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Janice K. Brewer
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Description of the High Particulate (PM_{10}) Concentration Event in the Durango Complex Vicinity on November 7, 2008

Background

The Arizona Department of Environmental Quality (ADEQ) issues Dust Control Action Forecasts for the Yuma and Phoenix areas as part of their Natural Events Action Plans. On Thursday, November 6, 2008, ADEQ air quality forecasters issued the Maricopa County Dust Control Action Forecast which called for a low risk of exceeding the PM_{10} National Ambient Air Quality Standards (NAAQS) in the Phoenix Metropolitan area for Friday, November 7. The forecast called for maximum PM_{10} concentrations to reach the mid moderate range of the Air Quality Index (AQI) in the Phoenix Metro area. These forecasts/advisories satisfy the requirement in 40 CFR 51.930(a)(1).

Forecasts of maximum PM_{10} concentrations in the mid-moderate range of the AQI are fairly typical for the fall stagnation season in Phoenix. The meteorological conditions in place at the time did not show any indication of the potential for wind blown dust nor severely stagnant conditions. Aside from the usual elevated PM_{10} concentrations during the morning and evening rush hours, PM_{10} concentrations were held in check at nearly all monitoring sites across the Valley. The lone exception occurred at the Durango Complex monitoring site operated by Maricopa County. While Durango PM_{10} concentrations were in line with most other Phoenix Metro monitoring sites for much of the day, elevated PM_{10} concentrations began to occur during the late evening hours of November 7th. The maximum hourly concentration exceeded 2,000 $\mu g/m^3$ during the 2100 hour on this day. At that time, no explanation could be given for the extremely high hourly concentrations. One week later on November 14th, staff from the Maricopa County (MC) Air Quality Department Dust Control Division went out to the site to perform a site survey in an attempt to determine the source of the elevated concentrations on November 7th. Upon doing so, it was discovered that a nearby agricultural field, which had previously been out of use for over two years, was now in the process of being put back into service. Pictures taken during the site survey (shown in Figure 1 and also included as an attachment) show evidence of agricultural operations that had been underway in the recent past. Freshly worked soil, excavation exposing field irrigation control pipes, and leveled soil with distinctive GPS controlled scraper pan markings were all signs that the field was in the process of being put back into service. Repeated visits to this location confirmed these suspicions, as green alfalfa plants had sprouted and fully covered the field. While winds were fairly light at the time of this event, the monitor specific wind data indicate that the spike in PM_{10} concentrations was coincident with a shift in winds from the west to the south / southeast.

These agricultural activities brought elevated ambient concentrations of PM_{10} to the Durango Complex vicinity that exceeded the NAAQS at the Durango monitor. The following are the key PM_{10} monitor readings for the monitors examined in this report.

Monitor (Operator/Type)	AQS ID	24-hr Avg PM_{10}	1-hr Max PM_{10}	Max Time	Flag**
PHOENIX METRO AREA					
West 43rd Ave (MC/TEOM)	04-013-4009*	85.2	207.1	0600	No
Durango Complex (MC/TEOM)	04-013-9812*	248.5	2066.7	2100	K
South Phoenix (MC/TEOM)	04-013-4003*	61.1	146.3	1800	No
Greenwood (MC/TEOM)	04-013-3010*	62.9	133.1	0700	No
Higley (MC/TEOM)	04-013-4006*	50.1	116.4	1000	No
Central Phoenix (MC/TEOM)	04-013-3002*	44.8	81.8	2100	No
Buckeye (MC/TEOM)	04-013-4011*	53.9	115.1	2100	No

* EPA Air Quality System Identification Number
** 24-hr PM_{10} concentration influenced by agricultural tilling.
Type Abbreviations: TEOM – Tapered Element Oscillating Microbalance Monitor (Continuous monitor).

The preliminary findings from this analysis were presented at a stakeholders meeting on March 19, 2009, in Phoenix, Arizona. Following the stakeholders meetings, ADEQ supplemented and finalized the analysis and a public comment period was held from October 15, 2009 through November 13, 2009. This finalized document and any comments received are being submitted to EPA to satisfy the requirements in 40 CFR 50.14(c)(3)(i).

NWS-Phoenix Sky Harbor

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	57	10		0	0	N
2	55	10		3	3	SW
3	57	10		0	0	N
4	55	10		0	0	N
5	57	10		5	5	NE
6	51	10		0	0	N
7	51	10		3	3	SW
8	56	10		0	0	N
9	62	10		0	0	N
10	67	10		10	10	E
11	69	10		5	8	E
12	72	10		5	8	N
1	73	10		0	0	N
2	75	10		5	5	NW
3	76	10		3	3	*VR
4	77	10		0	0	N
5	77	10		5	5	NW
6	73	10		6	6	SW
7	72	10		7	7	W
8	67	10		0	0	N
9	65	10		0	0	N
10	63	10		6	6	E
11	63	10		3	3	NE
12	58	10		0	0	N

16375 (112.12Wx33.43N)

MC - DURANGO COMPLEX

Hr	T(F)	RH	PM	Spd	Max	Dir
1	56	29	72	1	4	SW
2	55	30	63	1	6	E
3	54	31	81	0	8	W
4	53	32	65	1	5	E
5	52	34	78	1	4	NW
6	52	35	100	1	3	W
7	52	34	113	1	3	N
8	52	35	212	1	4	SW
9	57	30	216	1	5	S
10	63	17	78	2	7	SE
11	67	13	83	1	6	E
12	70	12	22	2	8	N
1	72	12	22	2	9	NE
2	74	11	17	1	11	N
3	75	10	29	2	8	SW
4	76	10	27	2	8	W
5	76	10	35	3	7	W
6	73	12	53	2	6	W
7	70	15	101	1	3	NW
8	66	21	2066	1	4	S
9	64	23	1307	0	2	S
10	62	25	740	1	4	SE
11	61	22	182	1	4	E
12	59	24	189	1	4	E

16377 (112.08Wx33.40N)

MC - SOUTH PHOENIX

Hr	T(F)		PM	Spd	Max	Dir
1	53		67	1	7	S
2	51		38	1	5	SE
3	50		34	1	5	SE
4	49		32	1	5	SE
5	49		40	1	3	SE
6	47		43	1	4	W
7	47		62	1	4	S
8	50		122	1	4	S
9	58		87	2	6	SE
10	63		38	0	5	E
11	68		28	1	6	NE
12	70		23	1	10	E
1	72		24	2	8	N
2	74		19	1	9	E
3	76		20	2	8	NW
4	77		29	3	9	W
5	76		61	2	7	W
6	72		93	1	5	SW
7	67		146	1	3	W
8	63		133	2	4	S
9	61		87	1	4	SW
10	59		90	1	2	SE
11	57		74	2	6	SE
12	55		64	2	4	E

Event Contrib. Analysis

Hourly PM_{10} Conc. ($\mu g/m^3$)

MONITORS:

1-Durango

24-Hr. Avg PM_{10}

Monitor:	with Event	w/o Event
1-Durang	248	77

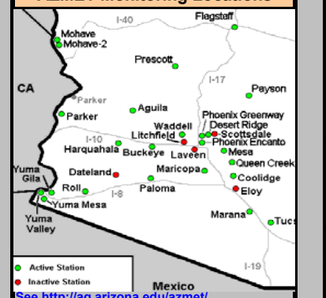
> NAAQS | < NAAQS

Pink=Event Contrib.

Conclusion: The PM_{10} concentration exceeded the NAAQS due to an evening event. However, no meteorological data exists to suggest that the event was natural/exceptional.

Hr	1
1	72.4
2	63
3	81.9
4	65.3
5	78.8
6	101
7	113
8	213
9	216
10	78
11	83.3
12	22.6
1	22.7
2	17
3	29.5
4	27.9
5	35.9
6	53.5
7	102
8	2067
9	1308
10	741
11	182
12	190

AZMET Monitoring Locations



See http://ag.arizona.edu/azmet/

wnd @3m agl / Dir corrected to true north

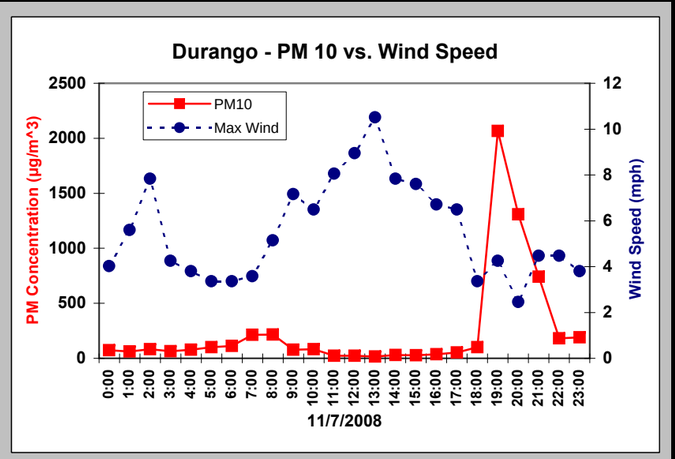
HIGHLIGHTING	Col.	Parameter
Max Wind	T(F)	Temp. (Deg. F.)
> 15 mph	RH	Rel Humidity %
>25 mph	Rn	Rain (Inches/hr)
HR - Time (End)	Spd	Avg Speed mph
A.M.	Max	Max Speed mph
P.M.	Dir	Wind Dir. (from)

Figure 1. Key Data for Event of November 7, 2008

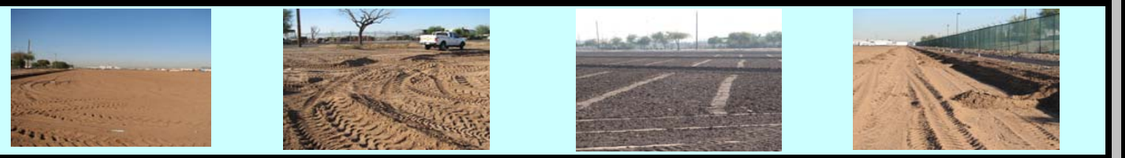
WIND & PM10 DATA	ECA	KEY	PM10 & WIND PLOT
	HIST		Wx IMAGERY
	DIST		PHX VIS. CAMERAS

SUMMARY OF EVENT

Agricultural practices created large plumes of dust that affected air quality at nearby locations. As evening winds shifted from west to south / southeast, the Durango PM monitor recorded extremely high PM10 concentrations.



Ag Field Images



16659 (112.14Wx33.41N)

MC - WEST FORTY THIR

Hr	T(F)		PM	Spd	Max	Dir
1	52		78	2	6	S
2	52		70	0	6	NE
3	51		62	1	9	SW
4	50		57	2	5	E
5	48		71	1	5	E
6	48		149	0	3	NW
7	48		207	1	5	E
8	50		165	2	5	S
9	57		126	0	5	E
10	64		47	2	6	S
11	68		32	2	6	NE
12						
1						
2	76		24	2	7	W
3	76		22	1	6	NW
4	77		33	3	8	W
5	76		30	4	6	SW
6	73		47	3	6	SW
7	68		67	2	4	W
8	64		106	2	4	S
9	60		95	1	3	S
10	58		189	2	3	E
11	57		122	2	5	E
12	55		188	1	4	E

16477 (112.14Wx33.48N)

MC - WEST PHOENIX

Hr	T(F)		PM	Spd	Max	Dir
1	57		22	1	7	N
2	53		22	1	6	NW
3	51		29	1	5	N
4	50		27	1	9	E
5	49		35	1	4	N
6	48		47	1	5	N
7	47		97	1	6	N
8	52		105	2	6	NE
9	59		69	0	3	W
10	64		34	0	6	SE
11	67		35	1	6	S
12	70		18	1	8	NE
1	72		14	1	8	NW
2	74		15	2	8	N
3	76		14	1	8	SW
4	77		16	2	6	W
5	76		32	3	9	SW
6	73		58	3	6	SW
7	68		92	2	6	NW
8	65		72	2	4	N
9	61		77	0	5	N
10	60		87	2	5	N
11	59		67	2	5	E
12	56		69	1	4	N

16329 (112.05Wx33.46N)

MC - CENTRAL PHOENIX

Hr	T(F)		PM	Spd	Max	Dir
1	56		35	1	5	S
2	56		43	2	9	S
3	54		44	1	5	NE
4	53		35	1	9	SE
5	53		26	2	9	NE
6	52		26	1	5	N
7	51		46	1	3	NW
8	59		48	1	5	N
9	67		57	1	5	S
10	71		36	1	7	SW
11	74		22	2	8	NE
12	75			2	9	NW
1	76		20	2	9	NW
2	78		18	1	7	SE
3	79		16	0	8	NW
4	81		16	3	9	NW
5	79		19	2	6	W
6	72		73	4	8	W
7	69		72	4	6	W
8	66		79	2	6	NW
9	64		74	1	4	W
10	63		81	2	6	SE
11	60		77	2	5	NE
12	58		56	1	4	NE

Historical Distribution

5-Yr. Dist. of Values ($\mu g/m^3$)

MONITORS:

1-DURANGO COMPL

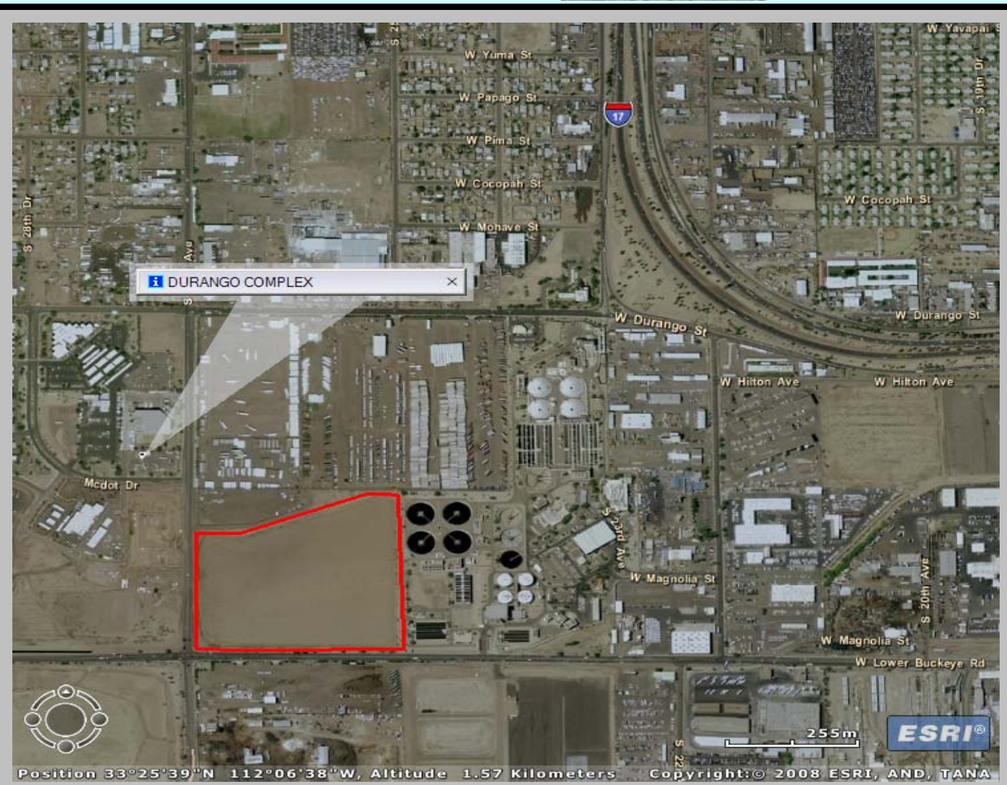
Column Index

Yr - All Data (5-Yrs)

Sea - Data for Autumn season only (5-Yrs)

Cum. Freq.	Mon 1 Yr	Mon 1 Sea
Min	5	8
0.5%	9	11
1.0%	10	13
2.5%	15	20
5%	19	24
10%	26	30
25%	39	45
50%	56	66
75%	78	92
90%	109	114
95%	123	126
97.5%	144	139
99.0%	181	153
99.5%	200	161
Max	253	189
Flagged Value	248	

Conclusion: Flagged Value is exceptional in nature (ie greater than 95% of all data)



16398 (111.92Wx33.48N)

MC - SOUTH SCOTTSDAL

Hr	T(F)	RH		Spd	Max	Dir
1	57	29		2	5	E
2	56	28		2	6	NE
3	54	32		1	6	NE
4	55	27		4	10	NE
5	56	24		4	10	NE
6	56	25		4	8	NE
7	54	28		3	7	N
8	55	30		4	10	NE
9	60	26		4	12	E
10	65	21		6	16	E
11	68	19		5	14	E
12	70	17		3	11	E
1	72	16		1	8	N
2	74	15		1	6	E
3	76	15		1	7	W
4	76	15		2	8	NW
5	76	16		2	6	NW
6	74	18		3	5	NW
7	70	22		3	9	NW
8	68	23		4	9	NW
9	62	31		2	6	E
10	60	33		0	4	NW
11	58	37		1	3	N
12	56	42		4	6	N

16478 (111.88Wx33.30N)

MC - WEST CHANDLER

Hr	T(F)	RH		Spd	Max	Dir
1	59	16		3	9	NE
2	56	18		3	6	E
3	57	16		5	10	NE
4	53	23		1	8	N
5	53	20		5	10	NE
6	53	20		3	10	NE
7	49	27		1	6	W
8	53	25		3	10	N
9	61	18		6	13	N
10	64	14		7	14	N
11	67	12		6	12	N
12	70	11		6	14	N
1	72	10		7	16	N
2	74	9		5	12	N
3	75	10		4	12	N
4	75	10		4	10	NW
5	75	10		5	12	NW
6	73	12		2	7	W
7	69	13		1	4	SW
8	64	18		2	5	N
9	62	21		2	5	NE
10	62	20		3	6	N
11	60	22		4	7	N
12	56	23		4	7	N

16380 (111.87Wx33.41N)

MC - MESA

Hr	T(F)	RH		Spd	Max	Dir
1	58	16		2	5	E
2	59	14		4	10	NE
3	59	14		6	12	NE
4	58	15		6	11	NE
5	57	15		6	11	NE
6	57	16		5	10	NE
7	55	18		4	10	NE
8	58	16		8	15	NE
9	61	16		7	14	NE
10	64	13		8	15	NE
11	67	12		7	15	NE
12	69	11		5	14	NE
1	72	10		4	14	NE
2	73	10		3	11	NE
3	75	10		3	8	NW
4	75	10		5	10	NW
5	75	11		6	11	NW
6	73	12		4	9	NW
7	70	14		4	6	NW
8	68	16		2	5	N
9	64	22		2	6	NE
10	62	22		2	4	NW
11	60	24		2	5	N
12	58	24		2	5	N

16505 (111.72Wx33.31N)

MC - HIGLEY

Hr	T(F)		PM	Spd	Max	Dir
1	53		36	2	8	E
2	51		30	0	6	S
3	49		25	1	6	NE
4	52		18	3	10	NE
5	52		23	4	15	NE
6	55		49	3	13	E
7	49		58	2	8	SW
8	51		115	2	7	N
9	58		108	1	4	S
10	66		95	7	17	NE
11	68		116	4	11	S
12	71		38	2	10	E
1	73		22	1	8	N
2	76		19	5	13	N
3	77		10	5	12	NW
4	78		10	7	14	NW
5	76		15	6	11	NW
6	73		31	3	7	W
7	68		65	3	5	NW
8	65		47	4	7	NW
9	63		58	2	6	NW
10	56		66	4	9	E
11	54		67	2	5	E
12	52		71	1	5	E

Prepared by S. Kendall, A. Juniel, B. Busby and B. Paris/ ADEQ 3/19/09

Assessment under the Technical Criteria Document (TCD)

1. Properly qualify and validate the air quality measurement to be flagged. As this was not a filter sampling date (1-in-6 run day), only data from the continuous analyzers were examined. The air quality monitoring data were reviewed by the agency responsible for operation of the monitor. All 24-hr averaged PM_{10} readings listed in the table above were valid for November 7th. Audits of the analyzers revealed operations were within acceptable tolerance. Agricultural activity to the south and east of the monitor are believed to have contributed to the dust event. An exceedance of the NAAQS was recorded at the Durango Complex monitoring site operated by Maricopa County.

2. Review suspected contributing sources. The NWS, MC, ADEQ, and AzMET surface data for Arizona provide a good explanation as to what meteorological conditions were in place on November 7, 2008. Winds were mostly light and variable throughout much of the day across the entire Valley. Monitor specific wind data at the Durango Complex, in conjunction with the hourly PM_{10} data, indicate that a shift in wind direction from the west / northwest to south / southeast marked the beginning of the elevated PM event. The location of the agricultural field to the southeast of the Durango Complex monitor would allow for PM_{10} emissions to travel in a northwesterly direction which is right in line with the Durango Complex monitor. Site survey photos would later verify that agricultural activity had taken place around the time of the exceedance.

3. Examine all air quality monitoring information. Data from all monitors in the network were reviewed. Monitors located within the Phoenix Metro area are summarized in the table in the Background section of this assessment. While this particular exceedance is not being flagged for exceptional event purposes, the "Historical Distribution" Table in Figure 1 has been included to demonstrate that the event is associated with a measured concentration in excess of normal historical fluctuations, including background (i.e., concentrations greater than the 95th percentile). Monitors with readings greater than that of the NAAQS on November 7, 2008, include the Durango Complex monitoring site.

4. Examine the meteorological conditions before and during the event. The meteorological data are summarized in Figure 1. The wind data are highlighted yellow if the max wind speed in the hour exceeds 15 mph and orange if it exceeds 25 mph. As can be seen in Figure 1, wind speeds remained fairly light throughout much of the state for the entire duration of November 7th. Wind blown dust is not believed to have been the culprit as wind speeds remained well below threshold friction velocities.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM_{10} concentrations in the Durango Complex vicinity can be attributed to soil emissions that were disturbed by agricultural practices and then transported short distances to localized areas. No source specific emission allocation is possible based on the data available for analysis. The hourly wind and PM_{10} concentration data show a direct relationship between PM_{10} concentrations and a shift in wind direction. In addition to these hourly data, site survey photographs indicate that agricultural activity did occur around the time of the exceedance, as freshly worked soil and excavations were clearly visible. As shown in the lower right hand corner of Figure 1, an agricultural field located on the northeast corner of 27th Avenue and Lower Buckeye Road is believed to be the source of the elevated PM_{10} concentrations measured during the late evening hours of November 7, 2008. This field had previously been dormant, but showed clear signs of being put back into use. As of December 22nd 2008, a fresh crop of alfalfa was visible at this location.

6. Estimation of Contribution from Source or Event. The primary source appears to be soil emissions that were disturbed by agricultural activity to the southeast of the Durango Complex monitor. The demonstration analysis contained in this report establishes the linkage between the measurements in question and the event. The "Event Contrib. Analysis" Table in Figure 1 was included for informational purposes only to demonstrate that there would have been no exceedance but for the event (i.e., the contribution during the event overwhelmed the 24-hour averages).

7. Determination that a Natural or Exceptional Event Contributed To an Exceedance. Based on this analysis, the event does not satisfy the requirement in 40 CFR 50.1(j) that the elevated concentrations at the Durango Complex were attributed to a natural event.

Conclusion

Dust from local agricultural activities. The localized elevated PM_{10} event on November 7, 2008, in the Durango Complex vicinity was the result of agricultural activity that transported dust and soils short distances to localized areas downwind of the agricultural field. The "agricultural tilling" (K) flag should be applied to the monitor readings indicated in the table at the beginning of this report. ADEQ does not wish to exclude these data from comparison to the PM_{10} NAAQS, as this appears to be a local source issue and cannot be attributed to a natural event. This demonstration serves merely as an explanation for the elevated PM_{10} concentrations that occurred at the Durango Complex monitoring site on November 7, 2008.

ATTACHMENTS AND REFERENCES

FOR EXCEPTIONAL EVENTS ANALYSIS

The following are supplemental materials helpful in understanding the exceptional event summarized in the main report. In addition, the reader is referred to the following references.

REFERENCES

Arizona Department of Environmental Quality (ADEQ), *Air Quality Exceptional and Natural Events Policy*, Policy Number 2009.002 (April 28, 1999; revised January 10, 2006 and June 22, 2007).

Arizona Department of Environmental Quality (ADEQ), *Technical Criteria Document for Determination of Natural Exceptional Events for Particulate Matter Equal to or Less Than Ten Microns in Aerodynamic Diameter (PM_{10})* (May 31, 2000).

Arizona Department of Environmental Quality (ADEQ), *Technical Criteria Document for Determination of Natural and Exceptional Events* (December 12, 2005).

Arizona Department of Environmental Quality (ADEQ), *Impact of Exceptional Events 'Unusual Winds' on PM_{10} Concentrations* (October 14, 2009).

Arizona Department of Environmental Quality (ADEQ), *High Wind Exceptional Events and Control Measures for PM_{10} Areas* (October 14, 2009).

Environmental Protection Agency (EPA), *The Treatment of Data Influenced by Exceptional Events (Exceptional Event Rule)*, 73 FR 70597; 40 CFR Parts 50 and 51 (November 21, 2008).

ADEQ Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

VERY UNHEALTHY (201-300)

UNHEALTHY (151-200)

UNHEALTHY FOR SENSITIVE GROUPS (101-150)

MODERATE (51-100)

GOOD (0-50)

For more information visit:
http://www.epa.gov/airnow/aqibroch

LINK TO EXCEEDANCE & HEALTH STATEMENT INFO FOR THE 2007-08 & 2008-09 FORECAST SEASONS

AIR QUALITY FORECAST FOR FRIDAY, NOVEMBER 7, 2008

This report is updated by 1:00 p.m. Sunday thru Friday and is valid
for areas within and bordering Maricopa County in Arizona

FORECAST DATE **NOTICES** (*SEE BELOW FOR DETAILS) AIR POLLUTANT	YESTERDAY WED 11/05/2008 Highest AQI Reading/Site (Preliminary data only)	TODAY THU 11/06/2008	TOMORROW FRI 11/07/2008	EXTENDED SAT 11/08/2008
O3*	**35** **MULTIPLE LOCATIONS**	**38** **GOOD**	**41** **GOOD**	**43** **GOOD**
CO*	**7** **PHOENIX SUPERSITE & SOUTH PHOENIX**	**14** **GOOD**	**15** **GOOD**	**15** **GOOD**
PM-10*	**66** **WEST 43RD**	**60** **MODERATE**	**70** **MODERATE**	**78** **MODERATE**
PM-2.5*	**29** **PHOENIX SUPERSITE**	**34** **GOOD**	**38** **GOOD**	**40** **GOOD**

* O3 = Ozone CO = Carbon Monoxide PM-10 = Particles 10 microns & smaller PM-2.5 = Particles smaller than 2.5 microns

*"Ozone Health Watch" means that the highest concentration of OZONE may approach the federal health standard.
"PM-10 or PM-2.5 Health Watch" means that the highest concentration of PM-10 or PM-2.5 may approach the federal health standard.
"High Pollution Advisory" means that the highest concentration of OZONE, PM-10, or PM-2.5 may exceed the federal health standard.
"DUST" means that short periods of high PM-10 concentrations caused by outflow from thunderstorms are possible.

Health message for Thursday, November 6: Unusually sensitive people should consider reducing prolonged or heavy exertion.

Health message for Friday, November 7: Unusually sensitive people should consider reducing prolonged or heavy exertion.

Synopsis and Discussion

The trough of low pressure responsible for the cooler air in Arizona is now centered near Nebraska and South Dakota. Looking to our west we see a modest ridge of high pressure. This ridge will continue east the next few days, providing us with some nice weather and a slight warm-up through Saturday. By Sunday, however, another pool of cooler air dives south along the west coast and into Arizona. This will drop temps once again from near 80°F across the deserts on Saturday, to the low to mid 70s early next week. A series of subsequent disturbances will prevent any dramatic temperature rebound until at least the following weekend. Winds over the next several days will be fairly light, leading to decreasing ventilation. This means that hazy mornings will continue until at least Sunday.

Despite the weak inversion this morning, not much change has occurred in the air quality arena. PM-10 concentrations were once again in the lower part of the "Moderate" range while PM-2.5 levels held in the "Good" range for the fourth day in a row. With the approaching ridge of high pressure, the levels will increase heading into the weekend as low-level winds decrease. We could see some improvement on Monday in the wake of the next system with a little better mixing, but early indications are that the improvements won't give us that pristine Valley postcard view (you can see what the would look like as well as the latest camera views at http://phoenixvis.net). Check back tomorrow for latest on your weekend's weather and air quality. Until then, have a good day! –J.Paul

MONITORING SITE MAPS: STATIC MAP – **http://www.azdeq.gov/environ/air/monitoring/images/map.jpg**
INTERACTIVE MAPS – **http://aqwww.maricopa.gov/AirMonitoring/SitePollutionMap.aspx**
http://www.airnow.gov/

POLLUTION MONITOR READINGS FOR WEDNESDAY, NOVEMBER 5, 2008

O3 (OZONE)

SITE NAME	MAX 8-HR VALUE (PPB)	MAX AQI	AQI COLOR CODE
Apache Junction	40	34	
Blue Point	41	35	
Central Phoenix	33	28	
Fountain Hills	41	35	
North Phoenix	41	35	
Phoenix Supersite	37	31	
Pinnacle Peak	39	33	
South Phoenix	41	35	
South Scottsdale	35	30	
West Phoenix	40	34	

CO (CARBON MONOXIDE)

SITE NAME	MAX 8-HR VALUE (PPM)	MAX AQI	AQI COLOR CODE
Buckeye	0.1	1	
Central Phoenix	0.3	3	
Dysart	0.3	3	
Glendale	0.2	2	
Greenwood	0.3	3	
Mesa	0.1	1	
North Phoenix	0.3	3	
Phoenix Supersite	0.6	7	
South Phoenix	0.6	7	
South Scottsdale	0.3	3	
Tempe	0.4	5	
West Chandler	0.4	5	
West Indian School	0.3	3	

West Phoenix	**0.4**	**5**	

PM-10 (PARTICLES)

SITE NAME	MAX 24-HR VALUE (ug/m3)	MAX AQI	AQI COLOR CODE
Buckeye	**92.4**	**69**	
Central Phoenix	**58.2**	**53**	
Combs School (Pinal County)	**67.5**	**57**	
Coyote Lakes	**37.6**	**34**	
Durango	**64.9**	**56**	
Greenwood	**52.6**	**48**	
Higley	**50.5**	**46**	
Maricopa (Pinal County)	**61.6**	**54**	
Phoenix Supersite	**44.9**	**41**	
South Phoenix	**67.3**	**57**	
West Forty Third	**86.6**	**66**	
West Phoenix	**53.9**	**49**	

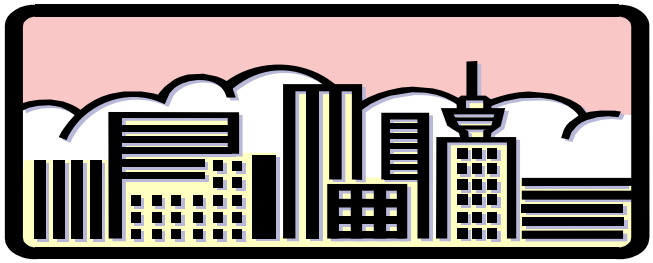
PM-2.5 (PARTICLES)

(Some data derived from light-scattering equipment)

For maps go to: **http://www.airnow.gov/**

SITE NAME	MAX 24-HR VALUE (ug/m3)	MAX AQI	AQI COLOR CODE
Durango	**8.4**	**27**	
Dysart	**8.6**	**28**	
Estrella Mountain Park	**6.4**	**21**	
Phoenix Supersite	**8.8**	**29**	
Vehicle Emissions Lab	**7.2**	**23**	
West Phoenix	**5.8**	**19**	

LOCAL AIR POLLUTANTS IN DETAIL



O3 (OZONE):

Description – This is a secondary pollutant that is formed by the reaction of other primary pollutants (precursors) such as VOCs (volatile organic compounds) and NOx (Nitrogen Oxides) in the presence of heat and sunlight.

Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NOx is emitted from motor vehicles, power plants, and other sources of combustion.

Potential health impacts – Exposure to ozone can make people more susceptible to respiratory infection, result in lung inflammation, and aggravate pre-existing respiratory diseases such as asthma. Other effects include decrease in lung function, chest pain, and cough.

Unit of measurement – Parts per billion (ppb).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight).

Reduction tips – Curtail daytime driving, refuel cars and use gasoline-powered equipment as late in the day as possible.

CO (CARBON MONOXIDE):

Description – A colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely.

Sources – In cities, as much as 95 percent of all CO emissions emanate from automobile exhaust. Other sources include industrial processes, non-transportation fuel combustion, and natural sources such as wildfires. Peak concentrations occur in colder winter months.

Potential health impacts – Reduces oxygen delivery to the body's organs and tissues. The health threat is most serious for those who suffer from cardiovascular disease.

Unit of measurement – Parts per million (ppm).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)

Reduction tips – Keep motor vehicle tuned properly and minimize nighttime driving.

PM-10 & PM-2.5 (PARTICLES):

Description – The term "particulate matter" (PM) includes both solid particles and liquid droplets found in air. Many manmade and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. Particles less than 10 micrometers in diameter tend to pose the greatest health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers in diameter are referred to as "fine" particles and are responsible for many visibility degradations such as the "Valley Brown Cloud" (see http://www.phoenixvis.net/). Particles with diameters between 2.5 and 10 micrometers are referred to as "coarse".

Sources – Fine = All types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Coarse = crushing or grinding operations and dust from paved or unpaved roads.

Potential health impacts – PM can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases, such as asthma and chronic bronchitis.

Units of measurement – Micrograms per cubic meter (ug/m3)

Averaging interval – 24 hours (midnight to midnight).

Reduction tips – Stabilize loose soils, slow down on dirt roads, carpool, and use public transit.

{**Updated 09/24/2007**}

ADEQ Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

MARICOPA COUNTY
DUST CONTROL ACTION FORECAST
ISSUED THURSDAY, NOVEMBER 6, 2008

Three-day weather outlook:

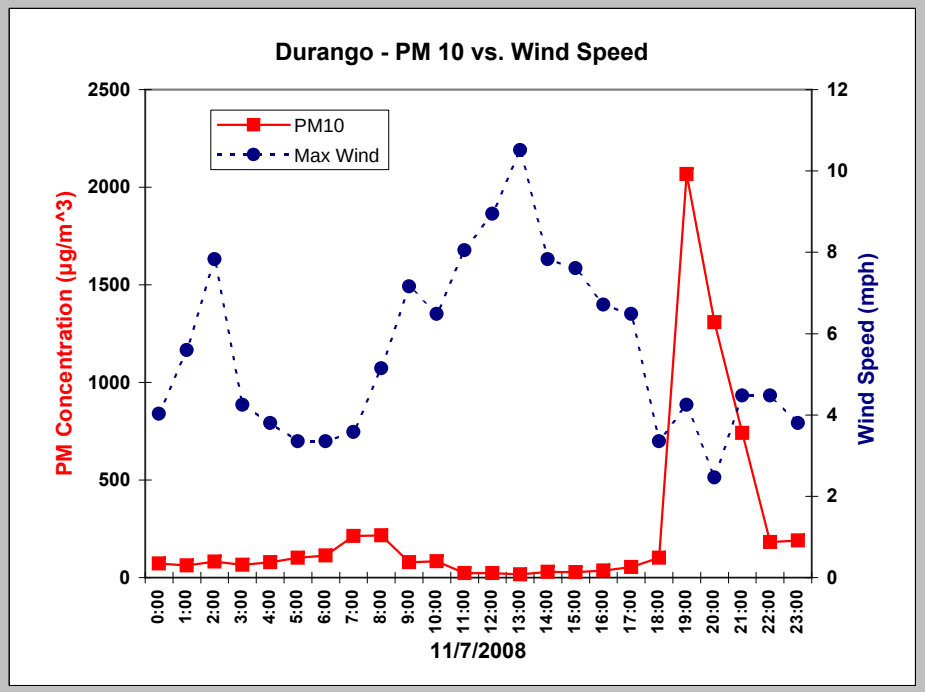
High pressure will continue to move towards the forecast area and will be over the region Friday and Saturday. Another disturbance, however, will crash through Nevada, Utah, and eventually northern Arizona by Sunday and Monday. Until then, afternoon desert temperatures will be in the upper 70s to around 80°F under mostly sunny skies are relatively light winds. Thus, the risk of exceeding the 24-hr PM-10 health standard in Phoenix will continue to be "Low" through Sunday.

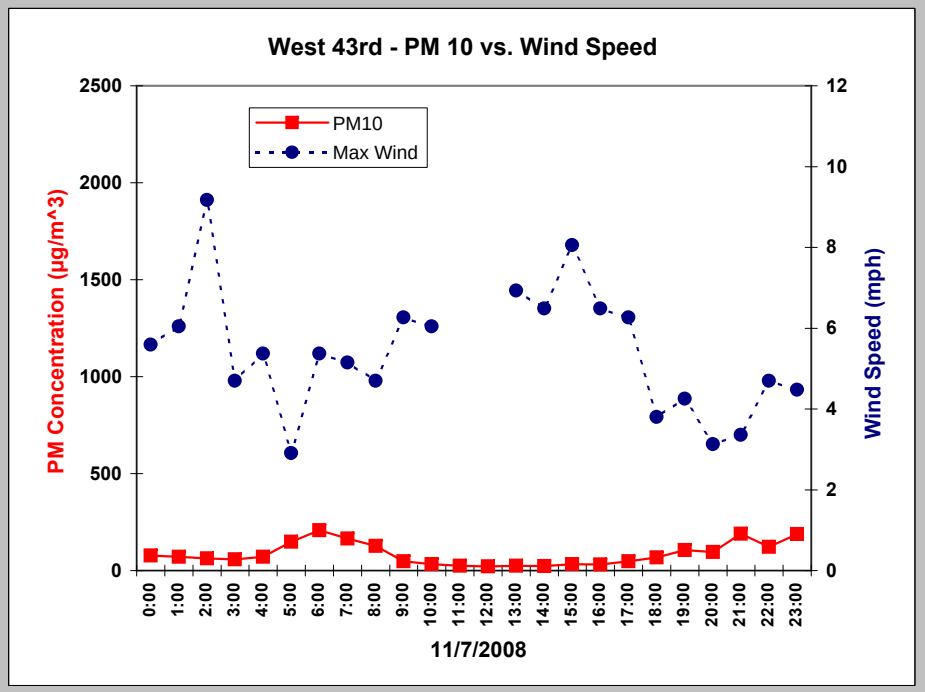
R I S K F A C T O R S

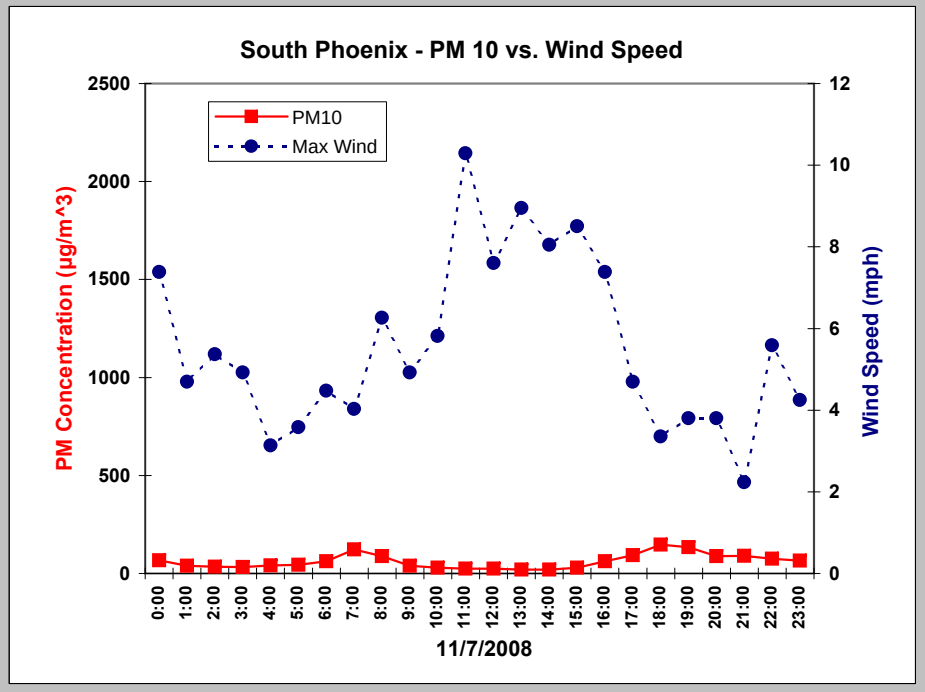
	WINDS		STAGNATION		RISK LEVEL
Day #1: Fri 11/07/2008	Northwest winds 5 to 10 mph are expected during the afternoon.	+	Somewhat stagnant conditions are expected early with improvement by the afternoon.	=	**LOW**
Day #2: Sat 11/08/2008	South winds around 5 mph are expected during the afternoon.	+	Rather stagnant conditions are expected early with improvement by the afternoon.	=	**LOW**
Day #3: Sun 11/09/2008	Southwest winds 5 to 10 mph are likely during the afternoon.	+	Somewhat stagnant conditions are expected early with improvement by the afternoon.	=	**LOW**

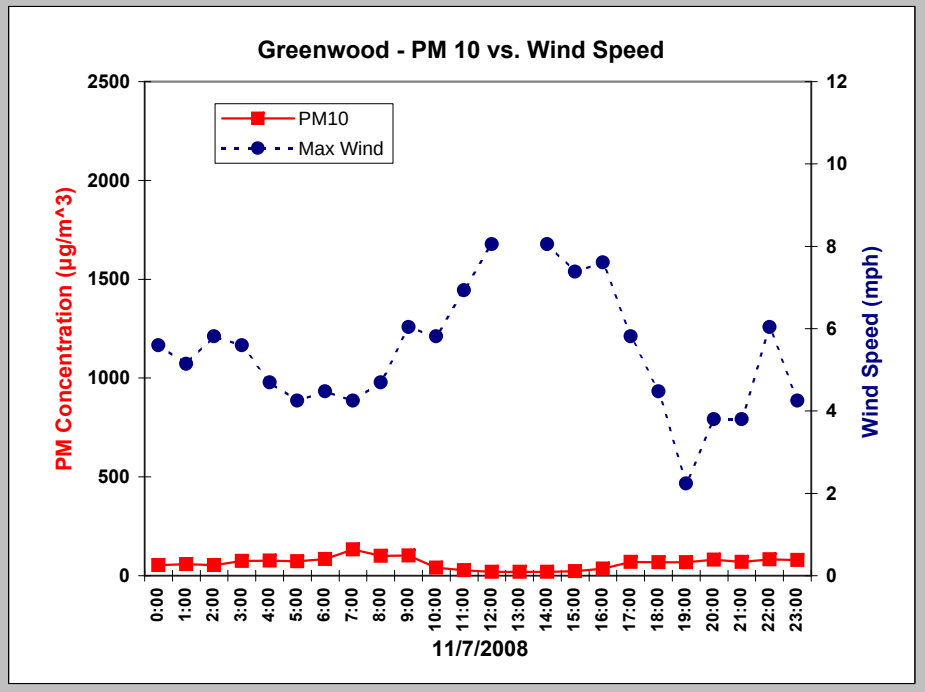
To review the complete air quality forecast for the Phoenix metropolitan area visit www.azdeq.gov or call 602-771-2367 for recorded forecast information.

11/07/2008 - ADDITIONAL GRAPHS

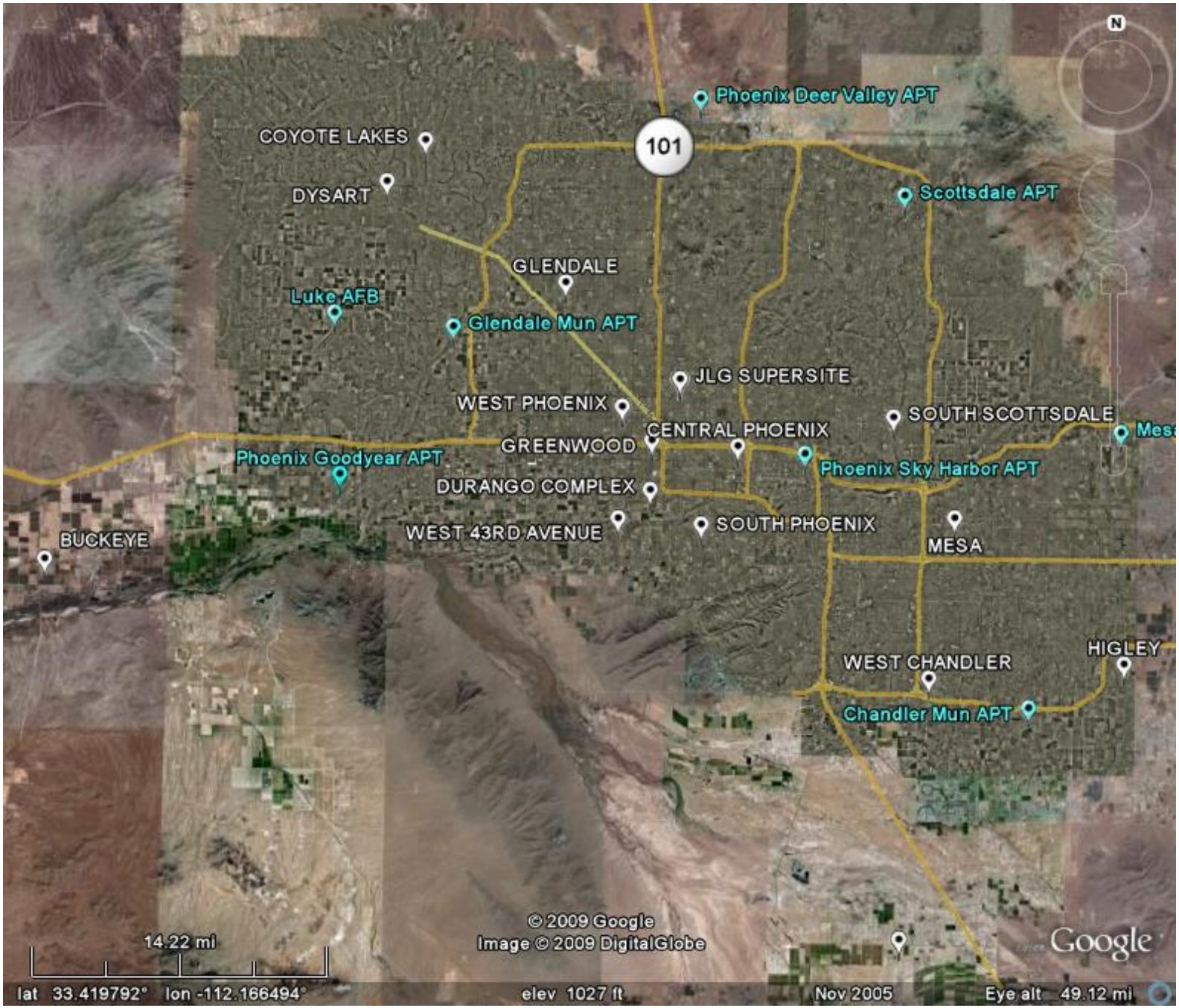






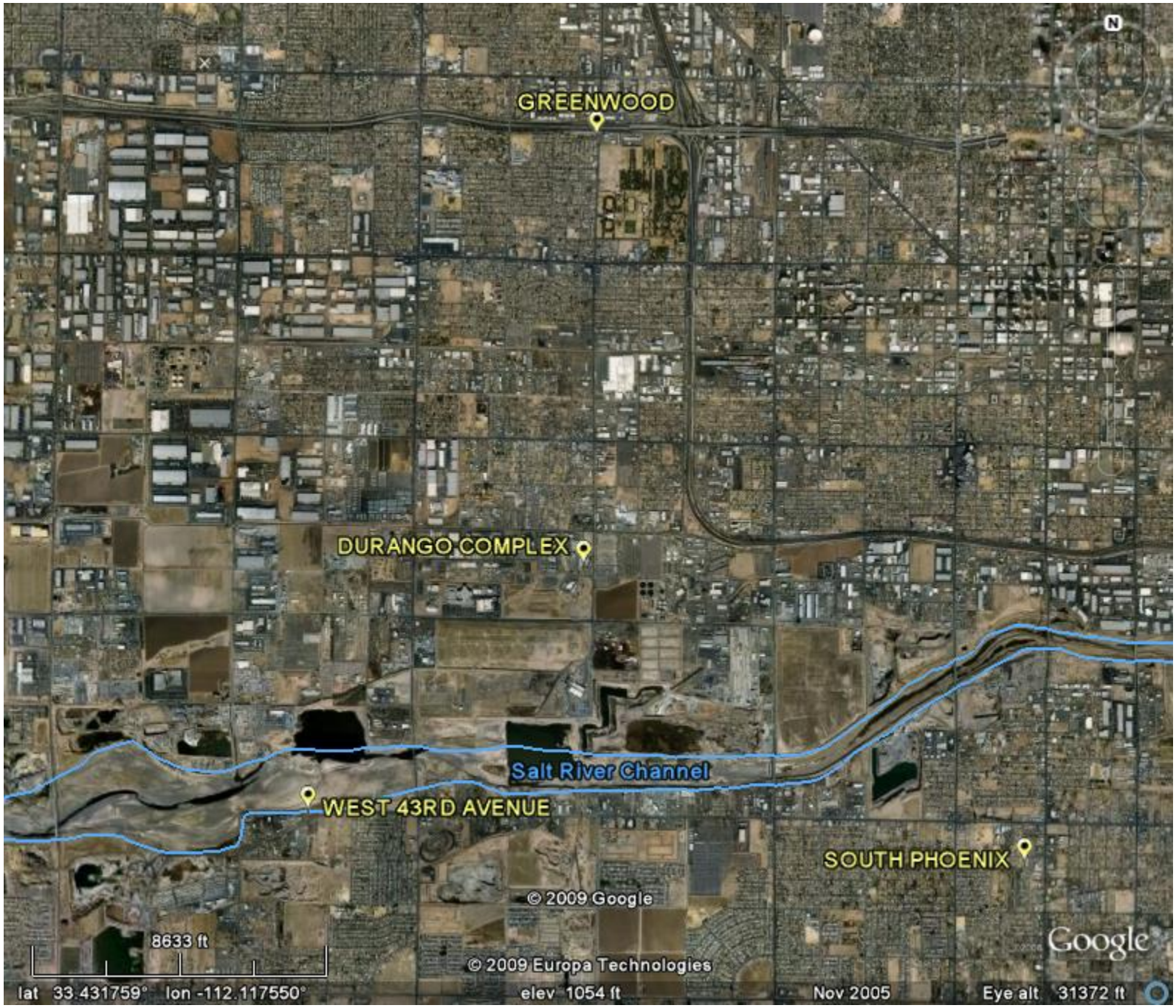


Phoenix Area PM_{10} and Meteorological Monitors



Source: US EPA, ADEQ, & Google Earth

Salt River Area PM_{10} and Meteorological Monitors



Source: US EPA, ADEQ, & Google Earth

Maricopa County
Air Quality Department
Dust Control Division
Photo Attachment Page

Date of Photos:	**14 NOV 2008**
Parcel Number	**105-22-001c**
Location:	**27th Ave and Lower Buckeye Rd**
Field Size:	**~27 acres**
Owner Infomation:	**Griffin Hurley**
	124 E Palm Ln
	Phoenix, AZ 85004

Photo 1 of 7 - View ENE; Fresh excavation to expose field irrigation control pipe from irrigation lateral

Photo 2 of 7 - View NNE; showing series of fresh excavations exposing field irrigation control pipes from irrigation lateral

Photo 3 of 7; View W; freshly worked soil

Photo 4 of 7 - View SE; leveled soil with distinctive GPS controlled scraper pan markings

Photo 5 of 7 - View SSW; Southeast corner of property bordering on Lower Buckeye Rd showing fresh backhoe tracks

Photo 6 of 7 - View E; View of No Trespassing Sign in English and Spanish taken from east-side shoulder of 27th Ave

Photos (cont)

 Photo 7 of 7 - View E; Close-up of No Trespassing sign		

27th AVE AND LOWER BUCKEYE RD
PARCEL 105-22-001-C, OWNER GRIFFIN HURLEY