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ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Assessment of Qualification for Treatment under the Arizona Natural and Exceptional Events Policy for the High Particulate (PM₁₀) Concentration Events in the Buckeye Area on July 1, 2008

Background

The Arizona Department of Environmental Quality (ADEQ) issues Dust Control Action Forecasts for Phoenix and surrounding areas as part of their Natural Events Action Plan. On Monday, June 30, 2008, ADEQ air quality forecasters issued the Maricopa County Dust Control Action Forecast calling for a moderate risk of wind-blown dust for Tuesday, July 1st, in Maricopa County. This was due to the potential for thunderstorms developing over the Mogollon Rim and tending to drift toward the desert areas in the evening with gusty outflow winds and the potential to produce areas of dense blowing dust. The forecast did mention the possibility of strong gusty winds in excess of 25 mph in Maricopa County due to outflow from even distant thunderstorms. The ADEQ Air Quality Forecast for July 1st also mentioned that “brief periods of unhealthy PM₁₀ (coarse particles) levels” were possible in some areas due to blowing dust. This potential wind-blown dust event equated to a moderate risk of exceeding the PM₁₀ National Ambient Air Quality Standards (NAAQS) in Maricopa County. The forecasts/advisories satisfy the requirement in 40 CFR 51.930(a)(1).

Strong northeasterly winds associated with an outflow boundary coming off the Rim were observed on July 1, 2008, during the late afternoon and early evening. The initialization

of the wind-blown dust event is evident in the Phoenix visible camera images, the satellite imagery, as well as the Arizona Meteorological Network (AzMET), Maricopa County (MC), and National Weather Service (NWS) monitors (see Fig. 1). All appropriate State Implementation Plan (SIP) control measures were in place during the event, demonstrating per 40 CFR 50.1(j) that the event “is not reasonably controllable or preventable.” A discussion of commonly employed Best Available Control Measures (BACM) for dust in Maricopa and Yuma counties can be found in “High Wind Exceptional Events and Control Measures for PM₁₀ Areas” (see “References”).

The significant wind event brought elevated ambient concentrations of PM₁₀ to the Buckeye and Phoenix areas. Due to the spatial variability of PM sources both within and outside of the Phoenix urban core, the PM₁₀ NAAQS was only exceeded at the Buckeye monitor operated by Maricopa County (see Section 2 for more detail). The fact that ambient concentrations exceeded the NAAQS satisfies the criteria in 40 CFR 50.1(j) that the event “affects air quality.”

The following are the key PM₁₀ 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**
BUCKEYE AREA					
Buckeye (MC/TEOM)	04-013-4011*	172	2327	1800	RJ
PHOENIX METRO AREA					
West 43rd Ave (MC/TEOM)	04-013-4009*	76	268	1900	None
Durango Complex (MC/TEOM)	04-013-9812*	60	182	1900	None
Greenwood (MC/TEOM)	04-013-3010*	59	163	1900	None
Higley (MC/TEOM)	04-013-4006*	46	168	1600	None
West Phoenix (MC/TEOM)	04-013-0019*	54	148	1900	None
Central Phoenix (MC/TEOM)	04-013-3002*	50	129	1900	None
JLG Supersite (ADEQ/TEOM)	04-013-9997*	42	108	1900	None
Coyote Lakes (MC/TEOM)	04-013-4014*	119	697	1800	None
South Phoenix (MC/TEOM)	04-013-4003*	55	188	1700	None

* EPA Air Quality System Identification Number

** 24-hr PM₁₀ concentration influenced by natural or exceptional event to be flagged.

Type Abbreviations: BAM – Beta-Attenuation Mass Monitor (Continuous monitor)

TEOM – Tapered Element Oscillating Microbalance Monitor (Continuous monitor).

The preliminary findings from this analysis were presented at stakeholders meetings on November 19, 2008, and 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-Deer Valley

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	93	10	0	6	6	NE
2	92	10	0	6	6	NE
3	92	10	0	0	0	N
4	91	10	0	3	3	NE
5	88	10	0	0	0	N
6	88	10	0	0	0	N
7	92	10	0	5	5	N
8	95	10	0	6	6	E
9	99	10	0	9	9	SE
10	101	10	0	9	9	SE
11	102	10	14	21	21	S
12	103	10	0	0	0	N
1	106	10	9	9	9	SW
2	108	10	11	17	17	SW
3	107	10	0	0	0	N
4	108	10	5	5	5	VFR
5	104	10	20	31	31	NE
6	101	10	14	22	22	NE
7	100	2	HZ	30	44	N
8	102	9	25	49	49	N
9	106	9	SQ	32	47	NW
10	98	10	9	9	9	E
11	96	10	7	7	7	SE
12	92	10	0	0	0	N

NWS-Luke AFB

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	89	10	0	7	7	N
2	87	10	0	3	3	NE
3	89	10	0	0	0	N
4	87	10	0	8	8	NE
5	89	10	0	0	0	N
6	83	10	0	3	3	NE
7	90	10	0	5	5	N
8	95	10	0	5	5	NE
9	100	10	15	15	15	E
10	100	10	0	10	10	E
11	103	10	0	5	5	VFR
12	105	10	0	7	7	VFR
1	107	10	15	15	15	SW
2	108	10	13	13	13	SW
3	109	10	13	21	21	SW
4	110	10	13	13	13	SW
5	110	10	10	17	17	SW
6	104	5	26	32	32	NE
7	102	10	24	37	37	NE
8	N/A	N/A	N/A	N/A	N/A	N/A
9	99	10	7	7	7	NW
10	99	10	10	10	10	SE
11	95	10	7	7	7	SE
12	94	10	6	6	6	SE

MC - BUCKEYE

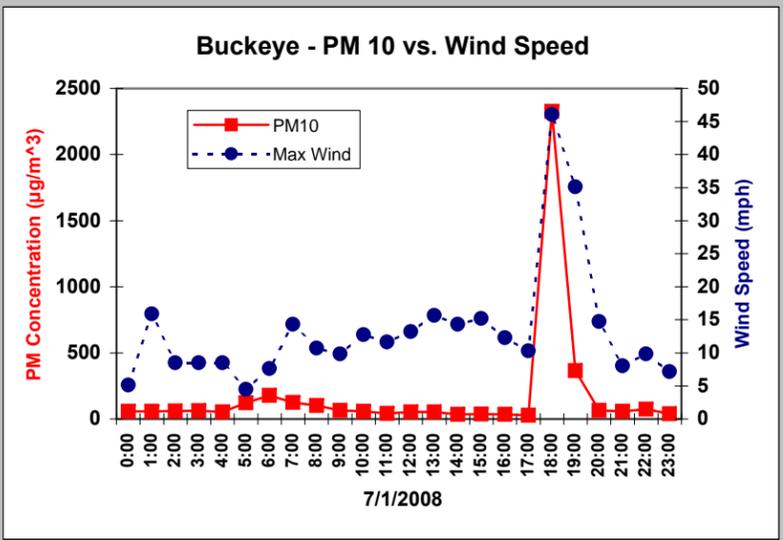
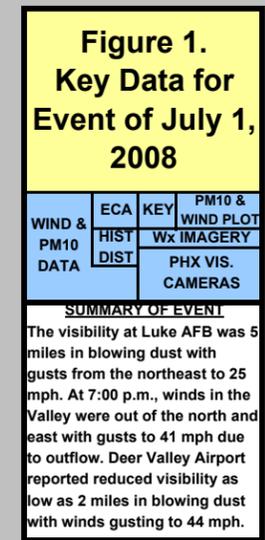
Hr	T(F)	RH	PM	Spd	Max	Dir
1	89	39	53	3	5	NE
2	89	36	58	2	16	E
3	86	41	60	4	9	E
4	85	44	61	4	9	E
5	87	38	63	4	9	E
6	83	47	121	1	4	E
7	86	42	177	4	8	E
8	91	38	124	7	14	E
9	95	31	100	6	11	E
10	98	26	63	2	10	E
11	102	24	57	5	13	W
12	105	22	42	6	12	W
1	108	21	53	7	13	W
2	110	21	52	10	16	W
3	111	19	35	9	14	W
4	112	19	37	9	15	SW
5	111	18	34	7	12	SW
6	111	16	26	5	10	SW
7	105	18	2327	17	46	NE
8	100	22	264	13	35	NE
9	96	27	65	7	15	E
10	95	27	58	2	8	SE
11	91	31	74	2	10	NE
12	91	31	38	1	7	NE

Event Contrib. Analysis

Hourly PM₁₀ Conc. (µg/m³)

MONITORS:	Hr	1
1-Buckeye	1	59
1-Buckeye	2	58
1-Buckeye	3	61
1-Buckeye	4	62
1-Buckeye	5	53
1-Buckeye	6	122
1-Buckeye	7	178
1-Buckeye	8	125
1-Buckeye	9	101
1-Buckeye	10	64
1-Buckeye	11	57
1-Buckeye	12	42

24-Hr. Avg PM₁₀ with w/o: 53
 Monitor: Event Event: 172 66
 > NAAQS < NAAQS
 Pink=Event Contrib.
 Conclusion: As shown above, the PM₁₀ concentration would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).



MC - DYSART

Hr	T(F)	RH	NF	Spd	Max	Dir
1	94	20	15	3	7	NE
2	92	21	16	3	7	N
3	90	24	16	2	15	NW
4	90	22	13	2	8	N
5	88	24	16	3	8	NE
6	88	26	19	4	11	NE
7	90	26	19	5	9	NE
8	94	22	16	4	9	NE
9	97	20	7	5	17	SE
10	100	19	4	8	19	SE
11	102	18	5	7	17	SE
12	103	16	6	7	15	S
1	105	15	6	6	17	S
2	106	13	7	7	17	SW
3	108	12	7	9	20	S
4	110	10	6	4	19	W
5	109	10	4	4	27	NE
6	103	13	19	17	40	NE
7	101	14	17	16	37	NE
8	100	14	7	14	31	NE
9	101	12	6	4	14	N
10	98	15	5	1	13	SE
11	96	18	5	6	16	S
12	94	20	4	2	5	S

MC - COYOTE LAKES

Hr	T(F)	PM	Spd	Max	Dir
1	91	53	2	4	N
2	90	77	2	5	NE
3	88	85	1	7	N
4	88	44	2	10	N
5	85	77	1	5	N
6	86	157	2	5	NE
7	90	184	4	11	NE
8	98	111	3	9	NE
9	102	41	2	9	E
10	104	37	3	13	SE
11	107	99	2	11	SE
12	109	44	3	13	S
1	109	38	5	14	SW
2	111	33	5	14	SW
3	113	34	3	13	SW
4	115	36	4	18	W
5	110	79	4	21	NE
6	104	455	12	34	NE
7	101	697	12	36	N
8	101	315	12	29	NE
9	99	34	2	15	N
10	96	39	2	11	NE
11	93	35	1	4	S
12	88	47	0	2	E

MC - WEST FORTY THIR

Hr	T(F)	PM	Spd	Max	Dir
1	98	77	2	5	E
2	95	70	4	10	E
3	93	63	4	8	NE
4	92	47	4	6	NE
5	91	57	2	9	E
6	91	102	3	8	NE
7	94	127	3	7	NE
8	98	73	7	18	E
9	100	62	10	16	E
10	102	57	8	17	E
11	104	46	3	13	S
12	108	44	3	13	SW
1	111	4	4	13	SW
2	114	55	7	21	W
3	114	80	11	21	W
4	114	42	8	17	W
5	113	41	5	17	NW
6	108	115	15	24	NE
7	105	158	17	35	NE
8	102	267	15	34	N
9	101	69	4	19	SE
10	99	51	8	18	SE
11	97	25	8	17	S
12	95	32	3	15	SE

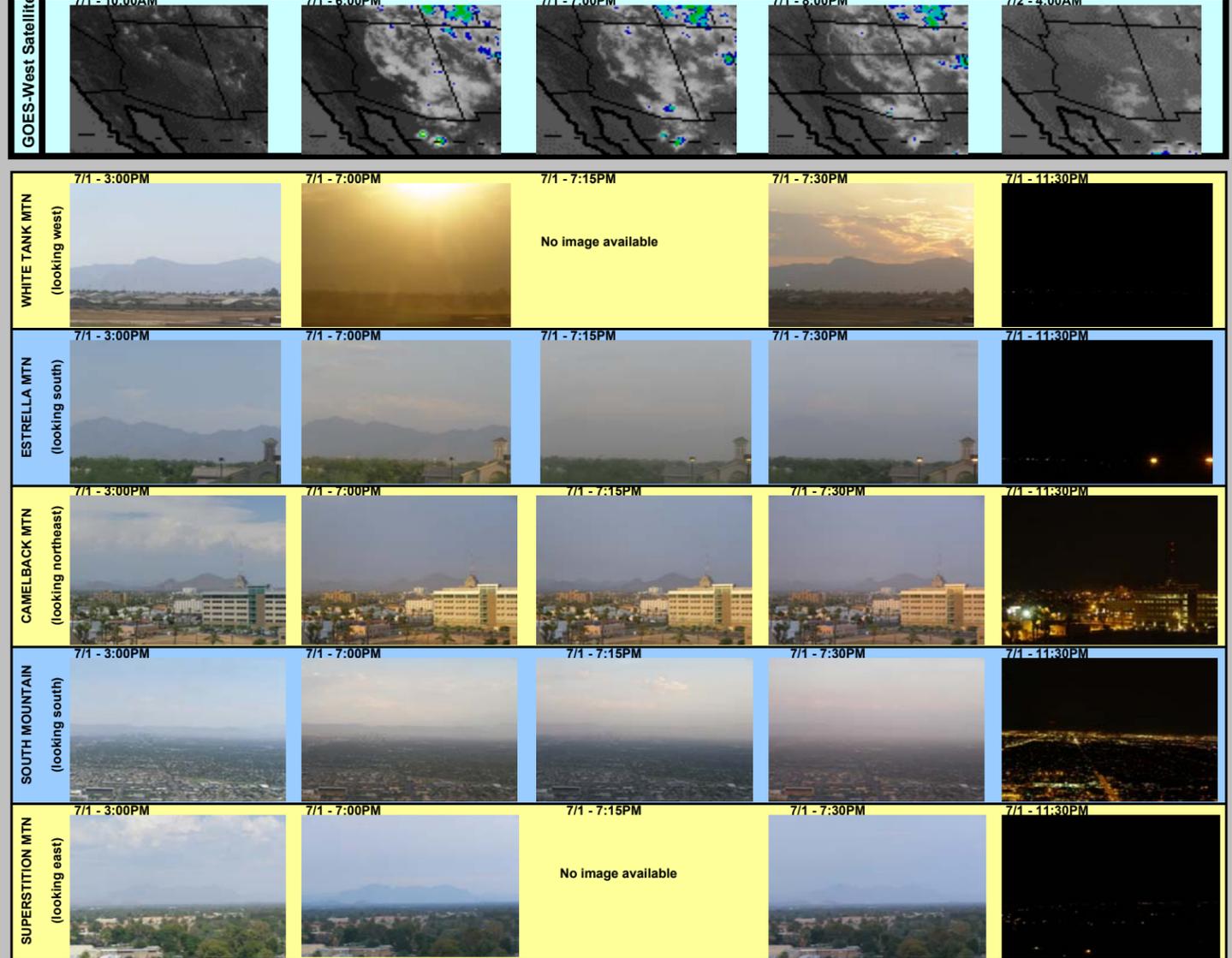
Historical Distribution

5-Yr. Dist. of Values (µg/m³)

MONITORS:	Column Index
1-BUCKEYE	Yr - All Data (5-Yrs)
	Sea - Data for Summer season only (5-Yrs)

Cum. Freq.	Mon 1	Yr	Sea
Min	5	14	
0.5%	7	15	
1.0%	9	15	
2.5%	13	17	
5%	16	21	
10%	22	25	
25%	33	34	
50%	48	49	
75%	67	68	
90%	83	86	
95%	98	101	
97.5%	120	115	
99.0%	159	131	
99.5%	260	155	
Max	289	195	

Flagged Value: 172
 Conclusion: Flagged Value is exceptional in nature (ie greater than 95% of all data)



MC - DURANGO COMPLEX

Hr	T(F)	PM	Spd	Max	Dir
1	94	62	2	7	E
2	94	46	5	13	E
3	92	44	2	6	NE
4	92	36	4	9	E
5	92	30	7	13	E
6	91	42	3	9	NE
7	93	66	5	11	E
8	97	71	9	20	E
9	101	76	12	20	E
10	105	64	10	19	SE
11	108	60	5	14	SE
12	111	33	2	12	S
1	110	4	4	13	W
2	111	41	6	18	W
3	113	58	9	20	W
4	113	43	8	17	W
5	112	52	3	20	N
6	108	118	10	25	NE
7	104	98	9	26	NE
8	100	182	7	28	N
9	99	66	4	17	SE
10	98	48	8	16	SE
11	96	25	8	18	S
12	95	20	5	13	SE

MC - CENTRAL PHOENIX

Hr	T(F)	PM	Spd	Max	Dir
1	94	45	4	7	E
2	93	36	4	9	E
3	90	35	2	7	NE
4	89	31	2	5	SE
5	90	38	4	8	SE
6	89	42	4	7	E
7	93	48	4	9	SE
8	98	56	7	16	SE
9	100	56	9	20	SE
10	103	48	8	18	SE
11	105	43	7	17	SE
12	107	34	5	13	S
1	108	30	4	15	SW
2	110	35	6	21	W
3	111	40	8	19	W
4	111	39	7	21	NW
5	110	46	7	28	NE
6	106	47	12	25	NE
7	103	101	13	36	NE
8	100	129	11	28	N
9	99	87	1	20	SE
10	97	51	7	17	SE
11	95	19	6	16	S
12	94	18	5	13	SE

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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 hourly PM₁₀ readings from the Buckeye monitor were valid for July 1st. Audits of the analyzers revealed operations were within acceptable tolerance. No local sources were reported as significantly contributing to the air quality episode. An exceedance of the NAAQS was recorded at the Buckeye monitor operated by Maricopa County.

2. Review suspected contributing sources. The MC, NWS and AzMET surface data for Arizona, along with the visible camera images in Phoenix, provide a good explanation of the meteorological conditions that were in place on July 1st. Strong northerly winds associated with two thunderstorm outflow boundaries occurred in the Phoenix area between 4:00 p.m. and 9:00 p.m. Winds gusted between 20 and 50 mph at various Valley locations during that time period causing spikes in PM₁₀ concentrations at multiple monitoring sites around the Phoenix area between 6:00 p.m. and 7:00 p.m. A large spike in PM₁₀ concentrations occurred at that same time in Buckeye, which led to the NAAQS exceedance. While the outflow boundaries affected the entire Phoenix Metro area, PM sources are spatially diverse; therefore, the locations of higher PM₁₀ concentrations (West Valley) are likely an indication that these locations (or areas upwind of these locations) contain greater sources of PM than the urbanized core of the Phoenix Metropolitan area.

3. Examine all air quality monitoring information. Data from all monitors in the network were reviewed. Monitors from the affected areas are summarized in the table in the Background section of this assessment. Pursuant to 40 CFR 50.14(c)(3)(iii)(C), the “Historical Distribution” Table in Figure 1 has been included to demonstrate that the event is associated with measured concentrations in excess of normal historical fluctuations, including background (i.e., concentrations greater than the 95th percentile). Additionally, the winds associated with the elevated PM₁₀ concentrations may be characterized as unusual as described in “Impact of Exceptional Events’ ‘Unusual Winds’ on PM₁₀ Concentrations” (see “References”).

4. Examine the meteorological conditions before and during the event. 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. The Buckeye AzMET station experienced hourly max wind speeds greater than 15 mph between 7:00 p.m. and 8:00 p.m.,

with a maximum gust of 29 mph during this time. Pollutant monitor specific wind data at Buckeye indicate winds gusted as high as 46 mph. Additionally, the Luke AFB NWS station reported a wind gust of 37 mph, and the Deer Valley NWS station reported a gust of 49 mph. Both stations reported reduced visibility with blowing dust and/or haze during that same time period (see Fig. 1). The timing of the reduced visibilities and wind gusts correspond to the onset of elevated PM₁₀ concentrations recorded at Buckeye.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM₁₀ concentrations in the Buckeye area can be attributed to soil emissions that were transported over a broad area. No source-specific emission allocation is possible based on the data available for analysis. The hourly concentration data do not show any significant source other than the wind-blown dust event occurring on July 1st. Observational reports of blowing dust from trained officials in the Phoenix area, along with reduced visibility, provide further proof that the elevated PM₁₀ concentrations in Buckeye were attributed to soil emissions. These reports, in addition to the visual evidence of reduced visibility (most clearly seen in the 7:00-7:30 p.m. images located in the lower right portion of Figure 1) are evidence that elevated PM₁₀ concentrations in and around the West Valley are attributable to soil emissions. The movement of the outflow boundary from the northeast toward the southwest through the Phoenix and Buckeye areas is also apparent in the 7:00-8:00 p.m. satellite images located in the right-center portion of Figure 1.

6. Estimation of Contribution from Source or Event. The primary source appears to be wind-blown dust over central Arizona for which there is not an effective or efficient method to estimate the relative contributions from specific sources. The demonstration analysis contained in this report establishes the linkage between the measurements to be flagged and the event, thus satisfying a 40 CFR 50.14(c)(3)(iii)(B) requirement. Pursuant to 40 CFR 50.14(c)(3)(iii)(D), the “Event Contrib. Analysis” Table in Figure 1 has been included to demonstrate that there would have been no exceedances or violations 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 satisfies the requirement in 40 CFR 50.1(j) that the elevated concentrations at the Buckeye monitoring site was attributed to a natural event.

Conclusion

Transport of dust from soils by high winds. The elevated PM₁₀ concentrations that occurred in the West Valley on July 1, 2008, was the result of the transport of dust and soils from winds that suspended natural soils and soils from areas where Best Available Control Measures are in place and should be flagged for air quality planning purposes. The “high wind”

(RJ) flag should be applied to the monitor readings indicated in the table at the beginning of this report, as the monitor would have been below the NAAQS but for the contribution of the event.

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).

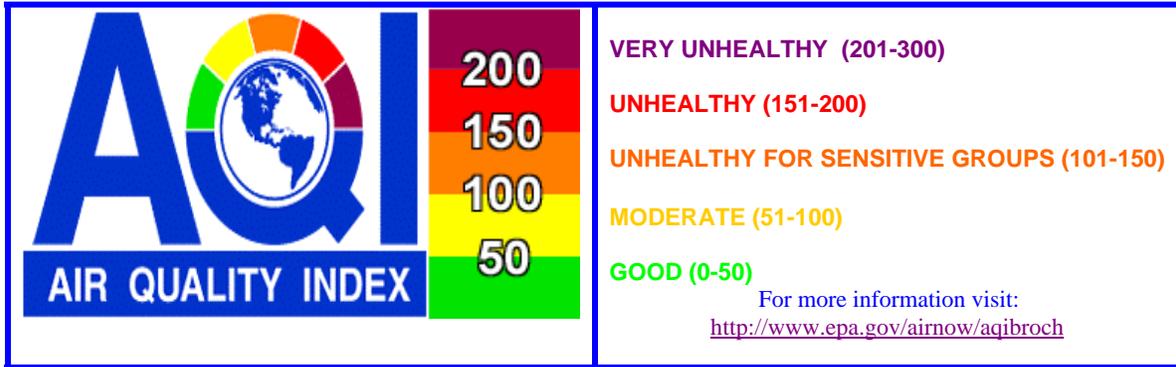
Arizona Department of Environmental Quality (ADEQ), *Technical Criteria Document for Determination of Natural Exceptional Events for Particulate Matter Equal to or Less Than Ten Microns in Aerodynamic Diameter (PM₁₀)* (May 31, 2000).

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 PM₁₀ Concentrations* (October 14, 2009).

Arizona Department of Environmental Quality (ADEQ), *High Wind Exceptional Events and Control Measures for PM₁₀ 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).



NEW!!! CLICK HERE FOR UPDATED 2008 OZONE SEASON STATS NEW!!!
AIR QUALITY FORECAST FOR TUESDAY, JULY 01, 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	YESTERDAY <u>SUN 06/29/2008</u>	TODAY <u>MON 06/30/2008</u>	TOMORROW <u>TUE 07/01/2008</u>	EXTENDED <u>WED 07/02/2008</u>
NOTICES (*SEE BELOW FOR DETAILS)	DUST	OZONE HEALTH WATCH	OZONE HEALTH WATCH EXTENSION	DUST
AIR POLLUTANT	Highest AQI Reading/Site (Preliminary data only)	DUST	DUST	
O3*	71 SOUTH SCOTTSDALE & WEST CHANDLER	97 MODERATE	90 MODERATE	74 MODERATE
CO*	04 CENTRAL PHOENIX, PHOENIX SUPERSITE & WEST PHOENIX	10 GOOD	08 GOOD	07 GOOD
PM-10*	55 BUCKEYE	74 MODERATE	81 MODERATE	72 MODERATE
PM-2.5*	44 PHOENIX SUPERSITE	45 GOOD	48 GOOD	49 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 Monday, June 30: Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.

Health message for Tuesday, July 01: Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.

Synopsis and Discussion

TODAY'S OZONE HEALTH WATCH HAS BEEN EXTENDED THRU TUESDAY JULY 01

Near-to-unhealthy ozone levels are a possibility over much of the metro area today. At the noon hour under sunny skies local temperatures had already reached 105 deg F in some spots and as easterly surface winds slowly decrease, ozone production and accumulation will both be above average. It remains to be seen if yesterday evening's thunderstorm outflow from the forested areas east and northeast of the metro area will positively impact ozone chemistry, but on many occasions in the past such has been the case. As of 10:00 a.m. hourly readings were as much as 15 parts per billion higher than 24 hours ago; thus, today's Ozone Health Watch will remain in effect and has been extended thru Tuesday. The synoptic weather pattern is now decidedly summer monsoon-like with an upper level high situated in proximity to the Four Corners and east to southeasterly flow around its circulation importing higher moisture from New and Old Mexico. Unfortunately, humidity levels are still on the low side over much of Arizona, and thunderstorms are more apt to produce more wind and dust than rainfall over the deserts – including Phoenix. As a result, brief periods of unhealthy PM-10 (coarse particles) levels are possible in some areas. -Reith

MONITORING SITE MAPS: STATIC MAP - <http://www.azdeq.gov/viron/air/monitoring/images/map.jpg>
 INTERACTIVE MAPS - <http://aqwww.maricopa.gov/AirMonitoring/SitePollutionMap.aspx>
<http://www.airnow.gov/>



POLLUTION MONITOR READINGS FOR SUNDAY, JUNE 29, 2008



O3 (OZONE)

For facts on new 8-hr ozone standard go to: http://www.epa.gov/air/ozonepollution/pdfs/2008_03_aqi_changes.pdf

For maps go to: <http://www.airnow.gov/index.cfm?action=airnow.currentconditions>

SITE NAME	MAX 8-HR VALUE (PPB)	MAX AQI	AQI COLOR CODE
Alamo Lake (La Paz County)	51	43	Green
Apache Junction (Pinal County)	61	54	Yellow
Blue Point	53	45	Green
Buckeye	41	35	Green
Casa Grande (Pinal County)	58	49	Green
Cave Creek	61	54	Yellow
Central Phoenix	62	58	Yellow
Combs School (Pinal County)	53	45	Green
Dysart	NOT AVBL	NOT AVBL	NOT AVBL
Falcon Field	61	54	Yellow
Fountain Hills	61	54	Yellow
Glendale	44	37	Green
Humboldt Mountain	58	49	Green
Maricopa (Pinal County)	46	39	Green
North Phoenix	63	61	Yellow
Phoenix Supersite	58	49	Green
Pinal Air Park (Pinal County)	55	47	Green
Pinnacle Peak	60	51	Yellow
Queen Valley (Pinal County)	60	51	Yellow
Rio Verde	58	49	Green
South Phoenix	59	50	Green
South Scottsdale	66	71	Yellow
Tempe	65	67	Yellow
Tonto Nat'l Mon. (Gila County)	58	49	Green
West Chandler	66	71	Yellow
West Phoenix	55	47	Green
Yuma (Yuma County)	59	50	Green

CO (CARBON MONOXIDE)

SITE NAME	MAX 8-HR VALUE (PPM)	MAX AQI	AQI COLOR CODE
Central Phoenix	0.3	04	
Greenwood	0.1	01	
Phoenix Supersite	0.3	04	
West Indian School	NOT AVBL	NOT AVBL	NOT AVBL
West Phoenix	0.3	04	

PM-10 (PARTICLES)

SITE NAME	MAX 24-HR VALUE (ug/m3)	MAX AQI	AQI COLOR CODE
Buckeye	63	55	
Central Phoenix	36	33	
Combs School(Pinal County)	61	54	
Coyote Lakes	36	33	
Durango	40	37	
Greenwood	38	35	
Higley	34	31	
Maricopa (Pinal County)	56	51	
Phoenix Supersite	32	30	
South Phoenix	40	37	
West Forty Third	44	41	
West Phoenix	38	35	

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	10.5	34	
Dysart	6.5	21	
Estrella Mountain Park	6.9	22	
Phoenix Supersite	13.6	44	
Vehicle Emissions Lab	8.0	26	
West Phoenix	10.4	34	

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 NO_x (Nitrogen Oxides) in the presence of heat and sunlight.

Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NO_x 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 08/14/2007}



**MARICOPA COUNTY
 DUST CONTROL ACTION FORECAST
 ISSUED MONDAY, JUNE 30, 2008**

Three-day weather outlook:

NOTE: During active summer monsoon episodes, outflows from even distant thunderstorms have the potential to cause periods of gusty winds and dense blowing dust.

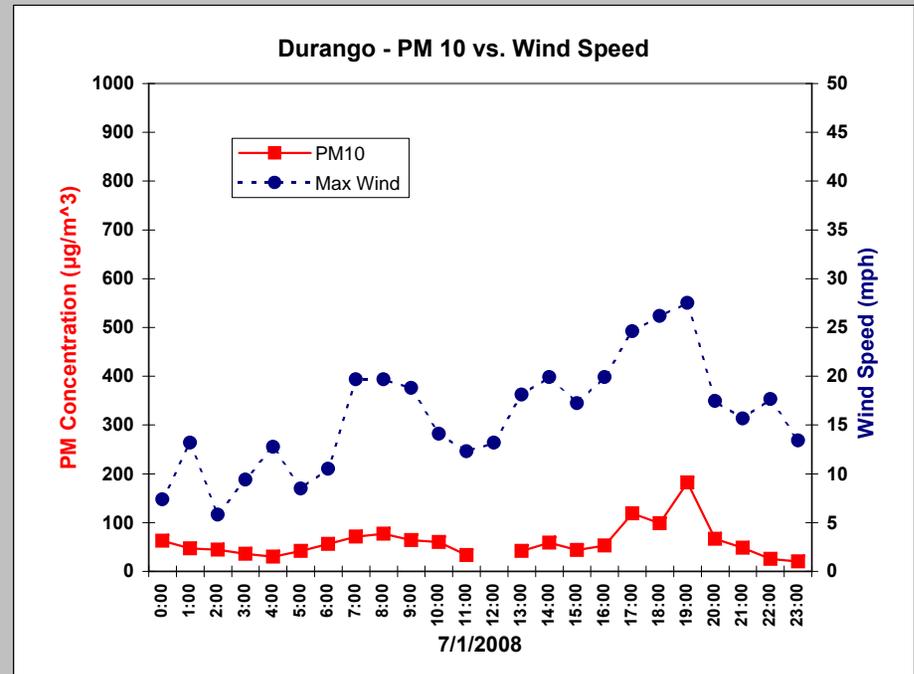
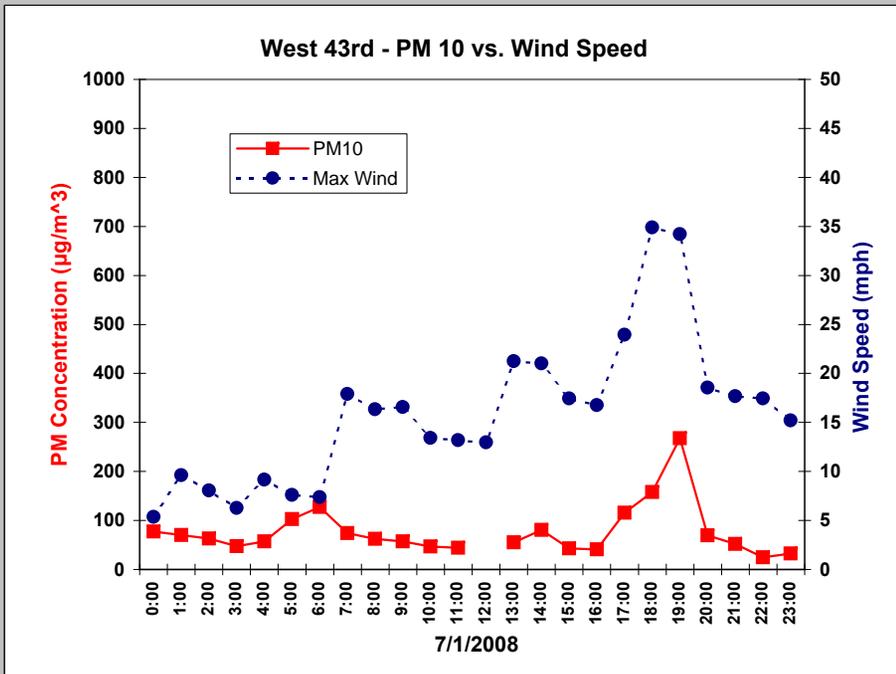
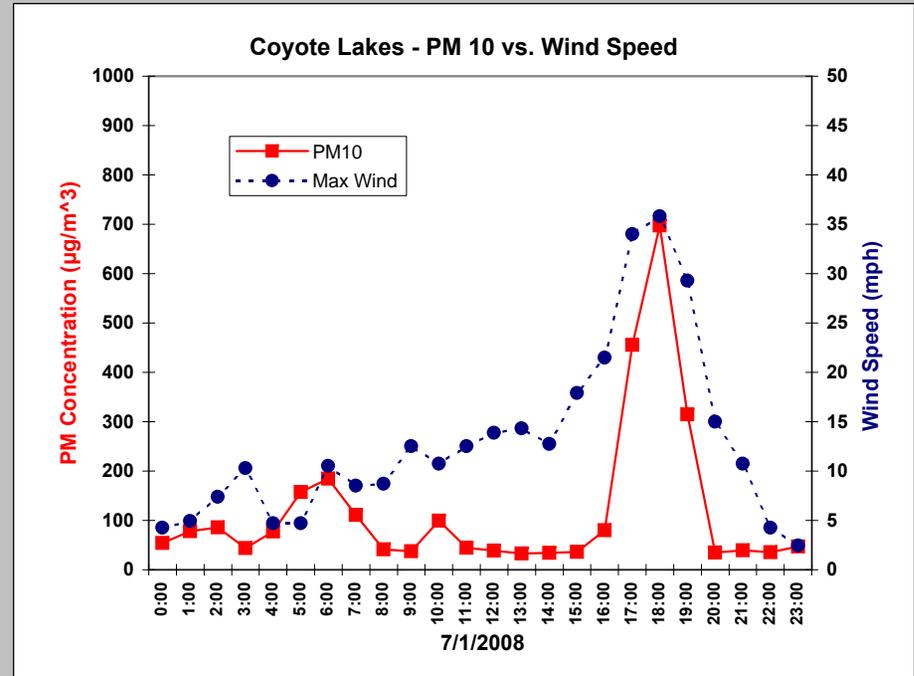
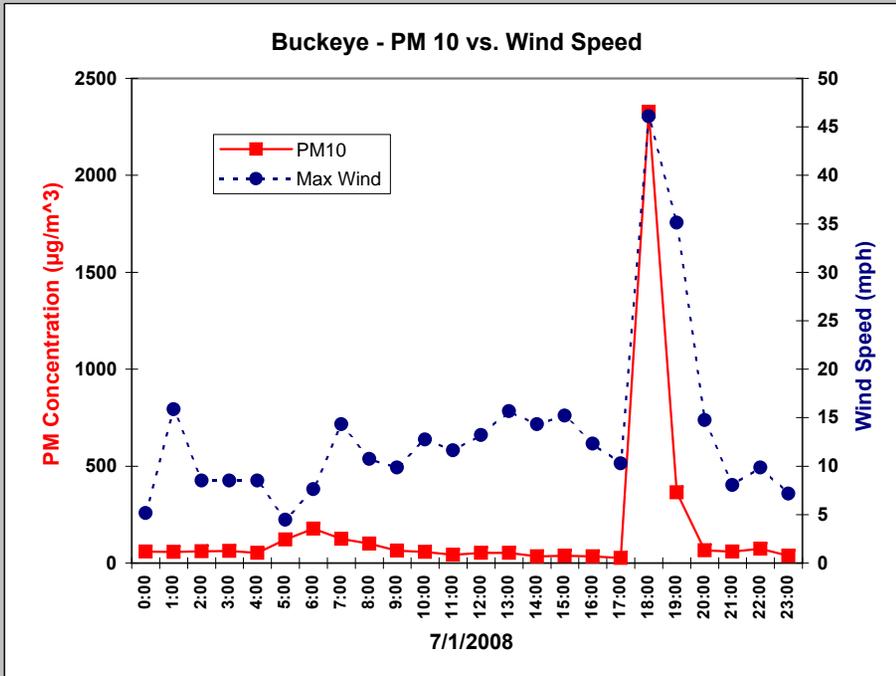
A strong high-amplitude ridge aloft has become established over the western U.S. An anticyclonic center of circulation is forecast to remain positioned over or near northern Arizona thru this forecast period. Thunderstorms that develop over the Rim will tend to drift toward the desert areas each evening, and gusty outflow winds will have the potential to produce areas of dense blowing dust, mainly over the east and southeast Valley each evening; hence, a moderate risk level thru this forecast period.

R I S K F A C T O R S

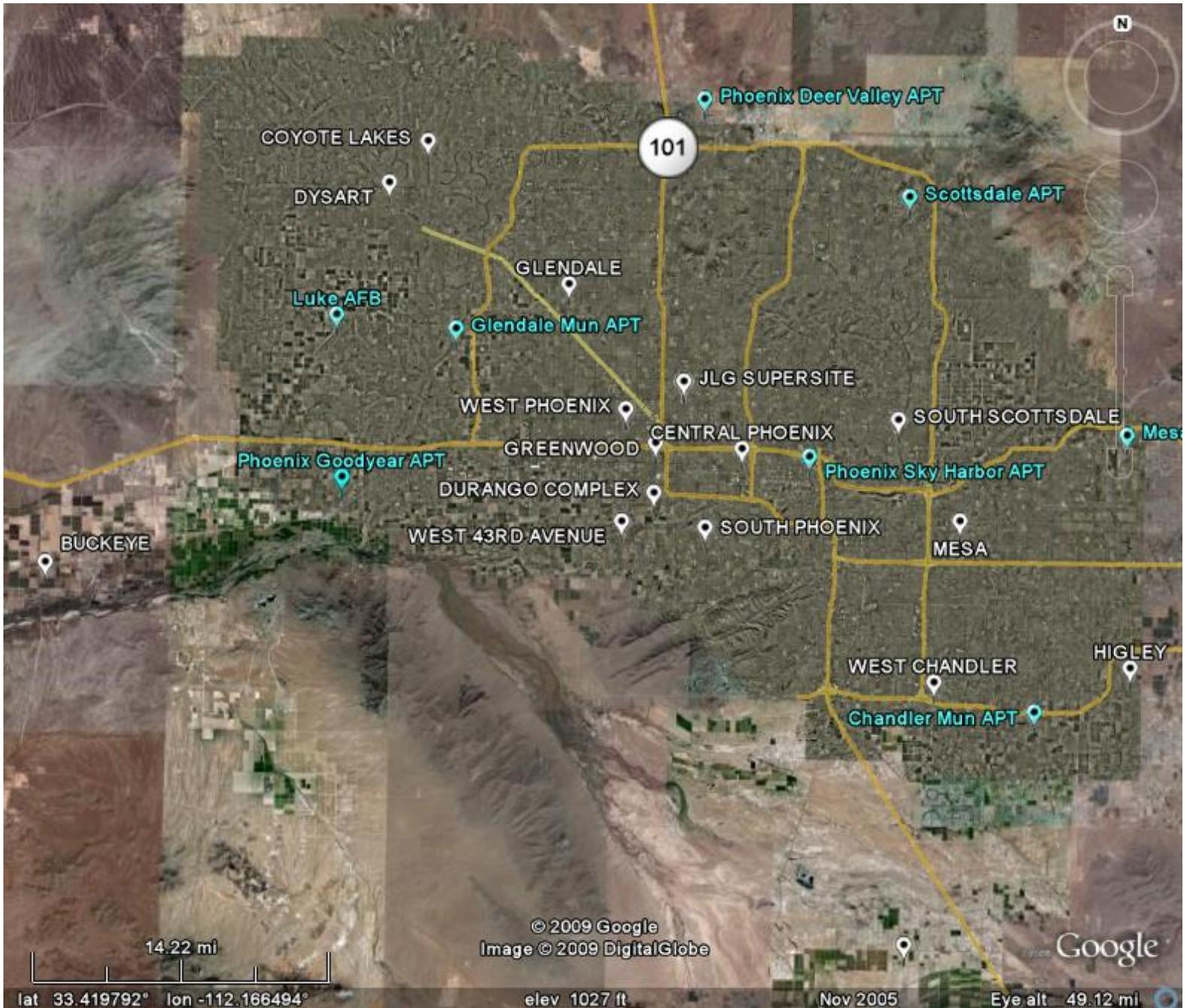
	<u>WINDS</u>	+	<u>STAGNATION</u>	=	<u>RISK LEVEL</u>
Day #1: Tue 07/01/2008	Westerly 10-20 mph with gusts to 25 mph during the afternoon hours except strong and gusty due to outflow from thunderstorms.		Somewhat stagnant during the morning hours.		MODERATE
Day #2: Wed 07/02/2008	Westerly 10-20 mph with gusts to 25 mph during the afternoon hours except strong and gusty due to outflow from thunderstorms.		Somewhat stagnant during the morning hours.		MODERATE
Day #3: Thu 07/03/2008	Westerly 15-25 mph during the afternoon hours except strong and gusty due to outflow from thunderstorms.		Somewhat stagnant during the morning hours.		MODERATE

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. To review the complete air quality forecast for the Phoenix metropolitan area and the health effects of air pollution, please see ADEQ's Air Quality Forecast at <http://www.azdeq.gov/environ/air/ozone/ensemble.pdf>, or call 602-771-2367 for recorded forecast information.

07/01/2008 - ADDITIONAL GRAPHS



Phoenix Area PM₁₀ and Meteorological Monitors



Source: US EPA, ADEQ, & Google Earth