



Janet Napolitano, Governor
 Stephen A. Owens, ADEQ Director

MONTHLY AIR QUALITY REPORT FOR
MAY 2005

AQI 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 2005*
 *Preliminary data

SAMPLE POLLUTANT REPORTING BOX

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

	SUN			MON			TUES			WED			THU			FRI			SAT	
1	59	26	2	50	16	3	74	11	4	101	11	5	49	13	6	42	07	7	51	11
	39	24		60	27		58	31		68	31		96	30		42	24		31	26
8	51	16	9	47	13	10	50	06	11	59	18	12	79	11	13	109	17	14	90	27
	37	28		60	26		61	25		55	23		62	23		69	34		72	41
15	79	33	16	74	15	17	85	07	18	106	14	19	101	22	20	69	17	21	64	24
	50	38		80	36		56	31		65	39		77	38		84	39		61	45
22	95	26	23	90	17	24	56	09	25	46	10	26	77	13	27	54	13	28	54	07
	54	35		67	35		58	38		64	51		73	40		72	50		43	28
29	48	07	30	64	08	31	100	11												
	32	29		37	27		70	38												

PM Exceedance days during MAY 2005-

Total= 0 Date Max AQI Pollutant Site/s

PM Health Watches issued during MAY 2005-

Total= 2 Date Max AQI Pollutant Site/s
6th 42 PM-10 West Forty Third
10th 61 PM-10 West Forty Third

PM High Pollution Advisories issued during MAY 2005-

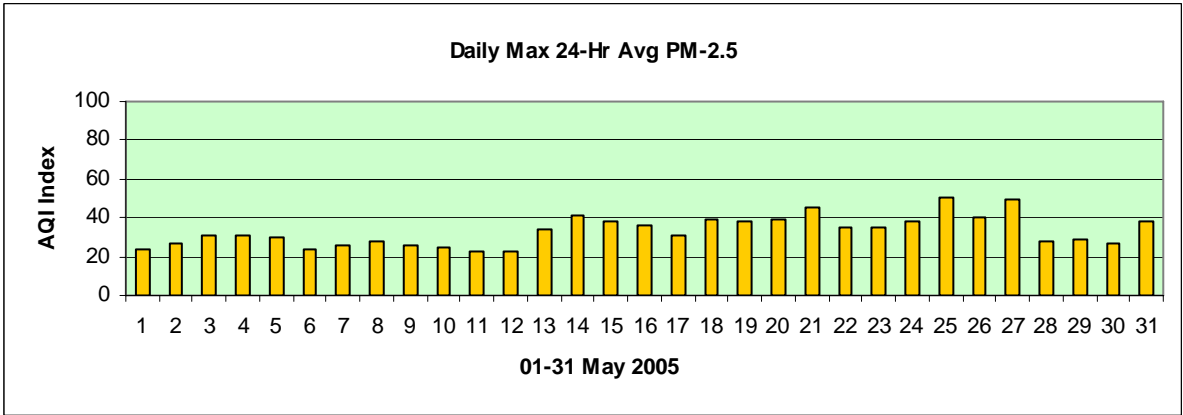
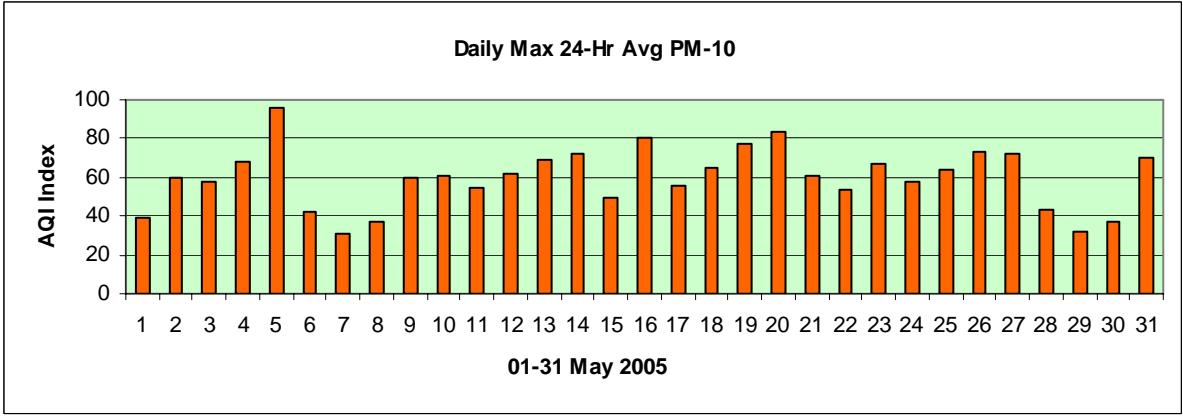
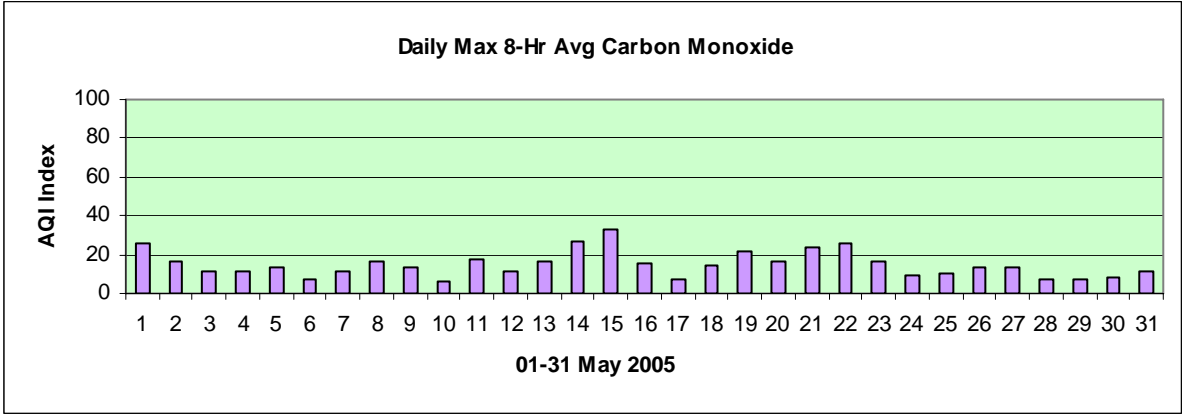
Total= 0 Date Max AQI Pollutant Site/s

Narrative:

No significant levels of carbon monoxide or PM-2.5 occurred during May which is usually the case during the warm season in Phoenix. This time of year is also very dry and no rain fell over the forecast area the entire month. This situation makes unpaved areas ready sources of PM-10 when disturbed, and this is believed to have contributed to maximum PM-10 levels that were in the moderate range of the AQI Index on all but eight days of the month. The higher concentrations occurred on days with gusty winds associated with mid-latitude trough passages to the north of Arizona, although stagnant conditions with degraded dispersion and a rather strong surface-based radiation inversion contributed to one event. Also, on the 28th an outflow boundary from nearby thunderstorm activity brought gusty winds and blowing dust over the southeast valley where the Higley site registered a 1-hr PM-10 concentration of ~600 ug/m³; however, very low readings the rest of the day resulted in a 24-hr average of only 46 ug/m³. The highest 24-hour average PM-10 concentration of the month (145 ug/m³) occurred on May 5 at the West Forty Third monitoring site and appears to have been due to a combination of factors – southerly wind gusts to near 40 mph ahead of an approaching surface cold front, and a 200-acre brush fire during the afternoon upwind from the affected monitoring site. Despite these influences, it appears that, during this month at least, there was a high correlation between the day of week and highest PM-10 concentration. When expressed as an average AQI number, the following table results:

<u>Day of Week</u>	<u>Avg. AQI#</u>
Sunday	42.4
Monday	60.8
Tuesday	60.6
Wednesday	63.0
Thursday	77.0
Friday	66.8
Saturday	51.8

Although just a snapshot, this data seems to support the idea that in the Phoenix metropolitan area weekday activities such as commuting and earthmoving play a role in PM-10 emissions. -Reith



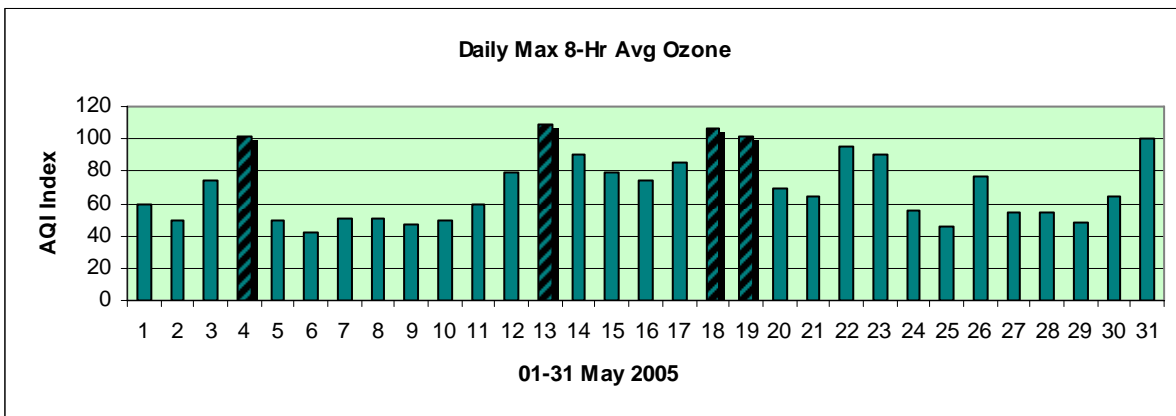
DETAILED OZONE SECTION

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 2005*

*Preliminary data

	SUN	MON	TUES	WED	THU	FRI	SAT						
1	59	2	50	3	74	4	101	5	49	6	42	7	51
8	51	9	47	10	50	11	59	12	79	13	109	14	90
15	79	16	74	17	85	18	106	19	101	20	69	21	64
22	95	23	90	24	56	25	46	26	77	27	54	28	54
29	48	30	64	31	100								



<u>8-hr Ozone exceedance days in MAY:</u>	Total= 4	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		4th	85/101	Humboldt
		13th	88/109	Humboldt
		18th	87/106	Humboldt
		19th	85/101	Fountain Hills

Total number of exceedance days since APR 01: 4
Total number of exceedance sites since APR 01: 4

<u>Ozone Health Watches in MAY:</u> (Forecast max value 80-84 ppb)	Total= 6	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		5/13	88/109	Humboldt
		5/14	80/90	Tonto Nat'l Mon
		5/17	78/85	Humboldt
		5/18	87/106	Humboldt
		5/21	70/64	Falcon Field
				Tonto Nat'l Mon
		5/22	82/95	Tonto Nat'l Mon

Ozone Health Watches since APR 01: Total= 7

<u>High Pollution Advisories in MAY:</u> (Forecast max value 85+ppb)	Total= 2	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		5/19	85/101	Fountain Hills
		5/20	72/69	Queen Valley

High Pollution Advisories since APR 01: Total= 2

<u>Concentration Recap:</u>	Days in the Good AQI category:	7
	Days in the Moderate AQI category:	20
	Days in the Unhealthy for Sensitive Groups AQI category:	4
	Days in the Unhealthy AQI 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>
	5/13	1700	Humboldt	88/109	Fri

Maximum 1-Hr value:	<u>Date</u>	<u>Hour</u>	<u>Site</u>	<u>ppb/AQI</u>	<u>DOW</u>
	5/22	1300	Tonto Nat'l Mon	108/90	Sun

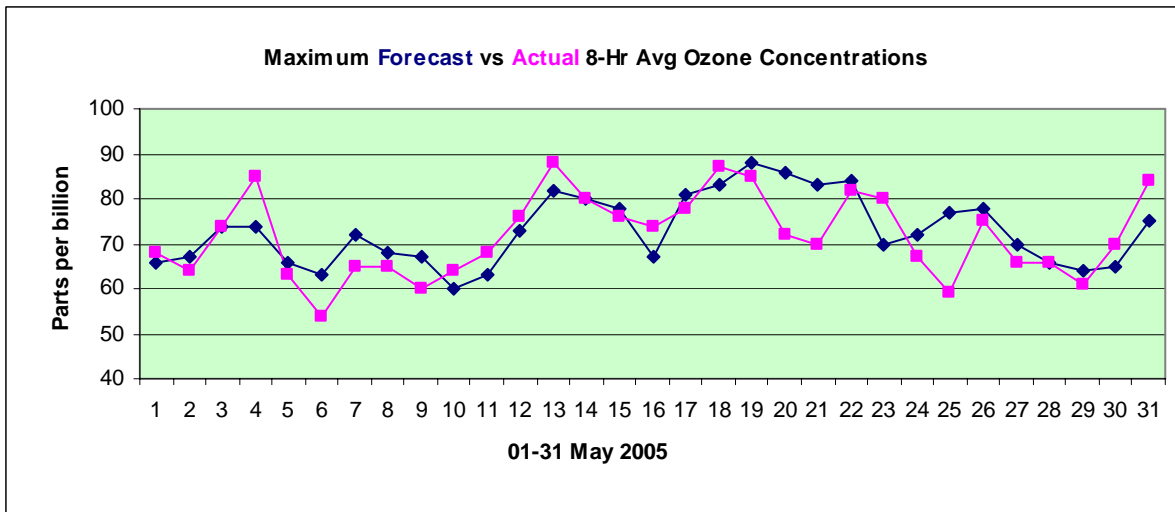
Average daily max 8-Hr concentration (ppb):	71.8
Deviation from 1996-2004 average (ppb):	-1.3

APR Climatology:
(1996-2004)

Average number of 8-Hr exceedances: 3.6
 Maximum number of 8-Hr exceedances: 10 in 1996
 Minimum number of 8-Hr exceedances: 0 in 1997, 2001, 2004
 Average daily max 8-Hr concentration (ppb): 73.1
 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: 17
 # of days maximum concentrations were under-forecast: 11
 # of days maximum concentrations were correctly forecast: 3
 May average forecast accuracy (ppb): 5.4
 May average forecast bias (ppb): +1.1



Narrative:

The tendency and trend toward higher ozone production under light winds regimes – that was first observed in April – continued during May and is believed to have contributed to exceedances of the 8-hour ozone standard on the 4th, 13th, 18th, and 19th of the month. See the following chart for relevant weather conditions during these four days:

DAY	WINDS	MAX TEMP	% SUN	8-HR BACKGROUND O3
4TH	E to 1500' thru 18Z, mostly light at sfc all day	93 DEG F	70	72 PPB
13TH	E trans wind & flow to 4200' a.m., lt/calm p.m.	93 DEG F	95	59 PPB
18TH	Light/variable transport wind, light winds all day	93 DEG F	100	64 PPB
19TH	Light/variable transport wind, <10 mph thru 1600	100 DEG F	100	67 PPB

During May 2004 situations similar to those above existed, yet not only were there no exceedances, but the monthly average ozone concentration was the lowest since 1996. One theory is that because of plentiful rainfall during the winter of 2004 biogenic VOC emissions are substantially higher this season than last. Since ozone production over the Phoenix area is generally considered to be VOC-limited, this has some merit. Also, the areas north and east of the metro area have much more vegetation than those to the south and west where open desert is substantial. As can be seen from the graph above, in most cases forecasters did an excellent job of anticipating daily trends in ozone levels. -Reith