



MONTHLY AIR QUALITY REPORT FOR
SEPTEMBER 2009

AOI COLOR SCALE

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

Calendar of maximum AOI values & their corresponding color for September 2009*

*Preliminary data

SAMPLE POLLUTANT REPORTING BOX

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

SUN			MON			TUES			WED			THU			FRI			SAT		
						1	93	06	2	80	07	3	61	06	4	67	06	5	42	09
							32	26		35	27		111	55		32	28		24	22
6	51	10	7	49	06	8	47	07	9	50	07	10	67	09	11	77	09	12	58	07
	19	24		30	21		32	21		26	21		44	31		45	28		33	25
13	42	07	14	31	06	15	37	07	16	43	09	17	48	11	18	50	10	19	49	13
	36	27		31	25		43	23		44	31		44	29		37	24		35	25
20	47	06	21	71	09	22	47	08	23	46	10	24	48	16	25	50	14	26	47	16
	25	20		55	35		58	25		35	19		56	40		54	43		100	41
27	54	30	28	48	36	29	44	16	30	46	09									
	41	42		61	42		58	44		55	26									

Calendar of High Pollution Advisories and Health Watches issued during September 2009

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

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 September 2009

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

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 SEP 2009-

<u>Total=</u>	<u>1</u>	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
		9/03	111	PM-10	West Forty Third
			103	PM-10	South Phoenix

Non-Ozone Health Watches issued during SEP 2009-

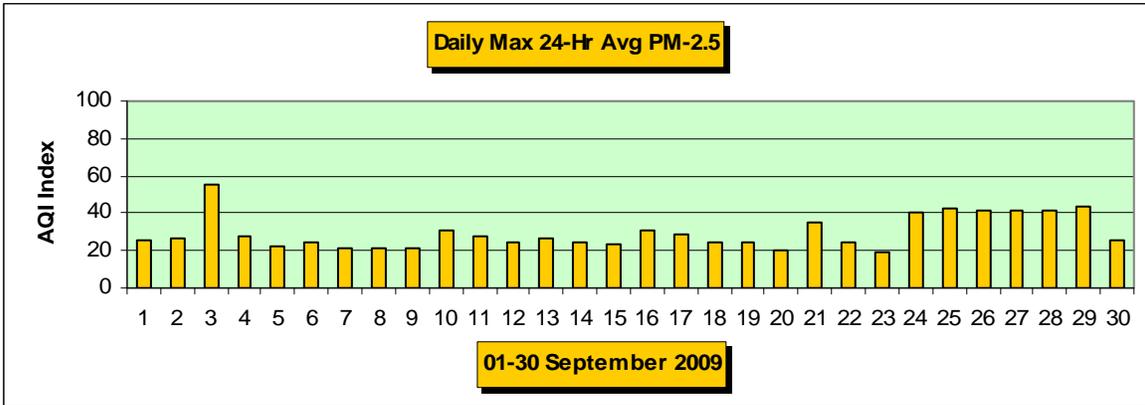
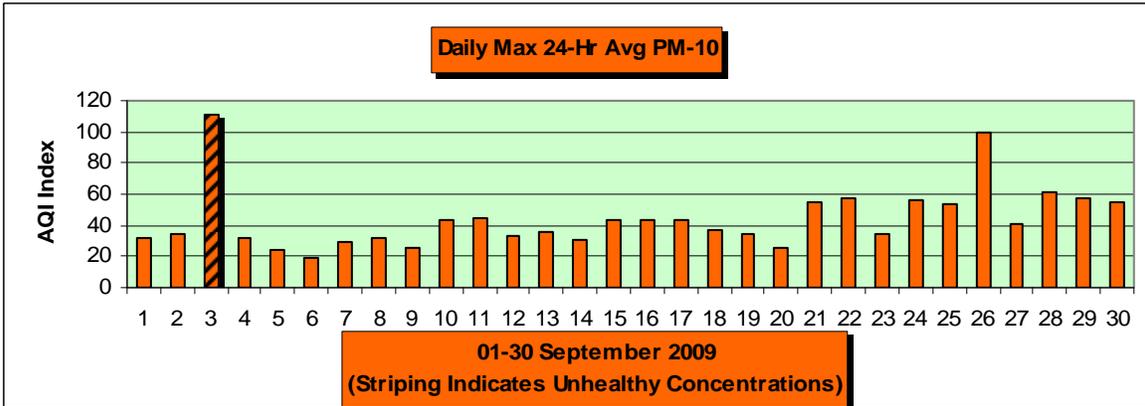
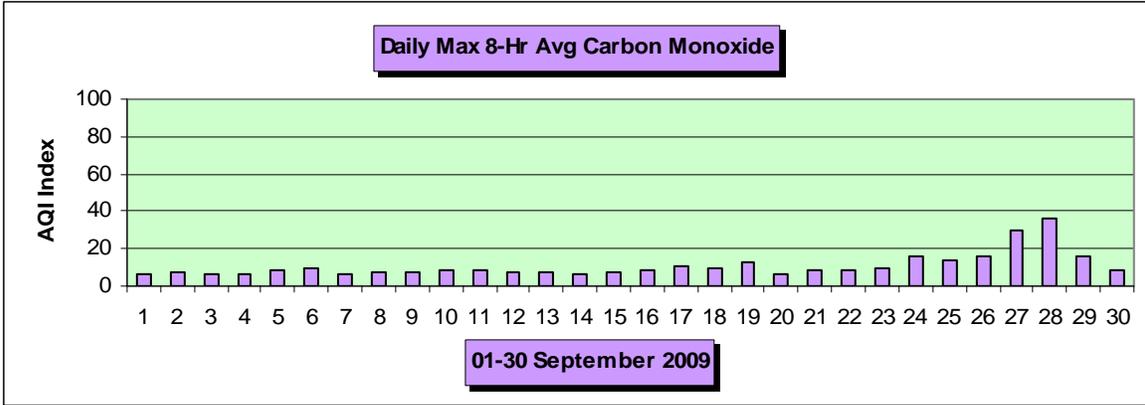
<u>Total=</u>	<u>1</u>	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
		9/22	58	PM-10	Buckeye

Non-Ozone High Pollution Advisories issued during SEP 2009-

<u>Total=</u>	<u>1</u>	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
		9/30	55	PM-10	West Forty Third

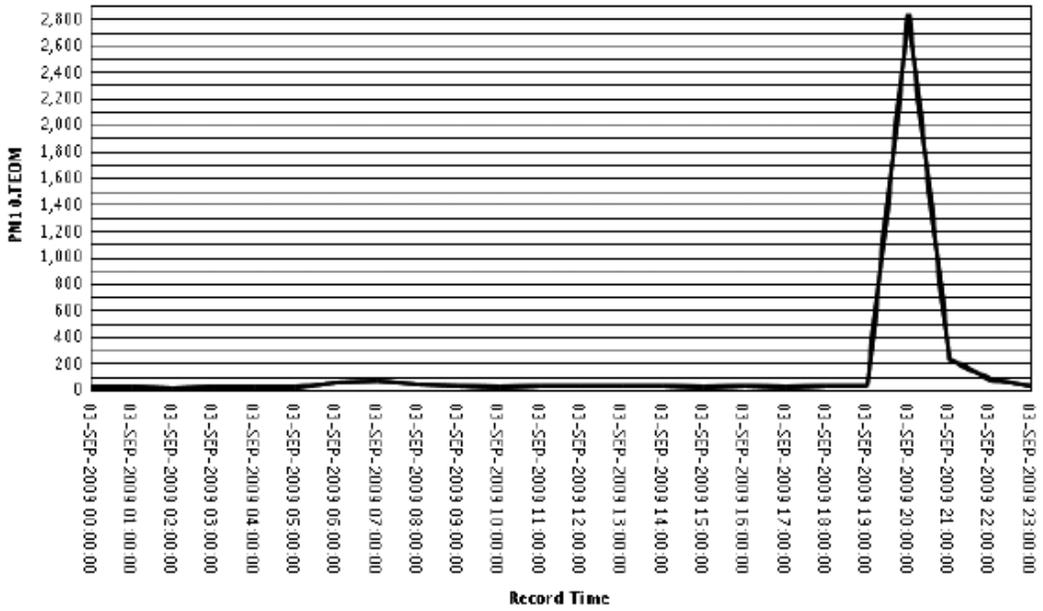
Concentration Recap:

Days in the Good category:	13
Days in the Moderate category:	16
Days in the Unhealthy for Sensitive Groups category:	1
Days in the Unhealthy category:	0
Days in the Very Unhealthy category:	0
Days in the Hazardous Category:	<u>0</u>
Total Forecast Days:	30

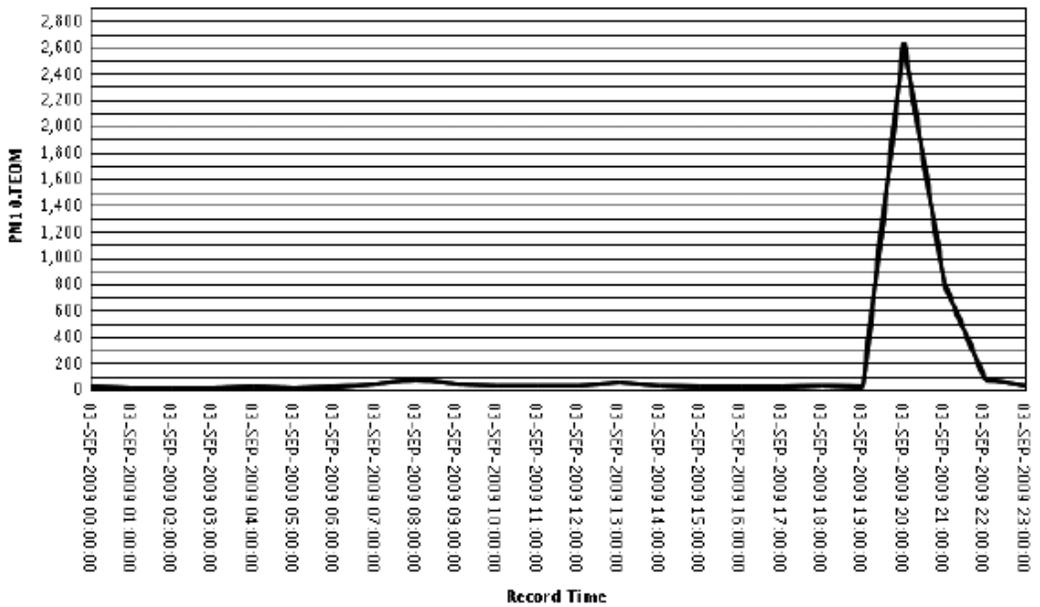


Narrative: In terms of rainfall, the summer monsoon circulation pattern remained pretty unproductive for the Valley during its tenure from the 1st thru the 14th of September. Thunderstorm outflow boundaries reached the metro area on six days during this period, and significant blowing dust episodes occurred with three of them. By far the most noteworthy took place on the 3rd between 8:00 and 11:00 p.m. when wind gusts up to 41 mph from the southeast and south were reported along with visibilities as low as one mile in dense blowing dust. This resulted in two PM-10 (coarse particle) exceedances at the South Phoenix and West Forty Third monitoring sites. In addition, some extremely high hourly PM-10 concentrations occurred: 1,329.9ug/me at the West Phoenix monitoring site, 1,481.7ug/m3 at Central Phoenix, 1,481.9ug/m3 at Greenwood, and 2,416.8ug/m3 at Durango. The two highest readings occurred at South Phoenix – 2,838.1ug/m3 – and at West Forty Third – 2,639.9ug/m3. The time series graphs for those two stations are shown below: -Reith

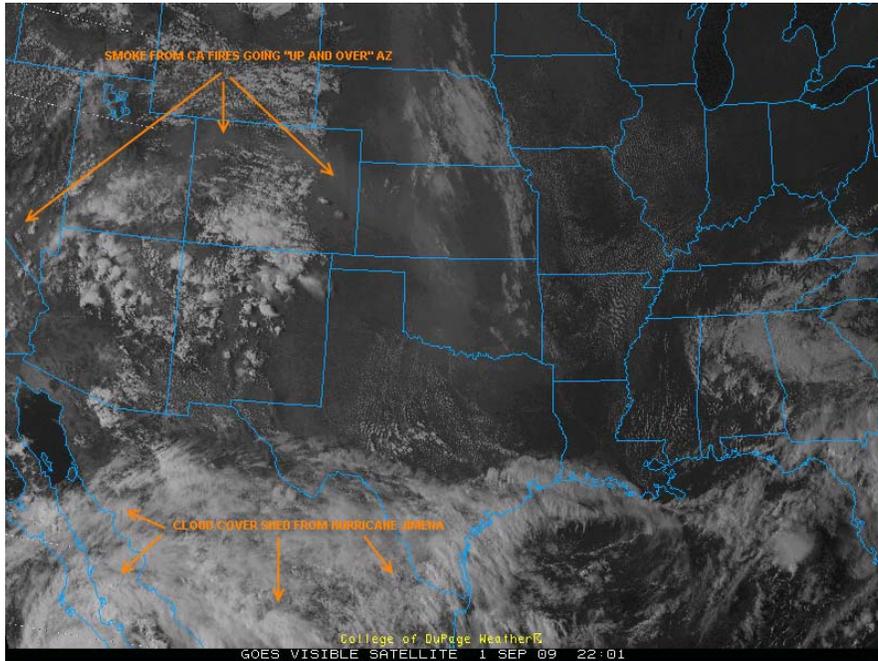
Name: SOUTH PHOENIX



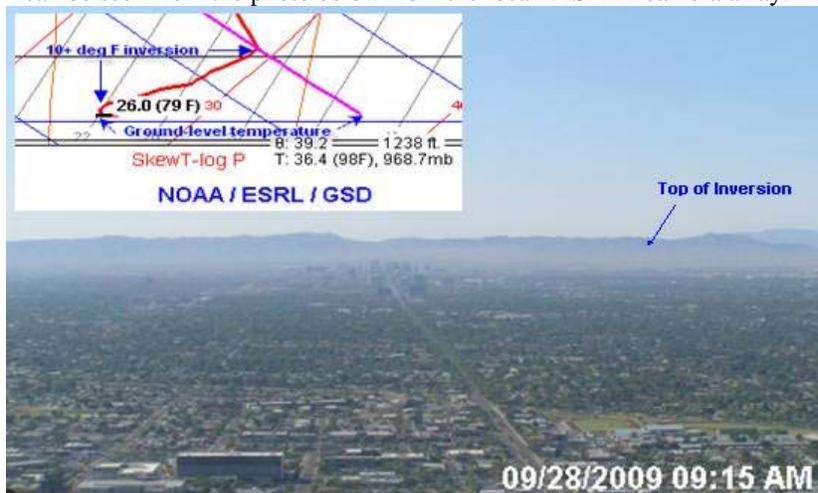
Name: WEST FORTY THIRD



Prior to these events, large wildfires in Southern California produced an extensive smoke plume that was carried downstream over portions of northwestern AZ. There was some concern that some of the smoke might impact the Phoenix area, but due to the prevailing synoptic weather pattern in place during that period, much of the smoke was instead transported over Utah, Colorado, Kansas, and Oklahoma. The annotated visible satellite imagery below for September 01 shows this to good effect:



After mid-month the summer monsoon pattern was quickly and permanently replaced by an unusually active mid-latitude storm track. A series of weak upper level disturbances gradually ushered in much drier air with Valley dew point temperatures falling into the teens on the 22nd of the month. These were followed by a strong Pacific ridge that moved over AZ by the 28th. This brought a period of light winds and clear skies that contributed to rather strong overnight radiation inversion formation. Between the 24th and 29th morning inversions over the Valley ranged from 10 to 14 degrees F, and this stagnation in turn contributed to an increase in both coarse and fine particle levels during the a.m. periods. By the 28th an early return of the *Valley Brown Cloud* had occurred as can be seen from the photo below from the local VISNET camera array. -Reith



DETAILED OZONE SECTION

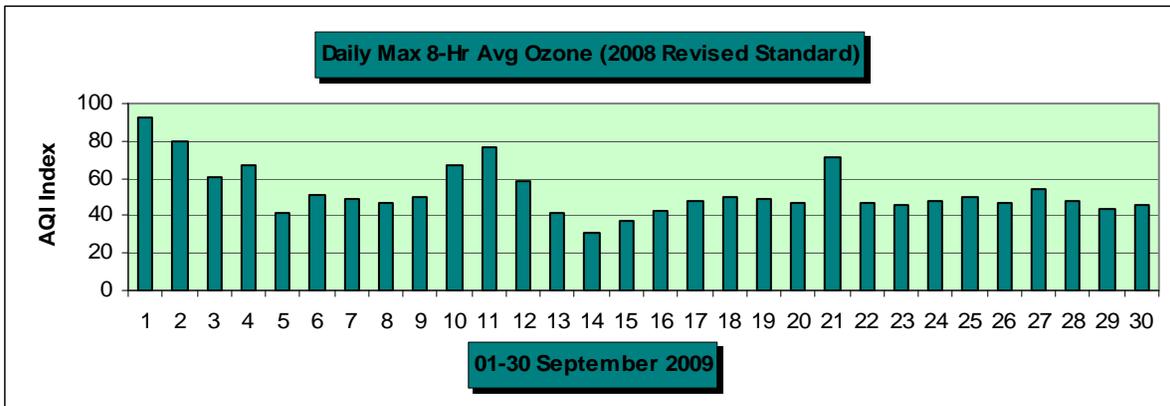
(Based on the 2008 EPA Revised 8-Hour Ozone Standard)

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

SUMMARY OF MAXIMUM 8-HR OZONE AQI VALUES FOR SEPTEMBER 2009*

*Preliminary data

SUN		MON		TUES		WED		THU		FRI		SAT	
				1	93	2	80	3	61	4	67	5	42
6	51	7	49	8	47	9	50	10	67	11	77	12	58
13	42	14	31	15	37	16	43	17	48	18	50	19	49
20	47	21	71	22	47	23	46	24	48	25	50	26	47
27	54	28	48	29	44	30	46						



8-hr Ozone exceedance days in SEP: Total= 0 Date Max ppb/AQI Site/s

Total number of exceedance days since APR 01: 5

Total number of exceedance sites since APR 01: 11

Ozone Health Watches in SEP: Total= 2 Date Max ppb/AQI Site/s
(Forecast max value 72-75 ppb)
9/01 73/93 Blue Point
9/02 69/80 Blue Point

Ozone Health Watches since APR 01: Total= 31

High Pollution Advisories in SEP: Total= 0
(Forecast max value 76+ppb)

High Pollution Advisories since APR 01: Total= 6

Concentration Recap: Days in the **Good** category: 20
Days in the **Moderate** category: 10
Days in the **Unhealthy for Sensitive Groups** category: 0
Days in the **Unhealthy** category: 0
Total Forecast Days: 30

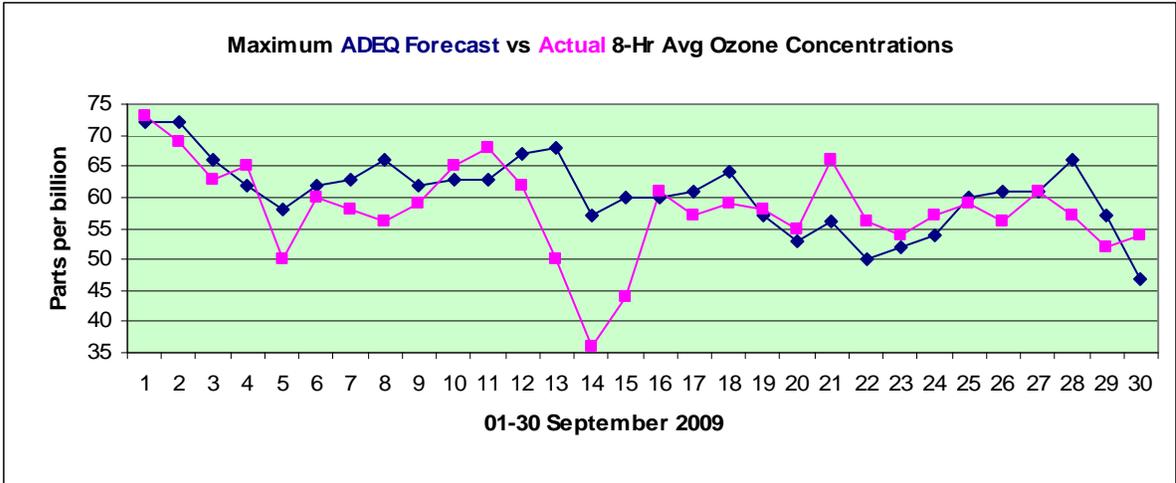
Maximum 8-Hr value: Date Hour Site ppb/AQI DOW
9/01 1200 Blue Point 73/93 Tue

Maximum 1-Hr value: Date Hour Site ppb/AQI DOW
9/02 1500 Blue Point 88/73 Wed

Average daily max 8-Hr concentration (ppb): 58.0
Deviation from the 1996-2008 average (ppb): -4.3

SEP Climatology: Average number of 8-Hr exceedance days: 0.3
(Period 1996-2008 using 1997 85ppb standard & 2008 using 76ppb standard) Maximum number of 8-Hr exceedance days: 2 in 1997 and 1999
Minimum number of 8-Hr exceedance days: 0 in 1996, 1998, 2000-08
Average daily max 8-Hr concentration (ppb): 62.3
Record high max 8-Hr concentration (ppb): 91 on the 4th, 1997
Record low max 8-Hr concentration (ppb): 37 on the 22nd, 2007

Forecast Verification: # of days maximum concentrations were over-forecast: 18
of days maximum concentrations were under-forecast: 11
of days maximum concentrations were correctly forecast: 1
Sep average forecast accuracy (ppb): +/-5.8
Sep average forecast bias (ppb): +3.0



Narrative:

With the end of September came the end of the 2009 Valley ozone season. Ozone exceedances in Phoenix during September are very rare – only four since 1996 – and this month fell into the normal ozone pattern. A pair of Ozone Health Watches were issued for the 1st and 2nd of the month during which period AQI levels were in the upper-moderate range of the Air Quality Index. On 20 of the remaining 28 days of the month highest ozone levels were in the good range of the AQI. The maximum ozone reading of only 36 parts per billion on the 14th was the lowest during the month of September for the period 1996-2009. The weather that day was unusually breezy due to the presence of an upper level trough over the western part of AZ, and wind gusts up to 30 mph were registered from noon thru 5:00 p.m. -Reith