



MONTHLY AIR QUALITY REPORT FOR
JUNE 2011

AOI COLOR SCALE

GOOD	MODERATE	UNHEALTHY FOR SENSITIVE GROUPS	UNHEALTHY
0-50	51-100	101-150	151-200

Calendar of maximum AQI values & their corresponding color for June 2011*

*Preliminary data

SAMPLE POLLUTANT REPORTING BOX

1 (day of month)	O3	CO
	PM10	PM2.5

SUN		MON		TUES		WED		THU		FRI		SAT								
					1	71	08	2	87	05	3	101	08	4	67	08				
						52	56		51	49		99	42		89	34				
5	58	07	6	47	06	7	90	06	8	80	06	9	142	08	10	124	09	11	97	05
	82	41		98	38		59	38		51	36		49	53		57	54		44	40
12	74	05	13	104	05	14	101	07	15	104	07	16	90	06	17	71	05	18	54	03
	47	42		44	39		45	43		46	51		46	63		44	57		45	53
19	93	03	20	119	03	21	104	06	22	111	17	23	90	05	24	54	05	25	71	08
	48	55		49	45		47	64		52	52		65	53		52	54		54	51
26	64	09	27	93	08	28	87	13	29	51	07	30	64	03						
	44	53		54	50		55	58		63	54		47	29						

Calendar of High Pollution Advisories and Health Watches issued during June 2011

SUN			MON			TUE			WED			THU			FRI			SAT		
									1			2			3			4		
5			6			7			8			9		C	10			11		C
12			13			14		F	15		C	16			17			18		
19			20		F	21		C	22		C	23			24		F	25		
26			27			28			29			30								

LEGEND

HIGH POLLUTION ADVISORIES

- A** = PM-10 High Pollution Advisory
- B** = PM-2.5 High Pollution Advisory
- C** = Ozone High Pollution Advisory

HEALTH WATCHES

- D** = PM-10 Health Watch
- E** = PM-2.5 Health Watch
- F** = Ozone Health Watch

Calendar of Meteorological Conditions observed in Metro Phoenix during June 2011

SUN			MON			TUE			WED			THU			FRI			SAT		
									1			2			3			4		
5			6		E	7			8			9			10			11		
12		E	13			14			15		E	16		E	17			18		
19			20			21		E	22		E	23		E	24			25		
26			27			28		E	29		B E	30								

LEGEND

ELECTROMETEORS

- A** = Thunderstorm

HYDROMETEORS

- B** = Rain/Drizzle/Hail/Snow
- C** = Fog

LITHOMETEORS

- D** = Blowing Dust
- E** = Haze (vsby <10SM)
- F** = Smoke

Non-Ozone Exceedance days during JUNE 2011-

Total= 0 Date Max AQI Pollutant Site/s

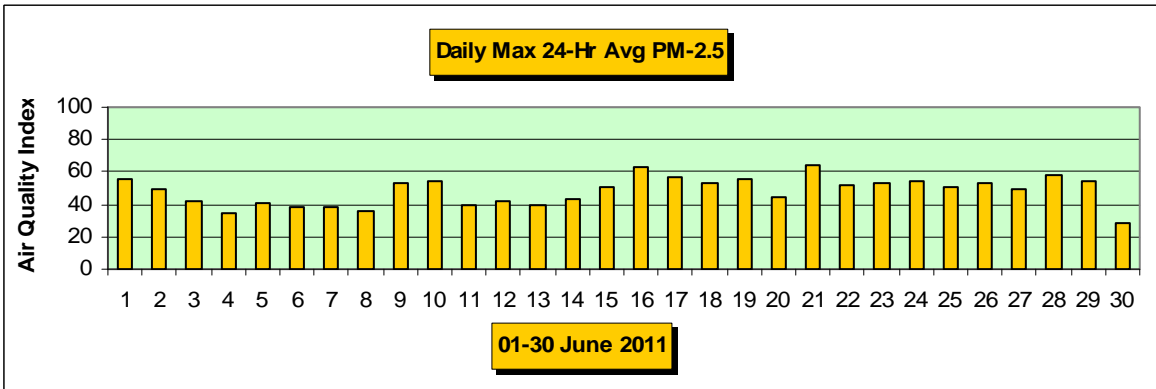
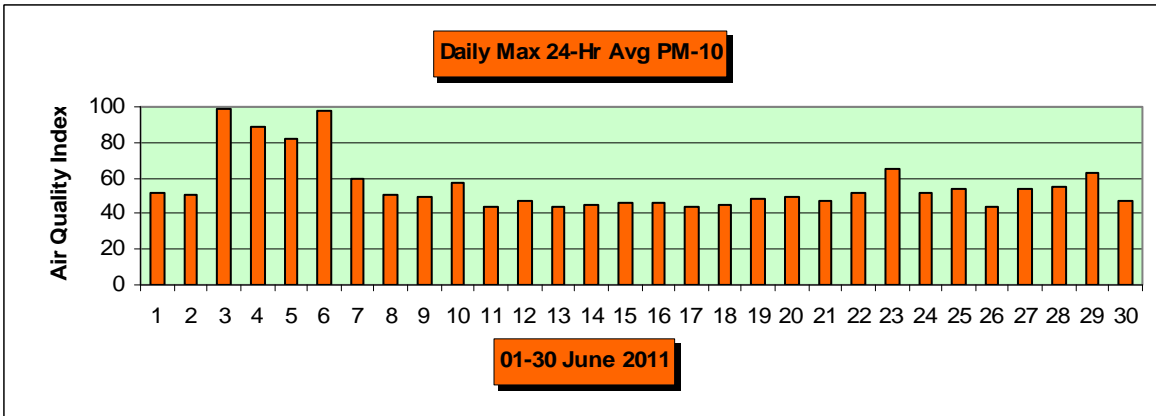
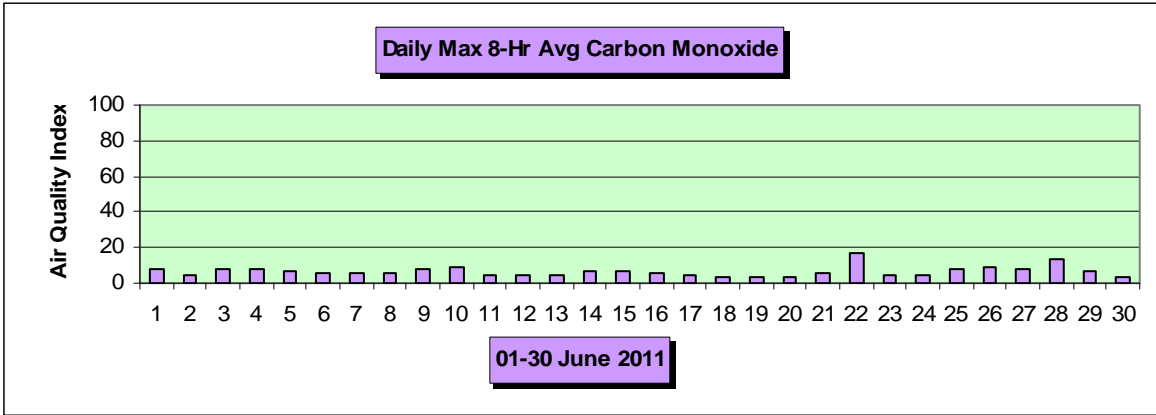
Non-Ozone Health Watches issued during JUNE 2011-

Total= 0 Date Max AQI Pollutant Site/s

Non-Ozone High Pollution Advisories issued during JUNE 2011-

Total= 0 Date Max AQI Pollutant Site/s

Concentration Recap: Days in the **Good** category: 0
Days in the **Moderate** category: 21
Days in the **Unhealthy for Sensitive Groups** category: 9
Days in the **Unhealthy** category: 0
Total Forecast Days: 30



Narrative: The synoptic weather pattern during the month of May featured the presence and the eventual approach and passage from the west of a large scale upper level trough between the 1st thru the 13th and again between the 16th thru 19th. From the 20th thru the 28th a strong 500mb high height center and sub-tropical high that developed over northern Mexico encompassed Arizona within its anticyclonic circulation. Daytime weather conditions in the Valley during nearly the entire month consisted of gusty westerly gradient and upslope winds, mixing heights between 8500 and 12000', very good to excellent dispersion, and little if any cloud cover. A National Weather Service Wind Advisory was issued for the 19th in advance of an approaching trough and although light suspended dust was observed as winds gusted up to 33 mph, highest PM-10 (coarse particle) readings were only in the low-moderate range of the Air Quality Index. **Figure 1** below – an image from the local VISNET camera array – shows what the conditions were in the metro area at 1600 hrs on that day. In fact, local particle pollutant levels (PM-10 & PM-2.5) were all in the low-moderate range the entire month except for the 3rd thru the 6th. During that period one lone PM-10 monitor – at the Buckeye site – recorded PM-10 concentrations that equated to the upper-moderate range of the AQI. It was determined that this was the result of large amounts of dust produced by unsupervised agricultural field plowing during the overnight hours. -Reith

Figure 1



DETAILED OZONE SECTION

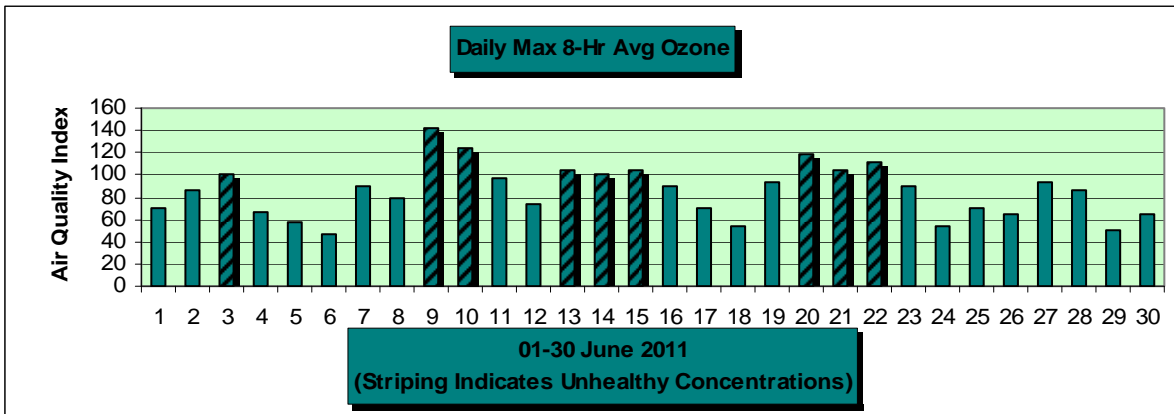
(Based on the 2008 EPA Revised 8-Hour Ozone Standard)

GOOD 0-50	MODERATE 51-100	UNHEALTHY FOR SENSITIVE GROUPS 101-150	UNHEALTHY 151-200
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SUMMARY OF MAXIMUM 8-HR OZONE AQI VALUES FOR JUNE 2011*

*Preliminary data

SUN		MON		TUES		WED		THU		FRI		SAT	
						1	71	2	87	3	101	4	67
5	58	6	47	7	90	8	80	9	142	10	124	11	97
12	74	13	104	14	101	15	104	16	90	17	71	18	54
19	93	20	119	21	104	22	111	23	90	24	54	25	71
26	64	27	93	28	87	29	51	30	64				



<u>8-hr Ozone exceedance days in JUN:</u>	Total=	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
	9	6/03	76/101	Humboldt Mtn.
		6/09	92/142	Blue Point
			90/137	North Phoenix
			89/135	Fountain Hills
			88/132	Cave Creek
			88/132	Humboldt Mtn.
			88/132	Pinnacle Peak
			88/132	Rio Verde
			86/127	West Phoenix
			84/122	Phx Supersite
			83/119	Glendale
			83/119	South Scottsdale
			83/119	Tonto Nat'l Mon
			81/114	Central Phoenix
			81/114	South Phoenix
			79/109	Apache Junction
			78/106	Queen Valley
			77/104	West Chandler
			76/101	Tempe
		6/10	85/124	Humboldt Mtn.
			82/116	Rio Verde
			81/114	Blue Point
			81/114	Cave Creek
			81/114	Fountain Hills
			81/114	North Phoenix
			80/111	Pinnacle Peak
			79/109	West Phoenix
			78/106	South Scottsdale
			77/104	South Phoenix
			76/101	Central Phoenix
		6/13	77/104	Humboldt Mtn.
		6/14	76/101	Blue Point
		6/15	77/104	Blue Point
		6/20	83/119	Queen Valley
			80/111	Blue Point
			76/101	Fountain Hills
		6/21	77/104	Blue Point
			77/104	Fountain Hills
			77/104	Pinnacle Peak
		6/22	80/111	Blue Point
			78/106	Queen Valley
			77/104	Fountain Hills
			76/101	Rio Verde

Total number of exceedance days since APR 01: 12

Total number of exceedance sites since APR 01: 63

<u>Ozone Health Watches in JUN:</u> (Forecast max value 72-75 ppb)	Total=	5	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
			6/11	74/97	North Phoenix
			6/14	76/101	Blue Point
			6/20	83/119	Queen Valley
			6/23	72/90	Blue Point
			6/24	61/54	Rio Verde

Ozone Health Watches since APR 01: Total= 14

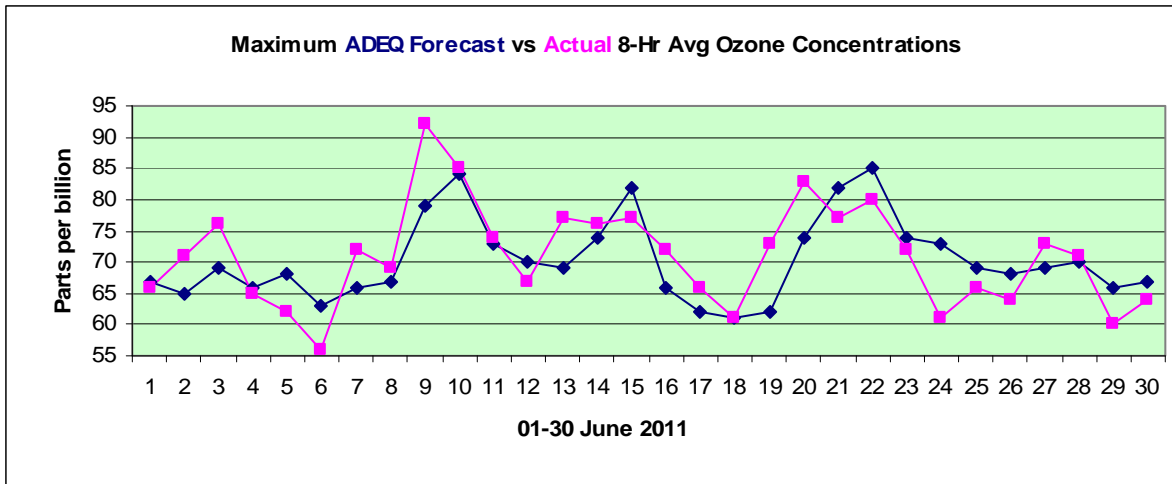
<u>High Pollution Advisories in JUN:</u> (Forecast max value 76+ppb)	Total=	5	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
			6/09	92/142	Blue Point
			6/10	85/124	Humboldt Mtn.
			6/15	77/104	Blue Point
			6/21	77/104	Blue Point
					Fountain Hills
				Pinnacle Peak	
		6/22	80/111	Blue Point	

High Pollution Advisories since APR 01: Total= 8

<u>Concentration Recap:</u>	Days in the Good category:	1			
	Days in the Moderate category:	20			
	Days in the Unhealthy for Sensitive Groups category:	9			
	Days in the Unhealthy category:	0			
	Total Forecast Days:	30			
Maximum 8-Hr value:	<u>Date</u>	<u>Hour</u>	<u>Site</u>	<u>ppb/AQI</u>	<u>DOW</u>
	6/09	1300	Blue Point	92/142	Thu
Maximum 1-Hr value:	<u>Date</u>	<u>Hour</u>	<u>Site</u>	<u>ppb/AQI</u>	<u>DOW</u>
	6/09	1700	Blue Point	104/87	Thu
	Average daily max 8-Hr concentration (ppb):	70.9			
	Deviation from the 1996-2010 average (ppb):	+0.4			

<u>JUN Climatology:</u> (Period 1996-2007 using 1997 85ppb standard & 2008-2010 using 76ppb standard)	Average number of 8-Hr exceedance days:	3.5
	Maximum number of 8-Hr exceedance days:	10 in 2008
	Minimum number of 8-Hr exceedance days:	0 in 2003/04/07
	Average daily max 8-Hr concentration (ppb):	70.5
	Record high max 8-Hr concentration (ppb):	102 on the 1st, 1996
	Record low max 8-Hr concentration (ppb):	43 on the 9th, 2009

<u>Forecast Verification:</u>	# of days maximum concentrations were over-forecast:	14
	# of days maximum concentrations were under-forecast:	15
	# of days maximum concentrations were correctly forecast:	1
	Jun average forecast accuracy (ppb):	+/-4.8
	Jun average forecast bias (ppb):	-0.6



Narrative: June 2011 was an extremely busy month from a Phoenix metro 8-hour average ozone pollution point of view with nine ozone exceedance days and the issuance of both five Ozone High Pollution Advisories and five Ozone Health Watches. In addition, the 92 parts per billion 8-hour average concentration that occurred on the 9th of the month was the highest since the 96 parts per billion reading that occurred during the 2006 season. Also, the total of 18 site exceedances that occurred on the 9th was the highest daily total since the 16 site exceedances on May 31 2008. As it typical it was very hot in Phoenix during June and on nine days maximum temperatures at Sky Harbor reached or surpassed the 110 deg F mark. Interestingly, on only two of those days did local ozone concentrations reach unhealthy levels. The Valley was not the only location within Arizona with ozone concerns during June. Ozone exceedances also occurred to the north in Flagstaff and Prescott, to the west in Yuma and at Alamo Lake, and to the south in Tucson. The reason for this can again be explained at least in part by looking at the frequency of winds in the 5-10K' layer that was conducive to the transport from California of additional ozone and/or its precursors. As can be seen from Figure 1 below, there tends to be a strong correlation between potential California transport wind events and Phoenix metro high ozone episodes. –Reith

Figure 1

DATE	MAX AOI	Transport	DATE	MAX AOI	Transport
1-Jun-11	71	no	16-Jun-11	90	yes
2-Jun-11	87	yes	17-Jun-11	71	no
3-Jun-11	101	no	18-Jun-11	54	no
4-Jun-11	67	no	19-Jun-11	93	yes
5-Jun-11	58	no	20-Jun-11	119	yes
6-Jun-11	47	no	21-Jun-11	104	yes
7-Jun-11	90	no	22-Jun-11	111	no
8-Jun-11	80	yes	23-Jun-11	90	yes
9-Jun-11	142	yes	24-Jun-11	54	no
10-Jun-11	124	no	25-Jun-11	71	no
11-Jun-11	97	no	26-Jun-11	64	yes
12-Jun-11	74	no	27-Jun-11	93	no
13-Jun-11	104	yes	28-Jun-11	87	no
14-Jun-11	101	yes	29-Jun-11	51	no
15-Jun-11	104	yes	30-Jun-11	64	no