high					
							Maximum Values		
2ZV South Valley			year	# of Observations	1st	2nd	**3rd**	4th	5th
	35-001-0029	3	2013	335	142	120	**117**	110	109
	35-001-0029	3	2014	333	145	143	**111**	109	107
	35-001-0029	3	2015	355	145	106	**104**	96	93
				1023	144.0	123.0	**110.7**	105.0	103.0
				3rd high					

Design Value	110.7 ug/m3
PM-10 24hr STD	150 ug/m3
% Annual NAAQS	73.78%

Data excludes exceptional event flags
Based on the SIP development document if the data is used for modeling the 5th high value should be used.

Table 6 calculates the design values for each comparable PM10 sites in the Albuquerque Network with sufficient historical data based on the AMP 480 report.

Table 6. PM10 Design Value, ug/m3

PM10 24 Hour Design Value based on the AMP480 report	Site	COA-2015 24 Hour Design Value	NAAQS	Is the average # of exceedance values >1
	2ZM	0	≥1	No
	2ZS	0	≥1	No
	2ZV*	0.3	≥1	No

(*) Annual values not meeting completeness criteria

Future
No changes are planned in the coming year.

Sulfur Dioxide (SO2)

Current – AQP operates an SO2 monitor at site 2ZM (AQS 35-001-0023), the NCore location. Table 5 shows that thus far the SO2 monitor is measuring only trace levels, less than 10% of the NAAQS.

Table 7: SO2 Design Value, part per billion (ppb)

2ZM Del Norte	year	99th percentile
35-001-0023	2013	4
35-001-0023	2014	6
35-001-0023	2015	5
	Design Value	5.0

Future –No changes are planned in the coming year.

SO2 Data requirement Rule- Per the EPA Fact Sheet "Final Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO2) Primary National Air Quality Standards (NAAQS):

"This final rule establishes that, at a minimum, air agencies must characterize air quality around sources that emit 2,000 tons per year (tpy) or more of SO2. An air agency may avoid the requirement for air quality characterization near a source by adopting enforceable emission limits that ensure that the source will not emit more than 2,000 tpy of SO2"

Bernalillo County does not have any sources that are over the 2,000 tpy minimum therefore no characterization is necessary. The City of Albuquerque Environmental Health Department will continue to follow this issue and adjust our plans as further information becomes available from the EPA.

Oxides of Nitrogen

Current – The AQP monitors NO, NO_2, NOx, and NOy^2 at 2ZM (AQS 35-001-0023), the NCore location. Table 6 shows that NO_2 levels are low. (Annual 98^{th} percentile 1-hour values averaged over 3 years = 43.6 ppb compared to a standard of 100.)

Table 8: NO2 Design Value, ppb

2ZM Del Norte 35-001-0023

98th Percentile	2013	2014	2015	3 year Design Value
1-Hr Concentration (PPB)	45.4	42.0	43.4	43.6

Associated with NO_2 NAAQS is a requirement to monitor NO_2 Roadway emissions:

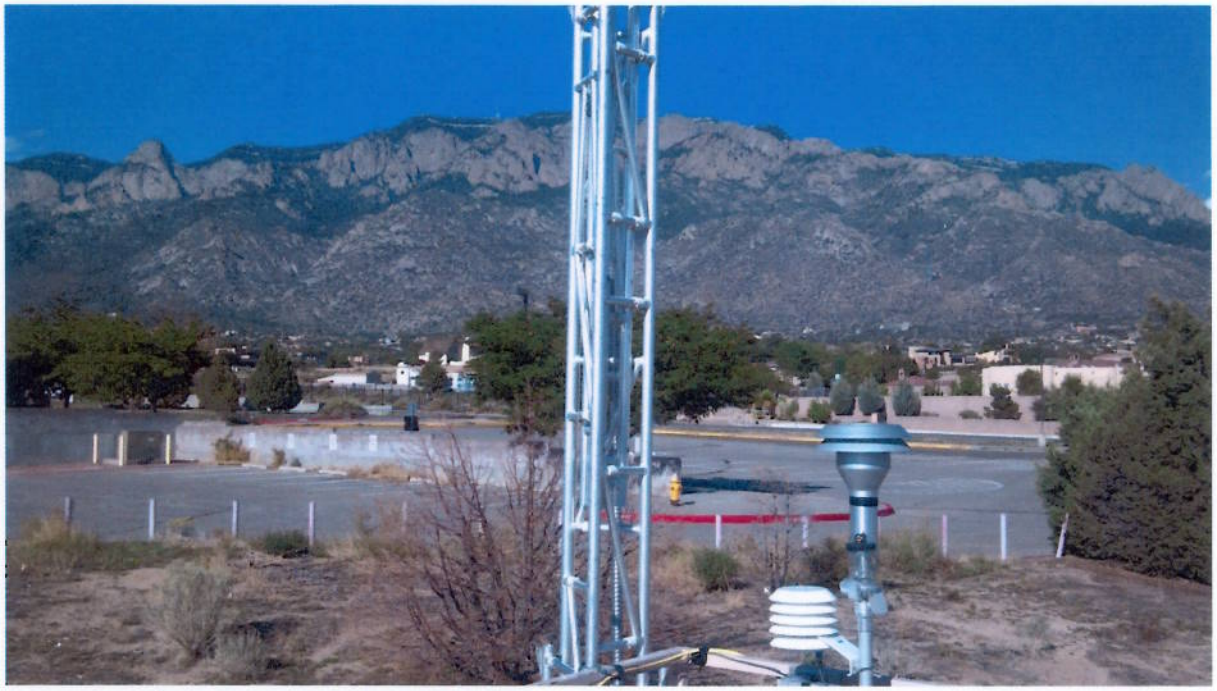
As stated by: "EPA's current regulatory requirements include the establishment of an NO_2 near-road site in CBSA's of populations between 500K and 1M by January 1, 2017. The Albuquerque CBSA falls into this population range as of the Census Bureau's 2014 estimates. Based on the latest information and guidance provided by the EPA, we understand that this requirement is under reconsideration. In fact, the EPA has published the abstract to a proposal that would remove this NO_2 monitoring requirement (also known as Phase 3 of the near-road network) from Appendix D of 40 CFR Part 58 http://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201510&RIN=2060-AS71 . Accordingly, and with the concurrence of EPA Region 6, we have placed a hold on the planning activities for this site. It is our understanding that the EPA plans on completing the associated final rule before the January 1, 2017 deadline for Phase 3 operations. The City of Albuquerque Environmental Health Department will continue to follow this issue and adjust our plans as further information becomes available from the EPA."

Future –No changes are planned in the coming year.

2ZF AIRS 35-001-1012

View to North


2ZF Double Eagle Elementary
207 ft
© 2009 Tele Atlas
©2008 Google
lat 35.185180° lon -106.508074°
elev 5925 ft
Mar 2004
Eye alt 18454 ft



View to Northeast

View to East

View to Southeast

View to South

View to Southwest

View to West

View to Northwest

Site 350010023 - 2ZM


2ZM Del Norte
254 ft
© 2009 Tele Atlas
Google
lat 35.134298° lon -106.585200°
elev 5216 ft
Mar 2004
Eye alt 16477 ft


North


North East


East

South East

South

South West

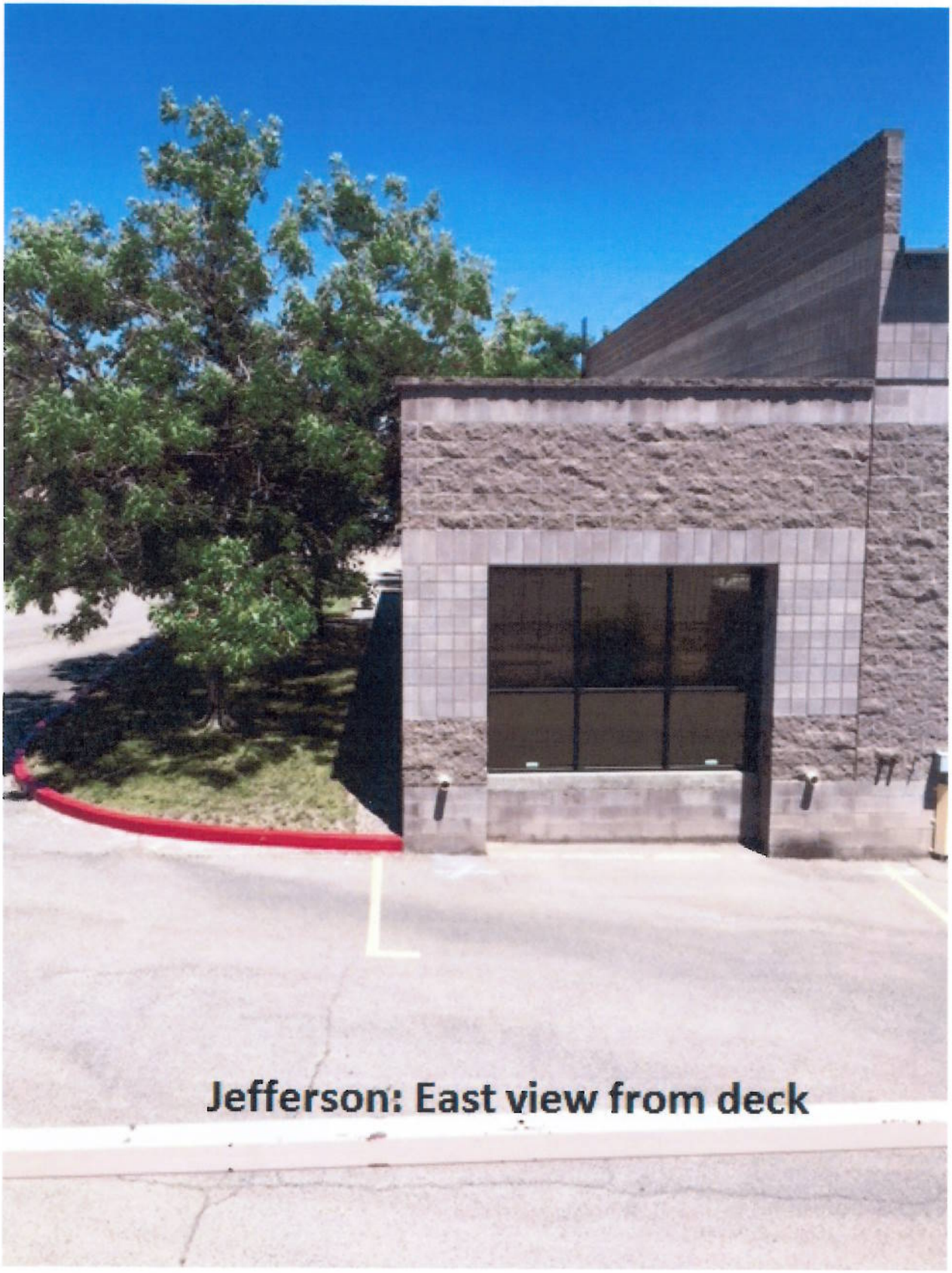

West


North West

Jefferson: North view from deck

Site – 350010026 Jefferson

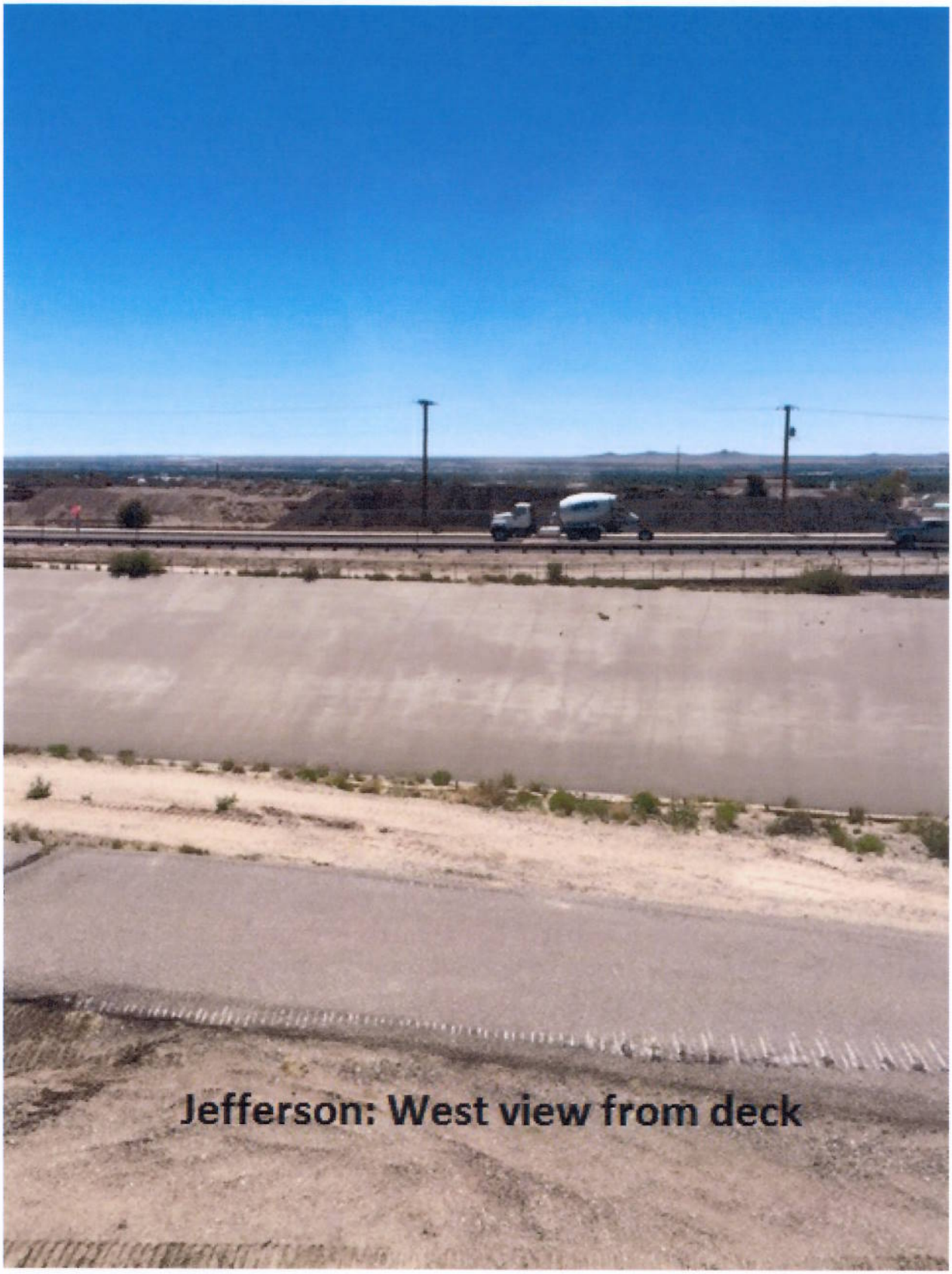

Jefferson: Northeast



Jefferson: East view from deck

Jefferson: South view from deck


Jefferson- Southwest view for deck



Jefferson: West view from deck

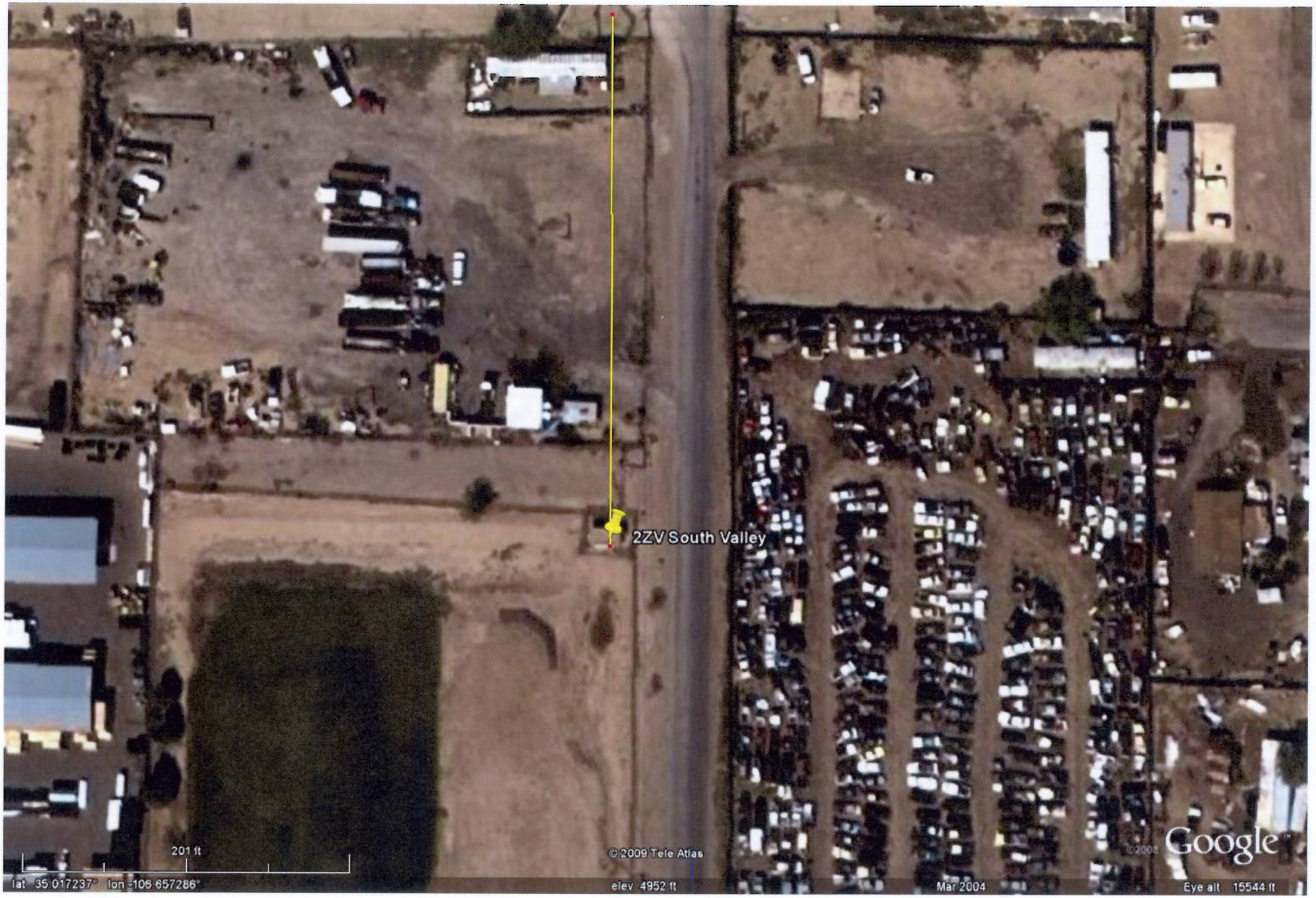
Jefferson: Northwest view from deck

Jefferson: North view from bike path

Jefferson: East view from bike path

Jefferson: Southeast view from bike path

Site 350010029 - 2ZV


2ZV South Valley
201 ft
© 2009 Tele Atlas
Google
lat 35.017237° lon -106.657286°
elev 4952 ft
Mar 2004
Eye alt 15544 ft

2ZV – View to North

2ZV – View to Northeast

2ZV – View to East

2ZV – View to Southeast

2ZV - View to South

2ZV – View to Southwest

2ZV – View to the West

2ZV – View to Northwest