



**MONTHLY AIR QUALITY REPORT FOR
MAY 2008**

AOI COLOR SCALE

GOOD 0-50	MODERATE 51-100	UNHEALTHY FOR SENSITIVE GROUPS 101-150	UNHEALTHY 151-200
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Calendar of maximum AQI values & their corresponding color for May 2008*

*Preliminary data

SAMPLE POLLUTANT REPORTING BOX

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

SUN		MON		TUES		WED		THU		FRI		SAT								
								1	104	06	2	104	08	3	111	14				
									60	44		44	31		44	39				
4	87	19	5	43	08	6	49	05	7	64	06	8	84	11	9	77	14	10	100	15
	38	54		71	52		44	35		38	39		56	51		64	65		54	69
11	93	25	12	61	07	13	100	08	14	77	09	15	64	10	16	64	08	17	84	10
	56	83		96	59		81	46		53	47		62	37		35	26		31	33
18	74	11	19	97	14	20	100	09	21	93	07	22	51	08	23	44	07	24	48	07
	46	37		80	44		62	37		163	60		89	53		22	38		23	43
25	77	07	26	71	08	27	90	14	28	87	08	29	44	09	30	93	11	31	116	17
	18	34		19	32		35	53		47	46		56	40		53	46		44	50

Calendar of High Pollution Advisories and Health Watches issued during May 2008

SUN			MON			TUE			WED			THU			FRI			SAT					
												1						2			3		
4			5		F	6		D	7		F	8			9			10					F
11		F	12		D	13			14			15			16		F	17		F			
18			19		F	20		C	21		A	22		F	23			24					
25			26			27		F	28			29		D	30			31		C			C

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 May 2008

SUN			MON			TUE			WED			THU			FRI			SAT		
												1			2			3		
4			5		E	6		A B	7			8			9		E	10		E
11		E	12			13		A B D	14		E	15		A B D	16			17		E
18			19			20			21		D E	22		A B E	23		A B C	24		B
25			26			27		E	28			29			30			31		

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 MAY 2008-

Total=	1	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
		05/21	163	PM-10	West Forty Third

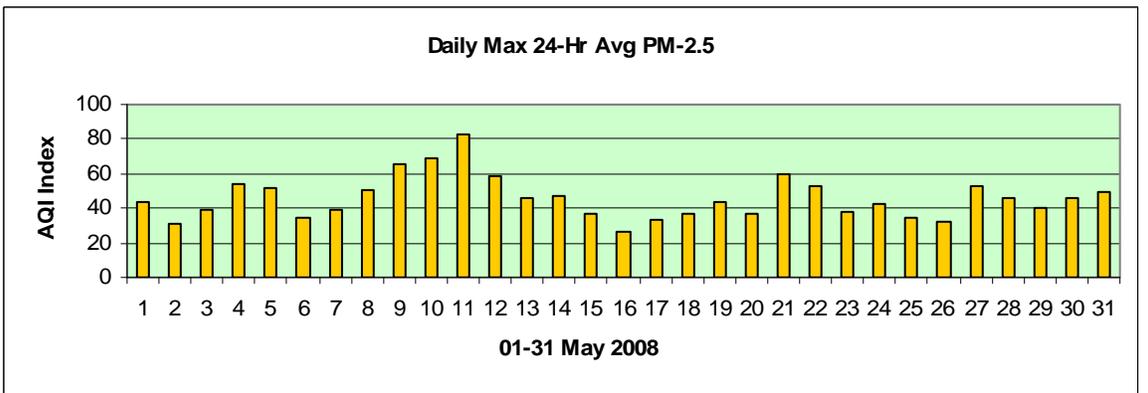
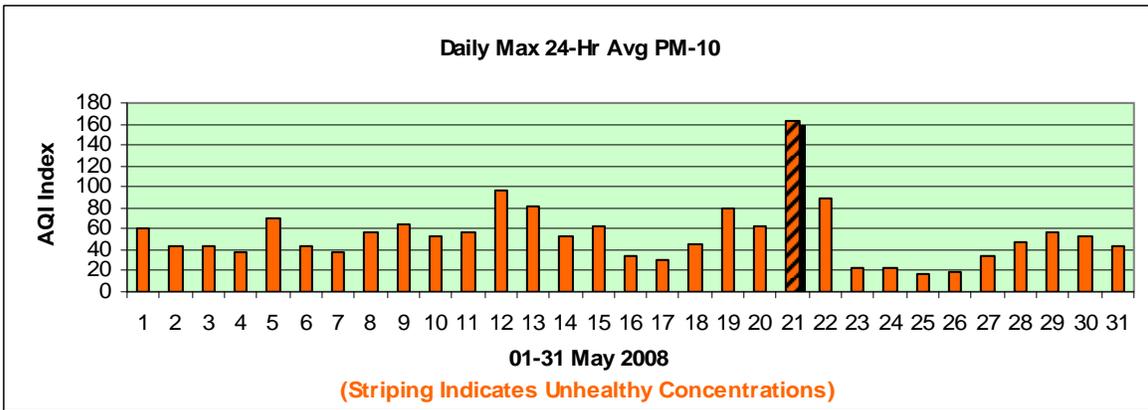
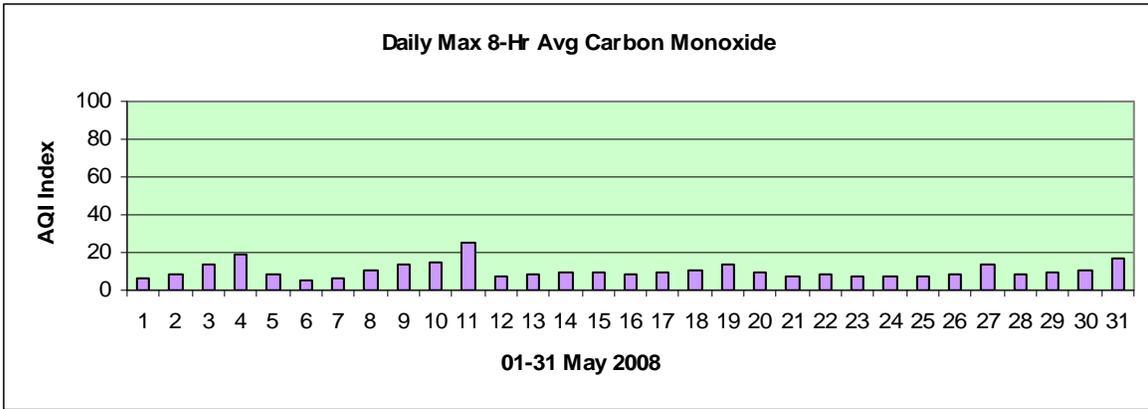
Non-Ozone Health Watches issued during MAY 2008-

Total=	3	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
		05/06	44	PM-10	West Forty Third
		05/12	96	PM-10	West Forty Third
		05/22	89	PM-10	West Forty Third

Non-Ozone High Pollution Advisories issued during MAY 2008-

Total=	1	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
		05/21	163	PM-10	West Forty Third

Concentration Recap: Days in the **Good** category: 3
(All pollutants) Days in the **Moderate** category: 23
Days in the **Unhealthy for Sensitive Groups** category: 4
Days in the **Unhealthy** category: 1
Total Forecast Days: 31



Narrative: May was yet another month during which the mid-latitude storm track stayed unusually active – both in amplitude and period – over the western U.S. in general and over Arizona in particular. A wide range of weather conditions was the result and six upper level trough and surface frontal passages were identified thru the first three weeks of the month. The first five were rather weak and produced isolated showers and thunderstorms along with gusty winds that generated light blowing dust in some areas. The fifth was a significant event that lasted from the 21st thru the 23rd, and was preceded by record heat on the 19th and 20th with max temps near 110 deg F. On the 21st gradient winds that gusted up to 55 mph from 9:00 a.m. thru 9:00 p.m. contributed to a widespread blowing dust episode that lasted from 10:00 a.m. thru 6:00 p.m. and reduced visibilities to as low as seven miles at times; the end result was yet another PM-10 (coarse particle) exceedance at the West Forty Third site where the hourly PM-10 concentration was 1,207.9ug/m3 at 9:00 a.m. Hourly levels in the 200-500ug/m3 range were still present the following morning as thick dust hung overhead. In contrast, and with no small irony, when the parent trough moved overhead clouds and showers increased and eventually produced record daily rainfall totals at Sky Harbor Airport on both the 22nd and the 23rd. -Reith

DETAILED OZONE SECTION

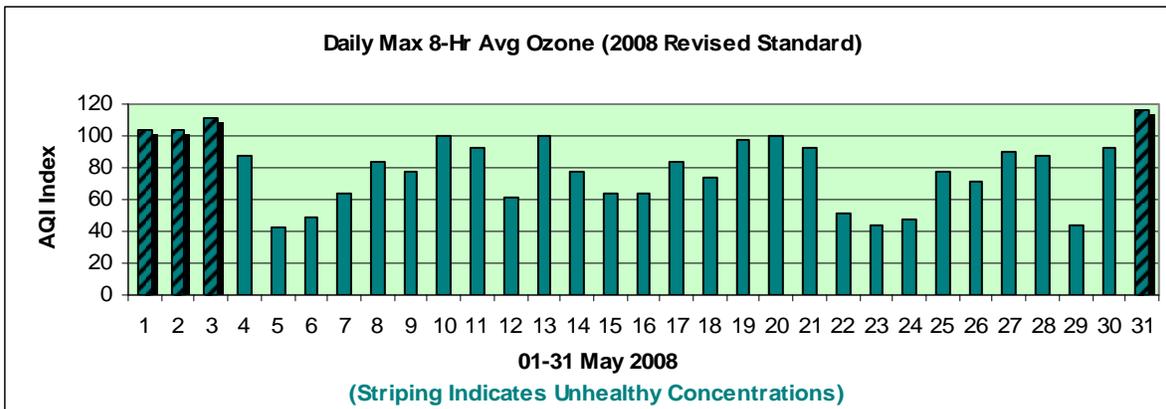
(Based on the 2008 EPA Revised 8-Hour Ozone Standard)

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

SUMMARY OF MAXIMUM 8-HR OZONE AQI VALUES FOR MAY 2008*

*Preliminary data

SUN		MON		TUES		WED		THU		FRI		SAT	
								1	104	2	104	3	111
4	87	5	43	6	49	7	64	8	84	9	77	10	100
11	93	12	61	13	100	14	77	15	64	16	64	17	84
18	74	19	97	20	100	21	93	22	51	23	44	24	48
25	77	26	71	27	90	28	87	29	44	30	93	31	116



<u>8-hr Ozone exceedance days in MAY:</u>	Total= 3	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		5/02	76/104	Tonto Nat'l Mon
		5/03	80/111	Cave Creek
			78/106	Tempe
			77/104	North Phoenix
			76/101	Rio Verde
			76/101	South Phoenix
		5/31	82/116	Tempe
			82/116	Tonto Nat'l Mon
			81/114	North Phoenix
			80/111	Cave Creek
			80/111	Fountain Hills
			80/111	Humbolt Mtn.
			80/111	Queen Valley
			79/109	Apache Junction
			79/109	Phx Supersite
			79/109	Rio Verde
			79/109	South Scottsdale
			79/109	West Chandler
			78/106	West Phoenix
			77/104	Falcon Field
			77/104	Glendale

Total number of exceedance days since APR 01: 6
Total number of exceedance sites since APR 01: 29

<u>Ozone Health Watches in MAY:</u> (Forecast max value 72-75 ppb)	Total= 11	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		5/01	77/104	Tonto Nat'l Mon
		5/05	43/51	Cave Creek
				Queen Valley
				Tonto Nat'l Mon
		5/07	64/64	Cave Creek
		5/10	75/100	Cave Creek
				Humbolt Mtn
		5/11	73/93	North Phoenix
		5/15	64/64	West Chandler
		5/16	64/64	Buckeye
		5/19	74/97	Tonto Nat'l Mon
		5/21	73/93	Tonto Nat'l Mon
		5/27	72/90	Humbolt Mtn
				Tonto Nat'l Mon
		5/29	52/44	Humbolt Mtn

Ozone Health Watches since APR 01: Total= 14

<u>High Pollution Advisories in MAY:</u> (Forecast max value 76+ppb)	Total= 3	5/20	75/100	Tonto Nat'l Mon
		5/30	73/93	Humbolt Mtn
		5/31	82/116	Tempe
				Tonto Nat'l Mon

High Pollution Advisories since APR 01: Total= 4

Concentration Recap: (Ozone)	Days in the Good category:	5
	Days in the Moderate category:	22
	Days in the Unhealthy for Sensitive Groups category:	4
	Days in the Unhealthy category:	0
	Total Forecast Days:	31

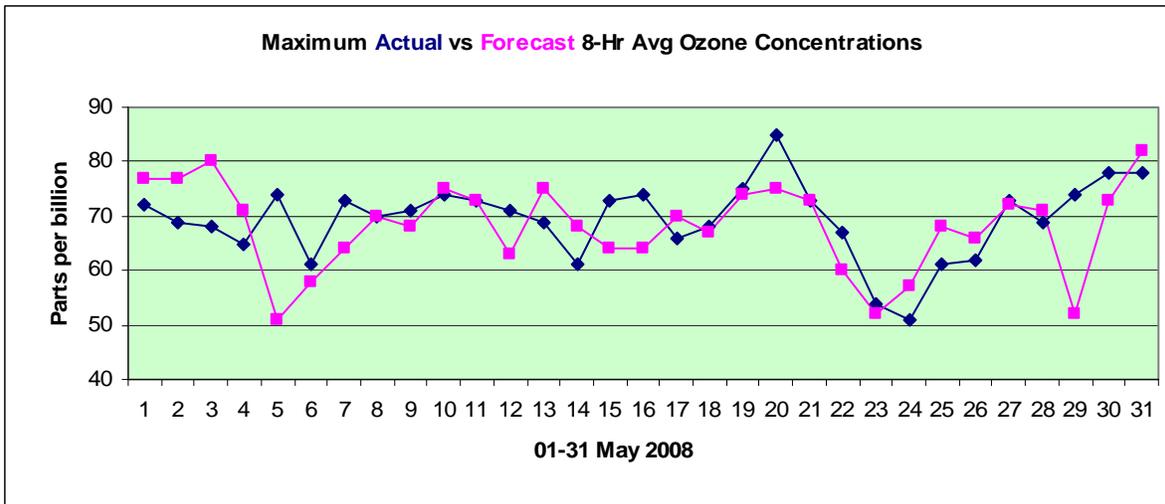
Maximum 8-Hr value:	<u>Date</u>	<u>Hour</u>	<u>Site</u>	<u>ppb/AQI</u>	<u>DOW</u>
	5/31	1100	Tempe	82/116	Sat
		1500	Tonto Nat'l Mon	82/116	Sat

Maximum 1-Hr value:	<u>Date</u>	<u>Hour</u>	<u>Site</u>	<u>ppb/AQI</u>	<u>DOW</u>
	5/31	1500	Tempe	96/80	Sat
		2000	Tonto Nat'l Mon	96/80	Sat

Average daily max 8-Hr concentration (ppb):	68.1
Deviation from the 1996-2007 average (ppb):	-4.2

MAY Climatology: (Period 1996-2007 using 1997 85ppb standard)	Average number of 8-Hr exceedance days:	3.1
	Maximum number of 8-Hr exceedance days:	10 in 1996
	Minimum number of 8-Hr exceedance days:	0 in 1997, 2001/04/07
	Average daily max 8-Hr concentration (ppb):	72.3
	Record high max 8-Hr concentration (ppb):	105 on the 21st, 1996
	Record low max 8-Hr concentration (ppb):	46 on the 20th, 1997

Forecast Verification:	# of days maximum concentrations were over-forecast:	15
	# of days maximum concentrations were under-forecast:	13
	# of days maximum concentrations were correctly forecast:	3
	May average forecast accuracy (ppb):	+/-6.0
	May average forecast bias (ppb):	+1.3



Narrative:

May 2008 was a real roller coaster ride of weather phenomena as well as ground-level ozone concentrations. In some respects it was reminiscent of March; the mid-latitude storm track was very active with a total of seven trough and/or frontal passages that lasted thru the 23rd of the month. Secondly, maximum afternoon temperatures at Sky Harbor Airport exhibited an unusually wide range from a record 110 deg F on the 19th and 108 deg on the 20th to 72 deg on the 23rd and 24th. Thirdly, record daily precipitation amounts were recorded at the airport on both the 22nd and 23rd. The trough passages continued to play a role in ozone levels as well due to the periodic transport of additional ozone and/or its precursors from points west, i.e., California. Similar to what occurred in April, monitoring sites upwind from the Phoenix metro area (at least under these circumstances) experienced multiple episodes of elevated ozone that more times than not coincided well with wind trajectories from west to northwesterly. In fact, the site in Yuma had four exceedances and the site at Alamo Lake had its first exceedance since its installation on May 23, 2005. Also, on nine days the Yuma site had either the highest 8-hour or 1-hour ozone concentration of the entire network. The ozone exceedances that occurred in the Valley on the 1st and 2nd of the month did so under a trough passage situation with gusty afternoon westerly winds – a scenario that fits the California transport pattern seen numerous times in the past – and afternoon temperatures in the middle 80's. On the 3rd five site exceedances took place, but it was far from the textbook case of a high ozone day. It was on a Saturday which presumably would have far fewer local pre-cursor emissions, and daytime highs were still only around 90 degrees. Surface winds had decreased significantly, but it is believed that residual transported ozone/precursors played a role in local ozone levels/production that day. On the 31st of the month a staggering 15 site exceedances were recorded. Once again winds aloft were conducive for import from California and it was on this day that the upwind Alamo Lake site – far from any large precursor emission sources – registered its first exceedance. However, local weather conditions also contributed to efficient ozone production and above average accumulation with sunny skies, temperatures near 100 deg, and relatively light afternoon winds. –Reith