Appendices – Volume II
Event Specific Material

For June 4, 2008

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Appendix I
Event Air Quality Advisories

ADEQ
Arizona Department of Environmental Quality
Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

ADEQ AIR POLLUTION HEALTH WATCH ISSUANCE NOTICE

Issuance Date and Time:	Wednesday, June 04, 2008 6:15 a.m.
Valid for Date(s):	Wednesday June 04, 2008
Pollutant:	COARSE PARTICLES (PM-10)
Message:	Blowing and suspended dust, contributed to by strong and gusty gradient winds, may cause concentrations of coarse particles to approach unhealthy levels this afternoon and evening.

Detailed air quality forecast information is available on:

- The internet at www.azdeq.gov
- A telephone recording at 602-771-2367

Duty Forecaster:	Christopher Reith	602-771-2360
	Joe Paul	602-771-2363

CKR 05/01/2007

ADEQ Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

MARICOPA COUNTY
DUST CONTROL ACTION FORECAST
ISSUED TUESDAY, JUNE 02, 2008
Three-day weather outlook:

On Wednesday an upper level trough in the mid-latitude storm track will deepen over the western U.S. including Arizona. Increasing afternoon winds are therefore expected on Wednesday when gradients will be the strongest. There will be an increased risk for areas of blowing dust after the noon hour lasting into the evening hours.

R I S K F A C T O R S

	WINDS		STAGNATION		RISK LEVEL
Day #1: Wed 06/04/2008	Southwest to westerly 15-25 mph with gusts over 30 mph by afternoon.	+	Rather stagnant during the morning hours with improvement by afternoon.	=	**MODERATE**
Day #2: Thu 06/05/2008	West to northwesterly 10-20 mph.	+	Rather stagnant during the morning hours with improvement by afternoon.	=	**LOW**
Day #3: Fri 06/06/2008	Southwesterly 5-15 mph by afternoon.	+	Rather stagnant during the morning hours with improvement by afternoon.	=	**LOW**

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.

ADEQ Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

YUMA AND VICINITY
DUST CONTROL ACTION FORECAST
ISSUED TUESDAY, JUNE 03, 2008

Three-day weather outlook:

On Wednesday an upper level trough in the mid-latitude storm track will deepen over the western U.S. including Arizona. Increasing afternoon winds are therefore expected the next few days – but especially on Wednesday – when gradients will be the strongest. There will be a HIGH risk for localized (not widespread) blowing dust after the noon hour lasting into the evening hours.

	WINDS	WIND-BLOWN DUST RISK
Day #1: Wed 06/04/2008	Westerly 15-25 mph with gusts to 30 mph by afternoon.	**HIGH**
Day #2: Thu 06/05/2008	Northwest to northerly 10-20 mph with a few higher gusts, decreasing by afternoon.	**MODERATE**
Day #3: Fri 06/06/2008	No significant winds expected.	**LOW**

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 (brown cloud). 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, minimize travel on dirt roads, utilize tarps on haul trucks, limit use of leaf-blowers, and on high-wind days reduce outdoor activities.

CKR 05/09/2005

Appendix J
Event NWS Advisories & Events

Query Results

17 event(s) were reported in **California** between **06/04/2008** and **06/04/2008** (**High Wind limited to speed greater than 0 knots)**.

*Click on **Location or County** to display Details.*

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

California

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 CAZ059	06/04/2008	02:48 AM	High Wind	50 kts.	0	0	0K	0K
2 CAZ523	06/04/2008	03:24 AM	High Wind	51 kts.	0	0	0K	0K
3 CAZ520	06/04/2008	07:42 AM	High Wind	53 kts.	0	0	0K	0K
4 CAZ520	06/04/2008	07:50 AM	High Wind	56 kts.	0	0	0K	0K
5 CAZ519	06/04/2008	08:00 AM	High Wind	59 kts.	0	0	0K	0K
6 CAZ519 - 520	06/04/2008	08:10 AM	High Wind	57 kts.	0	0	0K	0K
7 CAZ523	06/04/2008	09:08 AM	High Wind	55 kts.	0	0	0K	0K
8 CAZ523	06/04/2008	09:10 AM	High Wind	56 kts.	0	0	0K	0K
9 CAZ523	06/04/2008	09:50 AM	High Wind	51 kts.	0	0	0K	0K
10 CAZ089>092	06/04/2008	10:13 AM	Strong Wind	40 kts.	0	0	0K	1K
11 CAZ523	06/04/2008	10:50 AM	High Wind	50 kts.	0	0	0K	0K
12 CAZ061	06/04/2008	11:46 AM	High Wind	51 kts.	0	0	25K	0K
13 CAZ520	06/04/2008	12:14 PM	High Wind	57 kts.	0	0	0K	0K
14 CAZ062	06/04/2008	12:45 PM	High Wind	56 kts.	0	0	0K	0K
15 CAZ523	06/04/2008	13:14 PM	High Wind	50 kts.	0	0	0K	0K
16 CAZ060	06/04/2008	13:51 PM	High Wind	57 kts.	0	0	0K	0K
17 CAZ033	06/04/2008	18:00 PM	Dust Storm	N/A	0	0	0K	0K
				TOTALS:	0	0	25K	1K

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Query Results

5 event(s) were reported in **Arizona** between **06/04/2008** and **06/04/2008** (**High Wind limited to speed greater than 0 knots)**.

*Click on **Location or County** to display Details.*

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Arizona

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 AZZ004 - 017	06/04/2008	13:00 PM	High Wind	51 kts.	0	0	0K	0K
2 AZZ007	06/04/2008	14:00 PM	High Wind	51 kts.	0	0	0K	0K
3 Littlefield	06/04/2008	15:10 PM	Thunderstorm Wind	58 kts.	0	0	0K	0K
4 AZZ012	06/04/2008	16:00 PM	High Wind	54 kts.	0	0	0K	0K
5 AZZ005	06/04/2008	17:00 PM	High Wind	87 kts.	0	0	0K	0K
				TOTALS:	0	0	0	0

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Query Results

10 event(s) were reported in **Nevada** between **06/04/08** and **06/04/08** (**High Wind limited to speed greater than 0 knots)**.

*Click on **Location or County** to display Details.*

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Nevada

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 NVZ014	06/04/2008	09:00 AM	High Wind	52 kts.	0	0	0K	0K
2 NVZ017	06/04/2008	12:45 PM	High Wind	65 kts.	0	0	0K	0K
3 NVZ014	06/04/2008	13:30 PM	High Wind	78 kts.	0	0	0K	0K
4 NVZ014	06/04/2008	13:45 PM	High Wind	54 kts.	0	0	0K	0K
5 NVZ020	06/04/2008	14:02 PM	High Wind	52 kts.	0	0	0K	0K
6 NVZ014	06/04/2008	14:15 PM	High Wind	57 kts.	0	0	0K	0K
7 NVZ015	06/04/2008	14:41 PM	High Wind	63 kts.	0	0	0K	0K
8 NVZ014	06/04/2008	15:00 PM	High Wind	55 kts.	0	0	0K	0K
9 NVZ018	06/04/2008	19:30 PM	High Wind	59 kts.	0	0	0K	0K
10 NVZ019	06/04/2008	21:34 PM	High Wind	54 kts.	0	0	0K	0K
				TOTALS:	0	0	0	0

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NWS SRRS PRODUCTS FOR:
2008060300 to 2008060523

WWUS75 KPSR 032106
NPWPSR
URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE PHOENIX AZ
206 PM MST TUE JUN 3 2008
AZZ020-CAZ030>033-041200-
/O.NEW.KPSR.WI.Y.0024.080604T1800Z-080605T0400Z/
LOWER COLORADO RIVER VALLEY AZ-JOSHUA TREE NATIONAL PARK-
LOWER COLORADO RIVER VALLEY CA-RIVERSIDE COUNTY/EASTERN DESERTS-
IMPERIAL COUNTY-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...
COTTONWOOD VISITOR CENTER...LOST HORSE-KEYS VIEW JTNP...BLYTHE...
CHIRIACO SUMMIT...DESERT CENTER...EAGLE MTN...MIDLAND...BRAWLEY...
CALEXICO...EL CENTRO...GLAMIS...IMPERIAL...AND THE SALTON SEA
206 PM MST TUE JUN 3 2008 /206 PM PDT TUE JUN 3 2008/
...WIND ADVISORY IN EFFECT FROM 11 AM MST /11 AM PDT/ TO 9 PM MST
/9 PM PDT/ WEDNESDAY...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A WIND
ADVISORY...WHICH IS IN EFFECT FROM 11 AM MST /11 AM PDT/ TO 9 PM
MST /9 PM PDT/ WEDNESDAY.
A STRONG LOW PRESSURE SYSTEM WILL MOVE THROUGH THE GREAT BASIN REGION
OVER THE NEXT 24 TO 48 HOURS. THIS WILL HELP TO INCREASE THE WINDS
ACROSS THE AREA ON WEDNESDAY MORNING...WITH WIND GUSTS TO NEAR 45
MPH POSSIBLE FROM THE LATE MORNING INTO THE EVENING HOURS. AREAS OF
REDUCED VISIBILITIES IN BLOWING DUST AND SAND ARE ALSO POSSIBLE.
A WIND ADVISORY MEANS THAT SUSTAINED WIND SPEEDS OF BETWEEN 30 AND
40 MPH ARE EXPECTED...OR WIND GUSTS OF BETWEEN 40 AND 58 MPH. WINDS
THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH PROFILE
VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD RESULT
IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES IN
BLOWING DUST OR BLOWING SAND. USE EXTRA CAUTION.
$$
ESTLE

WWUS85 KPSR 032130
RFWPSR
FIRE WEATHER WATCH
NATIONAL WEATHER SERVICE PHOENIX AZ
230 PM MST TUE JUN 3 2008
AZZ131>133-CAZ231-232-040930-
/O.NEW.KPSR.FW.A.0014.080604T1800Z-080605T0600Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
230 PM MST TUE JUN 3 2008 /230 PM PDT TUE JUN 3 2008/
...FIRE WEATHER WATCH IN EFFECT FROM WEDNESDAY MORNING THROUGH
WEDNESDAY EVENING FOR FAR SOUTHEAST CALIFORNIA...LOWER COLORADO RIVER

VALLEY AND SOUTHWEST AND SOUTH-CENTRAL ARIZONA DUE TO STRONG
WINDS...LOW HUMIDITY AND HIGH FIRE DANGER...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A FIRE WEATHER
WATCH...WHICH IS IN EFFECT FROM WEDNESDAY MORNING THROUGH
WEDNESDAY EVENING. STRONG AND GUSTY WINDS ARE EXPECTED TO DEVELOP
ACROSS SOUTHEAST CALIFORNIA AND INTO SOUTH-CENTRAL ARIZONA ON
WEDNESDAY. WINDS OF 15 TO 25 MPH ARE EXPECTED...AND GUSTS TO NEAR 35
MPH MAY DEVELOP. IN ADDITION...LOW HUMIDITY WITH RH VALUES LESS THAN
15 PERCENT ARE EXPECTED...ALONG WITH A HIGH FIRE DANGER. THIS COMBINATION
OF STRONG WINDS...LOW HUMIDITY...AND A HIGH FIRE DANGER MAY CREATE
WIDESPREAD HAZARDOUS FIRE WEATHER CONDITIONS.
PLEASE ADVISE THE APPROPRIATE OFFICIALS AND FIRE CREWS IN THE
FIELD OF THIS FIRE WEATHER WATCH.
$$
SIPPLE

WWUS85 KPSR 032130
RFWPSR
FIRE WEATHER WATCH
NATIONAL WEATHER SERVICE PHOENIX AZ
230 PM MST TUE JUN 3 2008
AZZ131>133-CAZ231-232-040930-
/O.NEW.KPSR.FW.A.0014.080604T1800Z-080605T0600Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
230 PM MST TUE JUN 3 2008 /230 PM PDT TUE JUN 3 2008/
...FIRE WEATHER WATCH IN EFFECT FROM WEDNESDAY MORNING THROUGH
WEDNESDAY EVENING FOR FAR SOUTHEAST CALIFORNIA...LOWER COLORADO RIVER
VALLEY AND SOUTHWEST AND SOUTH-CENTRAL ARIZONA DUE TO STRONG
WINDS...LOW HUMIDITY AND HIGH FIRE DANGER...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A FIRE WEATHER
WATCH...WHICH IS IN EFFECT FROM WEDNESDAY MORNING THROUGH
WEDNESDAY EVENING. STRONG AND GUSTY WINDS ARE EXPECTED TO DEVELOP
ACROSS SOUTHEAST CALIFORNIA AND INTO SOUTH-CENTRAL ARIZONA ON
WEDNESDAY. WINDS OF 15 TO 25 MPH ARE EXPECTED...AND GUSTS TO NEAR 35
MPH MAY DEVELOP. IN ADDITION...LOW HUMIDITY WITH RH VALUES LESS THAN
15 PERCENT ARE EXPECTED...ALONG WITH A HIGH FIRE DANGER. THIS COMBINATION
OF STRONG WINDS...LOW HUMIDITY...AND A HIGH FIRE DANGER MAY CREATE
WIDESPREAD HAZARDOUS FIRE WEATHER CONDITIONS.
PLEASE ADVISE THE APPROPRIATE OFFICIALS AND FIRE CREWS IN THE
FIELD OF THIS FIRE WEATHER WATCH.
$$
SIPPLE

WWUS75 KPSR 041056
NPWPSR
URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE PHOENIX AZ
356 AM MST WED JUN 4 2008
AZZ021>028-042300-

/O.EXB.KPSR.WI.Y.0024.080604T2200Z-080605T0400Z/
WEST CENTRAL DESERTS-NORTHWEST MARICOPA COUNTY-
GREATER PHOENIX AREA-
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-
NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
INCLUDING THE CITIES OF...BOUSE...QUARTZSITE...SALOME...
LAKE PLEASANT...MORRISTOWN...NEW RIVER...TONOPAH...BUCKEYE...
WICKENBURG...CAREFREE...CAVE CREEK...CHANDLER...FOUNTAIN HILLS...
GILBERT...GLENDALE...MESA...PEORIA...PHOENIX...SCOTTSDALE...
SUN CITY...TEMPE...GLOBE...MIAMI...SAN CARLOS...SUPERIOR...
ALSO INCLUDING APACHE...BARTLETT...CANYON...HORSESHOE...
ROOSEVELT...AND SAGUARO LAKES...SAN LUIS...SOMERTON...YUMA...
FORTUNA FOOTHILLS...DATELAND...TACNA...WELLTON...GILA BEND...
APACHE JUNCTION...CASA GRANDE...COOLIDGE...FLORENCE
356 AM MST WED JUN 4 2008
...WIND ADVISORY IN EFFECT FROM 3 PM THIS AFTERNOON TO 9 PM MST
THIS EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA INCLUDING THE
PHOENIX METRO AREA...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A WIND
ADVISORY...WHICH IS IN EFFECT FROM 3 PM THIS AFTERNOON TO 9 PM
MST THIS EVENING.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TODAY. THIS WILL LEAD TO THE DEVELOPMENT OF
VERY STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON. WIND SPEEDS OF
25 TO 30 MPH WITH GUSTS TO 40 MPH CAN BE EXPECTED BY LATE THIS
AFTERNOON AND WILL CONTINUE INTO THE EVENING HOURS BEFORE WEAKENING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH
PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD
RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES
IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR EMPTY FARM FIELDS
AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED TO USE EXTRA CAUTION.
$$
CAZ032-033-042300-
/O.EXT.KPSR.WI.Y.0024.080604T2000Z-080605T0700Z/
RIVERSIDE COUNTY/EASTERN DESERTS-IMPERIAL COUNTY-
INCLUDING THE CITIES OF...CHIRIACO SUMMIT...DESERT CENTER...
EAGLE MTN...MIDLAND...BRAWLEY...CALEXICO...EL CENTRO...GLAMIS...
IMPERIAL...AND THE SALTON SEA
356 AM PDT WED JUN 4 2008
...WIND ADVISORY NOW IN EFFECT FROM 1 PM THIS AFTERNOON TO
MIDNIGHT PDT TONIGHT FOR IMPERIAL AND EASTERN RIVERSIDE COUNTIES...
THE WIND ADVISORY IS NOW IN EFFECT FROM 1 PM THIS AFTERNOON TO
MIDNIGHT PDT TONIGHT.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TODAY. THIS WILL LEAD TO THE DEVELOPMENT OF
VERY STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON. WIND SPEEDS OF
25 TO 35 MPH WITH GUSTS TO 45 MPH CAN BE EXPECTED THIS AFTERNOON AND
WILL CONTINUE THROUGH THE EVENING HOURS BEFORE WEAKENING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH
PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD
RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES
IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR EMPTY FARM FIELDS
AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED TO USE EXTRA CAUTION.
$$
CAZ030-042300-
/O.EXT.KPSR.WI.Y.0024.080604T2000Z-080605T1200Z/

JOSHUA TREE NATIONAL PARK-
INCLUDING THE CITIES OF...COTTONWOOD VISITOR CENTER...
LOST HORSE-KEYS VIEW JTNP
356 AM PDT WED JUN 4 2008
...WIND ADVISORY NOW IN EFFECT FROM 1 PM THIS AFTERNOON TO 5 AM
PDT THURSDAY...
THE WIND ADVISORY IS NOW IN EFFECT FROM 1 PM THIS AFTERNOON TO
5 AM PDT THURSDAY.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TODAY. THIS WILL LEAD TO THE DEVELOPMENT OF
VERY STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON. WIND SPEEDS OF
25 TO 35 MPH WITH GUSTS TO 45 MPH CAN BE EXPECTED THIS AFTERNOON AND
WILL CONTINUE THROUGH THE EVENING HOURS. VERY STRONG WINDS WILL
CONTINUE AFTER MIDNIGHT AND BECOME NORTHERLY BEFORE WEAKENING TOWARD
MORNING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH
PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD
RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES
IN BLOWING DUST OR BLOWING SAND. MOTORISTS ARE ADVISED TO USE EXTRA
CAUTION.
$$
AZZ020-CAZ031-042300-
/O.EXT.KPSR.WI.Y.0024.080604T2200Z-080605T0400Z/
LOWER COLORADO RIVER VALLEY AZ-LOWER COLORADO RIVER VALLEY CA-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...BLYTHE
356 AM MST WED JUN 4 2008 /356 AM PDT WED JUN 4 2008/
...WIND ADVISORY NOW IN EFFECT FROM 3 PM MST /3 PM PDT/ THIS
AFTERNOON TO 9 PM MST /9 PM PDT/ THIS EVENING FOR THE LOWER COLORADO
RIVER VALLEY...
THE WIND ADVISORY IS NOW IN EFFECT FROM 3 PM MST /3 PM PDT/ THIS
AFTERNOON TO 9 PM MST /9 PM PDT/ THIS EVENING.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TODAY. THIS WILL LEAD TO THE DEVELOPMENT OF
VERY STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON. WIND SPEEDS OF
25 TO 30 MPH WITH GUSTS TO 40 MPH CAN BE EXPECTED BY LATE THIS
AFTERNOON AND WILL CONTINUE INTO THE EVENING HOURS BEFORE WEAKENING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH
PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD
RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES
IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR EMPTY FARM FIELDS
AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED TO USE EXTRA CAUTION.
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AJ

WWUS85 KPSR 041256
RFWPSR
RED FLAG WARNING
NATIONAL WEATHER SERVICE PHOENIX AZ
556 AM MST WED JUN 4 2008
AZZ131>133-CAZ231-232-050100-
/O.UPG.KPSR.FW.A.0014.080604T1800Z-080605T0600Z/
/O.NEW.KPSR.FW.W.0041.080604T2000Z-080605T0500Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-

CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
556 AM MST WED JUN 4 2008 /556 AM PDT WED JUN 4 2008/
...RED FLAG WARNING IN EFFECT FROM 1 PM MST /1 PM PDT/ THIS
AFTERNOON TO 10 PM MST /10 PM PDT/ THIS EVENING FOR SOUTHWEST AND
SOUTH-CENTRAL ARIZONA AND SOUTHEAST CALIFORNIA...EXCEPT JOSHUA TREE
NATIONAL PARK...DUE TO VERY STRONG WINDS...LOW HUMIDITY...AND HIGH
FIRE DANGER...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A RED FLAG
WARNING...WHICH IS IN EFFECT FROM 1 PM MST /1 PM PDT/ THIS
AFTERNOON TO 10 PM MST /10 PM PDT/ THIS EVENING. THE FIRE WEATHER
WATCH IS NO LONGER IN EFFECT.
VERY STRONG SOUTHWEST AND WEST WINDS WILL DEVELOP ACROSS THE
FORECAST AREA THIS AFTERNOON AS A LOW PRESSURE SYSTEM MOVES THROUGH
THE GREAT BASIN AND INTO NORTHERN ARIZONA TODAY. THE WINDS WILL
CONTINUE THROUGH THE EVENING HOURS BEFORE WEAKENING. GUSTS OF 35 TO
40 MPH WILL BE COMMON...WITH 45 TO 50 MPH GUSTS POSSIBLE IN WESTERN
PORTIONS OF IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA AND AT HIGHER
ELEVATION RIDGETOPS. IN ADDITION...HUMIDITIES WILL DROP BELOW 15
PERCENT EXCEPT IN JOSHUA TREE NATIONAL PARK.
PLEASE ADVISE THE APPROPRIATE OFFICIALS AND FIRE CREWS IN THE
FIELD OF THIS RED FLAG WARNING.
$$
AJ

WWUS85 KPSR 041256
RFWPSR
RED FLAG WARNING
NATIONAL WEATHER SERVICE PHOENIX AZ
556 AM MST WED JUN 4 2008
AZZ131>133-CAZ231-232-050100-
/O.UPG.KPSR.FW.A.0014.080604T1800Z-080605T0600Z/
/O.NEW.KPSR.FW.W.0041.080604T2000Z-080605T0500Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
556 AM MST WED JUN 4 2008 /556 AM PDT WED JUN 4 2008/
...RED FLAG WARNING IN EFFECT FROM 1 PM MST /1 PM PDT/ THIS
AFTERNOON TO 10 PM MST /10 PM PDT/ THIS EVENING FOR SOUTHWEST AND
SOUTH-CENTRAL ARIZONA AND SOUTHEAST CALIFORNIA...EXCEPT JOSHUA TREE
NATIONAL PARK...DUE TO VERY STRONG WINDS...LOW HUMIDITY...AND HIGH
FIRE DANGER...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A RED FLAG
WARNING...WHICH IS IN EFFECT FROM 1 PM MST /1 PM PDT/ THIS
AFTERNOON TO 10 PM MST /10 PM PDT/ THIS EVENING. THE FIRE WEATHER
WATCH IS NO LONGER IN EFFECT.
VERY STRONG SOUTHWEST AND WEST WINDS WILL DEVELOP ACROSS THE
FORECAST AREA THIS AFTERNOON AS A LOW PRESSURE SYSTEM MOVES THROUGH
THE GREAT BASIN AND INTO NORTHERN ARIZONA TODAY. THE WINDS WILL

CONTINUE THROUGH THE EVENING HOURS BEFORE WEAKENING. GUSTS OF 35 TO
40 MPH WILL BE COMMON...WITH 45 TO 50 MPH GUSTS POSSIBLE IN WESTERN
PORTIONS OF IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA AND AT HIGHER
ELEVATION RIDGETOPS. IN ADDITION...HUMIDITIES WILL DROP BELOW 15
PERCENT EXCEPT IN JOSHUA TREE NATIONAL PARK.
PLEASE ADVISE THE APPROPRIATE OFFICIALS AND FIRE CREWS IN THE
FIELD OF THIS RED FLAG WARNING.
$$
AJ

WWUS75 KPSR 042135
NPWPSR
URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE PHOENIX AZ
235 PM MST WED JUN 4 2008
CAZ032-033-050700-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
RIVERSIDE COUNTY/EASTERN DESERTS-IMPERIAL COUNTY-
INCLUDING THE CITIES OF...CHIRIACO SUMMIT...DESERT CENTER...
EAGLE MTN...MIDLAND...BRAWLEY...CALEXICO...EL CENTRO...GLAMIS...
IMPERIAL...AND THE SALTON SEA
235 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT...
A WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY STRONG
SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO THE EVENING
HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO 45 MPH CAN BE
EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
CAZ030-051200-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T1200Z/
JOSHUA TREE NATIONAL PARK-
INCLUDING THE CITIES OF...COTTONWOOD VISITOR CENTER...
LOST HORSE-KEYS VIEW JTNP
235 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY STRONG
SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO THE EVENING
HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO 45 MPH CAN BE
EXPECTED THROUGH THE EVENING HOURS BEFORE SHIFTING TO THE NORTH AND
GRADUALLY WEAKENING TOWARD MORNING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH
PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD
RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES
IN BLOWING DUST OR BLOWING SAND. MOTORISTS ARE ADVISED TO USE EXTRA
CAUTION.
$$
AZZ020>028-CAZ031-050400-
/O.CON.KPSR.WI.Y.0024.080604T2200Z-080605T0400Z/

LOWER COLORADO RIVER VALLEY AZ-WEST CENTRAL DESERTS-
NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-
NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
LOWER COLORADO RIVER VALLEY CA-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...BOUSE...
QUARTZSITE...SALOME...LAKE PLEASANT...MORRISTOWN...NEW RIVER...
TONOPAH...BUCKEYE...WICKENBURG...CAREFREE...CAVE CREEK...
CHANDLER...FOUNTAIN HILLS...GILBERT...GLENDALE...MESA...PEORIA...
PHOENIX...SCOTTSDALE...SUN CITY...TEMPE...GLOBE...MIAMI...
SAN CARLOS...SUPERIOR...ALSO INCLUDING APACHE...BARTLETT...
CANYON...HORSESHOE...ROOSEVELT...AND SAGUARO LAKES...SAN LUIS...
SOMERTON...YUMA...FORTUNA FOOTHILLS...DATELAND...TACNA...
WELLTON...GILA BEND...APACHE JUNCTION...CASA GRANDE...COOLIDGE...
FLORENCE...BLYTHE
235 PM MST WED JUN 4 2008 /235 PM PDT WED JUN 4 2008/
...WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY STRONG
SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO THE EVENING
HOURS. WIND SPEEDS OF 20 TO 30 MPH WITH GUSTS TO NEAR 40 MPH CAN BE
EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
ESTLE

WWUS75 KPSR 042135
NPWPSR
URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE PHOENIX AZ
235 PM MST WED JUN 4 2008
CAZ032-033-050700-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
RIVERSIDE COUNTY/EASTERN DESERTS-IMPERIAL COUNTY-
INCLUDING THE CITIES OF...CHIRIACO SUMMIT...DESERT CENTER...
EAGLE MTN...MIDLAND...BRAWLEY...CALEXICO...EL CENTRO...GLAMIS...
IMPERIAL...AND THE SALTON SEA
235 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT...
A WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY STRONG
SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO THE EVENING
HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO 45 MPH CAN BE
EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER

A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
CAZ030-051200-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T1200Z/
JOSHUA TREE NATIONAL PARK-
INCLUDING THE CITIES OF...COTTONWOOD VISITOR CENTER...
LOST HORSE-KEYS VIEW JTNP
235 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY STRONG
SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO THE EVENING
HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO 45 MPH CAN BE
EXPECTED THROUGH THE EVENING HOURS BEFORE SHIFTING TO THE NORTH AND
GRADUALLY WEAKENING TOWARD MORNING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH
PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD
RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES
IN BLOWING DUST OR BLOWING SAND. MOTORISTS ARE ADVISED TO USE EXTRA
CAUTION.
$$
AZZ020>028-CAZ031-050400-
/O.CON.KPSR.WI.Y.0024.080604T2200Z-080605T0400Z/
LOWER COLORADO RIVER VALLEY AZ-WEST CENTRAL DESERTS-
NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-
NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
LOWER COLORADO RIVER VALLEY CA-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...BOUSE...
QUARTZSITE...SALOME...LAKE PLEASANT...MORRISTOWN...NEW RIVER...
TONOPAH...BUCKEYE...WICKENBURG...CAREFREE...CAVE CREEK...
CHANDLER...FOUNTAIN HILLS...GILBERT...GLENDALE...MESA...PEORIA...
PHOENIX...SCOTTSDALE...SUN CITY...TEMPE...GLOBE...MIAMI...
SAN CARLOS...SUPERIOR...ALSO INCLUDING APACHE...BARTLETT...
CANYON...HORSESHOE...ROOSEVELT...AND SAGUARO LAKES...SAN LUIS...
SOMERTON...YUMA...FORTUNA FOOTHILLS...DATELAND...TACNA...
WELLTON...GILA BEND...APACHE JUNCTION...CASA GRANDE...COOLIDGE...
FLORENCE...BLYTHE
235 PM MST WED JUN 4 2008 /235 PM PDT WED JUN 4 2008/
...WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY STRONG
SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO THE EVENING
HOURS. WIND SPEEDS OF 20 TO 30 MPH WITH GUSTS TO NEAR 40 MPH CAN BE
EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED

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TO USE EXTRA CAUTION.
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ESTLE

WWUS85 KPSR 042144
RFWPSR
RED FLAG WARNING
NATIONAL WEATHER SERVICE PHOENIX AZ
244 PM MST WED JUN 4 2008
AZZ131>133-CAZ231-232-050500-
/O.CON.KPSR.FW.W.0041.000000T0000Z-080605T0500Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
244 PM MST WED JUN 4 2008 /244 PM PDT WED JUN 4 2008/
...RED FLAG WARNING REMAINS IN EFFECT UNTIL 10 PM MST /10 PM PDT/
THIS EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA AND SOUTHEAST
CALIFORNIA...EXCEPT JOSHUA TREE NATIONAL PARK...DUE TO VERY STRONG
WINDS...LOW HUMIDITY...AND HIGH FIRE DANGER...
A RED FLAG WARNING REMAINS IN EFFECT UNTIL 10 PM MST
/10 PM PDT/ THIS EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA
AND SOUTHEAST CALIFORNIA...EXCEPT JOSHUA TREE NATIONAL PARK...DUE
TO VERY STRONG WINDS...LOW HUMIDITY...AND HIGH FIRE DANGER.
VERY STRONG SOUTHWEST AND WEST WINDS WILL CONTINUE ACROSS THE FORECAST
AREA THROUGH TONIGHT AS A LOW PRESSURE SYSTEM MOVES THROUGH THE GREAT
BASIN AND INTO NORTHERN ARIZONA. GUSTS OF 35 TO 40 MPH WILL BE
COMMON...WITH 45 TO 50 MPH GUSTS POSSIBLE IN WESTERN PORTIONS OF
IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA AND AT HIGHER ELEVATION
RIDGETOPS. IN ADDITION...AFTERNOON HUMIDITIES WILL REMAIN BELOW 15
PERCENT AT MANY LOWER DESERT LOCATIONS.
PLEASE ADVISE THE APPROPRIATE OFFICIALS AND FIRE CREWS IN THE
FIELD OF THIS RED FLAG WARNING.
$$
ROGERS

WWUS85 KPSR 042144
RFWPSR
RED FLAG WARNING
NATIONAL WEATHER SERVICE PHOENIX AZ
244 PM MST WED JUN 4 2008
AZZ131>133-CAZ231-232-050500-
/O.CON.KPSR.FW.W.0041.000000T0000Z-080605T0500Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
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IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
244 PM MST WED JUN 4 2008 /244 PM PDT WED JUN 4 2008/
...RED FLAG WARNING REMAINS IN EFFECT UNTIL 10 PM MST /10 PM PDT/
THIS EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA AND SOUTHEAST
CALIFORNIA...EXCEPT JOSHUA TREE NATIONAL PARK...DUE TO VERY STRONG
WINDS...LOW HUMIDITY...AND HIGH FIRE DANGER...
A RED FLAG WARNING REMAINS IN EFFECT UNTIL 10 PM MST
/10 PM PDT/ THIS EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA
AND SOUTHEAST CALIFORNIA...EXCEPT JOSHUA TREE NATIONAL PARK...DUE
TO VERY STRONG WINDS...LOW HUMIDITY...AND HIGH FIRE DANGER.
VERY STRONG SOUTHWEST AND WEST WINDS WILL CONTINUE ACROSS THE FORECAST
AREA THROUGH TONIGHT AS A LOW PRESSURE SYSTEM MOVES THROUGH THE GREAT
BASIN AND INTO NORTHERN ARIZONA. GUSTS OF 35 TO 40 MPH WILL BE
COMMON...WITH 45 TO 50 MPH GUSTS POSSIBLE IN WESTERN PORTIONS OF
IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA AND AT HIGHER ELEVATION
RIDGETOPS. IN ADDITION...AFTERNOON HUMIDITIES WILL REMAIN BELOW 15
PERCENT AT MANY LOWER DESERT LOCATIONS.
PLEASE ADVISE THE APPROPRIATE OFFICIALS AND FIRE CREWS IN THE
FIELD OF THIS RED FLAG WARNING.
$$
ROGERS

WWUS85 KPSR 042348
AWWPHX
AZZ023-050147-
AIRPORT WEATHER WARNING FOR SKY HARBOR AIRPORT
NATIONAL WEATHER SERVICE PHOENIX AZ
447 PM MST WED JUN 4 2008
...AIRPORT WEATHER WARNING FOR SKY HARBOR AIRPORT IS IN EFFECT FROM
5 PM UNTIL 7 PM THIS EVENING...
STRONG AND GUSTY WEST WINDS WILL CONTINUE THROUGH THIS EVENING...
WITH WIND GUSTS NEAR OR IN EXCESS OF 35 KTS AT TIMES. VISIBILITY IS
NOT EXPECTED TO DROP BELOW 6 SM. WIND SPEEDS WILL DECREASE A BIT
LATER THIS EVENING.
WANEK

WWUS85 KPSR 042348
AWWPHX
AZZ023-050147-
AIRPORT WEATHER WARNING FOR SKY HARBOR AIRPORT
NATIONAL WEATHER SERVICE PHOENIX AZ
447 PM MST WED JUN 4 2008
...AIRPORT WEATHER WARNING FOR SKY HARBOR AIRPORT IS IN EFFECT FROM
5 PM UNTIL 7 PM THIS EVENING...
STRONG AND GUSTY WEST WINDS WILL CONTINUE THROUGH THIS EVENING...
WITH WIND GUSTS NEAR OR IN EXCESS OF 35 KTS AT TIMES. VISIBILITY IS
NOT EXPECTED TO DROP BELOW 6 SM. WIND SPEEDS WILL DECREASE A BIT
LATER THIS EVENING.
WANEK

WWUS85 KPSR 050021
SPSPSR
SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE PHOENIX AZ
521 PM MST WED JUN 4 2008
AZZ020>023-025>028-050430-
LOWER COLORADO RIVER VALLEY AZ-WEST CENTRAL DESERTS-
NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-

YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-
NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...BOUSE...
QUARTZSITE...SALOME...LAKE PLEASANT...MORRISTOWN...NEW RIVER...
TONOPAH...BUCKEYE...WICKENBURG...CAREFREE...CAVE CREEK...
CHANDLER...FOUNTAIN HILLS...GILBERT...GLENDALE...MESA...PEORIA...
PHOENIX...SCOTTSDALE...SUN CITY...TEMPE...SAN LUIS...SOMERTON...
YUMA...FORTUNA FOOTHILLS...DATELAND...TACNA...WELLTON...
GILA BEND...APACHE JUNCTION...CASA GRANDE...COOLIDGE...FLORENCE
521 PM MST WED JUN 4 2008
...BE ALERT FOR BLOWING DUST...
WESTERLY WINDS AVERAGING 25 MPH...WITH GUSTS AS HIGH AS 40 MPH...WILL
LIKELY CAUSE AREAS OF BLOWING DUST AND SAND OVER THE LOW DESERTS OF
SOUTHWEST AND SOUTH CENTRAL ARIZONA. MOTORISTS ON INTERSTATES 8 AND
10 IN CENTRAL AND WESTERN ARIZONA SHOULD BE ALERT FOR SHARP CHANGES
IN VISIBILITY...ESPECIALLY NEAR AGRICULTURAL AREAS. STATE HIGHWAYS
79...84...85...87...287...AND 347 ARE ALSO PARTICULARLY PRONE TO DENSE
BLOWING DUST.
$$
CAZ031>033-050430-
LOWER COLORADO RIVER VALLEY CA-RIVERSIDE COUNTY/EASTERN DESERTS-
IMPERIAL COUNTY-
INCLUDING THE CITIES OF...BLYTHE...CHIRIACO SUMMIT...
DESERT CENTER...EAGLE MTN...MIDLAND...BRAWLEY...CALEXICO...
EL CENTRO...GLAMIS...IMPERIAL...AND THE SALTON SEA
521 PM PDT WED JUN 4 2008
...BE ALERT FOR BLOWING DUST...
WESTERLY WINDS AVERAGING 25 MPH...WITH GUSTS AS HIGH AS 40 MPH...WILL
LIKELY CAUSE AREAS OF BLOWING DUST AND SAND OVER THE DESERTS OF
SOUTHEAST CALIFORNIA. MOTORISTS ON INTERSTATES 8 AND 10 IN SOUTHEAST
CALIFORNIA SHOULD BE ALERT FOR SHARP CHANGES IN VISIBILITY...ESPECIALLY
NEAR AGRICULTURAL AREAS.
$$

WWUS75 KPSR 050117
NPWPSR
URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE PHOENIX AZ
617 PM MST WED JUN 4 2008
CAZ033-050700-
/O.NEW.KPSR.DS.W.0002.080605T0117Z-080605T0400Z/
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
IMPERIAL COUNTY-
INCLUDING THE CITIES OF...BRAWLEY...CALEXICO...EL CENTRO...
GLAMIS...IMPERIAL...AND THE SALTON SEA
617 PM PDT WED JUN 4 2008
...DUST STORM WARNING IN EFFECT UNTIL 9 PM PDT THIS EVENING FOR
IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA...
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT FOR
IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A DUST STORM
WARNING...WHICH IS IN EFFECT UNTIL 9 PM PDT THIS EVENING. A WIND
ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
TRAINED WEATHER SPOTTERS NEAR THE COMMUNITY OF SALTON CITY...NEAR THE
JUNCTION OF STATE ROUTES 78 AND 86...HAVE REPORTED VISIBILITY IN
BLOWING DUST AND SAND BELOW ONE QUARTER MILE...AND A DUST STORM
WARNING HAS BEEN ISSUED. AREAS IN THE WARNING INCLUDE SALTON

CITY...IMPERIAL...CALIPATRIA...AND PORTIONS OF STATE ROUTES
86...78...115...AND INTERSTATE 8. STRONG AND GUSTY WEST WINDS WITH
SUSTAINED WINDS SPEEDS ON THE ORDER OF 25 MPH WITH GUSTS IN EXCESS OF
45 MPH WILL CONTINUE THROUGH THE EARLY EVENING HOURS...BEFORE DIEING
DOWN SOMEWHAT AFTER SUNSET. A WIND ADVISORY REMAINS IN EFFECT UNTIL
MIDNIGHT TONIGHT.
A DUST STORM WARNING IS ISSUED WHEN WINDS HAVE GENERATED LARGE
AREAS OF BLOWING DUST OR BLOWING SAND THAT HAVE SUBSTANTIALLY
REDUCED VISIBILITIES...TO 1/4 MILE OR LESS...RESULTING IN
HAZARDOUS DRIVING CONDITIONS IN SOME AREAS. BE READY FOR A SUDDEN
DROP IN VISIBILITY TO NEAR ZERO. USE EXTRA CAUTION AND SLOW DOWN
WHILE DRIVING...AS OBJECTS ON AND NEAR ROADWAYS WILL BE SEEN ONLY
AT CLOSE RANGE. IF YOU ENCOUNTER BLOWING DUST OR BLOWING SAND ON
THE ROADWAY OR SEE IT APPROACHING...PULL OFF THE ROAD AS FAR AS
POSSIBLE AND PUT YOUR VEHICLE IN PARK. TURN THE LIGHTS ALL THE
WAY OFF AND KEEP YOUR FOOT OFF THE BRAKE PEDAL.
$$
AZZ020>028-CAZ031-050400-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0400Z/
LOWER COLORADO RIVER VALLEY AZ-WEST CENTRAL DESERTS-
NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-
NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
LOWER COLORADO RIVER VALLEY CA-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...BOUSE...
QUARTZSITE...SALOME...LAKE PLEASANT...MORRISTOWN...NEW RIVER...
TONOPAH...BUCKEYE...WICKENBURG...CAREFREE...CAVE CREEK...
CHANDLER...FOUNTAIN HILLS...GILBERT...GLENDALE...MESA...PEORIA...
PHOENIX...SCOTTSDALE...SUN CITY...TEMPE...GLOBE...MIAMI...
SAN CARLOS...SUPERIOR...ALSO INCLUDING APACHE...BARTLETT...
CANYON...HORSESHOE...ROOSEVELT...AND SAGUARO LAKES...SAN LUIS...
SOMERTON...YUMA...FORTUNA FOOTHILLS...DATELAND...TACNA...
WELLTON...GILA BEND...APACHE JUNCTION...CASA GRANDE...COOLIDGE...
FLORENCE...BLYTHE
617 PM MST WED JUN 4 2008 /617 PM PDT WED JUN 4 2008/
...WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY
STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO
THE EVENING HOURS. WIND SPEEDS OF 20 TO 30 MPH WITH GUSTS TO NEAR
40 MPH CAN BE EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS
BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
CAZ032-050700-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
RIVERSIDE COUNTY/EASTERN DESERTS-
INCLUDING THE CITIES OF...CHIRIACO SUMMIT...DESERT CENTER...

EAGLE MTN...MIDLAND
617 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT...
A WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY
STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO
THE EVENING HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO
45 MPH CAN BE EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS
BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
CAZ030-051200-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T1200Z/
JOSHUA TREE NATIONAL PARK-
INCLUDING THE CITIES OF...COTTONWOOD VISITOR CENTER...
LOST HORSE-KEYS VIEW JTNP
617 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY
STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO
THE EVENING HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO
45 MPH CAN BE EXPECTED THROUGH THE EVENING HOURS BEFORE SHIFTING
TO THE NORTH AND GRADUALLY WEAKENING TOWARD MORNING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND. MOTORISTS ARE
ADVISED TO USE EXTRA CAUTION.
$$

WWUS75 KPSR 050117
NPWPSR
URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE PHOENIX AZ
617 PM MST WED JUN 4 2008
CAZ033-050700-
/O.NEW.KPSR.DS.W.0002.080605T0117Z-080605T0400Z/
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
IMPERIAL COUNTY-
INCLUDING THE CITIES OF...BRAWLEY...CALEXICO...EL CENTRO...
GLAMIS...IMPERIAL...AND THE SALTON SEA
617 PM PDT WED JUN 4 2008
...DUST STORM WARNING IN EFFECT UNTIL 9 PM PDT THIS EVENING FOR
IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA...
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT FOR
IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA...
THE NATIONAL WEATHER SERVICE IN PHOENIX HAS ISSUED A DUST STORM
WARNING...WHICH IS IN EFFECT UNTIL 9 PM PDT THIS EVENING. A WIND
ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
TRAINED WEATHER SPOTTERS NEAR THE COMMUNITY OF SALTON CITY...NEAR THE

JUNCTION OF STATE ROUTES 78 AND 86...HAVE REPORTED VISIBILITY IN
BLOWING DUST AND SAND BELOW ONE QUARTER MILE...AND A DUST STORM
WARNING HAS BEEN ISSUED. AREAS IN THE WARNING INCLUDE SALTON
CITY...IMPERIAL...CALIPATRIA...AND PORTIONS OF STATE ROUTES
86...78...115...AND INTERSTATE 8. STRONG AND GUSTY WEST WINDS WITH
SUSTAINED WINDS SPEEDS ON THE ORDER OF 25 MPH WITH GUSTS IN EXCESS OF
45 MPH WILL CONTINUE THROUGH THE EARLY EVENING HOURS...BEFORE DIEING
DOWN SOMEWHAT AFTER SUNSET. A WIND ADVISORY REMAINS IN EFFECT UNTIL
MIDNIGHT TONIGHT.
A DUST STORM WARNING IS ISSUED WHEN WINDS HAVE GENERATED LARGE
AREAS OF BLOWING DUST OR BLOWING SAND THAT HAVE SUBSTANTIALLY
REDUCED VISIBILITIES...TO 1/4 MILE OR LESS...RESULTING IN
HAZARDOUS DRIVING CONDITIONS IN SOME AREAS. BE READY FOR A SUDDEN
DROP IN VISIBILITY TO NEAR ZERO. USE EXTRA CAUTION AND SLOW DOWN
WHILE DRIVING...AS OBJECTS ON AND NEAR ROADWAYS WILL BE SEEN ONLY
AT CLOSE RANGE. IF YOU ENCOUNTER BLOWING DUST OR BLOWING SAND ON
THE ROADWAY OR SEE IT APPROACHING...PULL OFF THE ROAD AS FAR AS
POSSIBLE AND PUT YOUR VEHICLE IN PARK. TURN THE LIGHTS ALL THE
WAY OFF AND KEEP YOUR FOOT OFF THE BRAKE PEDAL.
$$
AZZ020>028-CAZ031-050400-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0400Z/
LOWER COLORADO RIVER VALLEY AZ-WEST CENTRAL DESERTS-
NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-
NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
LOWER COLORADO RIVER VALLEY CA-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...BOUSE...
QUARTZSITE...SALOME...LAKE PLEASANT...MORRISTOWN...NEW RIVER...
TONOPAH...BUCKEYE...WICKENBURG...CAREFREE...CAVE CREEK...
CHANDLER...FOUNTAIN HILLS...GILBERT...GLENDALE...MESA...PEORIA...
PHOENIX...SCOTTSDALE...SUN CITY...TEMPE...GLOBE...MIAMI...
SAN CARLOS...SUPERIOR...ALSO INCLUDING APACHE...BARTLETT...
CANYON...HORSESHOE...ROOSEVELT...AND SAGUARO LAKES...SAN LUIS...
SOMERTON...YUMA...FORTUNA FOOTHILLS...DATELAND...TACNA...
WELLTON...GILA BEND...APACHE JUNCTION...CASA GRANDE...COOLIDGE...
FLORENCE...BLYTHE
617 PM MST WED JUN 4 2008 /617 PM PDT WED JUN 4 2008/
...WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 9 PM MST /9 PM PDT/ THIS
EVENING.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY
STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO
THE EVENING HOURS. WIND SPEEDS OF 20 TO 30 MPH WITH GUSTS TO NEAR
40 MPH CAN BE EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS
BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
CAZ032-050700-

/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
RIVERSIDE COUNTY/EASTERN DESERTS-
INCLUDING THE CITIES OF...CHIRIACO SUMMIT...DESERT CENTER...
EAGLE MTN...MIDLAND
617 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT...
A WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY
STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO
THE EVENING HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO
45 MPH CAN BE EXPECTED THROUGH THE EVENING HOURS BEFORE WINDS
BEGIN TO DIMINISH.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
CAZ030-051200-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T1200Z/
JOSHUA TREE NATIONAL PARK-
INCLUDING THE CITIES OF...COTTONWOOD VISITOR CENTER...
LOST HORSE-KEYS VIEW JTNP
617 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY...
A WIND ADVISORY REMAINS IN EFFECT UNTIL 5 AM PDT THURSDAY.
A STRONG LOW PRESSURE SYSTEM WILL MOVE ACROSS THE GREAT BASIN AND
INTO NORTHERN ARIZONA TONIGHT. THIS WILL HELP TO CREATE VERY
STRONG SOUTHWEST AND WEST WINDS THIS AFTERNOON...CONTINUING INTO
THE EVENING HOURS. WIND SPEEDS OF 25 TO 35 MPH WITH GUSTS TO
45 MPH CAN BE EXPECTED THROUGH THE EVENING HOURS BEFORE SHIFTING
TO THE NORTH AND GRADUALLY WEAKENING TOWARD MORNING.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND. MOTORISTS ARE
ADVISED TO USE EXTRA CAUTION.
$$

WWUS75 KPSR 050357
NPWPSR
URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE PHOENIX AZ
857 PM MST WED JUN 4 2008
CAZ033-050700-
/O.EXP.KPSR.DS.W.0002.000000T0000Z-080605T0400Z/
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
IMPERIAL COUNTY-
INCLUDING THE CITIES OF...BRAWLEY...CALEXICO...EL CENTRO...
GLAMIS...IMPERIAL...AND THE SALTON SEA
857 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT...
...DUST STORM WARNING WILL EXPIRE AT 9 PM PDT THIS EVENING...
THE DUST STORM WARNING WILL EXPIRE AT 9 PM PDT THIS EVENING. A
WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
THE DUST STORM WARNING FOR IMPERIAL COUNTY IN SOUTHEAST CALIFORNIA

WILL EXPIRE AT 9 PM PDT THIS EVENING. THE WIND ADVISORY REMAINS IN
EFFECT UNTIL MIDNIGHT PDT TONIGHT.
ALTHOUGH GUSTY WEST TO NORTHWEST WINDS WILL CONTINUE THROUGH THE
EVENING HOURS...OBSERVATIONS ACROSS THE AREA HAVE INDICATED
VISIBILITY IN BLOWING DUST AND SAND HAS IMPROVED AND IS EXPECTED TO
REMAIN GREATER THAN ONE HALF MILE...WHILE CONTINUING TO IMPROVE
THROUGHOUT THE EVENING HOURS. HOWEVER...SUSTAINED WINDS SPEEDS OF 25
TO 35 MPH...WITH GUSTS IN EXCESS OF 40 MPH...WILL CONTINUE UNTIL
MIDNIGHT...AND THE WIND ADVISORY WILL REMAIN IN EFFECT UNTIL MIDNIGHT
PDT TONIGHT...WITH WINDS DIMINISHING SOMEWHAT AFTER THAT TIME.
A WIND ADVISORY MEANS THAT SUSTAINED WIND SPEEDS OF BETWEEN 30 AND
40 MPH ARE EXPECTED...OR WIND GUSTS OF BETWEEN 40 AND 58 MPH. WINDS
THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR HIGH PROFILE
VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT AREAS COULD RESULT
IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER A MILE AT TIMES IN
BLOWING DUST OR BLOWING SAND. USE EXTRA CAUTION.
$$
AZZ020>028-CAZ030-031-050700-
/O.EXT.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
LOWER COLORADO RIVER VALLEY AZ-WEST CENTRAL DESERTS-
NORTHWEST MARICOPA COUNTY-GREATER PHOENIX AREA-
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
YUMA/MARTINEZ LAKE AND VICINITY-SOUTHWEST DESERTS-
SOUTHWEST MARICOPA COUNTY-
NORTHWEST AND NORTH CENTRAL PINAL COUNTY-
JOSHUA TREE NATIONAL PARK-LOWER COLORADO RIVER VALLEY CA-
INCLUDING THE CITIES OF...EHRENBERG...PARKER...BOUSE...
QUARTZSITE...SALOME...LAKE PLEASANT...MORRISTOWN...NEW RIVER...
TONOPAH...BUCKEYE...WICKENBURG...CAREFREE...CAVE CREEK...
CHANDLER...FOUNTAIN HILLS...GILBERT...GLENDALE...MESA...PEORIA...
PHOENIX...SCOTTSDALE...SUN CITY...TEMPE...GLOBE...MIAMI...
SAN CARLOS...SUPERIOR...ALSO INCLUDING APACHE...BARTLETT...
CANYON...HORSESHOE...ROOSEVELT...AND SAGUARO LAKES...SAN LUIS...
SOMERTON...YUMA...FORTUNA FOOTHILLS...DATELAND...TACNA...
WELLTON...GILA BEND...APACHE JUNCTION...CASA GRANDE...COOLIDGE...
FLORENCE...COTTONWOOD VISITOR CENTER...
LOST HORSE-KEYS VIEW JTNP...BLYTHE
857 PM MST WED JUN 4 2008 /857 PM PDT WED JUN 4 2008/
...WIND ADVISORY NOW IN EFFECT UNTIL MIDNIGHT MST /MIDNIGHT PDT/
TONIGHT...
THE WIND ADVISORY IS NOW IN EFFECT UNTIL MIDNIGHT MST /MIDNIGHT
PDT/ TONIGHT.
A STRONG LOW PRESSURE SYSTEM AND ITS ASSOCIATED COOL FRONT WILL MOVE
ACROSS NORTHERN AND CENTRAL ARIZONA THIS EVENING. SUSTAINED WINDS
SPEEDS OF 25 TO 35 MPH...WITH GUSTS IN EXCESS OF 40 MPH...CAN BE
EXPECTED AS THE FRONT MOVES THROUGH. THE WIND ADVISORY HAS BEEN
EXTENDED UNTIL MIDNIGHT MST PDT TONIGHT...WITH WINDS DIMINISHING
THEREAFTER.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$
CAZ032-050700-
/O.CON.KPSR.WI.Y.0024.000000T0000Z-080605T0700Z/
RIVERSIDE COUNTY/EASTERN DESERTS-

INCLUDING THE CITIES OF...CHIRIACO SUMMIT...DESERT CENTER...
EAGLE MTN...MIDLAND
857 PM PDT WED JUN 4 2008
...WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT...
A WIND ADVISORY REMAINS IN EFFECT UNTIL MIDNIGHT PDT TONIGHT.
A STRONG LOW PRESSURE SYSTEM AND ITS ASSOCIATED COOL FRONT WILL MOVE
THROUGH NORTHERN AND CENTRAL ARIZONA TONIGHT FOR SUSTAINED WIND
SPEEDS OF 25 TO 35 MPH...GUSTS IN EXCESS OF 40 MPH...UNTIL MIDNIGHT
PDT TONIGHT. A WIND ADVISORY REMAINS IN EFFECT FOR EASTERN RIVERSIDE
COUNTY THROUGH MIDNIGHT...WITH WINDS SPEEDS DIMINISHING AFTER THAT TIME.
WINDS THIS STRONG CAN MAKE DRIVING DIFFICULT...ESPECIALLY FOR
HIGH PROFILE VEHICLES. IN ADDITION...STRONG WINDS OVER DESERT
AREAS COULD RESULT IN BRIEFLY LOWERED VISIBILITIES TO WELL UNDER
A MILE AT TIMES IN BLOWING DUST OR BLOWING SAND...ESPECIALLY NEAR
EMPTY FARM FIELDS AND CONSTRUCTION AREAS. MOTORISTS ARE ADVISED
TO USE EXTRA CAUTION.
$$

WWUS85 KPSR 050453
RFWPSR
RED FLAG WARNING
NATIONAL WEATHER SERVICE PHOENIX AZ
953 PM MST WED JUN 4 2008
AZZ131>133-CAZ231-232-050600-
/O.EXP.KPSR.FW.W.0041.000000T0000Z-080605T0500Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
953 PM MST WED JUN 4 2008 /953 PM PDT WED JUN 4 2008/
...RED FLAG WARNING WILL EXPIRE AT 10 PM MST /10 PM PDT/ THIS
EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA AND THE SOUTHEAST
CALIFORNIA DESERTS...
THE RED FLAG WARNING WILL EXPIRE AT 10 PM MST /10 PM PDT/ THIS
EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA AND THE SOUTHEAST
CALIFORNIA DESERTS.
WINDS WILL BEGIN TO DIMINISH AFTER MIDNIGHT...ALONG WITH COOLER
TEMPERATURES FOR INCREASING RELATIVE HUMIDITY EXPECTED. AS A
RESULT...THE RED FLAG WARNING WILL BE ALLOWED TO EXPIRE AT 10 PM.
HOWEVER...THERE MAY BE ISOLATED AREAS...PARTICULARLY ALONG THE COLORADO
RIVER VALLEY AND PORTIONS OF THE WEST-CENTRAL ARIZONA DESERTS THAT
MAY BRIEFLY REACH RED FLAG CRITERIA BETWEEN 10 PM AND MIDNIGHT.
LESS WIND WITH CONTINUED DRY CONDITIONS ARE EXPECTED REGION-WIDE
THURSDAY.
$$

WWUS85 KPSR 050453
RFWPSR
RED FLAG WARNING
NATIONAL WEATHER SERVICE PHOENIX AZ
953 PM MST WED JUN 4 2008
AZZ131>133-CAZ231-232-050600-

/O.EXP.KPSR.FW.W.0041.000000T0000Z-080605T0500Z/
ARIZONA FIRE WEATHER ZONE 131
YUMA/MARTINEZ LAKE AND VICINITY/LOWER COLORADO RIVER VALLEY AZ-
ARIZONA FIRE WEATHER ZONE 132
SOUTH-CENTRAL AND SOUTHWEST DESERTS-
ARIZONA FIRE WEATHER ZONE 133
SOUTHERN GILA COUNTY/TONTO NATIONAL FOREST FOOTHILLS-
CALIFORNIA FIRE WEATHER ZONE 231
LOWER COLORADO RIVER VALLEY CA-
CALIFORNIA FIRE WEATHER ZONE 232
IMPERIAL COUNTY AND EASTERN RIVERSIDE COUNTY-
953 PM MST WED JUN 4 2008 /953 PM PDT WED JUN 4 2008/
...RED FLAG WARNING WILL EXPIRE AT 10 PM MST /10 PM PDT/ THIS
EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA AND THE SOUTHEAST
CALIFORNIA DESERTS...
THE RED FLAG WARNING WILL EXPIRE AT 10 PM MST /10 PM PDT/ THIS
EVENING FOR SOUTHWEST AND SOUTH-CENTRAL ARIZONA AND THE SOUTHEAST
CALIFORNIA DESERTS.
WINDS WILL BEGIN TO DIMINISH AFTER MIDNIGHT...ALONG WITH COOLER
TEMPERATURES FOR INCREASING RELATIVE HUMIDITY EXPECTED. AS A
RESULT...THE RED FLAG WARNING WILL BE ALLOWED TO EXPIRE AT 10 PM.
HOWEVER...THERE MAY BE ISOLATED AREAS...PARTICULARLY ALONG THE COLORADO
RIVER VALLEY AND PORTIONS OF THE WEST-CENTRAL ARIZONA DESERTS THAT
MAY BRIEFLY REACH RED FLAG CRITERIA BETWEEN 10 PM AND MIDNIGHT.
LESS WIND WITH CONTINUED DRY CONDITIONS ARE EXPECTED REGION-WIDE
THURSDAY.
$$

Appendix K
Event Related News Stories

News

High fire danger for the entire state

by **Sarah Walters** - Jun. 4, 2008 06:15 AM
12 News Weather Plus Meteorologist

It's going to be a windy Wednesday, as low pressure skirts to our north.

A Red Flag Warning has been issued for the entire state due to the strong winds and low relative humidity levels, therefore, there is an increased fire danger. In the Valley, the Red Flag Warnings will begin at 1pm, and last through 10pm. A Wind Advisory is also in effect for the Valley from 3pm until 9pm, as winds are expected to get up to 20-30 mph, with gusts near 50.

Aside from the wind, we are on our sixth straight day of poor air quality in the Valley. The Ozone Health Watch has been extended for the Phoenix Metro area today. This watch means that if you have upper respiratory issues, such as asthma, you should avoid prolonged outdoor activities in the afternoon and evening hours. You can help out the air quality today by driving less, carpooling, or taking the bus.

As this storm moves by, it will help clean out our air and drop temperatures. By Thursday, the winds will die down, and high temps will drop down into the low 90s. Those 90 degree temps will stick with us on Friday, but the triple digits return for the weekend.

12 News Weather Plus Valley Forecast:

It's going to be windy, with southwest winds 20-30 mph, with gusts to 40. Those winds could kick up dust and sand, but ozone is still our major air problem. An Ozone Health Watch has been issued for the Valley once again today. Aside from the wind and poor air quality, temps will be much cooler, ranging from 93-98 for highs. Winds continue tonight, with mostly clear skies and mild temps ranging from 67-72.

12 News Weather Plus Forecast Temperatures for the state:

Phoenix 98/ 72
Tempe 97/ 70
Chandler 97/ 70
Mesa 98/ 70
Scottsdale 98/ 71
Gilbert 97/ 69
Apache Junction 96/ 69
Cave Creek 93/ 67
Surprise 97/ 69
Peoria 97/ 69
Glendale 98/ 68

Avondale 97/ 70
Buckeye 97/ 70
Casa Grande 100/ 66
Flagstaff 70/ 44
Prescott 78/ 51
Payson 80/ 50
Show Low 78/ 49
Globe 92/ 58
Florence 96/ 68

Click here to send us your weather pictures

Check out meteorologist Jerrid Sebesta's latest weather blog!

12 News

Cooler today, but warmer this weekend

by Sarah Walters - Jun. 5, 2008 07:54 AM
12 News Weather Plus Meteorologist

Your weather forecast | Pollen forecast

Still a bit breezy across the state this morning and hazy in some areas due to the strong winds yesterday, kicking up all that dust and sand. Winds will die down by this afternoon, and clear skies will prevail, as low pressure moves out. That passing storm will bring a cool down today, but temps warm right back up for the weekend.

Valley weather
Breezy conditions continue in the Valley this morning, with winds getting up to 15-25 mph. Winds will die down by noon, eventually becoming west 5-15 mph. Other than the morning wind and haze, it's going to be a really nice day today. Temperatures will be well below normal, only topping out at 92 in Phoenix, when we should be at 101. Those 90 degree temps stick around for your Friday, but we start heating up, with highs ranging from 92-97 in Valley cities.

Temperatures recover for the weekend, back near our normal range. Our high in Phoenix on Saturday will reach 101 and 103 on Sunday. Expect quiet weather for weekend as well, with sunny skies and light winds.

High Country weather
Winds will be much lighter in the High Country today, out of the west at around 15 mph. Temperatures much cooler as well, ranging from 64-69, with mostly sunny skies. Friday will be a bit warmer, but still nice, with highs getting up to the 75-80 degree range. Winds return on Friday though, but not too strong, getting up to 15-25 mph. There is a Fire Weather Watch in effect for parts of Mohave County on Friday.

Click here to detailed information on the current advisories, watches, and warnings from the National Weather Service.

Nice temperatures can be expected up north for the weekend, reaching the upper 70s and low 80s for highs both Saturday and Sunday. It's going to be a bit breezy on Saturday, but winds will die down again on Sunday. For the most part, a great weekend to head to the high country, with quiet weather, and mostly sunny skies expected.

To get the current conditions for your city, and more on your weekend forecast, go to 12 News Weather Plus on Cox Digital Cable 83, Qwest Choice TV 66, over the air 12.2, or on www.12news.azcentral.com.

Don't forget your camera when you're out and about this weekend…we want to see your weather pictures!
Click here to send us your weather pictures

Check out meteorologist Jerrid Sebesta's weather blog.

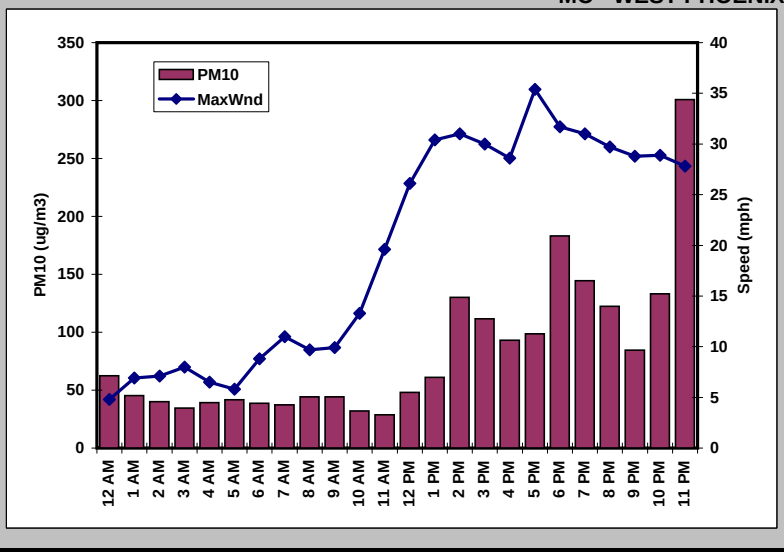
Appendix L
Event Air Quality Data
For June 4, 2008

Appendix L: EVENT AIR QUALITY DATA

16477 (112.14Wx33.48N)

MC - WEST PHOENIX

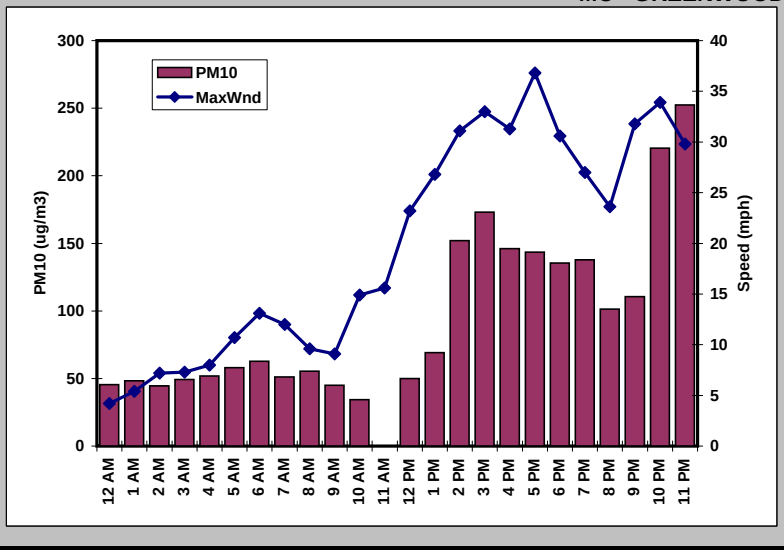
06/04/08	PM10	WndDir	MaxWnd
12 AM	63	45	5
1 AM	45	51	7
2 AM	40	115	7
3 AM	35	73	8
4 AM	39	79	7
5 AM	42	81	6
6 AM	39	98	9
7 AM	37	104	11
8 AM	44	99	10
9 AM	44	145	10
10 AM	32	225	13
11 AM	29	242	20
12 PM	48	248	26
1 PM	61	242	30
2 PM	130	246	31
3 PM	112	231	30
4 PM	93	251	29
5 PM	99	238	35
6 PM	183	232	32
7 PM	145	226	31
8 PM	123	225	30
9 PM	85	227	29
10 PM	133	232	29
11 PM	301	237	28



16372 (112.12Wx33.46N)

MC - GREENWOOD

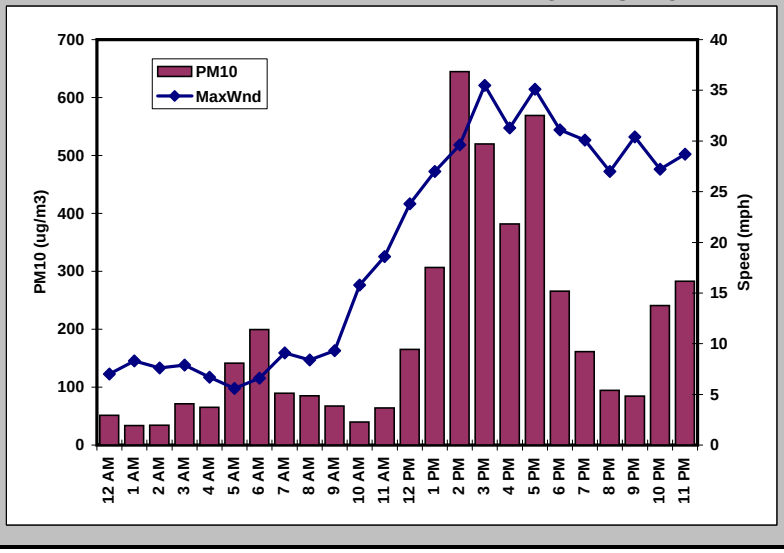
06/04/08	PM10	WndDir	MaxWnd
12 AM	46	333	4
1 AM	48	61	5
2 AM	44	70	7
3 AM	49	61	7
4 AM	52	57	8
5 AM	58	75	11
6 AM	63	86	13
7 AM	51	96	12
8 AM	55	79	10
9 AM	45	117	9
10 AM	34	237	15
11 AM		261	16
12 PM	50	243	23
1 PM	69	251	27
2 PM	152	247	31
3 PM	173	235	33
4 PM	146	243	31
5 PM	143	243	37
6 PM	135	225	31
7 PM	138	227	27
8 PM	101	225	24
9 PM	111	235	32
10 PM	221	237	34
11 PM	253	236	30



16659 (112.14Wx33.41N)

MC - WEST FORTY THIR

06/04/08	PM10	WndDir	MaxWnd
12 AM	52	192	7
1 AM	34	314	8
2 AM	35	321	8
3 AM	71	74	8
4 AM	65	46	7
5 AM	142	110	6
6 AM	199	29	7
7 AM	90	73	9
8 AM	85	70	8
9 AM	67	283	9
10 AM	40	233	16
11 AM	64	257	19
12 PM	165	241	24
1 PM	307	241	27
2 PM	645	242	30
3 PM	520	237	36
4 PM	382	241	31
5 PM	569	237	35
6 PM	266	217	31
7 PM	161	228	30
8 PM	95	223	27
9 PM	84	232	30
10 PM	241	234	27
11 PM	283	226	29

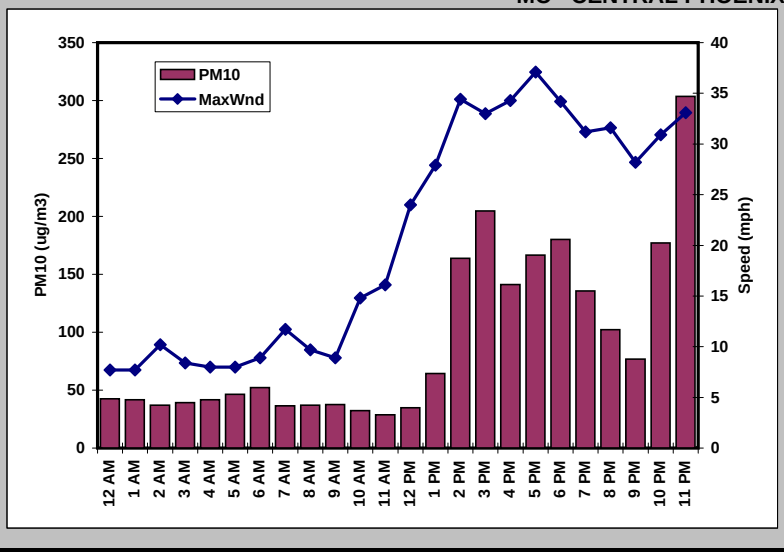


Appendix L: EVENT AIR QUALITY DATA

16329 (112.05Wx33.46N)

MC - CENTRAL PHOENIX

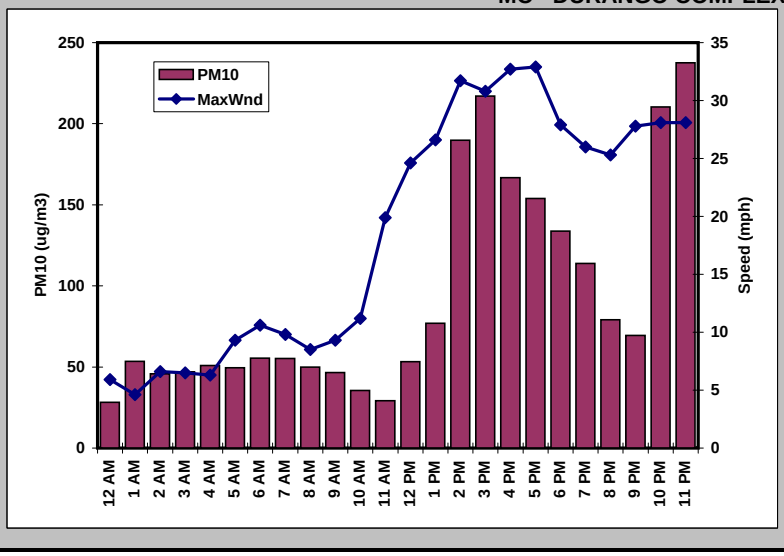
06/04/08	PM10	WndDir	MaxWnd
12 AM	43	113	8
1 AM	42	76	8
2 AM	37	85	10
3 AM	39	87	8
4 AM	42	77	8
5 AM	46	79	8
6 AM	52	83	9
7 AM	36	104	12
8 AM	37	106	10
9 AM	38	97	9
10 AM	32	243	15
11 AM	29	242	16
12 PM	35	258	24
1 PM	65	264	28
2 PM	164	262	34
3 PM	205	250	33
4 PM	141	253	34
5 PM	167	259	37
6 PM	180	232	34
7 PM	136	246	31
8 PM	102	248	32
9 PM	77	248	28
10 PM	177	244	31
11 PM	304	249	33



16375 (112.12Wx33.43N)

MC - DURANGO COMPLEX

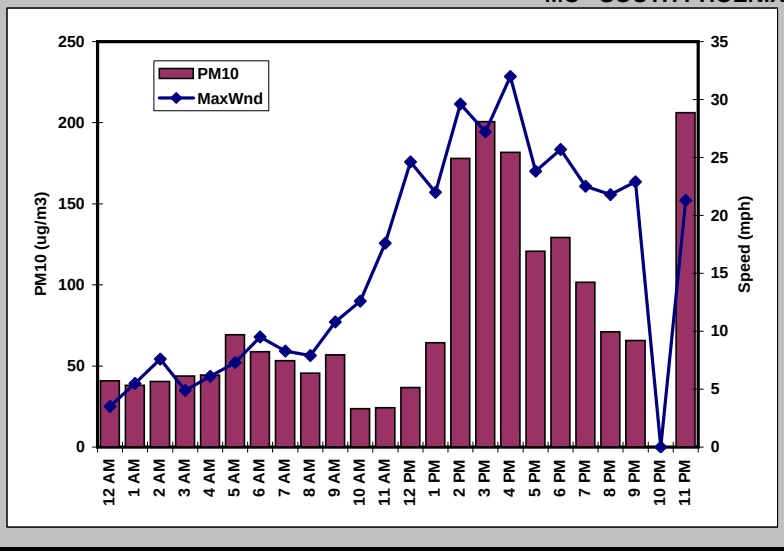
01/00/00	PM10	WndDir	MaxWnd
12 AM	28	175	6
1 AM	54	50	5
2 AM	46	35	7
3 AM	47	81	7
4 AM	51	56	6
5 AM	50	78	9
6 AM	56	84	11
7 AM	55	93	10
8 AM	50	77	9
9 AM	47	115	9
10 AM	36	197	11
11 AM	29	258	20
12 PM	53	252	25
1 PM	77	253	27
2 PM	190	257	32
3 PM	217	245	31
4 PM	167	254	33
5 PM	154	251	33
6 PM	134	224	28
7 PM	114	238	26
8 PM	79	231	25
9 PM	70	242	28
10 PM	210	246	28
11 PM	238	240	28



16377 (112.08Wx33.40N)

MC - SOUTH PHOENIX

01/00/00	PM10	WndDir	MaxWnd
12 AM	41	137	4
1 AM	38	17	6
2 AM	40	98	8
3 AM	44	89	5
4 AM	44	80	6
5 AM	69	75	7
6 AM	59	85	10
7 AM	53	96	8
8 AM	46	63	8
9 AM	57	291	11
10 AM	24	240	13
11 AM	24	253	18
12 PM	37	259	25
1 PM	64	265	22
2 PM	178	266	30
3 PM	201	257	27
4 PM	182	254	32
5 PM	121	231	24
6 PM	129	223	26
7 PM	102	233	23
8 PM	71	242	22
9 PM	66	243	23
10 PM			
11 PM	206	240	21

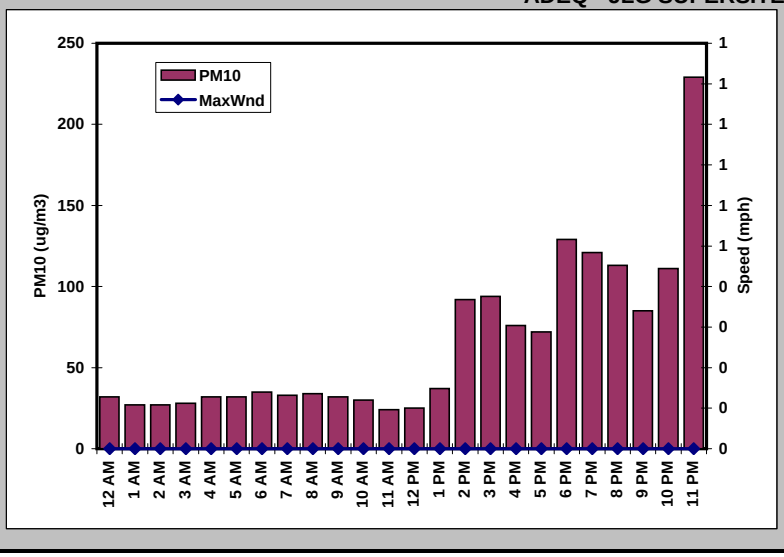


Appendix L: EVENT AIR QUALITY DATA

16328 (112.10Wx33.50N)

ADEQ - JLG SUPERSITE

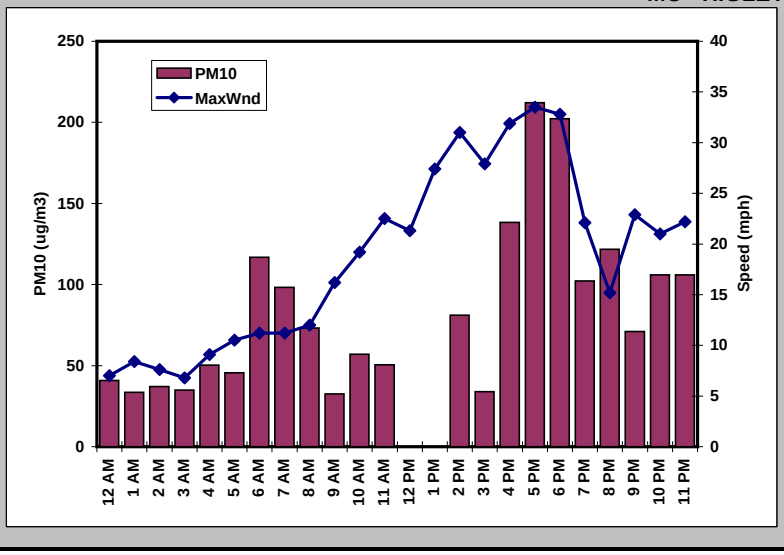
06/04/08	PM10	WndDir	MaxWnd
12 AM	32	47	
1 AM	27	98	
2 AM	27	83	
3 AM	28	88	
4 AM	32	91	
5 AM	32	92	
6 AM	35	91	
7 AM	33	101	
8 AM	34	100	
9 AM	32	118	
10 AM	30	197	
11 AM	24	221	
12 PM	25	244	
1 PM	37	245	
2 PM	92	242	
3 PM	94	228	
4 PM	76	249	
5 PM	72	238	
6 PM	129	236	
7 PM	121	228	
8 PM	113	228	
9 PM	85	231	
10 PM	111	233	
11 PM	229	237	



16505 (111.72Wx33.31N)

MC - HIGLEY

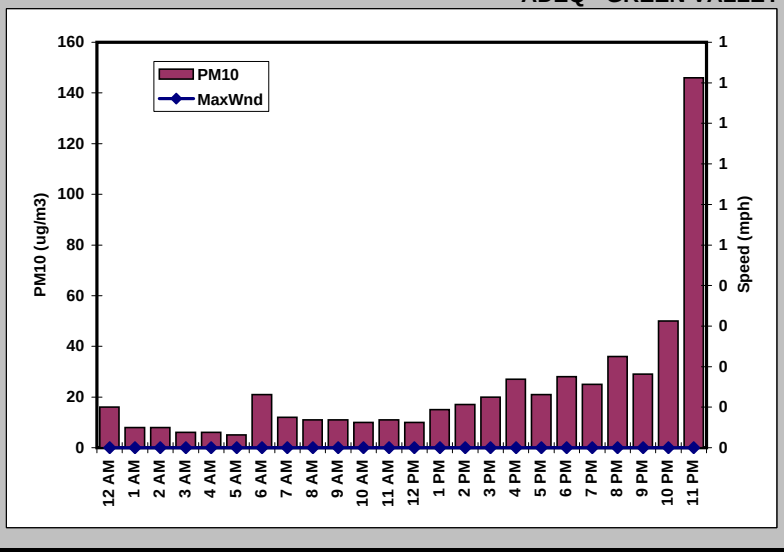
06/04/08	PM10	WndDir	MaxWnd
12 AM	41	115	7
1 AM	34	103	8
2 AM	37	102	8
3 AM	35	84	7
4 AM	50	102	9
5 AM	46	109	11
6 AM	117	108	11
7 AM	98	108	11
8 AM	73	121	12
9 AM	33	195	16
10 AM	57	189	19
11 AM	51	198	23
12 PM		220	21
1 PM		227	27
2 PM	81	251	31
3 PM	34	247	28
4 PM	138	244	32
5 PM	212	238	34
6 PM	202	215	33
7 PM	102	201	22
8 PM	122	213	15
9 PM	71	213	23
10 PM	106	210	21
11 PM	106	205	22



128562 (111.01Wx31.83N)

ADEQ - GREEN VALLEY

06/04/08	PM10	WndDir	MaxWnd
12 AM	16	218	
1 AM	8	254	
2 AM	8	262	
3 AM	6	229	
4 AM	6	238	
5 AM	5	234	
6 AM	21	229	
7 AM	12	218	
8 AM	11	206	
9 AM	11	208	
10 AM	10	224	
11 AM	11	208	
12 PM	10	217	
1 PM	15	211	
2 PM	17	218	
3 PM	20	220	
4 PM	27	227	
5 PM	21	223	
6 PM	28	222	
7 PM	25	225	
8 PM	36	222	
9 PM	29	228	
10 PM	50	225	
11 PM	146	218	

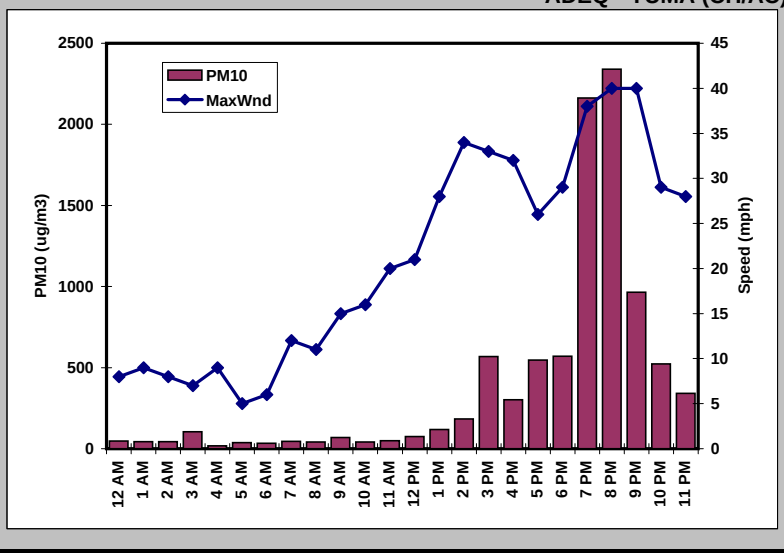


Appendix L: EVENT AIR QUALITY DATA

128530 (114.71Wx32.71N)

ADEQ - YUMA (CH/AC)

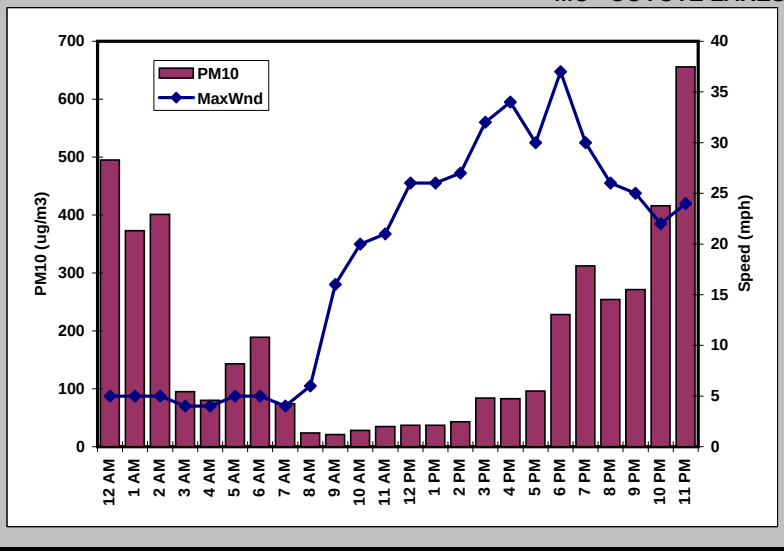
01/00/00	PM10	WndDir	MaxWnd
12 AM	48	289	8
1 AM	44	316	9
2 AM	44	198	8
3 AM	104	193	7
4 AM	18	195	9
5 AM	37	195	5
6 AM	33	210	6
7 AM	46	264	12
8 AM	42	271	11
9 AM	69	260	15
10 AM	42	210	16
11 AM	50	242	20
12 PM	75	226	21
1 PM	118	264	28
2 PM	183	278	34
3 PM	569	279	33
4 PM	301	274	32
5 PM	546	271	26
6 PM	570	287	29
7 PM	2162	283	38
8 PM	2341	286	40
9 PM	965	289	40
10 PM	522	294	29
11 PM	342	288	28



127530 (112.31Wx33.67N)

MC - COYOTE LAKES

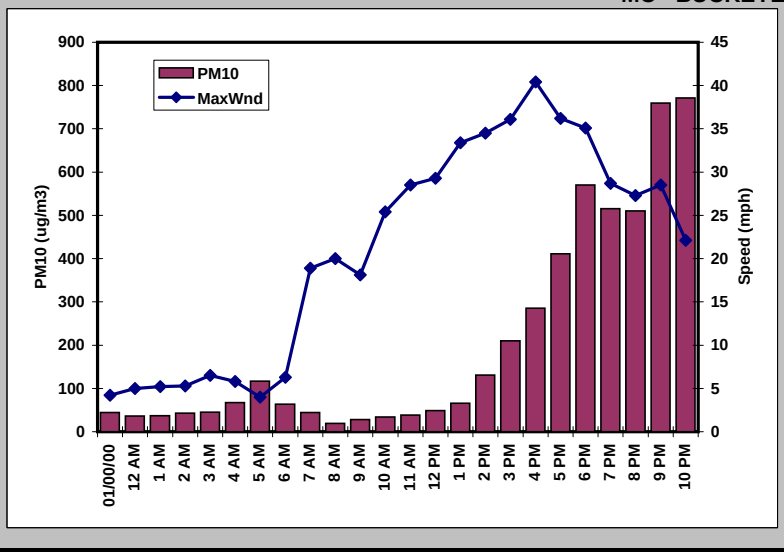
01/00/00	PM10	WndDir	MaxWnd
12 AM	495	23	5
1 AM	373	21	5
2 AM	401	22	5
3 AM	95	18	4
4 AM	80	38	4
5 AM	143	15	5
6 AM	189	24	5
7 AM	74	135	4
8 AM	24	163	6
9 AM	21	204	16
10 AM	28	220	20
11 AM	35	217	21
12 PM	37	231	26
1 PM	37	229	26
2 PM	43	227	27
3 PM	84	233	32
4 PM	83	232	34
5 PM	96	228	30
6 PM	228	236	37
7 PM	312	218	30
8 PM	254	207	26
9 PM	271	214	25
10 PM	416	217	22
11 PM	656	222	24



21525 (112.62Wx33.37N)

MC - BUCKEYE

01/00/00	PM10	WndDir	MaxWnd
12 AM	45	15	4
1 AM	36	17	5
2 AM	37	46	5
3 AM	43	39	5
4 AM	45	43	7
5 AM	67	53	6
6 AM	117	40	4
7 AM	63	113	6
8 AM	44	198	19
9 AM	19	221	20
10 AM	28	227	18
11 AM	34	237	25
12 PM	38	230	29
1 PM	49	247	29
2 PM	66	250	33
3 PM	131	251	35
4 PM	210	251	36
5 PM	285	242	40
6 PM	411	225	36
7 PM	570	214	35
8 PM	515	215	29
9 PM	511	235	27
10 PM	760	241	29
11 PM	772	238	22



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Appendix M
Event Meteorological / Air Quality Tables
For June 4, 2008

Note: The enclosed tables summarize the meteorological and air quality data for the June 4, 2008, regional wind event. Highlighting is applied to the data in the tables. When the reported wind gust or maximum wind speed is greater than 15 miles per hour, the hourly data record is highlighted yellow. If the wind gust or maximum wind speed exceeds 25 mph, the hourly data record is highlighted orange. Stations prefixed with a 2 digit number are AzMet stations. All AzMet wind speed data were adjusted from 3-meters to 10-meters by applying a correction factor for height as discussed in the AzMet network description contained in Appendix B of this document.

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

23234 (122.40Wx37.62N) 06/04/08

NWS-SAN FRANCISCO

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-SAN FRANCISCO	12	51	10		36	40	W
	1	51	10		29		W
	2	51	10		24	33	W
	3	50	10		24	30	W
	4	50	10		20		W
	5	51	10		23		W
	6	54	10		23		W
	7	56	10		16		W
	8	60	10		16		W
	9	62	10		17		W
	10	63	10		22		W
	11	63	10		23		W
	12	63	10		28	32	W
	1	63	10		30	37	W
	2	62	10		32	37	W
	3	61	10		32	41	W
	4	59	10		30	39	W
	5	58	10		33	43	W
	6	55	10		30	44	W
	7	53	10		24	31	W
	8	52	10		22		W
	9	52	10		21	30	W
	10	51	10		21		W
	11	51	10		21		W

93104 (117.68Wx35.68N) 06/04/08

NWS-CHINA LAKE

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-CHINA LAKE	12	74	10		3		*VR
	1	74	10		13		W
	2	73	10		21	34	W
	3	73	10		10	18	W
	4	70	10		17	29	W
	5	71	10		18	29	W
	6	75	10		22	29	W
	7	75	10		24	38	W
	8	76	10		37	45	SW
	9	78	10		34	47	SW
	10	80	10		31	45	SW
	11	83	10		26	40	SW
	12	83	10		31	44	W
	1	81	10		30	51	W
	2	83	10		37	49	W
	3	81	10		32	46	W
	4	79	10		32	43	W
	5	77	10		25	36	W
	6	75	10		20	32	NW
	7	73	10		11	21	N
	8	69	10		13		N
	9	66	10		11		N
	10	65	10		8		N
	11	62	10		7		N

23169 (115.16Wx36.08N) 06/04/08

NWS-MCCARRAN INTL

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-MCCARRAN INTL	12	76	10		13		S
	1	76	10		9		SW
	2	74	10		7		SW
	3	74	10		16	22	S
	4	73	10		10		S
	5	73	10		8		SW
	6	75	10		8		S
	7	78	10		13		S
	8	82	10		9		S
	9	84	10		11		S
	10	86	10		18	24	S
	11	88	10		15	24	S
	12	89	10		18	30	SW
	1	87	10		20	31	NW
	2	80	7		18	25	N
	3	81	10		26	43	NW
	4	80	10		32	48	N
	5	76	10		34	44	N
	6	73	10		30	40	NW
	7	70	10		26	38	N
	8	67	10		24	36	N
	9	66	10		25	40	N
	10	65	10		30	38	N
	11	65	10		16	26	N

23161 (116.79Wx34.85N) 06/04/08

NWS-BARSTOW

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-BARSTOW	12	72	10		38	46	SW
	1	71	10		30	44	SW
	2	70	10		38	49	SW
	3	69	10		37	51	SW
	4	68	10		38	49	SW
	5	67	10		46	55	W
	6	68	10		33	49	W
	7	69	10		45	52	W
	8	72	10		46	55	W
	9	75	6	HZ	40	52	W
	10	77	8		39	48	W
	11	81	10		38	49	W
	12	82	9		43	59	W
	1	82	10		40	54	W
	2	80	9		45	55	W
	3	79	10		36	52	W
	4	78	9		36	48	W
	5	75	10		33	41	W
	6	72	10		31	41	W
	7	69	10		24	33	SW
	8	68	10		21	31	W
	9	66	10		10		W
	10	65	10		7		NW
	11	62	10		0		-

23179 (114.62Wx34.77N) 06/04/08

NWS-NEEDLES AIRPORT

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-NEEDLES AIRPORT	12	80	10		10		SW
	1	82	10		7		W
	2	80	10		6		SW
	3	80	10		14		SW
	4	79	10		20		SW
	5	81	10		11		W
	6	82	10		10		W
	7	82	10		20	24	W
	8	84	10		15		W
	9	85	10		8	18	W
	10	89	10		18	24	W
	11	91	10		20	28	W
	12	92	10		21	30	W
	1	93	9		26	34	W
	2	94	4	HZ	24	41	W
	3	93	9		9	25	W
	4	91	6	HZ	13	29	W
	5	89	7		13		W
	6	87	7		18	24	N
	7	83	10		20	31	N
	8	80	10		23	33	N
	9	77	10		17		N
	10	75	10		17	26	N
	11	72	10		10		N

93167 (113.94Wx35.26N) 06/04/08

NWS-KINGMAN

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-KINGMAN	12	68	10		9		S
	1	68	10		8		S
	2	71	10		5		*VR
	3	63	10		9		SE
	4	65	10		0		-
	5	65	10		9		SW
	6	70	10		15		SW
	7	71	10		18		SW
	8	74	10		23		SW
	9	75	10		23	31	SW
	10	77	10		31	37	SW
	11	79	10		22	32	SW
	12	80	10		30	37	SW
	1	83	10		31	46	SW
	2	83	10		33	46	SW
	3	83	10		34	44	SW
	4	81	10		29	34	SW
	5	78	10		25	33	NW
	6	69	10		20	26	NE
	7	68	10		5		NE
	8	67	10		25		N
	9	62	10		31	39	N
	10	58	10		9		N
	11	55	10		11		N

23199 (115.67Wx32.82N) 06/04/08

NWS-EL CENTRO NAF

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-EL CENTRO NAF	12	78	10		18	25	W
	1	78	10		22	30	W
	2	74	10		21	26	W
	3	74	10		17		W
	4	75	10		17		W
	5	78	10		18		W
	6	79	10		14		SW
	7	85	10		18		W
	8	87	10		22	26	SW
	9	90	10		13		NW
	10	89	10		24	31	SW
	11	91	9		32	39	W
	12	91	4	BLDU	34	44	W
	1	90	4	BLDU	30	41	W
	2	93	10		20	30	W
	3	90	3		25	33	W
	4	87	9		28	33	W
	5	80	1	BLDU	25	36	NW
	6	76	1	BLDU	25	37	NW
	7	74	8	BLDU	22	31	W
	8	69	10		10		SW
	9	71	10		10		W
	10	69	10		10		W
	11	69	10		9		W

03144 (115.58Wx32.83N) 06/04/08

NWS-IMPERIAL COUNTY

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-IMPERIAL COUNTY	12	74	10		13		W
	1	75	10		16		W
	2	72	10		13		W
	3	73	9		14		W
	4	70	10		10		W
	5	76	10		13		W
	6	79	10		20		W
	7	84	10		14	21	W
	8	87	10		17	22	W
	9	89	10		15	22	NW
	10	90	10		22	32	W
	11	91	10		29	36	W
	12	90	5	-RA	30	41	W
	1	90	5	HZ	31	43	W
	2	89	1	HZ	20	29	NW
	3	88	1	HZ	24	30	W
	4	86	10		18	26	W
	5	77	0	-RAs	21	32	NW
	6	75	1	HZ	21	28	W
	7	72	4	HZ	14	30	W
	8	69	8		13		W
	9	68	10		14		W
	10	71	10		11		W
	11	66	10		9		W

23158 (114.72Wx33.62N) 06/04/08

NWS-BLYTHE

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-BLYTHE	12	77	10		10		S
	1	73	10		3		S
	2	71	10		0		-
	3	70	10		5		NW
	4	67	10		8		N
	5	70	10		0		-
	6	75	10		0		-
	7	79	10		5		S
	8	84	10		3		SE
	9	90	10		11		SW
	10	92	10		20		SW
	11	93	10		17	28	SW
	12	95	10		16	24	SW
	1	96	10		15	18	SW
	2	97	10		24	30	SW
	3	96	10		26	34	SW
	4	92	10		21	28	W
	5	91	7		11		W
	6	89	4	HZ	21	31	NW
	7	87	5	HZ	26	36	NW
	8	85	8		16		NW
	9	83	9		18	30	NW
	10	81	9		23	30	NW
	11	80	10		15		NW

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

20 (114.61Wx34.97N) 06/04/08

20-MOHAVE

	Hr	T(F)	RH	Rn	Spd	Max	Dir
20-MOHAVE	12	73	27	0	6	9	S
	1	74	25	0	6	12	S
	2	70	30	0	5	9	S
	3	70	28	0	4	8	SE
	4	68	36	0	2	5	S
	5	69	37	0	2	7	S
	6	70	43	0	2	7	S
	7	78	34	0	5	12	S
	8	80	32	0	5	11	SW
	9	82	27	0	7	12	SW
	10	85	24	0	7	16	S
	11	87	23	0	10	19	SW
	12	88	22	0	12	19	SW
	1	91	18	0	14	25	SW
	2	92	16	0	14	24	SW
	3	93	14	0	14	26	SW
	4	92	12	0	13	25	W
	5	92	11	0	14	23	W
	6	90	12	0	13	26	NW
	7	84	13	0	16	27	N
	8	81	10	0	21	33	N
	9	78	11	0	21	37	N
	10	76	14	0	21	33	N
	11	74	17	0	27	41	N

28 (114.56Wx34.93N) 06/04/08

28-MOHAVE-2

	Hr	T(F)	RH	Rn	Spd	Max	Dir
28-MOHAVE-2	12	75	29	0	2	6	SE
	1	73	29	0	4	7	S
	2	69	35	0	4	7	S
	3	73	29	0	4	11	SE
	4	70	34	0	2	6	S
	5	67	43	0	2	8	NE
	6	70	46	0	3	9	E
	7	77	47	0	3	6	S
	8	78	44	0	4	8	S
	9	80	42	0	5	10	SW
	10	83	37	0	6	15	S
	11	83	39	0	8	16	SW
	12	84	36	0	10	19	SW
	1	86	31	0	10	20	SW
	2	87	29	0	13	25	SW
	3	88	23	0	16	26	SW
	4	90	15	0	18	27	W
	5	89	14	0	15	29	W
	6	88	14	0	13	24	W
	7	86	12	0	21	34	N
	8	83	9	0	27	40	N
	9	80	11	0	25	43	N
	10	77	14	0	17	28	N
	11	75	16	0	20	32	N

24 (113.96Wx32.74N) 06/04/08

24-ROLL

	Hr	T(F)	RH	Rn	Spd	Max	Dir
24-ROLL	12	66	43	0	6	9	SW
	1	67	37	0	4	8	W
	2	66	39	0	2	7	NW
	3	68	30	0	3	7	NW
	4	60	59	0	2	6	E
	5	57	64	0	3	5	NE
	6	64	47	0	2	5	NE
	7	73	35	0	3	6	SW
	8	81	25	0	9	16	SW
	9	85	20	0	14	20	SW
	10	88	16	0	13	20	SW
	11	91	14	0	13	20	W
	12	93	14	0	15	24	W
	1	95	13	0	19	28	W
	2	97	13	0	21	31	W
	3	97	13	0	20	29	W
	4	95	13	0	19	31	W
	5	92	16	0	18	28	W
	6	88	19	0	13	24	W
	7	84	23	0	12	22	W
	8	79	26	0	15	23	W
	9	75	38	0	15	25	W
	10	71	43	0	9	15	W
	11	69	46	0	11	17	SW

08 (114.45Wx33.88N) 06/04/08

08-PARKER

	Hr	T(F)	RH	Rn	Spd	Max	Dir
08-PARKER	12	73	43	0	10	14	S
	1	73	43	0	9	13	S
	2	72	46	0	7	12	S
	3	71	47	0	8	12	S
	4	69	47	0	8	12	S
	5	69	48	0	7	12	S
	6	69	55	0	6	11	S
	7	76	48	0	7	12	S
	8	79	40	0	10	18	S
	9	81	38	0	13	19	S
	10	84	35	0	11	16	S
	11	86	36	0	10	23	S
	12	89	27	0	10	23	S
	1	89	26	0	17	25	S
	2	90	23	0	19	27	S
	3	91	24	0	16	24	S
	4	90	24	0	20	29	S
	5	91	15	0	23	36	W
	6	90	8	0	28	37	NW
	7	87	10	0	28	39	NW
	8	85	10	0	27	37	NW
	9	83	11	0	28	42	NW
	10	81	11	0	25	35	NW
	11	77	11	0	19	29	NW

02 (114.76Wx32.71N) 06/04/08

02-YUMA VALLEY

	Hr	T(F)	RH	Rn	Spd	Max	Dir
02-YUMA VALLEY	12	72	31	0	2	5	SW
	1	69	38	0	2	6	SE
	2	64	48	0	4	8	SE
	3	62	57	0	3	8	S
	4	61	55	0	4	7	S
	5	61	53	0	3	5	SE
	6	65	52	0	2	4	S
	7	73	39	0	5	10	W
	8	77	28	0	6	11	W
	9	82	24	0	9	15	W
	10	85	21	0	10	16	SW
	11	89	20	0	12	21	SW
	12	91	19	0	12	25	SW
	1	95	17	0	18	28	W
	2	94	17	0	21	31	W
	3	92	17	0	22	33	W
	4	90	19	0	23	33	W
	5	88	22	0	18	28	W
	6	84	24	0	20	32	W
	7	78	31	0	27	37	W
	8	74	37	0	25	37	W
	9	72	40	0	24	35	W
	10	71	39	0	20	33	NW
	11	71	39	0	13	27	W

14 (114.53Wx32.74N) 06/04/08

14-YUMA N. GILA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
14-YUMA N. GILA	12	63	63	0	5	7	S
	1	61	67	0	4	6	S
	2	60	70	0	4	6	SE
	3	59	69	0	3	6	S
	4	61	62	0	4	6	SW
	5	61	59	0	4	6	SW
	6	64	60	0	3	5	SW
	7	73	42	0	4	11	SW
	8	77	32	0	7	12	W
	9	81	27	0	8	15	W
	10	83	27	0	8	14	SW
	11	86	25	0	8	17	SW
	12	89	23	0	12	19	SW
	1	91	22	0	14	26	SW
	2	92	18	0	15	24	W
	3	92	18	0	16	28	W
	4	90	19	0	17	33	W
	5	87	22	0	17	28	W
	6	85	25	0	13	23	W
	7	79	28	0	13	24	NW
	8	74	37	0	15	25	W
	9	72	41	0	15	26	W
	10	71	42	0	12	21	W
	11	69	46	0	5	15	W

128530 (114.71Wx32.71N) 06/04/08

ADEQ - YUMA (CH/AC)

	Hr	T(F)	RH	PM	Spd	Max	Dir
ADEQ - YUMA (CH/AC)	12	75	27	48	2	8	W
	1	73	29	44	2	9	NW
	2	69	37	44	4	8	S
	3	66	44	104	3	7	S
	4	63	48	18	4	9	S
	5	66	38	37	3	5	S
	6	69	38	33	2	6	SW
	7	74	32	46	5	12	W
	8	77	25	42	6	11	W
	9	82	22	69	8	15	W
	10	85	19	42	9	16	SW
	11	89	18	50	11	20	SW
	12	92	17	75	12	21	SW
	1	94	15	118	16	28	W
	2	94	15	183	18	34	W
	3	92	15	569	20	33	W
	4	91	16	301	19	32	W
	5	88	20	546	15	26	W
	6	85	23	570	18	29	W
	7	79	29	2162	26	38	W
	8	75	35	2341	25	40	W
	9	73	37	965	26	40	W
	10	72	37	522	21	29	NW
	11	72	35	342	15	28	W

03145 (114.62Wx32.65N) 06/04/08

NWS-YUMA MCAS

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-YUMA MCAS	12	77	10		3		S
	1	79	10		0		-
	2	75	10		3		S
	3	76	10		3		NW
	4	75	10		8		W
	5	74	10		5		NW
	6	77	10		7		NW
	7	80	10		13		W
	8	83	10		7		W
	9	86	10		5		SW
	10	91	10		3		*VR
	11	95	10		15	22	SW
	12	97	10		10		SW
	1	100	10		22	28	W
	2	100	6	BLDU	22	29	W
	3	98	8		17	28	W
	4	96	6	HZ	24	37	W
	5	93	4	HZ BL	23	30	W
	6	88	3	HZ BL	21	33	NW
	7	81	1	HZ BL	23	37	W
	8	77	1	HZs	15	39	NW
	9	75	3	HZ BL	14	31	NW
	10	75	5	BLDU	14	20	W
	11	75	8	BLDU	11	23	W

19040 (114.63Wx32.61N) 06/04/08

ADEQ - YUMA MESA

	Hr	T(F)	RH		Spd	Max	Dir
ADEQ - YUMA MESA	12	67	52		1	2	SW
	1	65	54		1	4	E
	2	66	47		1	6	NW
	3	67	44		1	5	NW
	4	63	53		1	5	NW
	5	64	44		1	6	NW
	6	71	32		3	9	NW
	7	74	31		2	6	W
	8	77	32		3	6	S
	9	80	28		3	8	S
	10	85	22		4	14	S
	11	88	20		10	18	SW
	12	90	19		9	18	SW
	1	93	17		12	23	W
	2	94	17		13	25	W
	3	93	16		12	28	W
	4	91	17		13	27	W
	5	89	19		12	28	W
	6	85	22		13	30	W
	7	79	28		10	26	W
	8	74	33		11	34	W
	9	72	36		8	23	W
	10	71	37		8	19	W
	11	70	38		7	17	W

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

07 (113.19Wx33.95N) 06/04/08

07-AGUILA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
07-AGUILA	12	64	19	0	4	7	E
	1	62	19	0	2	7	SE
	2	61	21	0	5	10	E
	3	59	23	0	5	10	E
	4	60	22	0	6	9	E
	5	60	23	0	9	11	E
	6	67	22	0	11	18	SE
	7	74	21	0	12	21	SE
	8	78	18	0	16	23	S
	9	79	18	0	17	25	S
	10	81	16	0	14	23	S
	11	82	16	0	15	25	S
	12	84	16	0	12	23	SW
	1	87	16	0	15	27	W
	2	88	14	0	19	33	W
	3	89	13	0	21	32	W
	4	88	12	0	22	31	W
	5	88	12	0	23	34	W
	6	85	13	0	23	31	W
	7	83	15	0	21	34	W
	8	79	12	0	14	26	W
	9	77	10	0	15	21	W
	10	75	12	0	13	21	W
	11	73	19	0	10	29	NW

10 (112.46Wx33.62N) 06/04/08

10-WADDELL

	Hr	T(F)	RH	Rn	Spd	Max	Dir
10-WADDELL	12	79	14	0	3	8	NE
	1	74	17	0	2	6	NE
	2	67	25	0	1	3	NW
	3	63	26	0	1	2	NW
	4	60	32	0	1	1	NW
	5	59	38	0	1	1	NW
	6	67	34	0	1	3	NW
	7	75	20	0	2	7	E
	8	80	16	0	4	10	SE
	9	85	10	0	8	18	S
	10	87	9	0	11	18	S
	11	88	11	0	10	19	S
	12	89	12	0	12	20	S
	1	91	12	0	12	21	SW
	2	91	12	0	12	24	SW
	3	92	11	0	14	26	SW
	4	91	12	0	13	25	SW
	5	91	12	0	14	26	SW
	6	90	13	0	16	34	SW
	7	87	15	0	14	25	SW
	8	85	17	0	13	23	SW
	9	83	18	0	14	23	SW
	10	81	20	0	15	23	SW
	11	78	23	0	12	22	SW

127530 (112.31Wx33.67N) 06/04/08

MC - COYOTE LAKES

	Hr	T(F)		PM	Spd	Max	Dir
MC - COYOTE LAKES	12	71		495	2	5	NE
	1	69		373	2	5	N
	2	68		401	1	5	N
	3	66		95	1	4	N
	4	65		80	1	4	NE
	5	65		143	2	5	N
	6	72		189	2	5	NE
	7	83		74	1	4	SE
	8	87		24	2	6	S
	9	89		21	5	16	SW
	10	90		28	8	20	SW
	11	91		35	9	21	SW
	12	92		37	10	26	SW
	1	94		37	11	26	SW
	2	94		43	12	27	SW
	3	96		84	14	32	SW
	4	95		83	15	34	SW
	5	94		96	14	30	SW
	6	92		228	17	37	SW
	7	88		312	10	30	SW
	8	84		254	10	26	SW
	9	82		271	11	25	SW
	10	81		416	9	22	SW
	11	79		656	9	24	SW

23 (113.12Wx33.48N) 06/04/08

23-HARQUAHALA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
23-HARQUAHALA	12	69	30	0	5	8	S
	1	68	30	0	4	10	S
	2	64	42	0	4	6	E
	3	64	40	0	7	13	SE
	4	68	29	0	10	15	S
	5	65	32	0	6	10	S
	6	68	47	0	2	5	E
	7	74	32	0	6	12	SE
	8	79	23	0	7	14	S
	9	81	22	0	14	22	S
	10	82	26	0	14	20	SW
	11	84	24	0	17	26	SW
	12	84	23	0	18	30	SW
	1	86	21	0	19	27	SW
	2	87	21	0	21	35	SW
	3	88	19	0	18	30	SW
	4	89	18	0	19	33	SW
	5	88	16	0	23	39	SW
	6	87	15	0	22	35	SW
	7	84	18	0	17	27	SW
	8	79	23	0	12	18	SW
	9	77	25	0	13	19	SW
	10	74	29	0	8	15	SW
	11	71	28	0	7	13	SW

26 (112.68Wx33.40N) 06/04/08

26-BUCKEYE

	Hr	T(F)	RH	Rn	Spd	Max	Dir
26-BUCKEYE	12	71	16	0	2	7	N
	1	73	22	0	1	5	W
	2	68	31	0	3	6	NE
	3	66	27	0	4	7	NE
	4	64	28	0	4	8	NE
	5	64	27	0	3	6	NE
	6	70	25	0	2	5	NE
	7	78	28	0	3	6	SE
	8	81	21	0	5	10	S
	9	85	12	0	10	17	SW
	10	87	13	0	11	17	SW
	11	89	13	0	13	22	SW
	12	90	13	0	13	22	SW
	1	92	13	0	17	32	SW
	2	93	11	0	20	32	SW
	3	93	12	0	22	34	SW
	4	92	13	0	22	34	SW
	5	92	13	0	24	37	SW
	6	90	15	0	25	35	SW
	7	87	17	0	23	34	SW
	8	84	19	0	20	28	SW
	9	81	21	0	15	22	SW
	10	79	24	0	15	25	SW
	11	77	26	0	15	25	SW

21525 (112.62Wx33.37N) 06/04/08

MC - BUCKEYE

	Hr	T(F)	RH	PM	Spd	Max	Dir
MC - BUCKEYE	12	72	29	45	1	4	N
	1	70	32	36	0	5	E
	2	70	32	37	0	5	SE
	3	66	40	43	2	5	NE
	4	65	41	45	3	7	NE
	5	66	38	67	1	6	E
	6	70	39	117	0	4	NE
	7	77	24	63	1	6	E
	8	83	18	44	7	19	S
	9	87	15	19	11	20	SW
	10	89	17	28	10	18	SW
	11	91	18	34	15	25	SW
	12	92	17	38	16	29	SW
	1	93	19	49	18	29	SW
	2	94	19	66	19	33	W
	3	94	19	131	21	35	W
	4	93	19	210	24	36	W
	5	92	20	285	23	40	SW
	6	89	23	411	22	36	SW
	7	87	24	570	20	35	SW
	8	84	25	515	15	29	SW
	9	82	27	511	14	27	SW
	10	80	29	760	17	29	SW
	11	77	33	772	14	22	SW

19 (112.90Wx32.93N) 06/04/08

19-PALOMA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
19-PALOMA	12	68	28	0	6	10	SW
	1	72	21	0	7	13	S
	2	66	36	0	4	10	NE
	3	62	52	0	3	8	E
	4	60	52	0	2	4	NE
	5	62	40	0	1	4	NE
	6	68	30	0	5	9	SW
	7	78	16	0	10	17	S
	8	83	13	0	14	20	SW
	9	86	13	0	15	22	SW
	10	88	12	0	16	22	SW
	11	91	12	0	20	30	SW
	12	92	12	0	24	34	SW
	1	93	13	0	24	35	SW
	2	95	12	0	24	38	SW
	3	95	13	0	26	36	SW
	4	95	15	0	24	37	SW
	5	91	17	0	30	41	SW
	6	88	17	0	28	37	SW
	7	85	18	0	23	33	SW
	8	82	24	0	19	28	SW
	9	78	32	0	14	20	SW
	10	77	33	0	19	30	SW
	11	75	29	0	18	25	SW

23111 (112.38Wx33.54N) 06/04/08

NWS-LUKE AFB

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-LUKE AFB	12	75	10		0		-
	1	80	10		8		SW
	2	75	10		6		W
	3	75	10		5		S
	4	73	10		0		-
	5	69	10		0		-
	6	72	10		0		-
	7	79	10	-DZ	6		E
	8	82	10		0		-
	9	86	10	-DZ	14	20	S
	10	88	10		20	25	SW
	11	89	10		17	26	S
	12	90	10		21	28	SW
	1	92	10		23	32	SW
	2	93	10		24	33	SW
	3	93	10		26	36	SW
	4	93	10		29	36	SW
	5	92	10		28	36	SW
	6	90	4	-BLDU	25	36	SW
	7	86	6	DU	24	33	SW
	8	84	10		23	28	SW
	9	82	10		21		SW
	10	80	9		24		SW
	11	78	6	HZ	23		SW

03186 (112.38Wx33.42N) 06/04/08

NWS-PHX GOODYEAR

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-PHX GOODYEAR	12						
	1						
	2						
	3						
	4						
	5	72	30		5		*VR
	6	73	20		5		*VR
	7	77	20		6		*VR
	8	82	20		6		*VR
	9	88	20		9		W
	10	0	20		11		S
	11	91	20		14		SW
	12	95	20		11	23	SW
	1	93	20		17	23	SW
	2	97	20		18	29	SW
	3	99	20		17	29	W
	4	97	10		21	29	W
	5	95	10		23	37	SW
	6	90	5	BLDU	23	34	SW
	7	86	0	nulls			
	8	86	0				
	9						
	10						
	11						

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

16378 (112.19Wx33.57N) 06/04/08

MC - GLENDALE

	Hr	T(F)	RH		Spd	Max	Dir
MC - GLENDALE	12	78	14		3	5	E
	1	77	15		3	5	SE
	2	78	16		3	6	S
	3	76	18		3	8	SE
	4	72	23		4	7	E
	5	71	22		2	4	E
	6	72	22		2	6	E
	7	77	17		7	13	SE
	8	80	15		5	9	E
	9	83	13		4	12	S
	10	86	12		7	19	SW
	11	87	11		9	22	SW
	12	89	12		12	26	SW
	1	89	12		16	32	SW
	2	90	13		16	34	SW
	3	91	13		18	37	SW
	4	91	13		19	34	SW
	5	91	14		20	37	SW
	6	90	16		18	42	SW
	7	87	19		14	30	SW
	8	85	19		13	33	SW
	9	83	20		12	27	SW
	10	81	24		13	28	SW
	11	79	27		13	27	SW

16375 (112.12Wx33.43N) 06/04/08

MC - DURANGO COMPLEX

	Hr	T(F)		PM	Spd	Max	Dir
MC - DURANGO COMPLEX	12	77		28	3	6	S
	1	75		54	1	5	NE
	2	74		46	2	7	N
	3	72		47	2	7	E
	4	71		51	3	6	NE
	5	70		50	4	9	E
	6	73		56	4	11	E
	7	79		55	6	10	E
	8	86		50	4	9	E
	9	90		47	4	9	E
	10	93		36	4	11	S
	11	94		29	7	20	W
	12	94		53	11	25	W
	1	94		77	13	27	W
	2	95		190	17	32	W
	3	96		217	16	31	SW
	4	95		167	16	33	W
	5	94		154	16	33	W
	6	91		134	14	28	SW
	7	87		114	12	26	SW
	8	85		79	12	25	SW
	9	83		70	13	28	SW
	10	81		210	16	28	SW
	11	79		238	12	28	SW

16390 (112.07Wx33.56N) 06/04/08

MC - NORTH PHOENIX

	Hr	T(F)			Spd	Max	Dir
MC - NORTH PHOENIX	12	75			1	4	NE
	1	74			2	6	NE
	2	72			2	4	NE
	3	70			2	5	E
	4	70			2	5	NE
	5	70			3	6	NE
	6	73			1	6	SE
	7	77			3	9	S
	8	81			4	9	S
	9	84			4	10	S
	10	86			4	11	S
	11	88			6	14	SW
	12	90			7	17	SW
	1	91			10	22	W
	2	92			11	29	W
	3	92			11	31	SW
	4	92			11	26	W
	5	91			11	31	W
	6	89			12	32	SW
	7	86			10	26	SW
	8	84			10	28	SW
	9	82			10	25	SW
	10	80			9	23	SW
	11	78			9	25	SW

16477 (112.14Wx33.48N) 06/04/08

MC - WEST PHOENIX

	Hr	T(F)		PM	Spd	Max	Dir
MC - WEST PHOENIX	12	75		63	1	5	NE
	1	76		45	1	7	NE
	2	73		40	2	7	S
	3	73		35	3	8	E
	4	71		39	3	7	E
	5	71		42	2	6	E
	6	74		39	4	9	E
	7	77		37	6	11	E
	8	81		44	4	10	E
	9	84		44	3	10	SE
	10	88		32	6	13	SW
	11	89		29	7	20	SW
	12	91		48	11	26	W
	1	92		61	12	30	SW
	2	93		130	15	31	SW
	3	93		112	15	30	SW
	4	93		93	13	29	W
	5	92		99	14	35	SW
	6	90		183	15	32	SW
	7	87		145	13	31	SW
	8	85		123	13	30	SW
	9	84		85	12	29	SW
	10	81		133	13	29	SW
	11	79		301	12	28	SW

16659 (112.14Wx33.41N) 06/04/08

MC - WEST FORTY THIR

	Hr	T(F)		PM	Spd	Max	Dir
MC - WEST FORTY THIR	12	80		52	4	7	S
	1	77		34	3	8	N
	2	77		35	3	8	NW
	3	72		71	4	8	E
	4	71		65	4	7	NE
	5	71		142	2	6	E
	6	73		199	2	7	N
	7	78		90	5	9	E
	8	82		85	4	8	E
	9	87		67	3	9	NE
	10	91		40	5	16	SW
	11	-999		64	8	19	W
	12	-999		165	12	24	SW
	1	95		307	15	27	SW
	2	96		645	17	30	SW
	3	96		520	18	36	SW
	4	95		382	17	31	SW
	5	94		569	17	35	SW
	6	91		266	17	31	SW
	7	88		161	17	30	SW
	8	86		95	14	27	SW
	9	84		84	14	30	SW
	10	82		241	17	27	SW
	11	79		283	16	29	SW

16372 (112.12Wx33.46N) 06/04/08

MC - GREENWOOD

	Hr	T(F)		PM	Spd	Max	Dir
MC - GREENWOOD	12	75		46	2	4	NE
	1	76		48	2	5	NE
	2	75		44	3	7	NE
	3	74		49	4	7	NE
	4	73		52	4	8	NE
	5	73		58	5	11	E
	6	76		63	6	13	E
	7	80		51	6	12	E
	8	84		55	5	10	E
	9	88		45	3	9	SE
	10	90		34	4	15	SW
	11	91			5	16	W
	12	92		50	10	23	SW
	1	93		69	12	27	W
	2	93		152	14	31	SW
	3	93		173	15	33	SW
	4	94		146	14	31	SW
	5	92		143	15	37	SW
	6	90		135	13	31	SW
	7	87		138	13	27	SW
	8	85		101	11	24	SW
	9	83		111	13	32	SW
	10	81		221	15	34	SW
	11	79		253	13	30	SW

16377 (112.08Wx33.40N) 06/04/08

MC - SOUTH PHOENIX

	Hr	T(F)		PM	Spd	Max	Dir
MC - SOUTH PHOENIX	12	78		41	2	4	SE
	1	77		38	2	6	N
	2	76		40	3	8	E
	3	73		44	2	5	E
	4	73		44	3	6	E
	5	73		69	3	7	E
	6	75		59	5	10	E
	7	79		53	4	8	E
	8	85		46	4	8	NE
	9	89		57	2	11	NW
	10	91		24	4	13	SW
	11	94		24	5	18	SW
	12	95		37	8	25	W
	1	95		64	9	22	W
	2	96		178	12	30	W
	3	96		201	10	27	W
	4	96		182	10	32	W
	5	95		121	8	24	SW
	6	93		129	8	26	SW
	7	90		102	7	23	SW
	8	88		71	6	22	SW
	9	86		66	6	23	SW
	10						
	11	82		206	7	21	SW

16328 (112.10Wx33.50N) 06/04/08

ADEQ - JLG SUPERSITE

	Hr			PM	Spd		Dir
ADEQ - JLG SUPERSITE	12			32	2		NE
	1			27	3		E
	2			27	2		E
	3			28	4		E
	4			32	4		E
	5			32	4		E
	6			35	5		E
	7			33	5		E
	8			34	5		E
	9			32	3		SE
	10			30	4		S
	11			24	4		SW
	12			25	6		SW
	1			37	9		SW
	2			92	9		SW
	3			94	13		SW
	4			76	9		W
	5			72	12		SW
	6			129	12		SW
	7			121	12		SW
	8			113	14		SW
	9			85	12		SW
	10			111	11		SW
	11			229	9		SW

16329 (112.05Wx33.46N) 06/04/08

MC - CENTRAL PHOENIX

	Hr	T(F)		PM	Spd	Max	Dir
MC - CENTRAL PHOENIX	12	78		43	4	8	SE
	1	74		42	4	8	E
	2	72		37	4	10	E
	3	71		39	4	8	E
	4	70		42	4	8	E
	5	70		46	5	8	E
	6	76		52	5	9	E
	7	80		36	6	12	E
	8	85		37	5	10	E
	9	90		38	4	9	E
	10	92		32	6	15	SW
	11	93		29	7	16	SW
	12	93		35	11	24	W
	1	94		65	14	28	W
	2	94		164	17	34	W
	3	93		205	18	33	W
	4	94		141	18	34	W
	5	93		167	18	37	W
	6	90		180	18	34	SW
	7	87		136	17	31	SW
	8	85		102	17	32	W
	9	84		77	15	28	W
	10	81		177	16	31	SW
	11	79		304	16	33	W

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

03184 (112.08Wx33.69N) 06/04/08

NWS-PHX DEER VALLEY

NWS-PHX DEER VALLEY

Hr	T(F)	VR	Dust	Spd	Max	Dir
12	69	10		0		-
1	70	10		0		-
2	74	10		7		SE
3	73	10		6		E
4	72	10		8		E
5	73	10		8		E
6	77	10		3		SE
7	78	10		13		SE
8	82	10		5		SE
9	84	10		8		S
10	86	10		10		S
11	88	10		16		SW
12	89	10		18	25	SW
1	90	10		15	26	SW
2	91	10		22	36	SW
3	93	10		22	29	W
4	91	10		22	33	SW
5	90	10		22	34	SW
6	89	10		24	34	W
7	85	10		22	32	SW
8	83	10		18	25	SW
9	81	10		17	26	SW
10	79	9		17	26	SW
11	77	7		18	26	SW

16368 (112.02Wx33.82N) 06/04/08

MC - CAVE CREEK

MC - CAVE CREEK

Hr	T(F)	RH		Spd	Max	Dir
12	76	16		6	10	NE
1	75	16		7	11	NE
2	74	18		4	7	E
3	70	23		1	4	NE
4	71	22		4	7	E
5	71	23		6	9	NE
6	75	22		5	9	NE
7	79	20		5	11	SE
8	81	18		5	13	SE
9	84	17		8	17	S
10	85	17		6	16	SW
11	86	16		9	21	S
12	87	17		11	23	SW
1	88	18		13	29	SW
2	88	19		14	35	SW
3	89	20		16	33	SW
4	89	19		17	32	SW
5	88	21		17	34	SW
6	87	22		17	33	SW
7	85	26		15	32	SW
8	82	29		15	32	SW
9	80	29		15	28	SW
10	78	32		13	26	SW
11	76	35		13	25	SW

27 (111.97Wx33.73N) 06/04/08

27-DESERT RIDGE

27-DESERT RIDGE

Hr	T(F)	RH	Rn	Spd	Max	Dir
12	67	36	0	2	4	E
1	67	30	0	2	3	E
2	67	33	0	2	6	E
3	69	24	0	3	4	SE
4	68	25	0	2	5	SE
5	65	31	0	1	2	E
6	69	28	0	1	4	SW
7	77	15	0	8	15	S
8	79	14	0	7	11	S
9	82	14	0	6	12	S
10	83	15	0	7	15	SW
11	84	14	0	11	21	SW
12	85	13	0	12	25	SW
1	87	13	0	15	28	W
2	87	14	0	19	33	W
3	88	15	0	19	35	W
4	88	13	0	19	31	W
5	87	14	0	19	31	W
6	87	14	0	21	35	W
7	84	21	0	23	36	SW
8	82	22	0	22	36	SW
9	79	25	0	19	31	SW
10	77	26	0	15	27	SW
11	76	30	0	16	27	W

16393 (112.13Wx33.49N) 06/04/08

MC - W INDIAN SCH

MC - W INDIAN SCH

Hr				Spd	Max	Dir
12				2	6	NE
1				1	4	NE
2				2	7	E
3				4	8	E
4				2	7	E
5				2	7	E
6				4	11	E
7				5	11	E
8				4	10	E
9				3	8	SE
10				5	15	SW
11				6	18	W
12				11	24	W
1				14	30	SW
2				16	31	SW
3				16	37	SW
4				14	31	W
5				15	36	SW
6				16	35	SW
7				16	32	SW
8				16	30	SW
9				15	31	SW
10				15	29	SW
11				14	28	SW

12 (112.11Wx33.62N) 06/04/08

12-PHX GREENWAY

12-PHX GREENWAY

Hr	T(F)	RH	Rn	Spd	Max	Dir
12	71	24	0	1	4	NE
1	70	25	0	1	3	N
2	69	25	0	1	4	NE
3	70	28	0	1	3	SE
4	68	25	0	1	3	N
5	69	23	0	2	3	N
6	74	17	0	2	5	NE
7	77	17	0	6	9	E
8	80	15	0	5	9	E
9	84	13	0	5	11	S
10	85	12	0	7	12	S
11	86	11	0	8	17	SW
12	88	11	0	10	20	SW
1	89	11	0	13	25	SW
2	90	12	0	13	24	SW
3	90	13	0	14	25	SW
4	91	12	0	15	28	SW
5	90	13	0	16	32	SW
6	89	14	0	16	30	SW
7	86	20	0	13	24	S
8	83	19	0	10	19	S
9	82	20	0	10	21	SW
10	79	24	0	12	21	SW
11	77	28	0	12	22	SW

15 (112.10Wx33.48N) 06/04/08

15-PHX ENCANTO

15-PHX ENCANTO

Hr	T(F)	RH	Rn	Spd	Max	Dir
12	68	39	0	1	3	NE
1	68	39	0	1	2	NE
2	67	38	0	1	4	E
3	66	42	0	1	4	NE
4	66	35	0	1	4	NE
5	65	36	0	1	5	E
6	71	27	0	4	8	E
7	76	21	0	5	9	E
8	80	18	0	5	9	E
9	84	15	0	4	7	E
10	87	13	0	5	12	SW
11	88	12	0	6	13	W
12	90	12	0	9	18	SW
1	90	12	0	12	22	SW
2	91	13	0	15	26	SW
3	91	13	0	16	27	SW
4	92	13	0	16	27	SW
5	91	13	0	16	29	SW
6	90	16	0	14	24	SW
7	86	20	0	13	24	SW
8	84	19	0	12	22	SW
9	83	19	0	14	26	SW
10	81	25	0	15	26	SW
11	79	29	0	13	23	SW

23183 (111.99Wx33.44N) 06/04/08

NWS-PHX SKY HARBOR

NWS-PHX SKY HARBOR

Hr	T(F)	VR	Dust	Spd	Max	Dir
12	79	10		8		E
1	77	10		7		E
2	75	10		7		E
3	73	10		7		E
4	73	10		8		E
5	72	10		7		E
6	75	10		10		E
7	77	10		7		SE
8	81	10		8		SE
9	88	10		8		S
10	90	10		9		S
11	91	10		7		*VR
12	93	10		8	22	W
1	94	10		15	26	SW
2	95	10		20	33	W
3	94	10		18	31	SW
4	94	10		24	37	W
5	92	10		23	33	SW
6	90	10		20	28	SW
7	87	10		22	37	SW
8	85	10		23	30	SW
9	83	10		16	26	SW
10	81	10		17	28	SW
11	80	10		13		W

03192 (111.91Wx33.62N) 06/04/08

NWS-SCOTTSDALE

NWS-SCOTTSDALE

Hr	T(F)	VR	Dust	Spd	Max	Dir
12	76	10		0		-
1	74	10		0		-
2	73	10		5		SE
3	73	10		3		SE
4	72	10		0		-
5	74	10		0		-
6	74	10		0		-
7	79	10		10		SE
8	81	10		8		SE
9	83	10		8		S
10	86	10		3		*VR
11	89	10		9		SW
12	90	10		14		SW
1	91	10		16	26	W
2	92	8		16	29	W
3	92	10		16	26	SW
4	91	10		13	23	SW
5	90	10		14	29	SW
6	90	10		17	25	SW
7	87	10		20	25	SW
8	84	10		16	26	SW
9	83	10		16		SW
10	81	10		16	29	SW
11	78	10		9	21	SW

23104 (111.65Wx33.31N) 06/04/08

NWS-WILLIAMS FLD

NWS-WILLIAMS FLD

Hr	T(F)	VR	Dust	Spd	Max	Dir
12	70	10		7		E
1	70	10		8		E
2	66	10		8		E
3	66	10		6		E
4	66	10		8		E
5	66	30		9		E
6						
7	79	30		11		SE
8	82	30		10		SE
9	86	30		11		S
10	90	30		11	18	SW
11	91	30		9	22	SW
12						
1	95	30		15	22	W
2	95	30		16	29	SW
3	95	30		21	33	W
4	95	30		25	33	SW
5	93	20		15	33	W
6	90	20		18	33	SW
7	86	10		16	26	SW
8	82	10		11		SW
9	82	10		11		SW
10	79	10		13	18	SW
11	79	10		18		SW

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

16406 (111.85Wx33.71N) 06/04/08

MC - PINNACLE PEAK

	Hr				Spd	Max	Dir
MC - PINNACLE PEAK	12				2	4	S
	1				2	5	S
	2				2	11	W
	3				4	13	SW
	4				4	9	SW
	5				3	8	SW
	6				1	5	S
	7				2	8	S
	8				5	14	SW
	9				7	20	SW
	10				9	23	SW
	11				8	21	W
	12				10	22	W
	1				11	29	NW
	2				14	30	W
	3				15	33	W
	4				14	34	W
	5				15	34	NW
	6				16	36	W
	7				15	30	W
	8				12	31	W
	9				11	24	W
	10				11	27	W
	11				10	26	W

16376 (111.73Wx33.61N) 06/04/08

MC - FOUNTAIN HILLS

	Hr	T(F)	RH		Spd	Max	Dir
MC - FOUNTAIN HILLS	12	72	21		2	5	NW
	1	71	22		3	5	NW
	2	70	21		2	6	W
	3	69	24		2	5	NW
	4	67	25		1	3	W
	5	66	28		2	3	NW
	6	70	32		1	3	NW
	7	77	20		1	4	NE
	8	82	14		2	10	SE
	9	86	12		8	20	S
	10	89	12		10	20	S
	11	90	11		10	21	SW
	12	92	11		10	24	SW
	1	93	11		9	25	SW
	2	94	11		10	25	SW
	3	94	13		12	30	SW
	4	93	14		13	32	SW
	5	92	15		13	34	SW
	6	91	17		12	30	SW
	7	89	20		11	27	SW
	8	86	21		13	31	SW
	9	85	20		12	26	SW
	10	83	22		12	27	SW
	11	81	27		13	27	SW

16417 (111.61Wx33.55N) 06/04/08

MC - BLUE POINT

	Hr	T(F)			Spd	Max	Dir
MC - BLUE POINT	12	67			1	4	E
	1	66			0	3	N
	2	63			0	7	E
	3	62			0	4	SW
	4	61			1	7	S
	5	61			0	7	SW
	6	67			0	3	NW
	7	75			2	6	N
	8	84			7	18	SE
	9	86			9	20	S
	10	87			11	22	S
	11	89			12	24	SW
	12	91			13	28	SW
	1	93			14	29	SW
	2	93			15	31	W
	3	94			16	32	W
	4	93			16	39	W
	5	91			15	29	SW
	6	89			17	30	SW
	7	87			14	29	SW
	8	86			13	27	SW
	9	84			12	25	SW
	10	82			12	23	SW
	11	80			12	21	SW

16405 (111.93Wx33.41N) 06/04/08

MC - TEMPE

	Hr	T(F)			Spd	Max	Dir
MC - TEMPE	12	69			1	3	E
	1	67			1	4	NE
	2	66			1	3	E
	3	64			1	4	E
	4	63			1	4	E
	5	64			2	5	E
	6	71			2	6	E
	7	77			4	8	E
	8	82			4	9	SE
	9	87			4	12	SE
	10	90			5	16	S
	11	92			6	18	S
	12	93			5	17	S
	1	93			6	20	SW
	2	94			7	25	SW
	3	93			6	27	SW
	4	93			8	27	SW
	5	92			8	28	SW
	6	90			9	22	S
	7	88			8	25	S
	8	86			6	20	SW
	9	84			7	21	SW
	10	82			7	23	SW
	11	80			8	21	SW

16398 (111.92Wx33.48N) 06/04/08

MC - SOUTH SCOTTSDAL

	Hr	T(F)	RH		Spd	Max	Dir
MC - SOUTH SCOTTSDAL	12	74	23		2	4	E
	1	72	24		3	5	NE
	2	71	25		2	5	E
	3	69	29		2	4	E
	4	68	31		2	5	NE
	5	67	31		2	5	E
	6	70	31		2	6	E
	7	75	26		3	10	SE
	8	79	20		5	11	SE
	9	83	20		4	12	S
	10	88	15		6	15	S
	11	90	14		7	17	SW
	12	91	13		8	19	W
	1	92	13		9	21	W
	2	93	15		12	30	W
	3	92	17		15	32	W
	4	92	18		15	33	SW
	5	92	19		12	28	SW
	6	90	22		12	26	SW
	7	88	24		13	31	SW
	8	86	24		13	32	SW
	9	84	24		13	28	SW
	10	82	27		11	30	SW
	11	80	32		12	29	SW

16381 (111.73Wx33.45N) 06/04/08

MC - FALCON FIELD

	Hr	T(F)	RH		Spd	Max	Dir
MC - FALCON FIELD	12	77	13		5	9	SE
	1	76	12		5	11	SE
	2	75	13		6	14	SE
	3	74	12		5	12	E
	4	74	12		4	9	E
	5	73	12		5	12	SE
	6	75	13		6	14	E
	7	78	12		7	13	SE
	8	81	11		9	16	SE
	9	84	10		9	17	S
	10	86	9		9	20	S
	11	89	9		8	22	S
	12	91	8		12	26	S
	1	92	8		10	25	SW
	2	92	8		12	26	SW
	3	93	9		13	31	SW
	4	92	12		12	30	SW
	5	91	14		13	33	SW
	6	89	16		13	29	S
	7	87	17		14	29	SW
	8	85	18		11	24	SW
	9	83	16		9	21	S
	10	81	17		11	23	SW
	11	79	23		11	23	SW

16478 (111.88Wx33.30N) 06/04/08

MC - W.CHANDLER

	Hr	T(F)	RH		Spd	Max	Dir
MC - W.CHANDLER	12	76	15		2	5	SE
	1	73	19		2	6	SE
	2	72	20		3	7	SE
	3	74	16		5	13	SE
	4	67	29		2	6	NE
	5	66	29		3	5	NE
	6	68	28		3	5	NE
	7	74	21		2	8	E
	8	81	13		5	12	S
	9	85	10		6	14	S
	10	87	10		7	18	S
	11	90	9		8	19	SW
	12	92	8		9	23	SW
	1	93	8		12	25	SW
	2	93	9		16	35	SW
	3	93	11		18	34	SW
	4	93	13		17	34	SW
	5	91	15		18	37	SW
	6	90	16		14	28	SW
	7	87	18		11	25	SW
	8	85	16		11	22	SW
	9	82	17		8	16	S
	10	80	21		10	19	S
	11	79	26		12	29	SW

16380 (111.87Wx33.41N) 06/04/08

MC - MESA

	Hr	T(F)	RH		Spd	Max	Dir
MC - MESA	12	78	15		4	6	SE
	1	75	20		4	7	SE
	2	73	20		2	5	E
	3	72	19		4	7	E
	4	72	17		4	7	E
	5	72	16		6	9	E
	6	73	16		5	9	SE
	7	76	15		5	10	SE
	8	79	15		5	10	SE
	9	85	12		6	14	S
	10	88	10		7	17	S
	11	91	10		9	21	SW
	12	93	9		10	25	SW
	1	94	9		13	28	W
	2	94	9		14	31	SW
	3	94	11		16	29	W
	4	93	13		16	38	SW
	5	92	14		15	30	SW
	6	90	16		16	31	SW
	7	88	19		15	28	SW
	8	86	19		12	24	SW
	9	84	18		11	20	SW
	10	82	20		9	18	SW
	11	80	26		10	23	SW

16505 (111.72Wx33.31N) 06/04/08

MC - HIGLEY

	Hr	T(F)		PM	Spd	Max	Dir
MC - HIGLEY	12			41	4	7	SE
	1			34	5	8	E
	2			37	4	8	E
	3			35	4	7	E
	4			50	4	9	E
	5			46	6	11	E
	6			117	6	11	E
	7			98	7	11	E
	8			73	7	12	SE
	9			33	9	16	S
	10			57	10	19	S
	11			51	10	23	S
	12				11	21	SW
	1				12	27	SW
	2			81	13	31	W
	3			34	14	28	SW
	4			138	15	32	SW
	5			212	16	34	SW
	6			202	14	33	SW
	7			102	11	22	S
	8			122	8	15	SW
	9			71	9	23	SW
	10			106	11	21	SW
	11			106	12	22	SW

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

30 (111.58Wx35.21N) 06/04/08

30-FLAGSTAFF

	Hr	T(F)	RH	Rn	Spd	Max	Dir
30-FLAGSTAFF	12	55	19	0	9	17	W
	1	54	20	0	8	13	W
	2	50	26	0	6	9	SW
	3	48	29	0	6	11	SW
	4	46	32	0	7	12	SW
	5	51	26	0	8	14	SW
	6	54	25	0	9	19	W
	7	56	25	0	13	27	W
	8	58	23	0	15	26	SW
	9	60	22	0	17	30	SW
	10	62	22	0	16	35	SW
	11	63	21	0	18	34	SW
	12	64	19	0	19	33	SW
	1	65	19	0	19	39	SW
	2	65	19	0	19	41	SW
	3	65	21	0	20	38	SW
	4	63	27	0	18	37	S
	5	61	31	0	16	28	S
	6	61	30	0	15	29	SW
	7	51	60	0	16	31	W
	8	45	74	0	20	51	W
	9	44	73	0	11	25	SW
	10	44	66	0	8	18	SW
	11	45	53	0	6	13	SW

31 (112.42Wx34.59N) 06/04/08

31-PRESCOTT

	Hr	T(F)	RH	Rn	Spd	Max	Dir
31-PRESCOTT	12	53	33	0	7	9	S
	1	53	33	0	6	11	S
	2	52	34	0	3	7	S
	3	51	36	0	5	8	S
	4	52	36	0	3	8	S
	5	55	31	0	2	5	SW
	6	60	29	0	2	8	SW
	7	66	25	0	8	16	SW
	8	67	24	0	13	26	SW
	9	66	24	0	14	25	SW
	10	68	22	0	14	24	SW
	11	69	19	0	16	28	SW
	12	69	20	0	15	27	SW
	1	71	23	0	15	30	SW
	2	71	25	0	17	28	SW
	3	72	24	0	20	34	SW
	4	72	24	0	22	37	SW
	5	71	24	0	21	38	SW
	6	69	24	0	21	33	W
	7	68	25	0	16	27	W
	8	60	47	0	10	27	NW
	9	54	57	0	5	11	NE
	10	51	63	0	2	5	SW
	11	50	63	0	1	9	SW

32 (111.34Wx34.23N) 06/04/08

32-PAYSON

	Hr	T(F)	RH	Rn	Spd	Max	Dir
32-PAYSON	12	49	47	0	1	4	N
	1	47	50	0	1	4	N
	2	47	50	0	1	4	NE
	3	45	55	0	1	3	NE
	4	44	58	0	1	4	NE
	5	45	54	0	1	7	N
	6	55	36	0	1	2	NE
	7	66	22	0	6	12	S
	8	68	19	0	9	16	S
	9	69	18	0	11	20	S
	10	70	17	0	12	21	S
	11	71	17	0	13	24	SW
	12	73	14	0	13	25	S
	1	73	15	0	15	29	SW
	2	73	16	0	17	29	SW
	3	73	17	0	16	35	SW
	4	73	20	0	17	36	SW
	5	72	21	0	18	34	SW
	6	70	24	0	17	35	SW
	7	70	25	0	15	31	SW
	8	69	28	0	17	38	SW
	9	66	36	0	16	30	SW
	10	64	37	0	17	30	SW
	11	63	37	0	13	27	SW

29 (111.87Wx33.39N) 06/04/08

29-MESA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
29-MESA	12	76	18	0	2	6	SE
	1	74	19	0	3	7	SE
	2	72	21	0	2	4	SE
	3	71	20	0	2	4	E
	4	70	20	0	2	5	E
	5	71	18	0	5	9	E
	6	73	17	0	5	9	E
	7	77	15	0	5	8	E
	8	81	15	0	5	10	SE
	9	87	11	0	6	12	SE
	10	90	9	0	7	16	S
	11	92	9	0	9	20	SW
	12	94	8	0	9	17	SW
	1	94	8	0	11	19	SW
	2	95	9	0	11	23	W
	3	95	10	0	13	28	W
	4	94	12	0	13	25	SW
	5	92	14	0	14	25	SW
	6	90	16	0	13	25	SW
	7	88	18	0	13	23	SW
	8	86	18	0	11	21	SW
	9	84	16	0	8	16	SW
	10	81	19	0	9	15	SW
	11	79	25	0	10	19	SW

22 (111.64Wx33.26N) 06/04/08

22-QUEEN CREEK

	Hr	T(F)	RH	Rn	Spd	Max	Dir
22-QUEEN CREEK	12	66	30	0	6	8	SE
	1	62	37	0	4	7	SE
	2	62	36	0	5	7	SE
	3	60	40	0	5	7	SE
	4	58	45	0	4	7	SE
	5	59	41	0	5	8	SE
	6	64	37	0	5	8	SE
	7	74	24	0	5	10	SE
	8	80	18	0	7	11	SE
	9	83	13	0	11	17	S
	10	86	12	0	11	19	S
	11	89	11	0	12	20	S
	12	91	9	0	15	27	SW
	1	93	9	0	16	27	SW
	2	93	10	0	15	28	SW
	3	91	11	0	16	31	W
	4	90	14	0	17	29	W
	5	89	16	0	16	26	W
	6	87	15	0	14	24	SW
	7	84	17	0	13	25	SW
	8	82	16	0	14	24	SW
	9	80	15	0	12	23	SW
	10	78	20	0	12	18	SW
	11	77	25	0	13	21	SW

16317 (111.33Wx34.23N) 06/04/08

ADEQ - PAYSON

	Hr	T(F)	RH		Spd		Dir
ADEQ - PAYSON	12	53	28		1		S
	1	51	30		1		SE
	2	48	33		1		SW
	3	47	37		1		W
	4	47	38		1		SE
	5	47	40		0		SE
	6	53	33		1		SE
	7	65	17		7		S
	8	68	15		8		S
	9	69	15		10		S
	10	71	14		10		S
	11	73	12		10		S
	12	75	11		11		S
	1	75	11		11		SW
	2	76	11		13		SW
	3	76	12		15		SW
	4	75	15		15		SW
	5	73	17		16		SW
	6	71	20		16		SW
	7	70	22		14		SW
	8	69	26		15		SW
	9	67	31		15		SW
	10	65	31		16		SW
	11	64	32		13		SW

06 (111.97Wx33.07N) 06/04/08

06-MARICOPA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
06-MARICOPA	12	69	26	0	5	12	S
	1	70	21	0	7	11	S
	2	68	22	0	5	9	S
	3	67	21	0	7	9	SE
	4	67	20	0	7	10	SE
	5	67	20	0	7	10	SE
	6	70	21	0	5	9	S
	7	77	16	0	7	10	SE
	8	82	13	0	10	16	S
	9	86	12	0	12	17	S
	10	88	11	0	13	19	SW
	11	91	10	0	14	23	SW
	12	93	9	0	16	25	SW
	1	94	9	0	16	27	SW
	2	95	9	0	19	28	SW
	3	94	11	0	20	32	SW
	4	93	14	0	20	30	SW
	5	90	16	0	20	29	SW
	6	87	18	0	16	24	SW
	7	84	20	0	12	18	SW
	8	80	21	0	10	18	SW
	9	80	20	0	13	22	SW
	10	79	24	0	13	20	SW
	11	75	31	0	13	19	SW

05 (111.60Wx32.98N) 06/04/08

05-COOLIDGE

	Hr	T(F)	RH	Rn	Spd	Max	Dir
05-COOLIDGE	12	62	43	0	5	7	SE
	1	60	43	0	3	5	S
	2	57	50	0	3	7	SE
	3	58	46	0	4	6	SE
	4	59	40	0	6	9	SE
	5	58	42	0	5	8	S
	6	63	40	0	2	5	SE
	7	73	29	0	1	5	SE
	8	81	15	0	8	14	S
	9	86	10	0	12	18	S
	10	89	8	0	13	22	S
	11	93	7	0	15	24	SW
	12	95	6	0	17	27	SW
	1	96	6	0	21	33	SW
	2	97	6	0	21	34	SW
	3	95	8	0	20	30	SW
	4	94	10	0	19	31	SW
	5	91	11	0	20	30	SW
	6	87	13	0	17	26	SW
	7	83	17	0	13	23	SW
	8	81	16	0	13	22	SW
	9	79	19	0	13	19	SW
	10	76	25	0	10	16	SW
	11	74	30	0	11	18	SW

04 (109.68Wx32.81N) 06/04/08

04-SAFFORD

	Hr	T(F)	RH	Rn	Spd	Max	Dir
04-SAFFORD	12	69	15	0	5	8	NW
	1	66	18	0	2	7	E
	2	61	21	0	4	8	SW
	3	61	21	0	5	8	S
	4	55	26	0	2	6	E
	5	54	25	0	4	8	SE
	6	63	20	0	3	7	E
	7	73	13	0	5	8	E
	8	79	11	0	4	10	NE
	9	83	8	0	5	12	NE
	10	86	7	0	5	11	E
	11	88	7	0	7	14	N
	12	91	6	0	7	16	NW
	1	93	6	0	8	17	NW
	2	96	5	0	11	26	SW
	3	96	4	0	17	34	SW
	4	95	4	0	20	33	W
	5	93	4	0	14	31	SW
	6	89	5	0	15	31	W
	7	86	7	0	18	30	W
	8	82	9	0	17	28	NW
	9	78	11	0	16	27	NW
	10	77	12	0	12	18	NW
	11	75	13	0	9	16	NW

Appendix M: EVENT METEOROLOGICAL / AIR QUALITY TABLES

13 (111.23Wx32.46N) 06/04/08

13-MARANA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
13-MARANA	12	71	12	0	2	5	SW
	1	68	14	0	5	9	E
	2	65	17	0	6	8	E
	3	63	18	0	7	10	E
	4	62	20	0	4	7	E
	5	63	22	0	5	8	E
	6	69	19	0	6	11	E
	7	77	14	0	9	15	SE
	8	84	11	0	8	14	SE
	9	88	8	0	8	20	SE
	10	91	6	0	16	27	S
	11	93	5	0	15	24	S
	12	96	5	0	16	26	SW
	1	98	4	0	23	35	W
	2	97	5	0	25	35	SW
	3	96	5	0	24	34	SW
	4	95	7	0	25	34	SW
	5	93	7	0	25	35	SW
	6	89	9	0	24	37	W
	7	84	11	0	17	28	W
	8	80	12	0	7	15	W
	9	78	14	0	11	19	W
	10	77	19	0	10	21	SW
	11	75	23	0	9	17	SW

01 (110.95Wx32.28N) 06/04/08

01-TUCSON

	Hr	T(F)	RH	Rn	Spd	Max	Dir
01-TUCSON	12	68	18	0	2	4	E
	1	64	22	0	2	4	E
	2	63	23	0	3	8	E
	3	64	23	0	4	7	E
	4	62	25	0	2	5	E
	5	63	25	0	4	8	E
	6	67	25	0	5	8	E
	7	75	19	0	6	10	E
	8	81	13	0	7	13	E
	9	85	11	0	8	19	SE
	10	88	9	0	9	20	SE
	11	90	7	0	9	18	SE
	12	92	6	0	11	22	SW
	1	93	5	0	15	33	SW
	2	94	5	0	14	28	SW
	3	93	7	0	13	30	SW
	4	92	7	0	14	25	SW
	5	92	8	0	13	25	SW
	6	89	8	0	13	25	SW
	7	85	9	0	13	23	W
	8	81	12	0	7	16	W
	9	79	13	0	9	25	W
	10	78	18	0	10	21	SW
	11	77	18	0	10	23	SW

09 (109.93Wx32.46N) 06/04/08

09-BONITA

	Hr	T(F)	RH	Rn	Spd	Max	Dir
09-BONITA	12	59	26	0	4	7	N
	1	59	26	0	6	10	NW
	2	56	28	0	5	7	N
	3	54	32	0	4	6	N
	4	53	33	0	3	7	NE
	5	51	31	0	4	7	NE
	6	61	26	0	2	7	SE
	7	70	20	0	4	8	S
	8	75	13	0	3	8	SE
	9	78	13	0	5	11	NW
	10	81	10	0	9	19	SW
	11	84	8	0	13	25	SW
	12	87	8	0	17	26	SW
	1	87	7	0	17	33	SW
	2	89	5	0	17	34	SW
	3	88	5	0	19	33	W
	4	87	6	0	21	34	SW
	5	84	6	0	22	34	W
	6	82	7	0	13	27	W
	7	77	9	0	12	23	W
	8	75	11	0	15	22	W
	9	73	12	0	16	27	W
	10	72	13	0	19	28	W
	11	69	18	0	13	21	SW

23160 (110.96Wx32.13N) 06/04/08

NWS-TUCSON INTL

	Hr	T(F)	VR	Dust	Spd	Max	Dir
NWS-TUCSON INTL	12	72	10		3		NW
	1	70	10		6		S
	2	70	10		6		SE
	3	68	10		11		SE
	4	67	10		8		SE
	5	67	10		0		-
	6	70	10		3		N
	7	79	10		8		S
	8	84	10		11		S
	9	87	10		11		S
	10	91	10		20	24	SW
	11	92	10		18	31	SW
	12	94	10		17	30	S
	1	96	10		17	26	SW
	2	95	10		20	34	SW
	3	94	10		21	31	W
	4	92	10		15	31	SW
	5	91	10		24	33	SW
	6	87	10		20	29	SW
	7	83	10		10	20	W
	8	80	10		7		W
	9	78	10		13		W
	10	77	10		11	21	SW
	11	75	10		6		W

34 (109.73Wx32.05N) 06/04/08

34-KANSAS SETTLEMENT

	Hr	T(F)	RH	Rn	Spd	Max	Dir
34-KANSAS SETTLEMENT	12	67	14	0	2	15	W
	1	68	16	0	7	13	SW
	2	65	18	0	4	12	E
	3	58	25	0	4	10	E
	4	55	31	0	4	10	SE
	5	50	44	0	5	10	SE
	6	61	30	0	6	11	SE
	7	71	18	0	7	13	SE
	8	76	14	0	6	18	S
	9	80	12	0	8	18	SW
	10	83	11	0	15	25	SW
	11	86	10	0	17	30	SW
	12	87	9	0	20	33	SW
	1	88	8	0	25	36	SW
	2	88	7	0	25	39	SW
	3	87	7	0	27	40	SW
	4	86	7	0	27	43	SW
	5	84	8	0	23	34	SW
	6	80	9	0	22	33	SW
	7	77	11	0	18	31	SW
	8	72	14	0	11	20	SW
	9	71	15	0	14	22	SW
	10	69	18	0	17	26	SW
	11	66	23	0	13	26	SW

33 (109.48Wx32.33N) 06/04/08

33-BOWIE

	Hr	T(F)	RH	Rn	Spd	Max	Dir
33-BOWIE	12	69	14	0	7	11	W
	1	71	13	0	8	14	SW
	2	71	12	0	7	13	W
	3	69	14	0	6	11	W
	4	68	15	0	5	11	W
	5	61	20	0	3	8	NW
	6	69	16	0	4	10	NW
	7	76	14	0	4	9	NE
	8	80	12	0	4	9	E
	9	83	11	0	5	19	S
	10	85	10	0	12	28	SW
	11	88	9	0	14	33	SW
	12	90	8	0	16	27	SW
	1	91	6	0	16	27	SW
	2	91	5	0	19	32	SW
	3	91	5	0	18	34	SW
	4	89	6	0	19	34	SW
	5	88	6	0	20	37	SW
	6	86	6	0	20	34	SW
	7	83	7	0	18	31	SW
	8	82	8	0	16	30	SW
	9	80	10	0	15	34	SW
	10	77	12	0	14	28	SW
	11	74	14	0	15	27	SW

128562 (111.01Wx31.83N) 06/04/08

ADEQ - GREEN VALLEY

	Hr			PM	Spd		Dir
ADEQ - GREEN VALLEY	12			16	4		SW
	1			8	8		W
	2			8	6		W
	3			6	5		SW
	4			6	9		SW
	5			5	10		SW
	6			21	10		SW
	7			12	10		SW
	8			11	12		SW
	9			11	13		SW
	10			10	17		SW
	11			11	19		SW
	12			10	20		SW
	1			15	23		SW
	2			17	24		SW
	3			20	23		SW
	4			27	23		SW
	5			21	21		SW
	6			28	21		SW
	7			25	18		SW
	8			36	15		SW
	9			29	12		SW
	10			50	15		SW
	11			146	14		SW

16511 (110.94Wx31.34N) 06/04/08

ADEQ - NOGALES

	Hr			PM	Spd		Dir
ADEQ - NOGALES	12			45	4		S
	1			44	5		SE
	2			45	2		SE
	3			83	2		S
	4			85	2		S
	5			73	1		S
	6			80	3		SE
	7			65	4		S
	8			55	7		S
	9			67	8		S
	10			75	11		SW
	11			24	10		S
	12			68	11		S
	1			81	13		S
	2			114	13		S
	3			108	13		S
	4			54	13		SW
	5			47	12		SW
	6			49	13		SW
	7			73	9		S
	8			87	9		S
	9			262	8		S
	10			130	5		S
	11			67	5		S

16361 (109.55Wx31.33N) 06/04/08

ADEQ - AGUA PRIETA

	Hr	T(F)	RH		Spd		Dir
ADEQ - AGUA PRIETA	12	75	12		6		W
	1	74	12		7		W
	2	72	13		6		SW
	3	70	14		3		S
	4	67	16		2		NE
	5	65	17		2		NE
	6	69	16		1		E
	7	74	13		4		S
	8	79	11		9		S
	9	83	9		16		SW
	10	85	8		16		SW
	11	87	6		17		SW
	12	88	6		15		SW
	1	89	6		15		SW
	2	89	5		16		S
	3	88	6		18		S
	4	88	6		17		S
	5	87	6		15		SW
	6	83	6		15		SW
	7	80	7		12		S
	8	77	9		9		S
	9	75	13		12		S
	10	73	19		13		S
	11	72	22		11		S

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Appendix N
Event Visibility Camera Images

Phoenix Visibility Network Cameras

The visibility cameras aimed at South Mountain and the Estrella Mountains capture images every 15 minutes. Both cameras are orientated so that they face toward the south. The Estrella Mountain camera shows the southwestern portions of the valley, looking towards the Salt River Channel upwind of the West 43rd Ave. monitor. The South Mountain Camera shows the downtown Phoenix with South Mountain in the background as well as a portion of the Estrella Mountains in the extreme upper right hand corner of the camera view. On June 4, 2008, both cameras' images showed reductions in visibility beginning in the early afternoon. Because winds were out of a westerly/southwesterly direction and the cameras both face towards the south, the dust causing the reduction in visibility captured by each camera comes in from the right hand side of the images.

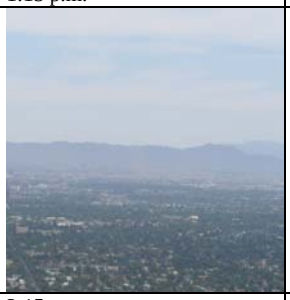
The Estrella Mountain images begin to show a reduction in visibility during the 1:00 pm hour as a noticeable haze moves into the images from right to left (west to east). The 1:45 pm image in particular shows a significant increase in haze due to windblown dust. This timing is concurrent with increased winds throughout much of the Valley. It was during the 12:00 pm hour that winds first gusted above 20 mph at the West 43rd Ave. monitor site and during the 1:00 pm hour that winds gusted over 25 mph there. This timing is also consistent with increases in PM_{10} emissions measured at the West 43rd Ave. monitor. Reductions in visibility due to blowing dust continued at the Estrella Mountain Camera throughout the remainder of the afternoon and into the evening hours, though the 15 minute images do show some variability in the severity of the visibility reduction from image to image.

The South Mountain images begin to show some increases in windblown dust during the 1:00 pm hour, though the most marked increases occur during and after the 2:00 pm hour. Throughout the images taken during the 2:00 pm hour, windblown dust can be seen moving from right to left (west to east). Although visibility in the downtown area appears only slightly reduced throughout this time, the dust enters the right portion of the image at approximately 2:00 pm and begins to obscure the Estrella Mountains. Later in the 2:00 pm hour (2:45 pm image) the dust almost fully obscures South Mountain as it moves down the river channel to the east (left). Dust continues to be visible in the images throughout the remainder of the afternoon into the evening hours, though the 15 minute images do show some variability in the severity of visibility reduction from image to image.

The upper right hand portion of the South Mountain images depicts the area of near West 43rd Ave. and provides an opportunity to see any windblown dust propagating down the Salt River channel in front of the Estrella Mountains and South Mountain. Due to the importance of that portion of the images, and in order to help better see the area, images were cropped and blown up to allow for a closer, more detailed look. In examining these cropped images, it becomes increasingly apparent that there was a large amount of dust moving down the Salt River channel (from right to left in the images) during the afternoon hours of June 4, 2008. The impact on visibility in front of the Estrella Mountains is evident and occurs prior to the significant impact on visibility which obscures portions of the South Mountains. This further illustrates the propagation of dust down the Salt River Channel from west to east.

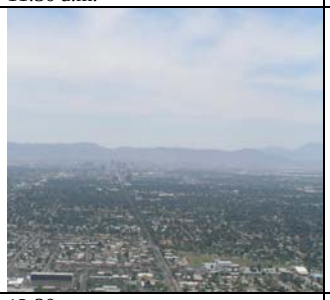
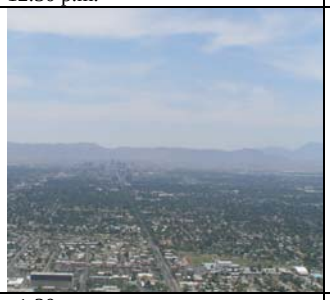
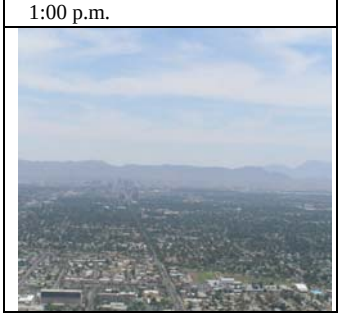
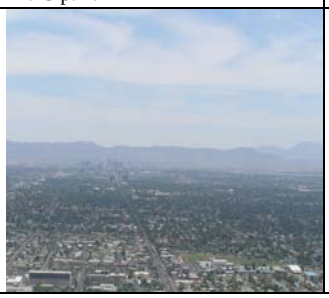
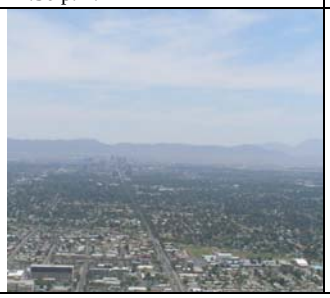
Appendix N - South Mountain Camera – (Zoomed View)
June 4, 2008 - 12:00 p.m. to 4:00 p.m.

View of pristine conditions in the frame of South Mountain and Estrella Mountain from the South Mountain Camera located on North Mountain looking south. Peak in the far ground, visible in the photograph, is in the Estrella range. The south end of the Estrella range is 26.1 miles from the camera and is not visible on the map. South Mountain is at a range of 17 to 20 miles.		

12:00 p.m.	12:15 p.m.	12:30 p.m.	12:45 p.m.
			
1:00 p.m.	1:15 p.m.	1:30 p.m.	1:45 p.m.
			
2:00 p.m.	2:15 p.m.	2:30 p.m.	2:45 p.m.
			
3:00 p.m.	3:15 p.m.	3:30 p.m.	3:45 p.m.
			

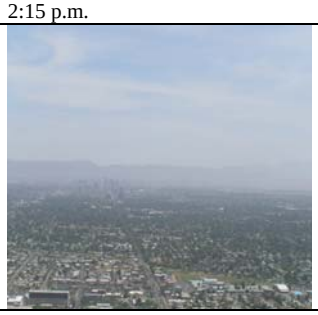
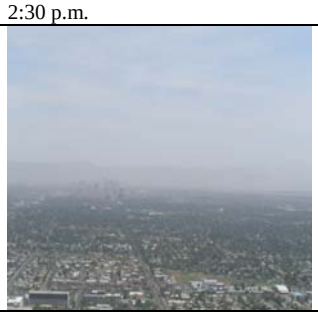
Appendix N - South Mountain Camera – June 4, 2008 - 10:00 a.m. to 2:00 p.m.

View of Pristine Conditions from the South Mountain Camera located on North Mountain looking toward the downtown Phoenix area with South Mountain visible in the background. Peak in the far ground, visible in the photograph, is in the Estrella range. The south end of the Estrella range is 26.1 miles from the camera and is not visible on the map. South Mountain is at a range of 17 to 20 miles.		

10:00 a.m.	10:15 a.m.	10:30 a.m.	10:45 a.m.
			
11:00 a.m.	11:15 a.m.	11:30 a.m.	11:45 a.m.
			
12:00 p.m.	12:15 p.m.	12:30 p.m.	12:45 p.m.
			
1:00 p.m.	1:15 p.m.	1:30 p.m.	1:45 p.m.
			

Appendix N - South Mountain Camera – June 4, 2008 - 2:00 p.m. to 6:00 p.m.

View of Pristine Conditions from the South Mountain Camera located on North Mountain looking toward the downtown Phoenix area with South Mountain visible in the background. Peak in the far ground, visible in the photograph, is in the Estrella range. The south end of the Estrella range is 26.1 miles from the camera and is not visible on the map. South Mountain is at a range of 17 to 20 miles.		

2:00 p.m.	2:15 p.m.	2:30 p.m.	2:45 p.m.
			
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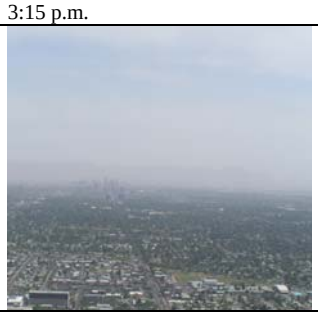
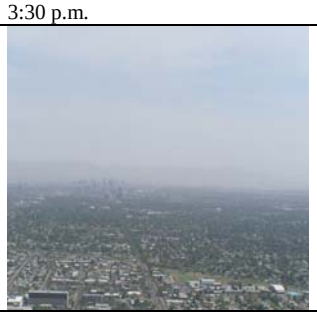
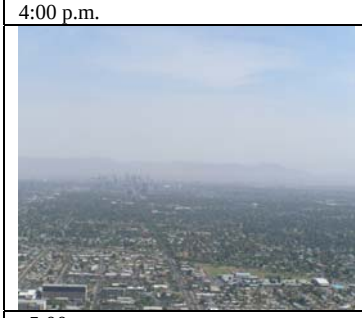
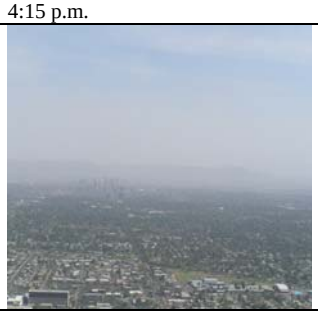
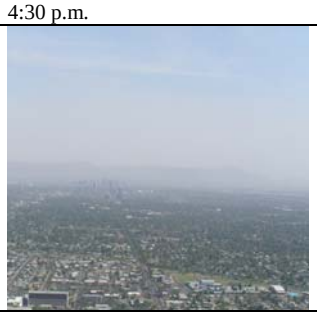
			
4:00 p.m.	4:15 p.m.	4:30 p.m.	4:45 p.m.
			
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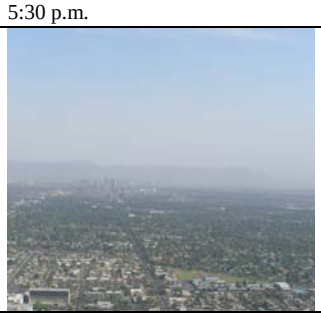
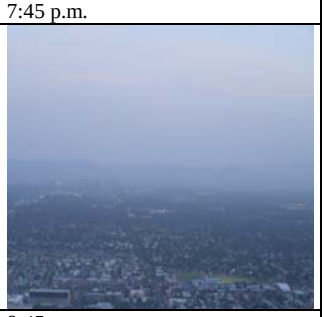
			

Appendix N - South Mountain Camera – June 4, 2008 - 6:00 p.m. to 10:00 p.m.

View of Pristine Conditions from the South Mountain Camera located on North Mountain looking toward the downtown Phoenix area with South Mountain visible in the background. Peak in the far ground, visible in the photograph, is in the Estrella range. The south end of the Estrella range is 26.1 miles from the camera and is not visible on the map. South Mountain is at a range of 17 to 20 miles.		

6:00 p.m.	6:15 p.m.	6:30 p.m.	6:45 p.m.
			
7:00 p.m.	7:15 p.m.	7:30 p.m.	7:45 p.m.
			
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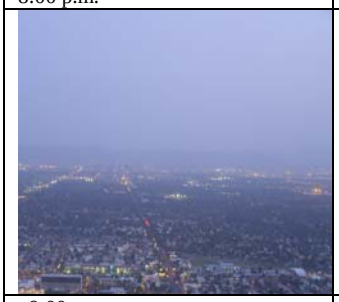	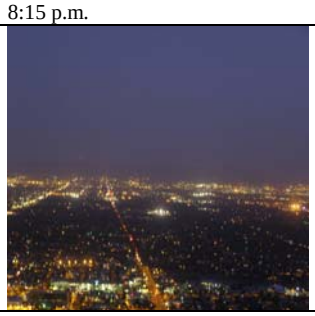	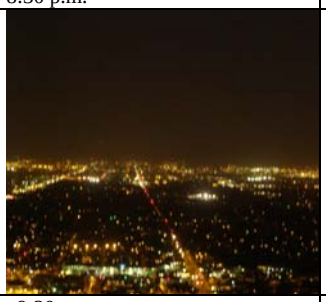	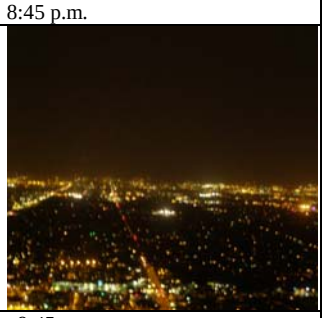
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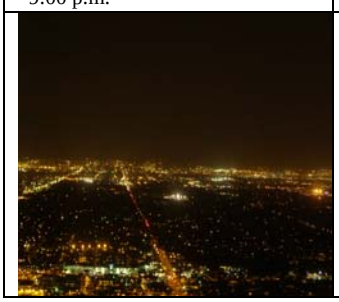	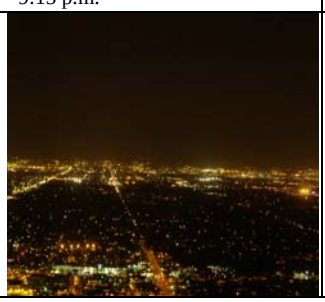	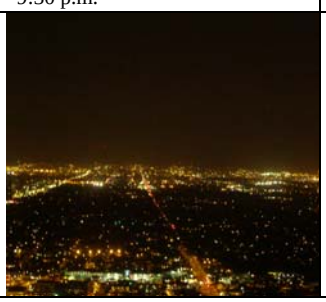	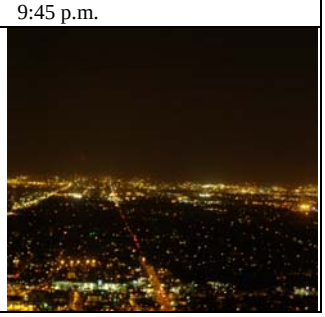

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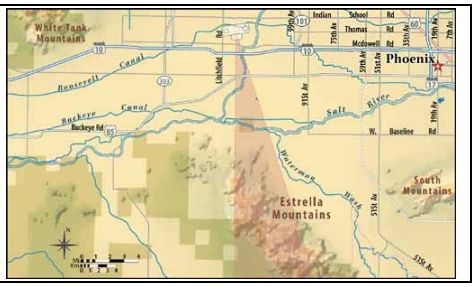
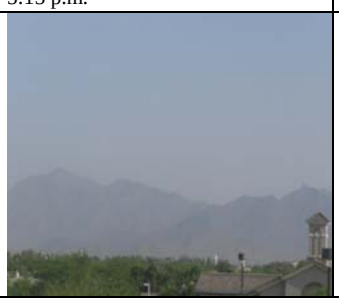
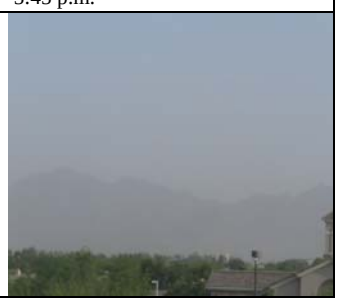
Appendix N – Estrella Camera – June 4, 2008 - 10:00 a.m. to 2:00 p.m.

View of Pristine Conditions from the Estrella Camera looking south from the West Valley at the Sierra Estrella.		

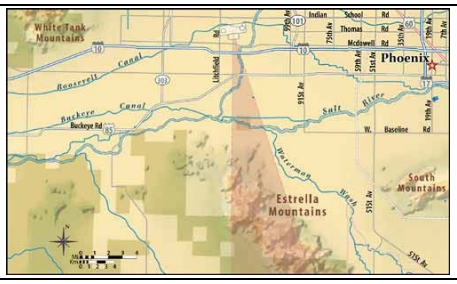
10:00 a.m.	10:15 a.m.	10:30 a.m.	10:45 a.m.
			
11:00 a.m.	**11:15 a.m.**	**11:30 a.m.**	**11:45 a.m.**
			
12:00 p.m.	**12:15 p.m.**	**12:30 p.m.**	**12:45 p.m.**
			
1:00 p.m.	**1:15 p.m.**	**1:30 p.m.**	**1:45 p.m.**
			

Appendix N – Estrella Camera – June 4, 2008 - 2:00 p.m. to 6:00 p.m.

View of Pristine Conditions from the Estrella Camera in the West Valley looking south at the Sierra Estrella.		

2:00 p.m.	2:15 p.m.	2:30 p.m.	2:45 p.m.
			
3:00 p.m.	3:15 p.m.	3:30 p.m.	3:45 p.m.
			
4:00 p.m.	4:15 p.m.	4:30 p.m.	4:45 p.m.
			
5:00 p.m.	5:15 p.m.	5:30 p.m.	5:45 p.m.
			

Appendix N – Estrella Camera – June 4, 2008 - 6:00 p.m. to 10:00 p.m.

View of Pristine Conditions from the Estrella Camera in the West Valley looking south at the Sierra Estrella.		

6:00 p.m.	6:15 p.m.	6:30 p.m.	6:45 p.m.
			
7:00 p.m.	7:15 p.m.	7:30 p.m.	7:45 p.m.
			
8:00 p.m.	8:15 p.m.	8:30 p.m.	8:45 p.m.
			
9:00 p.m.	9:15 p.m.	9:30 p.m.	9:45 p.m.
			

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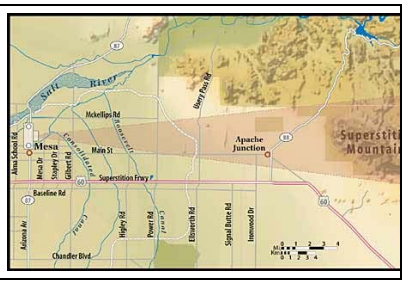
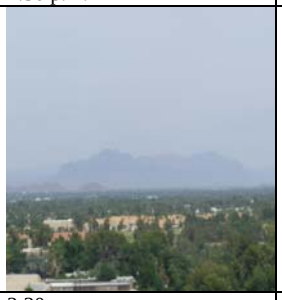
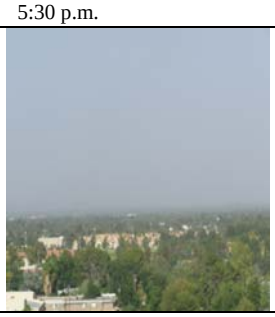
Appendix N - Superstition Mountain Camera – June 4, 2008 - 2:00 p.m. to 6:00 p.m.

View of Pristine Conditions from the Superstition Mountains Camera in Mesa looking east with the Superstition Mountains visible in the background.		

2:00 p.m.	2:15 p.m.	2:30 p.m.	2:45 p.m.
			
3:00 p.m.	3:15 p.m.	3:30 p.m.	3:45 p.m.
			
4:00 p.m.	4:15 p.m.	4:30 p.m.	4:45 p.m.
No image available			
5:00 p.m.	5:15 p.m.	5:30 p.m.	5:45 p.m.
			No image available

Appendix N – White Tank Mountains Camera
June 4, 2008 - 2:00 p.m. to 6:00 p.m.

View of Pristine Conditions from the White Tank Mountains camera in the West Valley looking west with the White Tanks in the background.		

2:00 p.m.	2:15 p.m.	2:30 p.m.	2:45 p.m.
			
3:00 p.m.	3:15 p.m.	3:30 p.m.	3:45 p.m.
			
4:00 p.m.	4:15 p.m.	4:30 p.m.	4:45 p.m.
	No image available		
5:00 p.m.	5:15 p.m.	5:30 p.m.	5:45 p.m.
			

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Appendix O
Event Source Contribution Assessment

APPENDIX O

EVENT SOURCE CONTRIBUTION ASSESSMENT

Windblown Emission Analyses
West 43rd Avenue Monitor

Introduction

The recording of several exceedances of the federal 24-hour PM_{10} ambient air quality standard at the West 43rd Avenue monitoring station in Phoenix in 2008 has focused new attention on the question of contributing sources in the Salt River area. All of the exceedances in question occurred during high wind events, with peak hourly PM_{10} concentrations correlating with highest wind velocity hours. This correlation strongly implicates windblown dust as a primary contributor to measured PM_{10} concentrations. Previous analyses of the wind trajectories leading to the monitoring site immediately prior to peak hourly PM_{10} levels on each of four exceedance days reveal that lands likely to generate the monitored dust lie to the west-southwest of the monitoring site. To evaluate the categories and emission significance of lands contributing to windblown dust loads, a sequence of analyses was conducted by the Maricopa Association of Governments (MAG) and Sierra Research.

Contributing Land Uses

MAG's analysis of land uses began with work done by Sierra Research to study circumstances causing PM_{10} exceedances at a critical Salt River area air quality monitoring site operated by the Maricopa County Air Quality Department (MCAQD). Sierra Research plotted wind parcel back-trajectories from the West 43rd Avenue monitoring station starting from the peak PM_{10} hour on each of four exceedances days in 2008. These days are March 14, April 30, May 21, and June 4, 2008. The back-trajectories were plotted in 5-minute links based on 5-minute average wind speed and wind direction data recorded at the West 43rd Avenue station by MCAQD. The back-trajectory plot for June 4, as an example, is shown in Figure 1. These back-trajectories revealed that winds accompanying peak PM_{10} concentrations typically blew from the west-southwest to the West 43rd Avenue station, crossing a mosaic of agricultural, residential, industrial, and riverbed lands.

MAG staff used land use GIS files to determine the zoned uses of all lands within ½ mile of each back-trajectory track over which wind parcels traveled during the two hours prior to delivering the peak PM_{10} concentration to the West 43rd Avenue monitor. Lands under active construction on each exceedance day were identified from MCAQD earthmoving permit records. Parcel areas were aggregated within seven general categories for which limited emission factor data were available: vacant, agriculture, construction, open/restricted access, river bed, landfill/sand and gravel, and other lands. The uses of these land categories are generally defined as follows:

- Vacant – represents undeveloped land to which public access is not restricted;
- Agriculture – represents lands under agricultural cultivation;
- Construction – represents lands being developed for long-term use that will include ground coverage elements such as pavement, structures, or landscaping that will prevent the generation of windblown dust;
- Passive/restricted open space – represents undeveloped or partially developed lands to which public vehicular access is restricted (these lands include public parks, national forests, military posts, and Indian reservations);
- River bed – represents river bed channels of the Salt and Gila River branches;
- Landfill/sand and gravel – represents lands being used for mineral extraction or waste deposit; and
- Other – represents developed lands that are protected from windblown dust generation by elements such as paving, structures, and landscaping.

Figure 1
June 4, 2008 (19:00 hours) Back-Trajectory

These categories correspond to those used in the windblown dust emission inventory published in the MCAQD's 2008 Periodic PM_{10} Emission Inventory[1] with the exception of the river bed category, which was split out from the passive/restricted open space category and reported separately. The separate reporting and analysis of windblown emissions from river bed lands

[1] 2008 PM_{10} Periodic Emissions Inventory for the Maricopa County, Arizona, Nonattainment Area, Appendix 4, Windblown Dust Emission Estimates Methodology, Final Draft, Maricopa County Air Quality Department, June 2010.

was deemed necessary because of the finer soil texture and higher emission rate in comparison to other restricted open space lands, and because of the high prevalence of river bed lands in the zones along the mapped back-trajectories.

Table 1 lists the total acreages reported within each of these seven categories within ½ mile of the wind back-trajectory for the two hours preceding the peak PM_{10} concentrations recorded at the West 43rd Avenue monitoring station on each of the exceedance days.

Table 1
Total Acreage Within ½ Mile of June 4, 2008 Back-Trajectory by Land Use Category

Category	1st Hour	2nd Hour
Vacant	1,339	3,779
Agriculture	1,633	112
Construction	97	0
Passive/Restricted	3,886	6,742
River Bed	1,828	20
Landfill/S&G	280	0
Other	1,323	1
Total	10,456	10,654

Windblown dust emissions on these lands are controlled by MCAQD Rules 310, 310.01, and 316. Under these rules, disturbed soil surfaces are to be stabilized to reduce windblown emissions. When wind speeds are high, however, even stabilized soil surfaces will produce windblown emissions, although at lower rates that non-stabilized soils. Periodically, MCAQD conducts compliance surveys of lands regulated by these rules. The most recent compliance analysis is published in the Department's 2008 PM_{10} Periodic Emission Inventory.[2] The compliance analysis reports rule effectiveness rates for each of the three rules, and compliance rates with agricultural best management practices on agricultural lands. These rule effectiveness rates were used in this analysis, as was done in the windblown dust portion of the 2008 PM_{10} Periodic Emission Inventory (2008 PEI), to represent the fractions of stabilized and non-stabilized lands in each land use category. Table 2 lists the 2008 rule effectiveness rates by rule and affected land use category.

[2] 2008 PM10 Periodic Emissions Inventory for the Maricopa County, Arizona, Nonattainment Area, Appendix 3, Final Draft, Maricopa County Air Quality Department, June 2010.

Table 2 Rule Effectiveness Rates from 2008 PM_{10} Periodic Emission Inventory			
Rule Number	Affected Land Use Categories	Stabilized Fraction	Non-Stabilized Fraction
310	Construction	82.99%	17.01%
310.01	Vacant, Open/Restricted,	80.76%	19.24%
316	Landfill/Sand and Gravel	49.62%	50.38%
Best Management Practices	Agricultural	55.33%	44.67%

The stabilized and non-stabilized fractions reported in the 2008 PEI were used to split appropriate land use acreages along each back-trajectory into stabilized and non-stabilized subtotals. However, further evaluation of the agricultural data revealed that the compliance fractions related to controls applied to lands that were exposed to wind erosion and not covered with protective crops or crop residues. As a result, MAG staff conducted an independent analysis of the months during which protective crops were being grown on lands within ½ mile of each back-trajectory. This analysis shows that much of the land in each back-trajectory zone was being used to cultivate alfalfa during the exceedance days, which fully protected these lands from wind erosion and greatly reduced emissions from agricultural lands in the aggregate. For other crops, the analysis quantified the acreage within each back-trajectory zone devoted to each of eight other crop types, and determined the monthly activity calendar for each crop showing the months during which tilling, planting, irrigating, crop growth, and harvesting activities occurred. These data were used to refine the estimates of stabilized and non-stabilized land fractions for agricultural lands on each exceedance day. For purposes of calculating the stabilized and non-stabilized fractions of agricultural lands as a whole, we made the following assumptions:

- Lands being tilled, planted, or harvested were disturbed;
- Lands with emergent growth of alfalfa, corn, grain, hay, or sorghum were undisturbed (by virtue of the continuous soil coverage provided by these crop);
- Lands being cultivated for cotton, orchards, or vegetables were disturbed through the cultivation cycle (by virtue of the lack of soil coverage afforded by these crops);
- Fallow lands were disturbed; and
- All disturbed agricultural lands were subject to partial control through application of the compliance fractions reported in the 2008 PEI.

Table 3 shows these data for the June 4, 2008 back-trajectory zone. Because the database used for this analysis (Arizona Cotton Research and Protection Council GIS Data) was different from that used in the original quantification of back-trajectory land use acreages, the totals of agricultural lands within the back-trajectory zones are slightly different. The full results of the MAG analysis are presented in Attachment 1.

Table 3 Crop Type Status and Acreage in June 4, 2008 Back-Trajectory Zone					
Crop	Cultivation Status	Total Acres		Disturbed Acres	
		1st Hour	2nd Hour	1st Hour	2nd Hour
Cotton	Crop in Field	0	0	0	0
Alfalfa	Crop in Field	692	0	0	0
Corn	Crop in Field	0	0	0	0
Fallow	No Activity	52	0	52	0
Grain	Harvesting	317	0	317	0
Hay	Crop in Field	93	0	0	0
Orchard	Crop in Field	0	0	0	0
Sorghum	No Activity	0	0	0	0
Vegetable	Crop in Field	0	0	0	0
Total		1,154	0	369	0
Non-Compliance Fraction				44.67%	44.67%
Net Disturbed Acres				165	0
Net Disturbed Faction				14.28%	0.00%

When the refined agricultural disturbed land fractions are combined with the rule effectiveness rates from the 2008 PEI, the resulting acreages of undisturbed and disturbed lands with each land use category were calculated. These are shown in Table 4 for the June 4, 2008 back-trajectory.

Windblown PM_{10} Emission Equations by Land Use

The windblown PM_{10} emissions of each land use category during each high wind transport hour were computed as a product of two factors: (1) a PM_{10} emission factor, in units of pounds of emission per hour per acre, specific to the land use category and 5-minute average wind velocities within each back-trajectory hour; and (2) the acreage by land use category within ½ mile on either side of the back-trajectory wind path for each hour studied. The windblown PM_{10} emission factor by land use category was derived from data published in a paper by W.A. Nickling and J.A. Gillies that described the 1985 wind tunnel emission testing conducted on exposed soils in desert portions of Arizona.[3] Nickling and Gillies fitted their research data to the classical Prandtl equation for near-surface wind velocity profiles.[4] This equation relates wind speed at any height above ground to the friction velocity and roughness height specific to the soil surface. The friction velocity is the coefficient of a logarithmic equation relating wind velocity to height above the ground. The friction velocity, or slope of the wind velocity curve, is itself a function of the wind velocity. The soil roughness height is the maximum height above the soil

[3] Evaluation of Aerosol Production Potential of Type Surfaces in Arizona, prepared for Engineering-Science by W.G. Nickling and J.A. Gillies, for EPA Contract No. 68-02-380, September 1986.
[4] Meteorologische Anwendung der Stromungslehre, Beitr. Phys. D. Freien Atm., vol. XIX, pp. 188-202, L. Prandtl, 1932.

Table 4 Acreage by Land Use Category and Stability Status Within ½ Mile of June 4, 2008 Back-Trajectory			
Land Use Category/ Stability Status	Fraction of Land Use Category Total Acreage	June 4, 2008	
		1st Hour, Acres	2nd Hour, Acres
Vacant/Undisturbed	80.76%	1,140	3,056
Vacant/Disturbed	19.24%	270	723
Agriculture/Undisturbed	85.72%/100.00% (1st/2nd hr)	1,400	112
Agriculture/Disturbed	14.28%/0.00% (1st/2nd hr)	233	0
Construction/Undisturbed	82,99%	80	0
Construction/Disturbed	17.01%	16	0
Passive-Restricted/ Undisturbed	80.76%	3,142	5,452
Passive-Restricted/Disturbed	19.24%	743	1,290
River Bed/Undisturbed	80.76%	1,479	16
River Bed/Disturbed	19.24%	350	4
Landfill/Undisturbed	49.62%	226	0
Landfill/Disturbed	50.38%	53	0
Other	100.00%	1,323	1
	Subtotal/Undisturbed	8,790	8,638
	Subtotal/Disturbed	1,666	2,017
	Total	10,456	10,654

surface at which the wind velocity remains zero due to the sheltering effects of surface roughness. Research by Bagnold and others has found that wind erosion of surface soil particles commences at a minimum threshold wind velocity, and below this velocity wind erosion emissions are effectively zero.[5] Nickling and Gillies measured threshold velocities at each of 13 test sites and converted these values to equivalent threshold wind speeds measured at a 10-meter height (the typical height above ground for wind velocity sensors) using the Prandtl equation. Based on these data, Nickling and Gillies formulated emission factor equations for each of five land use categories: desert lands, river bed (fluvial) lands, construction sites, mine tailing lands, and agricultural lands. The emission factors were developed by regression analysis as power equations using the computed friction velocity as an independent variable. These equations are presented in Table 5.

[5] The Physics of Blown Sand and Desert Dunes, R.A. Bagnold, Morrow Press, New York, 1941.

Table 5 Nickling and Gillies Windblown PM_{10} Emission Factor Equations by Land Use Category	
Land Use Category	PM_{10} Emission Factor Equation, gm/cm^2-sec
Natural and disturbed desert	$F = 7.99 \times 10^{-13} u_*^{2.99}$
Fluvial sites	$F = 1.59 \times 10^{-13} u_*^{3.32}$
Construction sites	$F = 5.82 \times 10^{-15} u_*^{4.24}$
Mine tailings	$F = 1.59 \times 10^{-12} u_*^{2.93}$
Agricultural lands	$F = 1.445 \times 10^{-18} u_*^{6.026}$

The friction velocity is calculated through the Prandtl equation as a function of the roughness height and the wind velocity measured at a 10-meter height. The modified Prandtl equation used in this analysis is as follows:

$$u_* = (u_z * k)/\ln(z/z_0)$$

where:

u_* = friction velocity, cm/sec
u_z = measured wind velocity at z height = 10-meter height, cm/sec
k = von Karman coefficient, ~= 0.4
z = height of wind measurement = 10 meters
z_0 = roughness height, cm

The roughness heights and threshold friction velocities reported by Nickling and Gillies for each of the 13 sites tested are shown in Table 6. This table also reports the threshold friction velocities in units of miles per hour measured at a 10-meter height for comparison with wind velocities reported at the West 43rd Avenue monitoring station.

The Nickling and Gillies study contains substantial information about each site tested. Attachment 2 discusses how this information was used to select roughness heights and threshold friction velocities for undisturbed and disturbed lands within each land use category found in the exceedance day back-trajectory zones. Table 7 presents the emission factor equations, together with the roughness heights and threshold friction velocities, used to compute emissions for each land use category.

Table 6
Nickling and Gillies Windblown PM_{10} Emission Factor Constants

Location	Land Use Category	Roughness Height Z_0, cm	Threshold Friction Velocity @Z_0, m/s	Threshold Friction Velocity @10 m., m/s	Threshold Friction Velocity @10 m., mph
Yuma, AZ	Scrub Desert	0.0163	0.386	11.33	25.3
Yuma, AZ	Disturbed Scrub Desert	0.0731	0.320	8.11	18.1
Algodones, CA	Dune Flats	0.0166	0.625	18.31	41.0
Mesa, AZ	Agricultural	0.0331	0.569	15.63	35.0
Yuma, AZ	Agricultural	0.0224	0.582	16.59	37.1
Maricopa, AZ	Agricultural	0.1255	0.578	13.82	30.9
Casa Grande, AZ	Abandoned Agricultural	0.0067	0.246	7.80	17.4
Tucson, AZ	Santa Cruz River Terrace	0.0204	0.180	5.18	11.6
Mesa, AZ	Salt River Channel	0.0100	0.218	6.68	14.9
Ajo, AZ	Mine Tailings	0.0176	0.228	6.65	14.9
Hayden, AZ	Mine Tailings	0.0141	0.172	5.11	11.4
Glendale, AZ	Construction Site	0.0301	0.530	14.69	32.9
Tucson, AZ	Construction Site	0.0181	0.251	7.26	16.2

Table 7
PM_{10} Emission Equations and Coefficients Selected to Represent Land Use Categories

Land Use Category	Roughness Height Z_o, (cm)	Threshold Friction Velocity (mph)	PM_{10} Emission Factor Equation
Vacant – Undisturbed	0.0163	25.3	$F = 7.99 \times 10^{-13} u_*^{2.99}$
Vacant – Disturbed	0.0731	18.1	$F = 7.99 \times 10^{-13} u_*^{2.99}$
Agriculture – Undisturbed	0.0067	17.4	$F = 1.445 \times 10^{-18} u_*^{6.026}$
Agriculture – Disturbed	0.0278	41.2	$F = 1.445 \times 10^{-18} u_*^{6.026}$
Construction – Undisturbed	0.0163	25.3	$F = 5.82 \times 10^{-15} u_*^{4.24}$
Construction – Disturbed	0.0241	28.2	$F = 5.82 \times 10^{-15} u_*^{4.24}$
Passive/Restricted - Undisturbed	0.0163	25.3	$F = 7.99 \times 10^{-13} u_*^{2.99}$
Passive/Restricted - Disturbed	0.0731	18.1	$F = 7.99 \times 10^{-13} u_*^{2.99}$
River Terrain - Undisturbed	0.0100	14.9	$F = 1.59 \times 10^{-13} u_*^{3.32}$
River Terrain – Disturbed	0.0204	11.6	$F = 1.59 \times 10^{-13} u_*^{3.32}$
Sand & Gravel – Undisturbed	0.0163	25.3	$F = 1.59 \times 10^{-12} u_*^{2.93}$
Sand & Gravel - Disturbed	0.0731	18.1	$F = 1.59 \times 10^{-12} u_*^{2.93}$

PM_{10} Emissions by Anthropogenic and Nonanthropogenic Sources

PM_{10} emissions were calculated for each back-trajectory hour using emission factors derived from the Nickling and Gillies data, 5-minute wind speed averages recorded at the West 43rd Avenue monitoring station, and the land use acreage along each back-trajectory computed by MAG staff.

The emission factor equations were used to compute PM_{10} emissions for each 5-minute portion of each back-trajectory hour. For each 5-minute period, the measured average wind speed was compared to the threshold friction velocity calculated at a 10-meter height to determine whether the threshold wind speed necessary to the generation of windblown PM_{10} on each land use, undisturbed and disturbed, had been exceeded. If the threshold velocity was exceeded, the appropriate Nickling and Gillies emission factor equation was used to compute PM_{10} emissions in units of gm/cm^2-sec. Emissions for each 5-minute period within each hour and within each land use category were converted to units of lb/acre-hr and then summed to produce hourly average PM_{10} emission rates per land use category. Table 8 presents a sample calculation of the hourly average emission rate from vacant-disturbed lands using the 5-minute average wind speeds measured during the first back-trajectory hour on June 4, 2008. The emission rates for the other categories were calculated using a similar methodology.

Table 8
Average Hourly PM_{10} Rate for Vacant-Disturbed Land
on 1st Hour of June 4, 2008 Back-Trajectory

5-Minute Segment	Average Wind Speed (mph)	PM_{10} Emission Rate (lb/acre-hr)
17:00-17:05	14.1	0.00
17:05-17:10	18.9	11.07
17:10-17:15	19.8	12.72
17:15-17:20	15.1	0.00
17:20-17:25	15.7	0.00
17:25-17:30	15.8	0.00
17:30-17:35	18.4	10.21
17:35-17:40	15.5	0.00
17:40-17:45	16.7	0.00
17:45-17:50	19.1	11.42
17:50-17:55	14.3	0.00
17:55-18:00	14.8	0.00
Average		3.78

The land use category emission rates were then multiplied by the acreages within each appropriate land use category to derive PM_{10} emissions for each back-trajectory hour by land use category. The land use category emission calculation for the first back-trajectory of June 4, 2008, is presented in Table 9. When zeros appear for the emission rate it is because none of the 5-minute wind speeds exceeded the threshold friction velocity for the land use category.

Table 9 Land Use Category PM_{10} Emissions for 1st Back-Trajectory Hour of June 4, 2008			
Land Use Category	PM_{10} Emission Factor (lb/ac-hr)	Area Within Back-Trajectory Zone (ac)	PM_{10} Emissions (lb/hr)
Vacant/Undisturbed	0.00	1,139.8	0
Vacant/Disturbed	3.78	269.6	1,020
Agriculture/Undisturbed	0.00	1,399.6	0
Agriculture/Disturbed	0.00	233.2	0
Construction/Undisturbed	0.00	80.3	0
Construction/Disturbed	0.00	16.5	0
Passive-Restricted/Undisturbed	0.00	3,142.2	0
Passive-Restricted/Disturbed	3.78	743.3	2,813
River Bed/Undisturbed	2.18	1,478.7	3,222
River Bed/Disturbed	3.17	349.8	1,110
Landfill/Undisturbed	0.00	226.1	0
Landfill/Disturbed	3.78	53.5	202
Other	0.00	1,323.5	0
Total		10,456.0	8,368

EPA guidance on exceptional event determinations requires the analysis of emissions from anthropogenic sources.[6] The land use categories shown in Table 9 were grouped within anthropogenic and nonanthropogenic categories, and the hourly PM_{10} emissions within each of these groupings were summed to assess the fractional contribution of anthropogenic and nonanthropogenic sources to peak hourly PM_{10} concentrations measured on exceedance days at the West 43rd Avenue site. The groupings of anthropogenic and nonanthropogenic land use categories are shown in Table 10.

The PM_{10} emissions for each of the two back-trajectory hours on each exceedance day were summed together to calculate total emissions over each exceedance day back-trajectory by land use category. These land use category emissions were then grouped by anthropogenic and nonanthropogenic categories to assess the relative contribution of nonanthropogenic sources to exceedances recorded at the West 43rd Avenue monitoring station during 2008. A summary of the result of these calculations for the June 4, 2008 exceedance day is presented in Table 11.

[6] Federal Register/ Vol. l72, No. 55, Thursday, March 22,2007/ Rules and Regulations, Environmental Protection Agency, 40 CFR Parts 50 and 51, Treatment of Data Influenced by Exceptional Events, Final Rule.

Table 10 Anthropogenic and Nonanthropogenic Land Use Categories		
Land Use Category	Anthropogenic	Nonanthropogenic
Vacant/Undisturbed		X
Vacant/Disturbed	X	
Agriculture/Undisturbed	X	
Agriculture/Disturbed	X	
Construction/Undisturbed	X	
Construction/Disturbed	X	
Passive-Restricted/Undisturbed		X
Passive-Restricted/Disturbed	X	
River Bed/Undisturbed		X
River Bed/Disturbed	X	
Landfill/Undisturbed	X	
Landfill/Disturbed	X	
Other	X	

Table 11 Anthropogenic and Nonanthropogenic Windblown PM_{10} Emissions From West 43rd Avenue Monitor Back-Trajectory Lands on June 4, 2008			
	PM_{10} Emissions (lb)		% of
Land Use Category	Anthropogenic	Nonanthropogenic	Anthropogenic
Vacant/Undisturbed	-	0	
Vacant/Disturbed	3,794	-	29.4%
Agriculture/Undisturbed	0	-	0.0%
Agriculture/Disturbed	0	-	0.0%
Construction/Undisturbed	0	-	0.0%
Construction/Disturbed	25	-	0.2%
Passive-Restricted/Undisturbed	-	0	
Passive-Restricted/Disturbed	7,762	-	60.1%
River Bed/Undisturbed	-	3,255	
River Bed/Disturbed	1,123	-	8.7%
Landfill/Undisturbed	0	-	0.0%
Landfill/Disturbed	202	-	1.6%
Other	0	-	
Total	12,906	3,255	
% of Grand Total	79.9%	20.1%	

Attachment 1

Analysis of Agricultural Crop Coverage and Cultivation Calendars in the Salt River Area

Table 1 Disturbed and Undisturbed Agricultural Crop Acreage for One-Mile Swath of Trajectory (1/2 mile each side)

	3/14/2008		4/16/2008		4/30/2008		6/4/2008	
	1st HR	2nd HR	1st HR	2nd HR	1st HR	2nd HR	1st HR	2nd HR
Disturbed Agriculture (Acre)								
COTTON	577	1,090	54	0	0	0	0	0
GRAIN	0	0	0	0	0	0	317	0
Disturbed Total	**577**	**1,090**	**54**	**0**	**0**	**0**	**317**	**0**
Undisturbed Agriculture (Acre)*								
ALFALFA	4,377	5,856	624	0	924	205	692	0
CORN	26	108	0	0	0	0	0	0
FALLOW	251	78	0	0	0	1,823	52	0
GRAIN	668	1,314	81	0	184	0	0	0
HAY	268	0	0	0	0	0	93	0
ORCHARD	38	0	0	0	0	0	0	0
SORGHUM	0	0	0	0	0	0	0	0
VEGETABLE	0	0	0	0	0	0	0	0
Undisturbed Total	**5,628**	**7,356**	**705**	**0**	**1,108**	**2,028**	**836**	**0**

Agricultural Area Data Source: Arizona Cotton Research and Protection Council (ACRPC) GIS Data.

DRAFT **Crop Calendar for Maricopa County**												
(Usual Field Activity by Month and Crop)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Alfalfa[1]												
Corn - Silage[1]												
Cotton[1]												
Grain[2]												
Orchard[3]												
Hay[2]												
Sorghum - Grain[3]												
Vegetables[1]												
Days of Interest			**3/14/08**	**4/16/08** **4/30/08**		**6/4/08**						

Field Activities Legend

- Tilling =
- Planting =
- Irrigated =
- Crop in Field =
- Harvest =
- No Activity =

Notes

1. Salt River PM_{10} TSD (2003 meetings with Maricopa County Farm Bureau and U of A Cooperative Extension).

2. "Usual Planting and Harvesting Dates for U.S. Crops," Agricultural Handbook Number 628, USDA, ARS, NASS, December 1997.

3. Communication with Maricopa County Farm Bureau, May 11, 2010. In 2008, sorghum was grown for grain instead of silage. Common practice is to plant sorghum in July in the same field that corn had been harvested from in July, with little tillage.

4. Cotton fields must be plowed down by February 15th and cannot be irrigated until March 15th as required by Pink Bollworm Program.

5. Planting - fields are either irrigated prior to planting or shortly after planting.

Attachment 2

Use of Nickling and Gillies Test Data in Characterizing Emission Potential of Salt River Area Lands

The Nickling and Gillies study of windblown PM_{10} emissions from Arizona lands under different use patterns constitutes the best available information on the emission potential of undeveloped lands upwind of the W. 43rd Avenue monitoring station.[7] The challenge in using the data was to best match the surface soil conditions found at the 13 sampling sites in 1985 with conditions existing at lands upwind of the monitoring station in 2008. This appendix discusses how these matches were developed.

Critical Parameters

As discussed in the report, Nickling and Gillies fit their field data to the classical Prandtl wind velocity equation and a series of power equations relating PM_{10} emissions to wind velocity. The Prandtl equation assumes a logarithmic relationship between wind velocity and the height above ground surface at which the wind velocity is measured. The coefficient linking these two parameters is referred to as the friction velocity (u_*). Nickling and Gillies developed PM_{10} emission factor equations for five different land use categories that use the friction velocity as the sole independent variable. A second Prandtl equation coefficient, which dictates the magnitude of the friction velocity, is the soil roughness height (Zo) at the point of wind velocity measurement. The soil roughness height is calculated from wind velocity profile measurements and represents the height below which the wind velocity is effectively zero due to the sheltering effects of soil surface elements.

The final parameter of significance in computing windblown PM_{10} emission rates is the threshold friction velocity. This is the velocity above which shear forces on the soil surface commence the saltating, or bouncing, movement of sand particles that is the primary mechanism for the dislodgement and entrainment into the air of fine soil particles. At wind speeds below the threshold friction velocity, no windblown PM_{10} emissions are generated.

Land Use Categories Tested

Nickling and Gillies conducted wind tunnel emission studies on five categories of land use:

- Desert lands,
- Fluvial, or river bed, lands,
- Construction sites,
- Mine tailing piles, and
- Agricultural lands.

[7] Evaluation of Aerosol Production Potential of Type Surfaces in Arizona, prepared for Engineering-Science by W.G. Nickling and J.A. Gillies, for EPA Contract No. 68-02-380, September 1986.

Of the 13 sites tested among these land use categories, most were fairly disturbed. Only two of the test sites were relatively undisturbed: a scrub desert site near Yuma, AZ, and an abandoned farm near Casa Grande, AZ. The lack of test data from undisturbed sites offered one of the more significant challenges in using Nickling and Gillies test data to represent disturbed and undisturbed portions of lands upwind of the W. 43rd Avenue station.

Desert Lands

One of the more expansive land use categories, in terms of acres of undeveloped land along wind back-trajectories impacting the monitoring station, is vacant lands. This category includes lands that are not in productive use, but which are partially disturbed by human trespass. Much of the land within this category constitutes open desert. As a result, the surface soil characteristics of lands within this category were assumed to be very similar to those in the "desert" category tested by Nickling and Gillies. Nickling and Gillies tested two desert soil sites near Yuma, AZ, one of which had been disturbed by off-road vehicle traffic and one of which was relatively undisturbed by anthropogenic activities.

The undisturbed site was located on federal land under the control of the U.S. Bureau of Land Management. The soil surface was crusted, but the crust was extremely delicate and broke with the slightest pressure. Saltating particles easily broke the crust once the wind tunnel tests were initiated. The soil surface contained widely scattered pebble deposits, and was sparsely vegetated with low grasses. This structure is very representative of undisturbed desert soils in the Salt River area.

The disturbed site was located within the University of Arizona's Agricultural Research Station at Yuma. The surface soil was very loose from vehicle disturbance and also sparsely vegetated with low grasses. Data from these two sites were used to represent undisturbed and disturbed vacant lands in the Salt River area, respectively.

A second related land use category identified in the back-trajectory zones upwind of the W. 43rd Avenue monitoring station was restricted-access open areas. Access to these lands is limited by fencing, barriers, active enforcement, or other means. Lands that fall within this category include parks, military lands, national forest land, and privately owned fenced lands. Because the surface soils on these lands are essentially desert soils, the soil characteristics of these lands were also represented by the desert soils test data collected by Nickling and Gillies.

Finally, Nickling and Gillies also conducted testing of windblown emissions from sand dunes in the Algodones Dunes area near Brawley, CA. Because there are no sand dunes of significance within the Salt River area, these test data were not used to represent surface soil conditions for any land use category in this analysis.

Fluvial Sites

Fluvial, or river bed, lands typically contain higher concentrations of fine silts than alluvial desert lands, and are capable of higher PM_{10} emission rates at lower threshold friction velocities as a result. Nickling and Gillies tested two river bed sites—one on the Salt River channel near Mesa, AZ, and a second on the Santa Cruz River channel near Tucson, AZ.

Both river bed sites were somewhat disturbed. The Salt River test site was located in the river channel among large silt lenses in an area heavily disturbed by vehicle traffic. The Santa Cruz River site, however, was located on a terrace above the main channel and was moderately disturbed. The soil in this latter site also contained small gravel particles that provided limited wind sheltering to exposed silt.

On the basis of the descriptions in the Nickling and Gillies report, the Salt River test site data were selected to represent disturbed river bed soils, and the Santa Cruz River data were used to represent undisturbed soils. Because of the higher silt content of the fluvial soils, the characteristics of undisturbed desert soils were not considered to be similar to those of undisturbed river bed sites.

Construction Sites

Two construction sites were tested by Nickling and Gillies, one in Glendale, AZ, and a second in Tucson, AZ. The Glendale site was being developed by the west campus of the Arizona State University, and had been severely disturbed by earthmoving equipment, but had also been heavily watered as part of a dust control operation. During testing, the soil surface was found to have formed a crust from water application that increased the threshold friction velocity and reduced the windblown PM_{10} emission rate. Data from this site were used to represent undisturbed construction sites in the Salt River area.

The Tucson site was located on the south side of I-10, where a major motel complex was being constructed. The site had been leveled by earthmoving equipment and the surface soil was heavily pulverized. The soil surface at this site contained more loose particles than the Glendale site, apparently as a result of less dust control watering and more recent vehicle disturbance. Data collected at this site, as a result, were used to represent disturbed construction lands along the back-trajectories upwind of the W. 43rd Avenue monitor.

Mine Tailings

Two mine tailings piles were tested by Nickling and Gillies. Emissions from these structures were of interest because of the high silt content of the finely ground mill waste, and the lack of any sheltering vegetation or larger particles on the surfaces of these piles. One of the piles tested was on the property of the Phelps-Dodge Company in Ajo, AZ, and the second was located near Hayden, AZ.

The Ajo tailings had very little cohesive structure on the surface, resulting in high PM_{10} emissions rates at low threshold velocities. The Hayden tailings possessed greater cementation and greater variability in particle size, but also contained a higher silt content than the Ajo tailings. The higher silt content appeared to provide a slight crust when the tailings surfaces were watered and then allowed to dry.

The very fine and uniform particle sizes of soils in these tailing piles are unlike any soils found in the Salt River area. The tailing piles were formed through the pulverization of quarried rock to release precious minerals, especially copper, through chemical extraction. No soils or rock in the Salt River area are processed to this degree, or in any other fashion to produce such fine, noncohesive material. As a result, the test data from these sites were not used to represent any of the undeveloped lands in the Salt River area.

The mining of river bed material for use as sand and gravel in the construction industry is a significant land use in the Salt River area. In this process, however, silt is an undesirable by-product, and material processing operations are designed to produce a minimum of this fine material. Much of the exposed surface at sand and gravel mines capable of generating windblown PM_{10} is actually desert soil upon which processing operations are located. As a result, the surface soil characteristics of these sites were represented by the disturbed and undisturbed desert land data collected by Nickling and Gillies.

Agricultural Lands

Nickling and Gillies conducted emissions tests on three active and one abandoned farm site in 1985. The active sites were located near Mesa, Yuma, and Maricopa, AZ, and the abandoned farm site was located near Casa Grande, AZ. Soil conditions related to windblown emissions at the farms in the Mesa and Yuma areas were found to be relatively similar. These sites were characterized as having been recently tilled and awaiting planting. No dust control measures had been applied at either site, and the soil surface was somewhat cloddy from the recent plowing. The active farming site at Maricopa was found to have been recently tilled while the soil had been relatively damp, resulting in large, dried clods on the soil surface that were heavily crusted and responsible for a relatively high surface roughness. As a result, the test data from the Maricopa site were substantially different from data collected at the other two active sites. Because of this difference, and the unique conditions found at the Maricopa site, the data from this were not used to represent soil conditions on agricultural lands in the Salt River area. Instead, the data collected at Mesa and Yuma were averaged together to represent these lands.

The abandoned farm land near Casa Grande, AZ, was also unusual compared to lands found in the Salt River area. The Casa Grande site had not been cultivated for a number of years, and the soil surface showed significance evidence of wind erosion and a return to desert conditions. Additionally, however, lands in this portion of Pinal County are known to have high alkaline contents—hence their abandonment from cultivation—and high windblown dust potential. Because of these unique properties, data collected at this site by Nickling and Gillies were not used to represent any land use category in the Salt River area.

Separate analyses of crop coverages and cultivation calendars in the Salt River area have found that significant fractions of agricultural lands are covered by maturing crops during the high wind season in the spring of each year. As a result, soil surface characteristics for lands with cover crops—such as alfalfa, corn, and grains—were estimated using classical protocols. The roughness height for these lands was calculated to be $1/30^{th}$ of the height of the lowest continuous crop, which is 3 inches for freshly mowed alfalfa, resulting in a roughness height of 0.254 cm. The friction velocity for vegetated fields was assumed to be the same as that measured on disturbed fields by Nickling and Gillies. The resulting calculated threshold friction velocity of 34.1 mph at a 10-meter height for undisturbed fields was found to be less than the value of 41.2 mph measured on disturbed fields, meaning that this approach resulted in a conservatively low calculated value that would not underestimate the emissions from undisturbed fields.

EVENT SOURCE CONTRIBUTION ASSESSMENT

Historical Analysis of Average Hourly Wind Speeds and PM_{10} Concentrations for Spring and Summer Months at West 43rd Ave. Monitor (2005 – 2008)

Figures 1 through 8 depict the relationship between hourly mean PM_{10} concentrations and hourly mean wind speeds. These figures are analogous to the hourly PM_{10} concentrations and hourly wind gust figures contained in Section 7 of the "Assessment of Qualification for Treatment under the Federal Exceptional Events Rule: High Particulate (PM_{10}) Concentration Events in the Phoenix and Yuma Areas on June 4, 2008" report.

Figure 1
Comparison of Hourly Mean PM_{10} Concentrations & Mean Wind Speeds
Spring Months at West 43rd Ave. Monitor

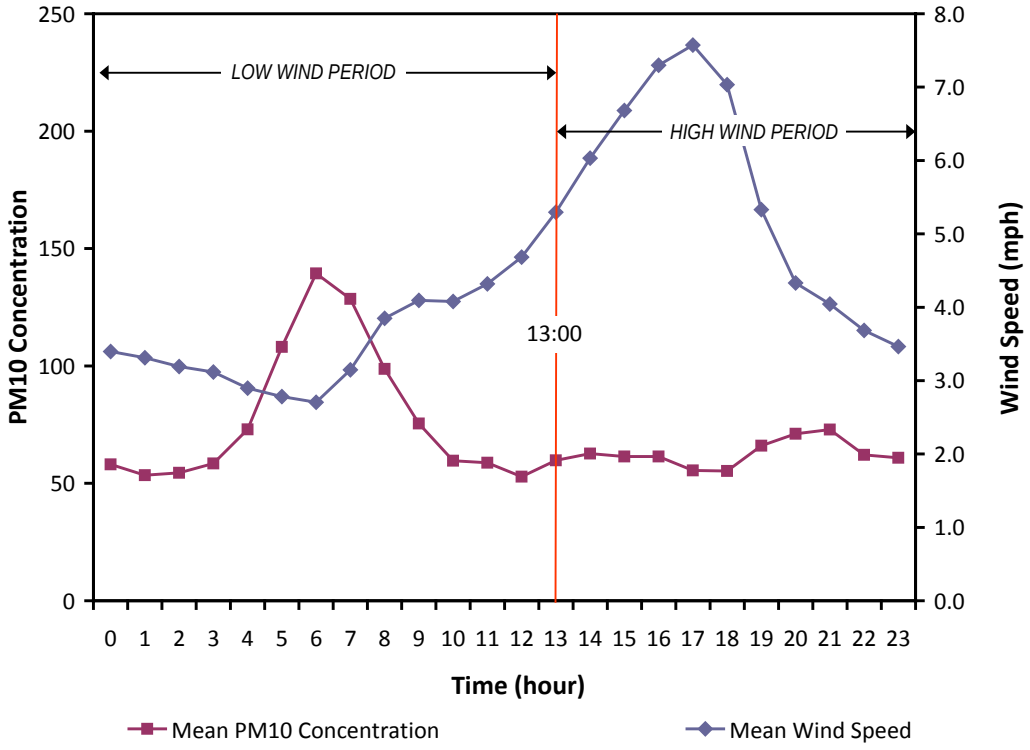


Figure 2
Comparison of Hourly Mean PM_{10} Concentrations & 5th Percentile Wind Speeds
Spring Months at West 43rd Ave. Monitor

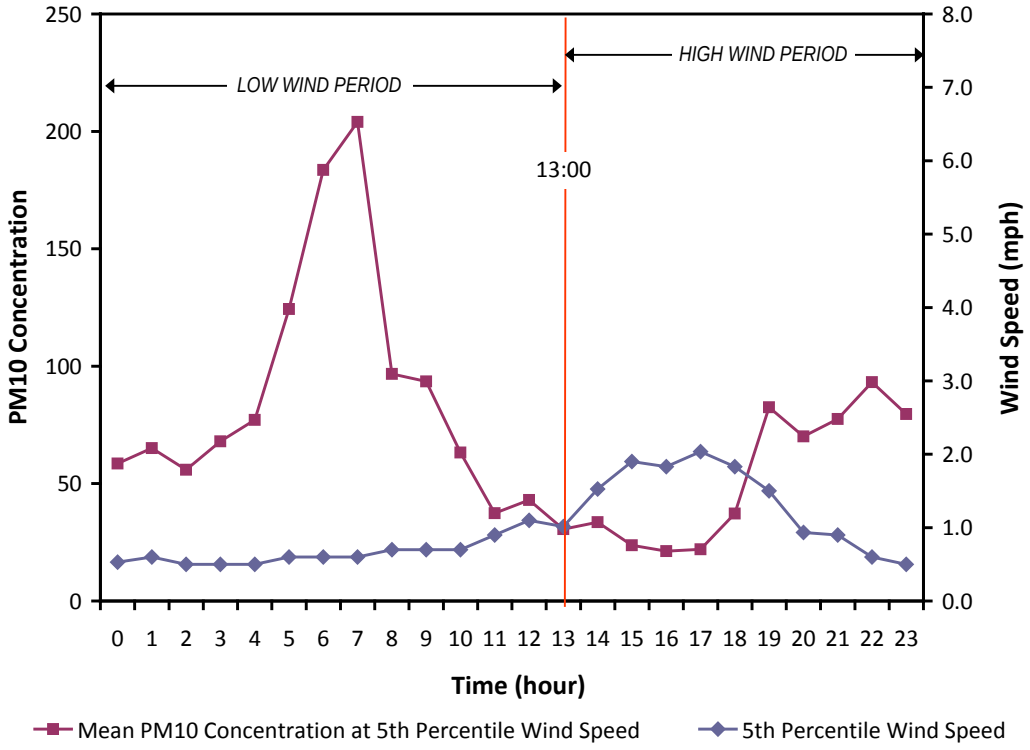


Figure 3
Comparison of Hourly Mean PM_{10} Concentrations & 95th Percentile Wind Speeds
Spring Months at West 43rd Ave. Monitor

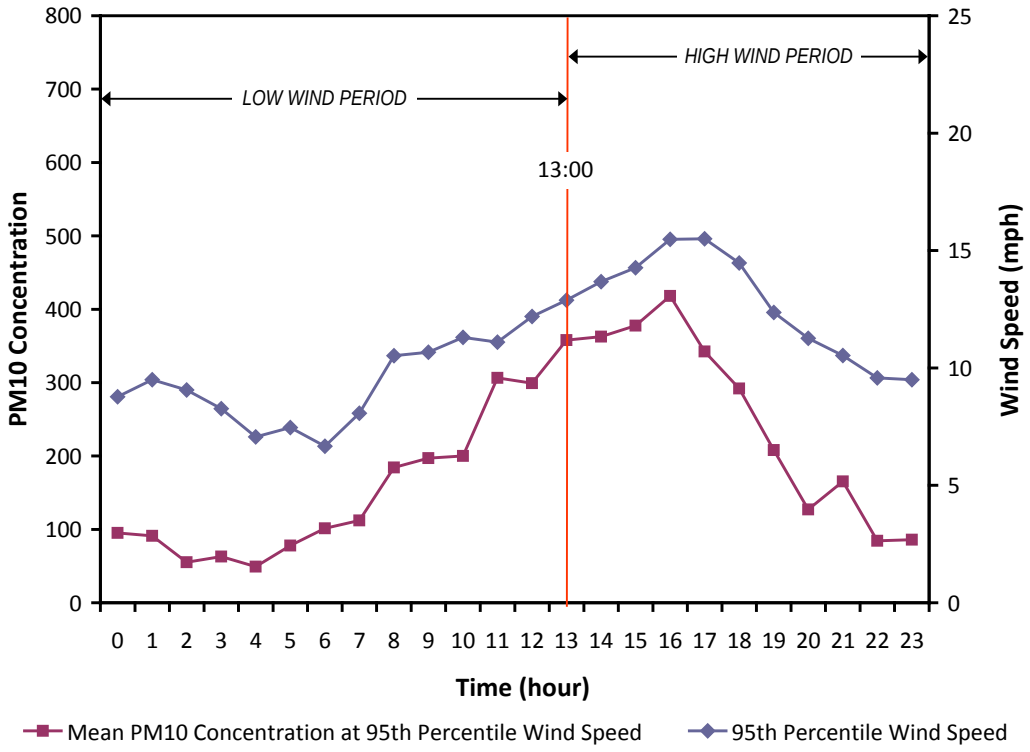


Figure 4
Comparison of Hourly Mean PM_{10} Concentrations & 99th Percentile Wind Speeds
Spring Months at West 43rd Ave. Monitor

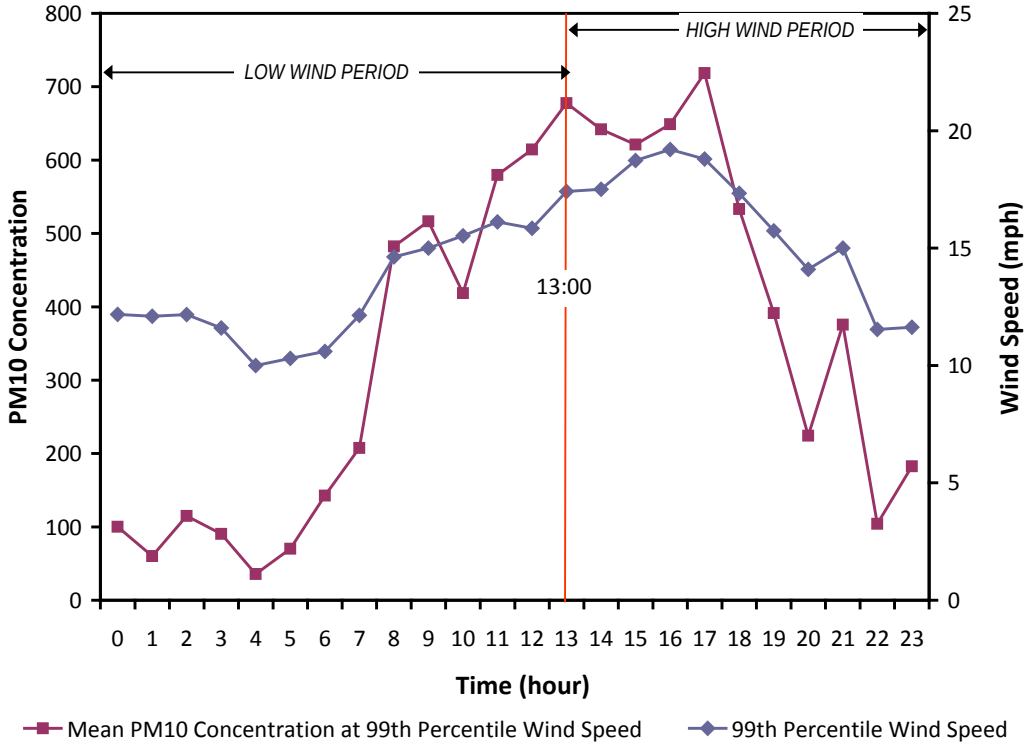


Figure 5
Comparison of Hourly Mean PM_{10} Concentrations & Mean Wind Speeds
Summer Months at West 43rd Ave. Monitor

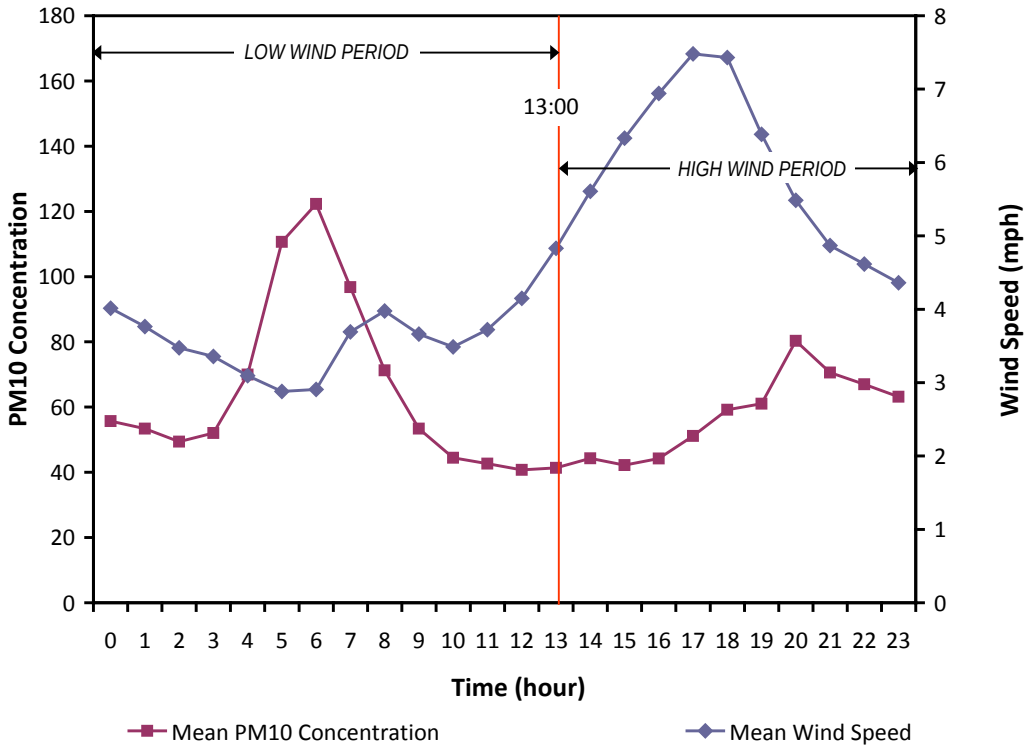


Figure 6
Comparison of Hourly Mean PM_{10} Concentrations & 5th Percentile Wind Speeds
Summer Months at West 43rd Ave. Monitor

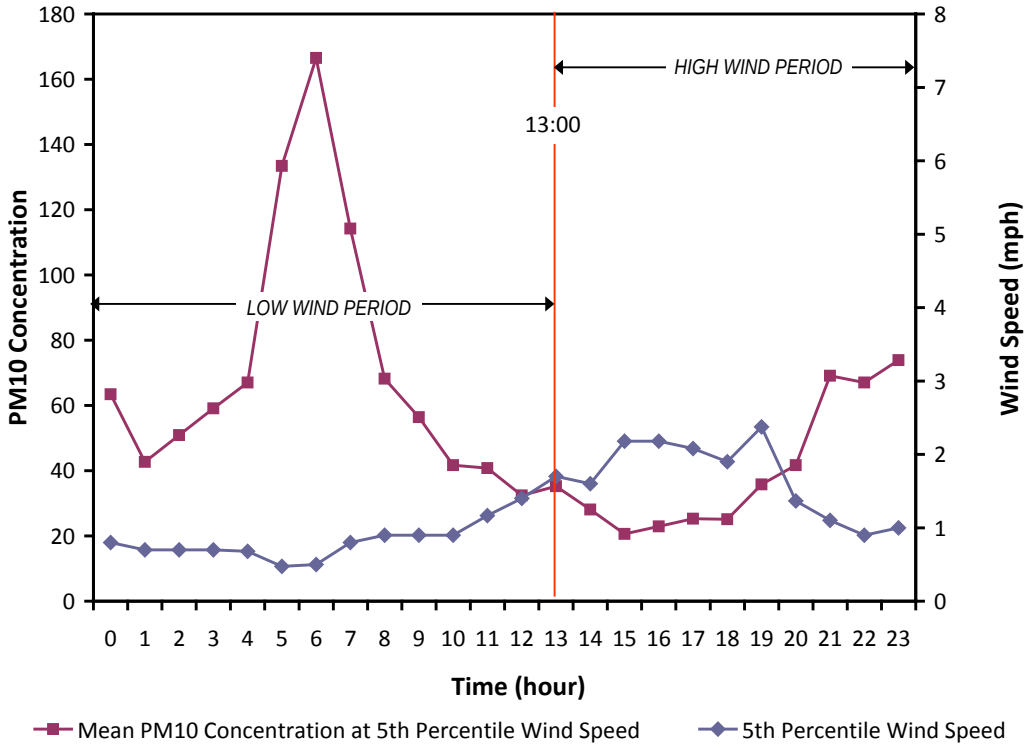


Figure 7
Comparison of Hourly Mean PM_{10} Concentrations & 95th Percentile Wind Speeds
Summer Months at West 43rd Ave. Monitor

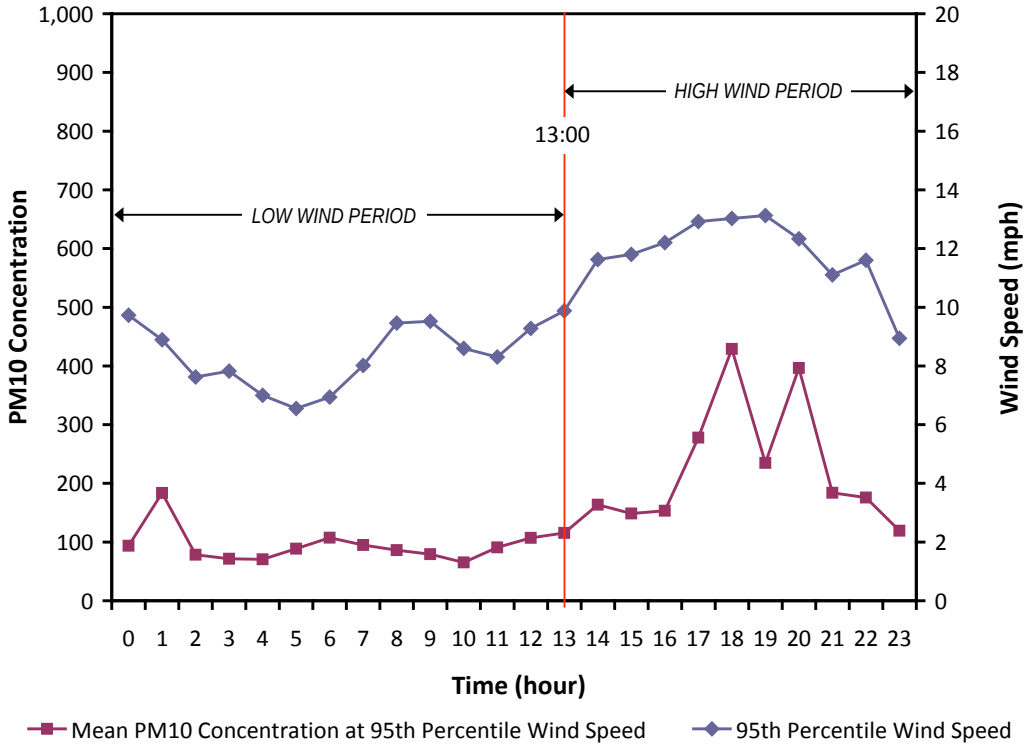
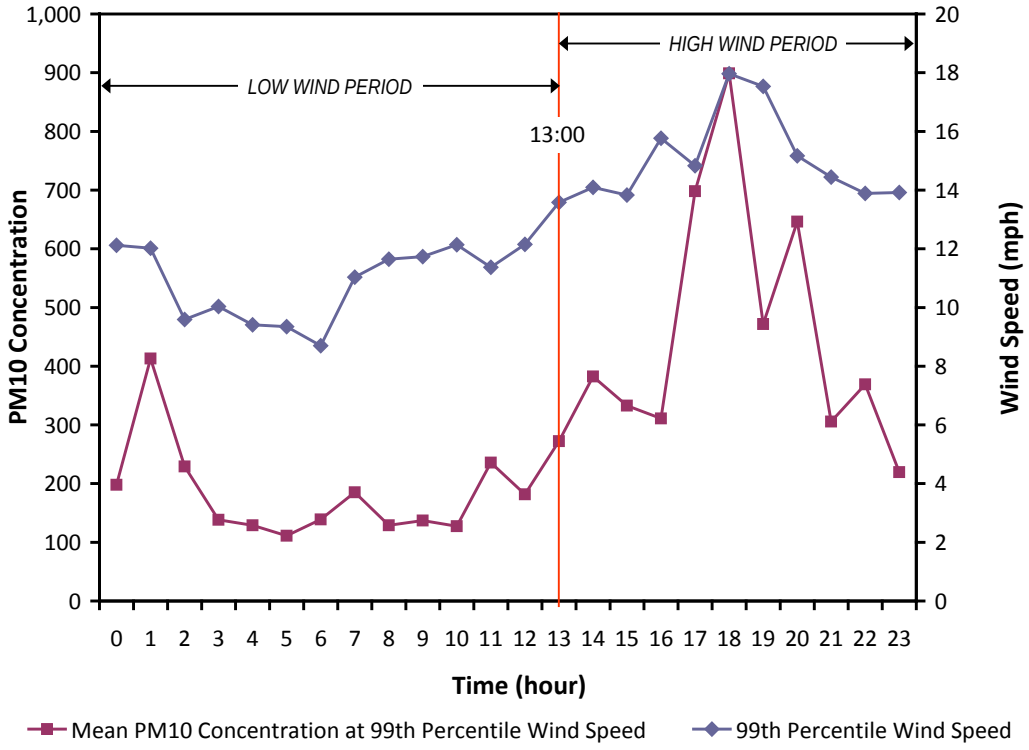


Figure 8
Comparison of Hourly Mean PM_{10} Concentrations 99th Percentile Wind Speeds
Summer Months at West 43rd Ave. Monitor



Appendix P
Event Control Measures Report

APPENDIX P

EVENT CONTROL MEASURES REPORT

PM_{10} Control Measures Reporting Form
High Wind Exceptional Event Demonstration

Date of Flagged Event June 4, 2008

PM_{10} Planning Area Maricopa County PM10 Nonattainment Area

Exceeding Monitor(s) Buckeye, Coyote Lakes, and West 43rd Monitors

AQI/High Wind/Dust Forecast (rolling three day forecast) Issued?

Yes	**No**
X	

Type: PM10 Health Watch (issued between 10 am and noon, same day)

In the spaces below, please provide information about the 72-hour period preceding the event, the day of the event, and the 72-hour period following the event. For a list of control measures for the planning area, see back of this form. Account for minimum 2 mile area around exceeding monitor(s). *Please attach additional information if necessary*.

Complaints:

No complaints for agricultural activities for all three areas during time frame, and two fields within radius of West 43rd and Durango monitors were *not* in crop production; no County complaints for **Buckeye area**; June 4th County complaint inspection of vacant lot for **Coyote Lakes** area; June 4th County complaint inspection_ of a dust control permit for **West 43rd** area.

Inspections:

June 4th four inspections of dust control permits under Rule 310 BACM measures for **Buckeye** area (no violations); June 2nd one inspection of Rule 316 point source for Rule 316 BACM measures for **Coyote Lakes** area (no violations); June 3rd three inspections of dust control permits for Rule 310 BACM measures, June 5th two inspections – one for a dust control permit for Rule 310 BACM measures and one for Rule 316 source (no violations), June 6th five inspections of dust control permits for Rule 310 BACM measures (no violations) all for **West 43rd** area.

Notices or Enforcement Actions:

None for **Buckeye** area; one 60-day letter for unstable vacant lot under Rule 310.01 for **Coyote Lakes** area; one NOV issued on June 4th for trackout under Rule 310 and one NOV issued on June 5th for failure to install a wheel washer under Rule 316 both for **West 43rd** area.

Regulating Agency(s) ADEQ (Agriculture); Maricopa County

Information Supplied By Emily Bonanni, ADEQ Planning Division, Compliance Section; Jo Crumbaker, Maricopa County Air Quality Department

Date Completed October 14, 2009

FOR INTERNAL PURPOSES ONLY
Reviewed by / date: _____

Measures included in the Maricopa County PM_{10} 5 Percent Plan
(25 committed measures in parentheses)
1. Extensive dust control training program (2).
2. Dust managers/Coordinators at earthmoving sites < than or equal to 5 acres (3,16).
3. Increase proactive Rule 310 and 316 inspections (9, 10, 44).
4. Strengthen Rule 310 to promote continuous compliance (36 thru 38, 28).
5. Conduct nighttime and weekend inspections (8).
6. Ban leaf blowers from blowing debris into streets (21).
7. Prohibit use of leaf blowers on unstabilized surfaces (45).
8. Implement a leaf blower outreach program (22).
9. Ban ATV use on high pollution advisory days (23).
10. Pave or stabilize existing unpaved parking lots (25).
11. Pave or stabilize unpaved road shoulders (28).
12. Strengthen and increase enforcement of Rule 310.01 for vacant lots (31, 32)
13. Recover costs for stabilizing vacant lots (33).
14. Restrict and enforce vehicle use/parking on vacant lots (31, 32).
15. Increase fines for open burning (34).
16. Restrict use of outdoor fireplaces/pits/ambience fireplaces (35).
17. Other wood burning restrictions in SB 1552 (47, 48).
18. Repave or overlay paved roads with rubberized asphalt (53).

Various additional SIP measures or sources:
1. Agriculture – Agricultural Best Management Practices (AgBMP) Program
2. Point sources – Permit Conditions (stack, fugitive, and area source emissions)
3. Rule 310 and 310.01; sand and gravel – Rule 316
4. Windblown, area sources – mobile, roadway, vacant lots, fires, et al.
5. Maintenance of micro-scale Salt River stabilization/improvement
6. Pave and stabilize public dirt roads and alleys
7. Covered loads
8. Registered subcontractors

Appendix Q
Event Preliminary Assessment & Notification

Preliminary Notification of Exceptional Event
Submitted June 30, 2009

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Benjamin H. Grumbles
Director

June 30, 2009

Electronic Submittal (to be followed by U.S. Mail)

Deborah Jordan, Air Division Director
U.S. Environmental Protection Agency, Region IX
Air-1
75 Hawthorne Street
San Francisco, CA 94105

SUBJECT: Submittal of Preliminary Documenation of Exceptional/Natural Events in Arizona, 2008 and Request for Concurrence

Dear Ms. Jordan:

The purpose of this letter is to notify the Environmental Protection Agency (EPA) of information regarding exceptional events that resulted in exceedances of the 24-hour PM_{10} National Ambient Air Quality Standards (NAAQS), or the Limited Maintenance Plan threshold concentration, throughout the State of Arizona during 2008. After preliminary investigations of the unusual nature of the exceedances, the Arizona Department of Environmental Quality (ADEQ) is has determined that the aforementioned sample data are exceptional events in the Air Quality Subsystem (AQS) database. The events that have been flagged in AQS, and for which preliminary documentation is being submitted with this letter, are listed in Table 1 (enclosed).

Attached to this letter are the preliminary assessment reports or documentation for the exceptional events (Enclosure 1 binder). These events qualify for flagging under ADEQ's Air Quality Natural and Exceptional Events Policy - Policy Number 2009.001, Rev 002 (NEEP). This policy was revised on June 22, 2007, after a multiple month stakeholder process and transmitted to you on June 23, 2007. These analyses rely upon the "Technical Criteria Document for Determination of Natural and Exception Event" finalized on December 12, 2005. ADEQ concludes it is important to exclude these readings because of their exceptional causes. ADEQ will be requesting EPA to provide written concurrence with the flagging determinations after the final demonstrations are submitted in the near future. ADEQ is working with your staff to add certain components to our assessment reports to improve clarity of the reports. These should be finalized in the next few months.

Enclosure 2 (CD) is a compact disc containing an electronic copy of the exceptional/natural event analyses in Enclosure 1. Those who are being copied on this letter will only receive Enclosures 2.

All of these events have been made available for informal public review and comment at stakeholder meetings, consistent with the requirement in our NEEP to hold such meetings prior to finalizing the attached assessments. Please note that prior to submittal of the final documentation for these events, the final demonstration reports will be made available for a formal 30-day public review and comment period as required by the Federal Exceptional Events Rule (EER).

If you have any questions related to this request, please do not hesitate to contact me at (602) 771-2308 or Steven Peplau, Air Quality Assessment Manager, at (602) 771-2274.

Sincerely,

Nancy C. Wrona, Director
Air Quality Division

Enclosures (2)

NCW:AJ:mbl

Cc: Colleen McKaughan, USEPA, Region IX (w/Enclosure 2)
John Kelley, USEPA, Region IX (w/Enclosure 2)
Coleman Owen, USEPA, Region IX (w/Enclosure 2)
Lawrence Odle, Director, MCAQD (w/Enclosure 2)
Don Gabrielson, PCAQCD (w/Enclsoure 2)
Mack Luckie, YMPO (w/Enclosure 2)

INDEX OF 2008 EXCEPTIONAL EVENTS
PRELIMINARY DOCUMENTATION

TAB	Agency *	Date	Monitor (Operator/Type)	AQS ID **	24-hr Avg PM_{10} (or $PM_{2.5}$)	Maximum Winds	Nature of Event
1	ADEQ	1/1/2008	Nogales Post Office PM2.5 (ADEQ/BAM)	04-023-0004	52	Calm	Smoke from Mexico
	ADEQ	1/1/2008	Nogales Post Office (PM2.5 FRM primary)	04-023-0004	47	Calm	Smoke from Mexico
	ADEQ	1/1/2008	Nogales Post Office (PM2.5 FRM collocated)	04-023-0004	47	Calm	Smoke from Mexico
2	ADEQ	1/26/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	204	Calm	Dust from Mexico
3	ADEQ	2/27/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	166	Calm	Dust from Mexico
4	MCAQD	3/2/2008	Buckeye (Maricopa Co. [MC]/TEOM)	04-013-4011	160	36 mph	Frontal system passage
	ADEQ	3/2/2008	Yuma Courthouse (ADEQ/TEOM)	04-027-0004	161	46 mph	Frontal system passage
5	MCAQD	3/14/2008	West 43rd Ave (MC/TEOM)	04-013-4009	251	43 mph	Low pressure trough
6	MCAQD	4/16/2008	West 43rd Ave (MC/TEOM)	04-013-4009	155	28 mph	Frontal system passage
7	MCAQD	4/30/2008	West 43rd Ave (MC/TEOM)	04-013-4009	173	41 mph	Frontal system passage
8	ADEQ	5/12/2008	Paul Spur (ADEQ/FRM - Primary)	04-003-0011 (1)	160	34 mph	Frontal system passage
	ADEQ	5/12/2008	Paul Spur (ADEQ/FRM - Collocated)	04-003-0011 (2)	156	34 mph	Frontal system passage
9	ADEQ	5/18/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	169	Calm	Dust from Mexico
10	MCAQD	5/21/2008	West 43rd Ave (MC/TEOM)	04-013-4009	279	37 mph	Frontal system passage
	ADEQ	5/21/2008	Yuma Courthouse (ADEQ/TEOM)	04-027-0004	164	37 mph	Frontal system passage
11	ADEQ	5/22/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	217	49 mph	Frontal system passage
12	MCAQD	6/4/2008	Yuma Courthouse (ADEQ/TEOM)	04-027-0004	386	40 mph	Frontal system passage
	MCAQD	6/4/2008	Buckeye (Maricopa Co. [MC]/TEOM)	04-013-4011	204	40 mph	Frontal system passage
	MCAQD	6/4/2008	West 43rd Ave (MC/TEOM)	04-013-4009	194	40 mph	Frontal system passage
	ADEQ	6/4/2008	Coyote Lakes (MC/TEOM)	04-013-4014	187	40 mph	Frontal system passage
13	MCAQD	7/1/2008	Buckeye (Maricopa Co. [MC]/TEOM)	04-013-4011	172	49 mph	Monsoon Storm
14	MCAQD	7/4/2008	Buckeye (Maricopa Co. [MC]/TEOM)	04-013-4011	223	39 mph	Monsoon Storm
15	MCAQD	10/11/2008	South Phoenix (Maricopa Co. [MC]/TEOM)	04-013-4003	162	34 mph	Frontal system passage
16	MCAQD	10/22/2008	Coyote Lakes (MC/TEOM)	04-013-4014	168	35 mph	Strong pressure gradient
17	ADEQ	10/26/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	157	Calm	International transport
18	PDEQ	10/27/2008	Santa Clara (R&P 2000)	04-019-1026	173	46 mph	Strong pressure gradient
19	ADEQ	10/31/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	159	Calm	International transport
	ADEQ	11/1/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	234	Calm	International transport
20	MCAQD	11/7/2008	Durango (Maricopa Co. [MC]/TEOM)	04-013-9812	249	Calm	Ag-related exceedance (cannot flag)
21	ADEQ	11/8/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	168	Calm	International transport

Public Comment Period
TBA

INDEX OF 2008 EXCEPTIONAL EVENTS
PRELIMINARY DOCUMENTATION

TAB	Agency *	Date	Monitor (Operator/Type)	AQS ID **	24-hr Avg PM_{10} (or $PM_{2.5}$)	Maximum Winds	Nature of Event
21	ADEQ	11/8/2008	Nogales Post Office (PM10 FRM)	04-023-0004	??	Calm	International transport
22	MCAQD	11/9/2008	Durango (Maricopa Co. [MC]/TEOM)	04-013-9812	170	40 mph	High winds
	MCAQD	11/9/2008	South Phoenix (Maricopa Co. [MC]/TEOM)	04-013-4003	230	40 mph	High winds
	MCAQD	11/9/2008	West 43rd Ave (MC/TEOM)	04-013-4009	248	40 mph	High winds
	ADEQ	11/9/2008	Yuma Courthouse (ADEQ/TEOM)	04-027-0004	252	47 mph	High winds
23	ADEQ	11/16/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	171	Calm	International transport
	ADEQ	11/17/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	206	Calm	International transport
24	ADEQ	11/20/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	161	Calm	International transport
25	ADEQ	11/22/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	179	Calm	International transport
26	ADEQ	12/20/2008	Nogales Post Office PM2.5 FRM Primary	04-023-0004	36	Calm	International transport
	ADEQ	12/20/2008	Nogales Post Office PM2.5 FRM Collocated	04-023-0004	37	Calm	International transport
27	ADEQ	12/31/2008	Nogales Post Office (ADEQ/BAM)	04-023-0004	156	Calm	International transport

* Agency: ADEQ – Arizona Department of Environmental Quality
MCAQD – Maricopa County Air Quality Department
PCAQCD – Pinal County Air Quality Control District

** EPA Air Quality System Identification Number

{LMP Flag} – Value below NAAQS flagged for LMP eligibility

Type Abbreviations: FRM – Federal Reference Method Filter Based Monitor
BAM – Beta-Attenuation Mass Monitor (Continuous monitor)
TEOM – Tapered Element Oscillating Microbalance Monitor (Continuous monitor).

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov
Janice K. Brewer
Governor
Benjamin H. Grumbles
Director

Assessment of Qualification for Treatment under the Arizona Natural and Exceptional Events Policy for the High Particulate (PM_{10}) Concentration Events in the Phoenix and Yuma Areas on June 4, 2008

Background

The Arizona Department of Environmental Quality (ADEQ) issues Dust Control Action Forecasts for the Yuma and Phoenix areas as part of their Natural Events Action Plans. On Tuesday, June 3, 2008, in response to a deepening upper level trough of low pressure and an approaching dry surface cold front, ADEQ air quality forecasters issued the Maricopa County Dust Control Action Forecast calling for a moderate risk of wind-blown dust for Wednesday, June 4th, in Maricopa County. Because the tightening pressure gradient and dry cold front was expected to impact the Yuma area as well, ADEQ air quality forecasters called for a high risk of wind-blown dust in their Yuma and Vicinity Dust Control Action Forecast for Wednesday, June 4th. This potential wind event equated to a significant risk of exceeding the PM_{10} National Ambient Air Quality Standards (NAAQS) in both Yuma and Maricopa Counties. On the morning of June 4th, weather models predicted local wind gusts to be even stronger than the previous day's model runs had anticipated, prompting ADEQ forecasters to issue a same day PM_{10} Health Watch for Maricopa County stating that "Blowing and suspended dust, contributed to by strong and gusty gradient winds, may cause concentrations of coarse particles to approach unhealthy levels this afternoon and evening". The forecasts/advisories satisfy the requirement in 40 CFR 51.930(a)(1).

While the initial forecast for June 4th for both Maricopa County and Yuma called for sustained winds of 15-25 mph with the possibility for gusts over 30 mph, subsequent forecasts the morning of June 4th called for even stronger winds which prompted the Health Watch. Beginning in the early afternoon and continuing throughout the evening hours, strong southwesterly winds in Phoenix and strong westerly winds in Yuma generated areas of blowing dust. A detailed review of Best Available Control Measures (BACM) inspection reports was conducted for areas in the vicinity of the exceeding monitors (see attachment). Aside from the minor exceptions noted near the West 43rd and Coyote Lakes monitors, 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 BACM for dust in Maricopa and Yuma counties can be found in "High Wind Exceptional Events and Control Measures for PM_{10} Areas" (see "References").

The initialization of a wind-blown dust event is evident in the 6:00-6:30 p.m. Phoenix visible camera images, as well as the Arizona Meteorological Network (AzMET), Maricopa County (MC), ADEQ, and National Weather Service (NWS) monitors (see Fig. 1). This significant wind event brought elevated ambient concentrations of PM_{10} to the Phoenix and Yuma areas that exceeded the NAAQS at the Yuma Courthouse, Buckeye, West 43rd Ave. and Coyote Lakes monitors. 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 PM_{10} 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**
YUMA AREA					
Yuma Courthouse (ADEQ/TEOM)	**04-027-0004***	**386**	**2341**	**2000**	**RJ**
BUCKEYE AREA					
Buckeye (MC/TEOM)	**04-013-4011***	**204**	**772**	**2300**	**RJ**
PHOENIX METRO AREA					
West 43rd Ave (MC/TEOM)	**04-013-4009***	**194**	**645**	**1400**	**RJ**
Coyote Lakes (MC/TEOM)	**04-013-4014***	**187**	**656**	**2300**	**RJ**

* EPA Air Quality System Identification Number
** 24-hr PM_{10} 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-Luke AFB

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	75	10		0	0	N/A
2	80	10		8	8	SW
3	75	10		6	6	W
4	75	10		5	5	S
5	73	10		0	0	N/A
6	69	10		0	0	N/A
7	72	10		0	0	N/A
8	75	10	-DZ	3	3	*VR
9	82	10		0	0	N/A
10	84	10	-DZ	11	16	S
11	88	10		20	25	SW
12	89	10		17	26	S
1	90	10		21	28	SW
2	92	10		23	32	SW
3	93	10		24	33	SW
4	93	10		26	36	SW
5	93	10		29	36	SW
6	92	10		28	36	SW
7	90	4	BLDU	25	36	SW
8	86	6	DU	24	33	SW
9	84	10		23	28	SW
10	82	10		21	21	SW
11	80	9		24	24	SW
12	78	6	HZ	23	23	SW

NWS-Yuma MCAS

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	77	10		3	3	S
2	79	10		0	0	N
3	75	10		3	3	S
4	76	10		3	3	NW
5	75	10		8	8	W
6	74	10		5	5	NW
7	77	10		7	7	NW
8	80	10		13	13	W
9	83	10		7	7	W
10	86	10		5	5	SW
11	91	10		3	3	*VR
12	95	10		15	22	SW
1	97	10		10	10	SW
2	100	10		22	28	W
3	100	6	BLDU	22	29	W
4	98	10		17	28	W
5	96	6	HZ	24	37	W
6	93	10	HZ BL	23	30	W
7	88	3	HZ BL	22	33	NW
8	81	10	HZ BL	23	36	W
9	77	0.50	HZs	22	39	NW
10	75	10	HZ BL	20	31	NW
11	75	5	BLDU	14	20	W
12	75	10	BLDU	11	23	W

Event Contrib. Analysis
Hourly PM_{10} Conc. (µg/m^3)

MONITORS:
1-BUCKEYE
2-W43RD
3-COYOTE

24-Hr. Avg PM_{10}

Monitor:	with Event	w/o Event
1-BUCKE	204	53
2-W43RD	194	78
3-COYOT	186	130

> NAAQS | < NAAQS

Pink=Event Contrib.

Conclusion: As shown above, the PM_{10} concentration would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).

Hr	1	2	3
1	44.7	52	496
2	36.3	34	373
3	37.2	35	402
4	42.7	71	95.7
5	45.4	65	80.3
6	67.3	142	143
7	117	199	190
8	63.4	90	74
9	44.2	85	24.5
10	19	67	21.6
11	27.8	40	28
12	34.2	64	35.7
1	38.2	165	37.4
2	48.8	307	37.6
3	66.1	645	43
4	131	520	84.3
5	210	382	83.5
6	285	569	96.7
7	411	266	229
8	570	161	313
9	515	95	254
10	511	84	272
11	760	241	417
12	772	283	656

Event Contrib. Analysis
Hourly PM_{10} Conc. (µg/m^3)

MONITORS:
4-YUMA CH

24-Hr. Avg PM_{10}

Monitor:	with Event	w/o Event
4-YUMA	386	55

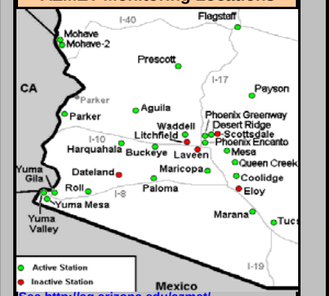
> NAAQS | < NAAQS

Pink=Event Contrib.

Conclusion: As shown above, the PM_{10} concentration would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).

Hr	1
1	48.7
2	44.7
3	44.3
4	105
5	18.4
6	37.5
7	33.2
8	46.4
9	42.3
10	69.2
11	42.1
12	50.6
1	75.9
2	119
3	183
4	570
5	301
6	547
7	570
8	2163
9	2341
10	965
11	523
12	343

AZMET Monitoring Locations



See http://ag.arizona.edu/azmet/
wnd @3m agl / Dir corrected to true north

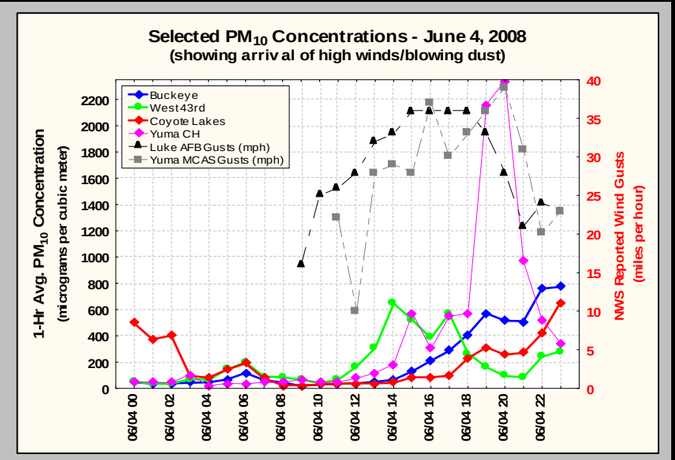
HIGHLIGHTING	Col.	Parameter
Max Wind	T(F)	Temp. (Deg. F.)
> 15 mph	RH	Rel Humidity %
>25 mph	Rn	Rain (Inches/hr)
HR - Time (End)	Spd	Avg Speed mph
A.M.	Max	Max Speed mph
P.M.	Dir	Wind Dir. (from)

Figure 1. Key Data for Event of June 4, 2008

PHX WINDS	KEY	PM10 PLOT
CEN. AZ WINDS		SAT IMAGES
SO AZ WINDS		PHX VIS. CAMERAS

SUMMARY OF EVENT

At 2:00 pm, the Yuma area experienced westerly wind gusts up to 28 mph. Yuma had a visibility of 6 miles in blowing dust at 3:00 pm with westerly wind gusts between 22 and 41 mph. By 11:00 am, Luke AFB began experiencing gusts over 25 mph with blowing dust and reduced visibility by 7:00 pm.



NORTH PHOENIX

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	71	24	-	1	3	NE
2	70	25	-	1	3	NE
3	69	25	-	1	3	E
4	70	26	-	1	3	S
5	68	25	-	1	3	N
6	69	23	-	1	3	NE
7	74	17	-	2	4	NE
8	77	17	-	5	8	E
9	80	15	-	4	8	E
10	84	13	-	4	9	S
11	85	12	-	6	10	S
12	86	11	-	6	14	SW
1	88	11	-	9	16	SW
2	89	11	-	11	20	SW
3	90	12	-	11	20	SW
4	90	13	-	12	21	SW
5	91	12	-	13	23	SW
6	90	13	-	13	26	SW
7	89	14	-	13	25	SW
8	86	20	-	11	20	SW
9	83	19	-	8	16	SW
10	82	20	-	8	17	SW
11	79	24	-	10	17	SW
12	77	28	-	10	18	SW

BUCKEYE

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	71	16	-	2	5	N
2	73	22	-	1	4	W
3	67	31	-	2	5	NE
4	66	27	-	3	6	NE
5	64	28	-	4	6	NE
6	64	27	-	2	5	NE
7	70	25	-	2	4	NE
8	78	28	-	2	5	SE
9	81	21	-	4	8	S
10	85	12	-	8	14	SW
11	87	13	-	9	14	SW
12	89	13	-	11	18	SW
1	90	13	-	11	18	SW
2	92	13	-	14	26	W
3	93	11	-	17	26	W
4	93	12	-	18	28	W
5	92	13	-	18	28	SW
6	92	13	-	20	31	W
7	90	15	-	20	29	W
8	87	17	-	19	28	SW
9	84	19	-	16	23	SW
10	81	21	-	12	18	W
11	79	24	-	13	20	SW
12	76	26	-	12	21	SW

Historical Distribution
5-Yr. Dist. of Values (µg/m^3)

MONITORS:
1-BUCKEYE
2-WEST 43RD
3-COYOTE LAKES

Column Index
Yr - All Data (5-Yrs)
Sea - Data for Summer season only (5-Yrs)

Cum. Freq.	Mon 1 Yr	Mon 1 Sea	Mon 2 Yr	Mon 2 Sea	Mon 3 Yr	Mon 3 Sea
Min	5	14	5	16	7	10
0.5%	7	15	9	18	7	14
1.0%	9	15	11	18	9	17
2.5%	13	17	15	20	10	19
5%	16	21	19	24	14	19
10%	22	25	29	31	19	21
25%	33	34	44	40	30	31
50%	48	49	65	61	44	46
75%	67	68	91	82	58	62
90%	83	86	121	102	77	77
95%	98	101	139	127	91	102
97.5%	120	115	157	157	109	119
99.0%	159	131	192	251	122	138
99.5%	260	155	227	251	219	206
Max	289	195	313	251	313	273
Flagged Value	204		194		186	

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

Historical Distribution
5-Yr. Dist. of Values (µg/m^3)

MONITORS:
4-YUMA CH

Column Index
Yr - All Data (5-Yrs)
Sea - Data for Summer season only (5-Yrs)

Cum. Freq.	Mon 1 Yr	Mon 1 Sea
Min	8	13
0.5%	12	16
1.0%	14	16
2.5%	16	20
5%	19	20
10%	23	25
25%	31	34
50%	42	43
75%	57	62
90%	77	85
95%	96	102
97.5%	127	132
99.0%	186	165
99.5%	211	193
Max	349	224
Flagged Value	386	

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

YUMA

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	72	31	-	1	4	SW
2	69	38	-	2	5	SE
3	64	48	-	4	7	S
4	62	57	-	3	6	S
5	61	55	-	3	6	S
6	61	53	-	3	4	S
7	65	52	-	1	4	SW
8	73	39	-	4	9	W
9	77	28	-	5	9	W
10	82	24	-	7	12	W
11	85	21	-	8	13	SW
12	89	20	-	10	17	W
1	91	19	-	10	20	SW
2	95	17	-	15	23	W
3	94	17	-	17	25	W
4	92	17	-	18	27	W
5	90	19	-	18	27	W
6	88	22	-	15	23	W
7	84	24	-	16	26	NW
8	78	31	-	22	30	NW
9	74	37	-	20	30	NW
10	72	40	-	20	29	NW
11	71	39	-	17	27	NW
12	71	39	-	10	22	NW

PALOMA

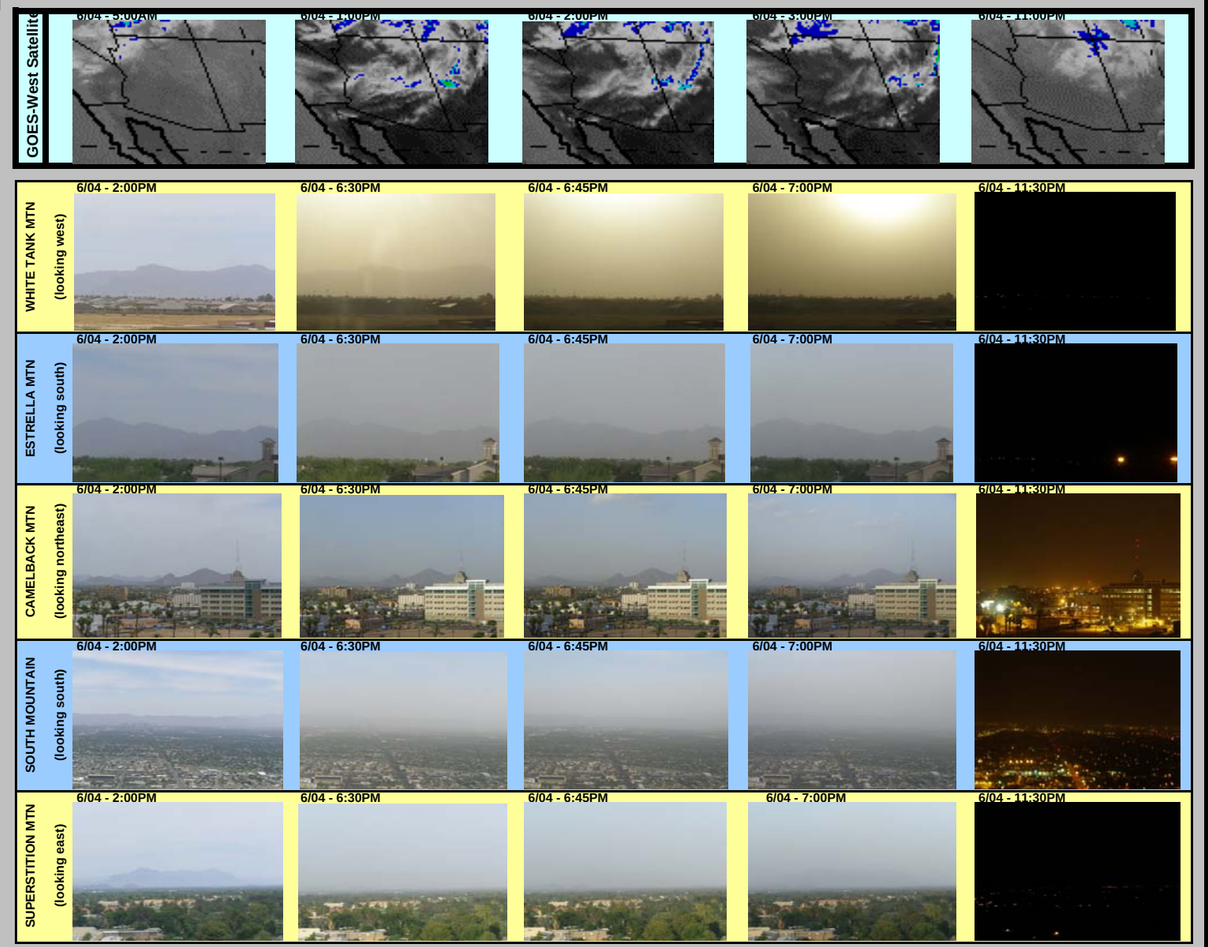
Hr	T(F)	RH	Rn	Spd	Max	Dir
1	68	28	-	5	8	SW
2	72	21	-	6	11	SW
3	66	36	-	3	8	NE
4	62	52	-	3	7	E
5	60	52	-	2	4	E
6	62	40	-	1	4	NE
7	68	30	-	4	7	SW
8	78	16	-	8	14	S
9	83	13	-	11	16	SW
10	86	13	-	13	18	SW
11	88	12	-	13	18	SW
12	91	12	-	16	24	SW
1	92	12	-	20	28	SW
2	93	13	-	20	29	SW
3	95	12	-	19	31	SW
4	95	13	-	21	29	SW
5	94	15	-	20	31	SW
6	91	17	-	25	33	SW
7	88	17	-	23	31	SW
8	85	18	-	19	27	SW
9	82	24	-	16	23	SW
10	78	32	-	11	16	SW
11	77	33	-	15	24	W
12	75	29	-	15	21	W

MARANA

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	71	12	-	2	4	SW
2	67	14	-	4	7	E
3	65	17	-	5	7	E
4	63	18	-	6	9	E
5	62	20	-	3	6	E
6	63	22	-	4	6	SE
7	69	19	-	5	9	SE
8	76	14	-	7	12	SE
9	84	11	-	7	11	SE
10	88	8	-	7	17	S
11	91	6	-	13	22	S
12	93	5	-	12	19	SW
1	96	5	-	13	21	SW
2	98	4	-	18	29	W
3	97	5	-	20	29	W
4	96	5	-	19	28	W
5	95	7	-	20	28	W
6	92	7	-	20	28	W
7	89	9	-	20	31	W
8	83	11	-	14	23	W
9	80	12	-	6	12	W
10	78	14	-	9	15	W
11	76	19	-	8	17	SW
12	75	23	-	7	14	SW

COOLIDGE

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	62	43	-	4	6	SE
2	60	43	-	2	4	S
3	57	50	-	2	6	SE
4	58	46	-	3	5	S
5	59	40	-	5	7	S
6	58	42	-	4	6	S
7	63	40	-	2	4	SE
8	73	29	-	1	4	SE
9	81	15	-	7	11	S
10	85	10	-	9	15	S
11	89	8	-	10	18	S
12	92	7	-	12	20	SW
1	95	6	-	14	22	SW
2	96	6	-	17	27	SW
3	97	6	-	17	28	SW
4	95	8	-	16	25	SW
5	94	10	-	15	25	SW
6	91	11	-	17	24	SW
7	87	13	-	14	21	SW
8	83	17	-	11	19	SW
9	81	16	-	10	18	SW
10	79	19	-	11	15	SW
11	76	25	-	9	13	SW
12	74	30	-	9	15	SW



Prepared by S. Kendall, A. Juniel, B. Busby and B. Paris/ ADEQ 3/19/09

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 PM_{10} readings from the Yuma Courthouse, Buckeye, West 43rd Ave. and Coyote Lakes monitoring sites were valid for June 4th. Audits of the analyzers revealed operations were within acceptable tolerance.

2. Review suspected contributing sources. The NWS, AzMET, and MC surface data for Arizona provide a good explanation as to what meteorological conditions were in place on June 4th. Strong southwesterly winds were occurring in the Phoenix area due to a low pressure system approaching from the northwest with a cold front passing over Arizona. PM_{10} concentrations were elevated throughout much of the Phoenix Metro area as evidenced by the PM_{10} and wind speed plots (see attachments). PM_{10} concentrations also spiked at Yuma Courthouse during the afternoon and evening hours as winds increased out of the west and northwest in Yuma. The plot of hourly PM_{10} concentration data in the upper right corner of Figure 1 confirm the nearly identical timing of the elevated PM_{10} concentrations recorded at West 43rd Ave., Coyote Lakes, Buckeye, and Yuma. Phoenix visibility camera images show the reduced visibility associated with this high wind event. These images indicate that reduced visibilities due to blowing dust were widespread throughout the entire Valley. While this visual evidence is not possible for the Yuma area, Yuma radar data show the transport of blowing dust from southeastern California into southwestern Arizona (see attachment for more detail).

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 a measured concentration in excess of normal historical fluctuations, including background (i.e., concentrations greater than the 95th percentile). Additionally, the winds associated with the elevated PM_{10} concentrations may be characterized as 'unusual' as described in "Impact of Exceptional Events' 'Unusual Winds' on PM_{10} Concentrations" (see "References").

4. Examine the meteorological conditions before and during the event. The 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. As can be seen in Figure 1, wind speeds did not pick up in central and southern Arizona until approximately noon, when several stations began reporting wind gusts of 20 mph or greater. As winds continued to increase through the afternoon, the onset of elevated PM_{10} concentrations began at the four flagged monitoring sites, each of which continued to show higher PM_{10} values as winds increased throughout the day. Apart from a two hour lull in PM_{10} concentrations at West 43rd Ave. around 9:00 p.m., elevated concentrations at each flagged monitoring site continued throughout the evening.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM_{10} concentrations in the Phoenix and Yuma areas can be attributed to soil emissions that were transported over portions of Maricopa County and Yuma County. No source specific emission allocation is possible based on the data available for analysis. Visual evidence of reduced visibility during the 6:00 p.m. hour can be seen in the images located in the lower right portion of Figure 1. These images provide proof that the elevated PM_{10} concentrations in and round Phoenix were coincident with strong, gusty winds and can be attributed to soil emissions. In addition, visibility was reduced to 0.5 miles with haze and blowing dust reported by trained weather spotters at the Yuma MCAS during the afternoon and evening hours of June 4. These observations provide further evidence that the elevated PM_{10} concentrations recorded at Yuma Courthouse were the result of a wind-blown dust event.

6. Estimation of Contribution from Source or Event. The primary source appears to be wind-blown dust over central and southern 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 the requirement in 40 CFR 50.14(c)(3)(iii)(B). 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 Yuma Courthouse, Buckeye, West 43rd Ave., and Coyote Lakes were attributed to a natural event.

Conclusion

Transport of dust from soils by high winds. The region wide elevated PM_{10} event on June 4, 2008, in Yuma and Maricopa Counties was the result of transported 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.

Appendix R
Event Public Process & Comments

Transmittal of Assessment Report of June 4, 2008
Submitted November 17, 2009

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Benjamin H. Grumbles
Director

NOV 17 2009

Electronic Submittal (to be followed by U.S. Mail)

Deborah Jordan, Air Division Director
U.S. Environmental Protection Agency, Region IX
Air-1
75 Hawthorne Street
San Francisco, CA 94105

SUBJECT: Submittal of Final Demonstrations of the 2008 Greater Phoenix Area Exceptional/Natural Events and Request for Concurrence

Dear Ms. Jordan:

The purpose of this letter is to request the Environmental Protection Agency's (EPA) review of information regarding exceptional events that resulted in exceedances of the 24-hour PM_{10} National Ambient Air Quality Standards (NAAQS) in the Greater Phoenix Area in 2008. After investigating the unusual nature of the exceedances, the Arizona Department of Environmental Quality (ADEQ) is recommending that EPA concur with ADEQ's findings that the aforementioned sample data are exceptional events in the Air Quality Subsystem (AQS) database. ADEQ staff worked with EPA staff to add certain components to the assessment reports to improve clarity and better document the conditions that caused the exceedances. The events that have been flagged, and for which final demonstrations have been prepared to provide EPA a basis for applying concurrence flags, are listed in Table 1 (enclosed).

Enclosed in this letter are detailed analyses of exceptional events titled "Assessment of Qualification for Treatment under the Arizona Natural and Exceptional Events Policy for the High Particulate (PM_{10}) Concentration Events in the..." (Enclosure 1 binder). This policy was revised on June 22, 2007, after a multiple month stakeholder process and transmitted to you on June 23, 2007. These analyses rely upon the "Technical Criteria Document for Determination of Natural and Exceptional Event" finalized on December 12, 2005. ADEQ concludes it is important to exclude these readings because of their exceptional causes. ADEQ requests EPA provide written concurrence with the flagging determinations contained in the attached assessment reports.

To help understand the nature of exceptional/natural events in Arizona, ADEQ researched threshold wind speeds that suspend dust into the air and special circumstances that lead to elevated dust levels. This research is described in the white paper titled "Impact of Exceptional Events 'Unusual Winds' in PM_{10} Concentrations in Arizona." ADEQ also examined the effectiveness of PM_{10} control measure for high wind events in Arizona. This research is described in the white paper titled "High Wind Exceptional Events and Control Measures for PM_{10} Areas." Future submittals will refer to these white papers as reference material. Copies of the white papers have been included in Enclosure 1 and were available during the public comment period.

As required by EPA's Exceptional Event Rule (40 CFR 50.14 (c)(3)(i)) and ADEQ Policy 2009.001, ADEQ requested comments on its flagging of these exceptional/natural events, on its final demonstrations, and on the two white papers. ADEQ made copies of the demonstrations and the white papers available for public review for a 30-day public comment period beginning October 15, 2009, on the ADEQ Web-site and at the ADEQ library in Phoenix. No comments were received from the public during the comment period. Enclosure 2 contains a copy of the affidavit of publication of the public notice of the 30-day comment period.

Enclosure 3 (Excel spreadsheet) is a checklist created by EPA that ADEQ staff used in the preparation of the assessment reports to ensure that the analyses meet the requirements of the Federal Exceptional Events Rule (EER, May 21, 2007).

Enclosure 4 (CD) is a compact disc containing an electronic copy of the exceptional/natural event analyses in Enclosure 1, along with this letter and Enclosures 2 and 3.

Those who are being copied on this letter will only receive Enclosures 2 through 4.

If you have any questions related to this request, please do not hesitate to contact me at (602) 771-2308 or Steven Peplau, Air Quality Assessment Manager, at (602) 771-2274.

Sincerely,

Nancy C. Wrona, Director
Air Quality Division

Enclosures (4)

cc: Colleen McKaughan, USEPA, Region IX (w/enclosures 2-4)
John Kelley, USEPA, Region IX (w/enclosures 2-4)
Coleman Owen, USEPA, Region IX (w/enclosures 2-4)
Lawrence Odle, Director, MCAQD (w/enclosures 2-4)
Don Gabrielson, PCAQCD (w/enclosures 2-4)

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
1110 West Washington Street • Phoenix, Arizona 85007
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Janice K. Brewer
Governor
Benjamin H. Grumbles
Director

Assessment of Qualification for Treatment under the Arizona Natural and Exceptional Events Policy for the High Particulate (PM_{10}) Concentration Events in the Phoenix and Yuma Areas on June 4, 2008

Background

The Arizona Department of Environmental Quality (ADEQ) issues Dust Control Action Forecasts for the Yuma and Phoenix areas as part of their Natural Events Action Plans. On Tuesday, June 3, 2008, in response to a deepening upper level trough of low pressure and an approaching dry surface cold front, ADEQ air quality forecasters issued the Maricopa County Dust Control Action Forecast calling for a moderate risk of wind-blown dust for Wednesday, June 4th, in Maricopa County. Because the tightening pressure gradient and dry cold front was expected to impact the Yuma area as well, ADEQ air quality forecasters called for a high risk of wind-blown dust in their Yuma and Vicinity Dust Control Action Forecast for Wednesday, June 4th. This potential wind event equated to a significant risk of exceeding the PM_{10} National Ambient Air Quality Standards (NAAQS) in both Yuma and Maricopa Counties. On the morning of June 4th, weather models predicted local wind gusts to be even stronger than the previous day's model runs had anticipated, prompting ADEQ forecasters to issue a same day PM_{10} Health Watch for Maricopa County stating that "Blowing and suspended dust, contributed to by strong and gusty gradient winds, may cause concentrations of coarse particles to approach unhealthy levels this afternoon and evening". The forecasts/advisories satisfy the requirement in 40 CFR 51.930(a)(1).

While the initial forecast for June 4th for both Maricopa County and Yuma called for sustained winds of 15-25 mph with the possibility for gusts over 30 mph, subsequent forecasts the morning of June 4th called for even stronger winds which prompted the Health Watch. Beginning in the early afternoon and continuing throughout the evening hours, strong southwesterly winds in Phoenix and strong westerly winds in Yuma generated areas of blowing dust. A detailed review of Best Available Control Measures (BACM) inspection reports was conducted for areas in the vicinity of the exceeding monitors (see attachment). Aside from the minor exceptions noted near the West 43rd and Coyote Lakes monitors, 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 BACM for dust in Maricopa and Yuma counties can be found in "High Wind Exceptional Events and Control Measures for PM_{10} Areas" (see "References").

The initialization of a wind-blown dust event is evident in the 6:00-6:30 p.m. Phoenix visible camera images, as well as the Arizona Meteorological Network (AzMET), Maricopa County (MC), ADEQ, and National Weather Service (NWS) monitors (see Fig. 1). This significant wind event brought elevated ambient concentrations of PM_{10} to the Phoenix and Yuma areas that exceeded the NAAQS at the Yuma Courthouse, Buckeye, West 43rd Ave. and Coyote Lakes monitors. 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 PM_{10} 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**
YUMA AREA					
Yuma Courthouse (ADEQ/TEOM)	**04-027-0004***	**386**	**2341**	**2000**	**RJ**
BUCKEYE AREA					
Buckeye (MC/TEOM)	**04-013-4011***	**204**	**772**	**2300**	**RJ**
PHOENIX METRO AREA					
West 43rd Ave (MC/TEOM)	**04-013-4009***	**194**	**645**	**1400**	**RJ**
Coyote Lakes (MC/TEOM)	**04-013-4014***	**187**	**656**	**2300**	**RJ**

* EPA Air Quality System Identification Number
** 24-hr PM_{10} 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-Luke AFB

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	75	10		0	0	N/A
2	80	10		8	8	SW
3	75	10		6	6	W
4	75	10		5	5	S
5	73	10		0	0	N/A
6	69	10		0	0	N/A
7	72	10		0	0	N/A
8	75	10	-DZ	3	3	VR
9	82	10		0	0	N/A
10	84	10	-DZ	11	16	S
11	88	10		20	25	SW
12	89	10		17	26	S
1	90	10		21	28	SW
2	92	10		23	32	SW
3	93	10		24	33	SW
4	93	10		26	36	SW
5	93	10		29	36	SW
6	92	10		28	36	SW
7	90	4	BLDU	25	36	SW
8	86	6	DU	24	33	SW
9	84	10		23	28	SW
10	82	10		21	21	SW
11	80	9		24	24	SW
12	78	6	HZ	23	23	SW

MC - BUCKEYE

21525 (112.62Wx33.37N)

Hr	T(F)	RH	PM	Spd	Max	Dir
1	72	29	44	1	4	N
2	70	32	36	0	5	N
3	70	32	37	0	5	NE
4	66	40	42	2	5	NE
5	65	41	45	3	6	NE
6	66	38	67	1	6	NE
7	70	39	116	1	4	NE
8	77	24	63	1	6	SE
9	83	18	44	6	19	S
10	86	15	19	10	20	SW
11	89	17	27	10	18	SW
12	91	18	34	14	26	SW
1	92	17	38	15	28	SW
2	93	19	48	17	29	SW
3	94	19	66	19	33	W
4	94	19	131	21	34	W
5	93	19	210	24	36	W
6	92	20	285	23	40	SW
7	89	22	411	21	36	SW
8	87	24	570	20	35	SW
9	84	25	515	15	29	SW
10	82	27	510	14	27	SW
11	80	29	759	17	28	SW
12	77	33	771	13	22	SW

Event Contrib. Analysis

Hourly PM_{10} Conc. ($\mu g/m^3$)

MONITORS:
1-BUCKEYE
2-W43RD
3-COYOTE

Hr	1	2	3
1	44.7	52	496
2	36.3	34	373
3	37.2	35	402
4	42.7	71	95.7
5	45.4	65	80.3
6	67.3	142	143
7	117	199	190
8	63.4	90	74
9	44.2	85	24.5
10	19	67	21.6
11	27.8	40	28
12	34.2	64	35.7
1	38.2	165	37.4
2	48.8	307	37.6
3	66.1	645	43
4	131	520	84.3
5	210	382	83.5
6	285	569	96.7
7	411	266	229
8	570	161	313
9	515	95	254
10	511	84	272
11	760	241	417
12	772	283	656

24-Hr. Avg PM_{10}

Monitor:	with Event	w/o Event
1-BUCKE	204	53
2-W43RD	194	78
3-COYOT	186	130

> NAAQS | < NAAQS

Pink=Event Contrib.

Conclusion: As shown above, the PM_{10} concentration would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).

Event Contrib. Analysis

Hourly PM_{10} Conc. ($\mu g/m^3$)

MONITORS:
4-YUMA CH

Hr	1
1	48.7
2	44.7
3	44.3
4	105
5	18.4
6	37.5
7	33.2
8	46.4
9	42.3
10	69.2
11	42.1
12	50.6
1	75.9
2	119
3	183
4	570
5	301
6	547
7	570
8	2163
9	2341
10	965
11	523
12	343

24-Hr. Avg PM_{10}

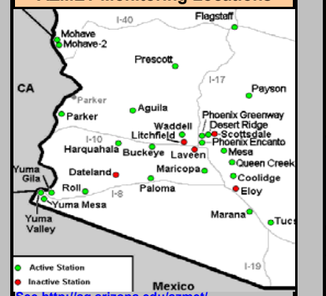
Monitor:	with Event	w/o Event
4-YUMA	386	55

> NAAQS | < NAAQS

Pink=Event Contrib.

Conclusion: As shown above, the PM_{10} concentration would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).

AZMET Monitoring Locations



See http://ag.arizona.edu/azmet/

wnd @3m agl / Dir corrected to true north

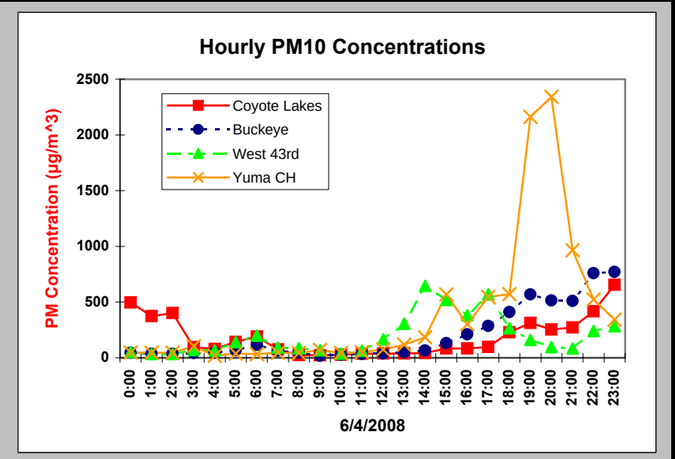
HIGHLIGHTING	Col.	Parameter
Max Wind	T(F)	Temp. (Deg. F.)
> 15 mph	RH	Rel Humidity %
>25 mph	Rn	Rain (Inches/hr)
HR - Time (End)	Spd	Avg Speed mph
A.M.	Max	Max Speed mph
P.M.	Dir	Wind Dir. (from)

Figure 1. Key Data for Event of June 4, 2008

WIND & PM10 DATA	ECA	KEY	PM10 PLOTS
	HIST DIST		Wx IMAGERY
			PHX VIS. CAMERAS

SUMMARY OF EVENT

At 2:00 pm, the Yuma area experienced westerly wind gusts up to 28 mph. Yuma had a visibility of 6 miles in blowing dust at 3:00 pm with westerly wind gusts between 22 and 41 mph. By 11:00 am, Luke AFB began experiencing gusts over 25 mph with blowing dust and reduced visibility by 7:00 pm.



MC - COYOTE LAKES

127530 (112.31Wx33.67N)

Hr	T(F)		PM	Spd	Max	Dir
1	71		495	2	5	NE
2	69		373	2	5	N
3	68		401	1	5	N
4	66		95	1	4	N
5	65		80	1	4	NE
6	65		143	2	5	N
7	72		189	2	5	NE
8	83		74	1	4	SE
9	87		24	2	6	S
10	89		21	5	16	SW
11	90		28	8	20	SW
12	91		35	9	21	SW
1	92		37	10	26	SW
2	94		37	11	26	SW
3	94		43	12	27	SW
4	96		84	14	32	SW
5	95		83	15	34	SW
6	94		96	14	30	SW
7	92		228	17	37	SW
8	88		312	10	30	SW
9	84		254	10	26	SW
10	82		271	11	25	SW
11	81		416	9	22	SW
12	79		656	9	24	SW

MC - WEST FORTY THIR

16659 (112.14Wx33.41N)

Hr	T(F)		PM	Spd	Max	Dir
1	80		51	3	7	S
2	77		33	1	8	NW
3	76		34	0	8	NW
4	72		71	3	8	E
5	71		65	4	7	NE
6	71		141	1	6	E
7	73		199	1	7	NE
8	78		89	5	9	E
9	82		85	3	9	E
10	87		67	0	9	W
11	91		39	4	16	SW
12	95		64	7	19	W
1	96		165	12	24	SW
2	95		306	14	27	SW
3	96		644	17	30	SW
4	96		520	17	36	SW
5	95		381	16	31	SW
6	94		569	16	35	SW
7	91		266	17	31	SW
8	88		161	17	30	SW
9	86		94	14	27	SW
10	84		84	14	30	SW
11	82		240	17	27	SW
12	79		283	16	29	SW

Historical Distribution

5-Yr. Dist. of Values ($\mu g/m^3$)

MONITORS:
1-BUCKEYE
2-WEST 43RD
3-COYOTE LAKES

Column Index
Yr - All Data (5-Yrs)
Sea - Data for Summer season only (5-Yrs)

Cum. Freq.	Mon 1 Yr	Mon 1 Sea	Mon 2 Yr	Mon 2 Sea	Mon 3 Yr	Mon 3 Sea
Min	5	14	5	16	7	10
0.5%	7	15	9	18	7	14
1.0%	9	15	11	18	9	17
2.5%	13	17	15	20	10	19
5%	16	21	19	24	14	19
10%	22	25	29	31	19	21
25%	33	34	44	40	30	31
50%	48	49	65	61	44	46
75%	67	68	91	82	58	62
90%	83	86	121	102	77	77
95%	98	101	139	127	91	102
97.5%	120	115	157	157	109	119
99.0%	159	131	192	251	122	138
99.5%	260	155	227	251	219	206
Max	289	195	313	251	313	273
Flagged Value	204		194		186	

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

Historical Distribution

5-Yr. Dist. of Values ($\mu g/m^3$)

MONITORS:
4-YUMA CH

Column Index
Yr - All Data (5-Yrs)
Sea - Data for Summer season only (5-Yrs)

Cum. Freq.	Mon 1 Yr	Mon 1 Sea
Min	8	13
0.5%	12	16
1.0%	14	16
2.5%	16	20
5%	19	20
10%	23	25
25%	31	34
50%	42	43
75%	57	62
90%	77	85
95%	96	102
97.5%	127	132
99.0%	186	165
99.5%	211	193
Max	349	224
Flagged Value	386	

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

MC - DURANGO COMPLEX

16375 (112.12Wx33.43N)

Hr	T(F)		PM	Spd	Max	Dir
1	77		28	2	6	S
2	75		53	1	5	NE
3	74		45	1	7	NE
4	72		46	2	6	E
5	71		50	2	6	NE
6	70		49	4	9	E
7	73		55	4	11	E
8	79		55	5	10	E
9	86		49	3	9	E
10	90		46	2	9	SE
11	92		35	3	11	S
12	94		29	4	20	W
1	94		53	11	25	W
2	94		77	12	27	W
3	95		189	16	32	W
4	96		217	15	31	SW
5	95		166	15	33	W
6	94		154	15	33	W
7	91		133	14	28	SW
8	87		113	12	26	SW
9	85		79	12	25	SW
10	83		69	12	28	SW
11	81		210	15	28	SW
12	79		237	12	28	SW

MC - CENTRAL PHOENIX

16329 (112.05Wx33.46N)

Hr	T(F)		PM	Spd	Max	Dir
1	78		42	2	8	SE
2	74		41	4	8	E
3	72		36	4	10	E
4	71		39	4	9	E
5	70		41	4	8	E
6	70		46	4	8	E
7	76		52	5	9	E
8	80		36	6	12	E
9	85		36	5	10	E
10	90		37	2	9	E
11	92		32	5	15	SW
12	93		28	5	16	SW
1	93		34	9	24	W
2	94		64	13	28	W
3	94		163	16	34	W
4	93		204	17	33	W
5	94		141	18	34	W
6	92		166	17	37	W
7	90		180	17	34	SW
8	87		135	16	31	SW
9	85		102	17	32	W
10	84		76	15	28	W
11	81		177	15	31	SW
12	79		303	16	33	W

NWS-Yuma MCAS

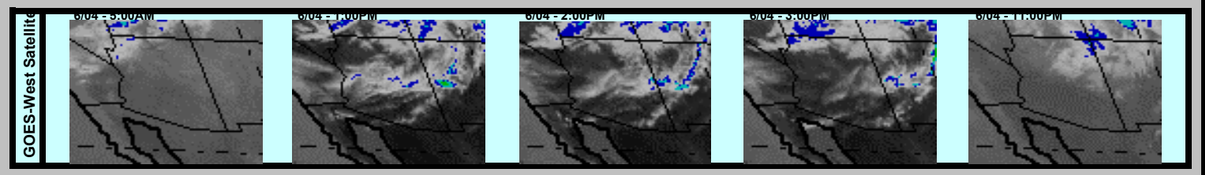
Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	77	10		3	3	S
2	79	10		0	0	N
3	75	10		3	3	S
4	76	10		3	3	NW
5	75	10		8	8	W
6	74	10		5	5	NW
7	77	10		7	7	NW
8	80	10		13	13	W
9	83	10		7	7	W
10	86	10		5	5	SW
11	91	10		3	3	VR
12	95	10		15	22	SW
	97	10		10	10	SW
2	100	10		22	28	W
3	100	6	BLDU	22	29	W
4	98	10		17	28	W
5	96	6	HZ	24	37	W
6	93	10	HZ BL	23	30	W
7	88	3	HZ BL	22	33	NW
8	81	10	HZ BL	23	36	W
9	77	0.5	HZs	22	39	NW
10	75	10	HZ BL	20	31	NW
11	75	5	BLDU	14	20	W
12	75	10	BLDU	11	23	W

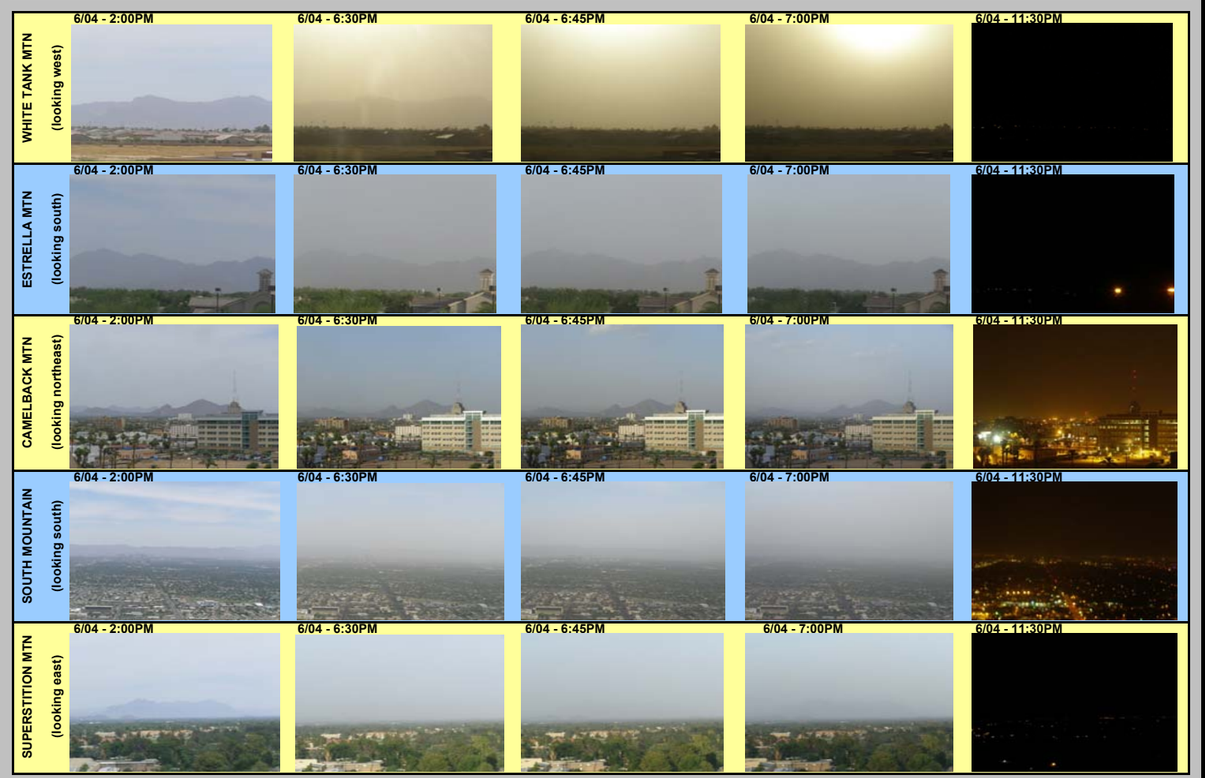
ADEQ - YUMA AGRI CEN

128530 (114.71Wx32.71N)

Hr	T(F)	RH		Spd	Max	Dir
1	75	27		2	8	W
2	73	29		2	9	NW
3	69	37		4	8	S
4	66	44		3	7	S
5	63	48		4	9	S
6	66	38		3	5	S
7	69	38		2	6	SW
8	74	32		5	12	W
9	77	25		6	11	W
10	82	22		8	15	W
11	85	19		9	16	SW
12	89	18		11	20	SW
1	92	17		12	21	SW
2	94	15		16	28	W
3	94	15		18	34	W
4	92	15		20	33	W
5	91	16		19	32	W
6	88	20		15	26	W
7	85	23		18	29	W
8	79	29		26	38	W
9	75	35		25	40	W
10	73	37		26	40	W
11	72	37		21	29	NW
12	72	35		15	28	W

GOES-West Satellite





Prepared by S. Kendall, A. Juniel, B. Busby and B. Paris/ ADEQ 3/19/09

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 PM_{10} readings from the Yuma Courthouse, Buckeye, West 43rd Ave. and Coyote Lakes monitoring sites were valid for June 4th. Audits of the analyzers revealed operations were within acceptable tolerance.

2. Review suspected contributing sources. The NWS, AzMET, and MC surface data for Arizona provide a good explanation as to what meteorological conditions were in place on June 4th. Strong southwesterly winds were occurring in the Phoenix area due to a low pressure system approaching from the northwest with a cold front passing over Arizona. PM_{10} concentrations were elevated throughout much of the Phoenix Metro area as evidenced by the PM_{10} and wind speed plots (see attachments). PM_{10} concentrations also spiked at Yuma Courthouse during the afternoon and evening hours as winds increased out of the west and northwest in Yuma. The plot of hourly PM_{10} concentration data in the upper right corner of Figure 1 confirm the nearly identical timing of the elevated PM_{10} concentrations recorded at West 43rd Ave., Coyote Lakes, Buckeye, and Yuma. Phoenix visibility camera images show the reduced visibility associated with this high wind event. These images indicate that reduced visibilities due to blowing dust were widespread throughout the entire Valley. While this visual evidence is not possible for the Yuma area, Yuma radar data show the transport of blowing dust from southeastern California into southwestern Arizona (see attachment for more detail).

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 a measured concentration in excess of normal historical fluctuations, including background (i.e., concentrations greater than the 95th percentile). Additionally, the winds associated with the elevated PM_{10} concentrations may be characterized as 'unusual' as described in "Impact of Exceptional Events' 'Unusual Winds' on PM_{10} Concentrations" (see "References").

4. Examine the meteorological conditions before and during the event. The 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. As can be seen in Figure 1, wind speeds did not pick up in central and southern Arizona until approximately noon, when several stations began reporting wind gusts of 20 mph or greater. As winds continued to increase through the afternoon, the onset of elevated PM_{10} concentrations began at the four flagged monitoring sites, each of which continued to show higher PM_{10} values as winds increased throughout the day. Apart from a two hour lull in PM_{10} concentrations at West 43rd Ave. around 9:00 p.m., elevated concentrations at each flagged monitoring site continued throughout the evening.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM_{10} concentrations in the Phoenix and Yuma areas can be attributed to soil emissions that were transported over portions of Maricopa County and Yuma County. No source specific emission allocation is possible based on the data available for analysis. Visual evidence of reduced visibility during the 6:00 p.m. hour can be seen in the images located in the lower right portion of Figure 1. These images provide proof that the elevated PM_{10} concentrations in and round Phoenix were coincident with strong, gusty winds and can be attributed to soil emissions. In addition, visibility was reduced to 0.5 miles with haze and blowing dust reported by trained weather spotters at the Yuma MCAS during the afternoon and evening hours of June 4. These observations provide further evidence that the elevated PM_{10} concentrations recorded at Yuma Courthouse were the result of a wind-blown dust event.

6. Estimation of Contribution from Source or Event. The primary source appears to be wind-blown dust over central and southern 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 the requirement in 40 CFR 50.14(c)(3)(iii)(B). 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 Yuma Courthouse, Buckeye, West 43rd Ave., and Coyote Lakes were attributed to a natural event.

Conclusion

Transport of dust from soils by high winds. The region wide elevated PM_{10} event on June 4, 2008, in Yuma and Maricopa Counties was the result of transported 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 (PM_{10})* (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 PM_{10} Concentrations* (October 14, 2009).

Arizona Department of Environmental Quality (ADEQ), *High Wind Exceptional Events and Control Measures for PM_{10} 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).

ADEQ
Arizona Department of Environmental Quality
Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

ADEQ AIR POLLUTION HEALTH WATCH ISSUANCE NOTICE

Issuance Date and Time:	Wednesday, June 04, 2008 6:15 a.m.
Valid for Date(s):	Wednesday June 04, 2008
Pollutant:	COARSE PARTICLES (PM-10)
Message:	Blowing and suspended dust, contributed to by strong and gusty gradient winds, may cause concentrations of coarse particles to approach unhealthy levels this afternoon and evening.

Detailed air quality forecast information is available on:

- The internet at www.azdeq.gov
- A telephone recording at 602-771-2367

Duty Forecaster:	Christopher Reith	602-771-2360
	Joe Paul	602-771-2363

CKR 05/01/2007

ADEQ Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

MARICOPA COUNTY
DUST CONTROL ACTION FORECAST
ISSUED TUESDAY, JUNE 02, 2008
Three-day weather outlook:

On Wednesday an upper level trough in the mid-latitude storm track will deepen over the western U.S. including Arizona. Increasing afternoon winds are therefore expected on Wednesday when gradients will be the strongest. There will be an increased risk for areas of blowing dust after the noon hour lasting into the evening hours.

R I S K F A C T O R S

	WINDS		STAGNATION		RISK LEVEL
Day #1: Wed 06/04/2008	Southwest to westerly 15-25 mph with gusts over 30 mph by afternoon.	+	Rather stagnant during the morning hours with improvement by afternoon.	=	**MODERATE**
Day #2: Thu 06/05/2008	West to northwesterly 10-20 mph.	+	Rather stagnant during the morning hours with improvement by afternoon.	=	**LOW**
Day #3: Fri 06/06/2008	Southwesterly 5-15 mph by afternoon.	+	Rather stagnant during the morning hours with improvement by afternoon.	=	**LOW**

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.

ADEQ Arizona Department of Environmental Quality

Janet Napolitano, Governor
Stephen A. Owens, ADEQ Director

YUMA AND VICINITY
DUST CONTROL ACTION FORECAST
ISSUED TUESDAY, JUNE 03, 2008

Three-day weather outlook:

On Wednesday an upper level trough in the mid-latitude storm track will deepen over the western U.S. including Arizona. Increasing afternoon winds are therefore expected the next few days – but especially on Wednesday – when gradients will be the strongest. There will be a HIGH risk for localized (not widespread) blowing dust after the noon hour lasting into the evening hours.

	WINDS	WIND-BLOWN DUST RISK
Day #1: Wed 06/04/2008	Westerly 15-25 mph with gusts to 30 mph by afternoon.	**HIGH**
Day #2: Thu 06/05/2008	Northwest to northerly 10-20 mph with a few higher gusts, decreasing by afternoon.	**MODERATE**
Day #3: Fri 06/06/2008	No significant winds expected.	**LOW**

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 (brown cloud). 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.

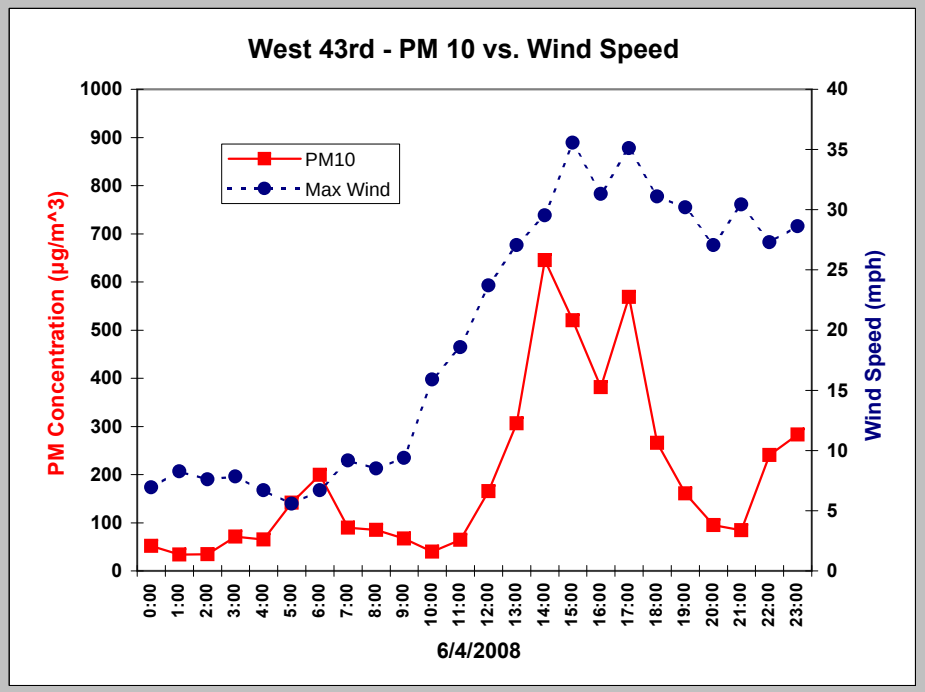
Units of measurement – Micrograms per cubic meter (ug/m3)

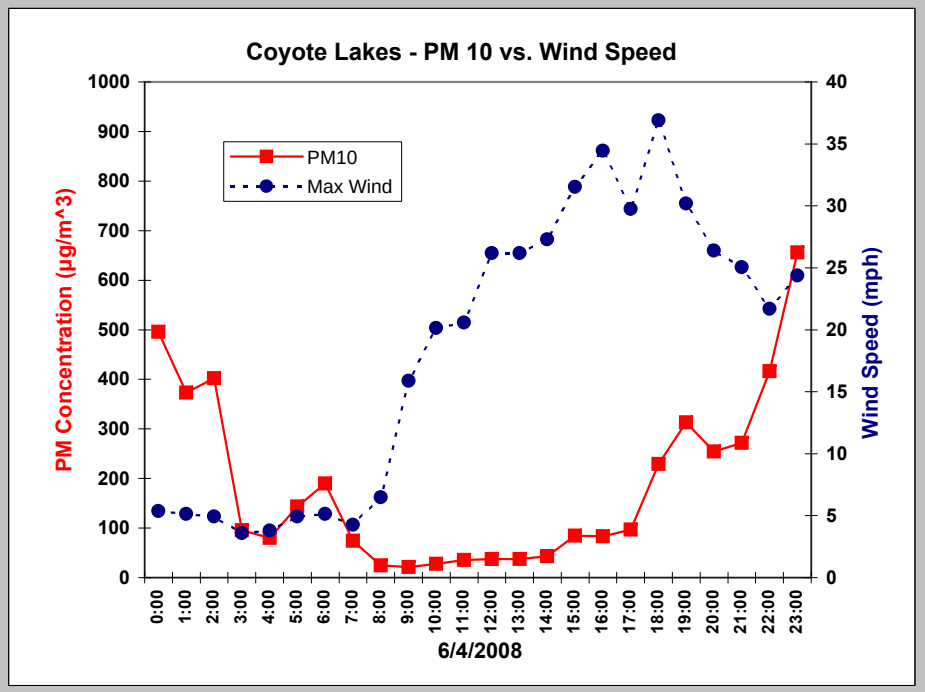
Averaging interval – 24 hours (midnight to midnight).

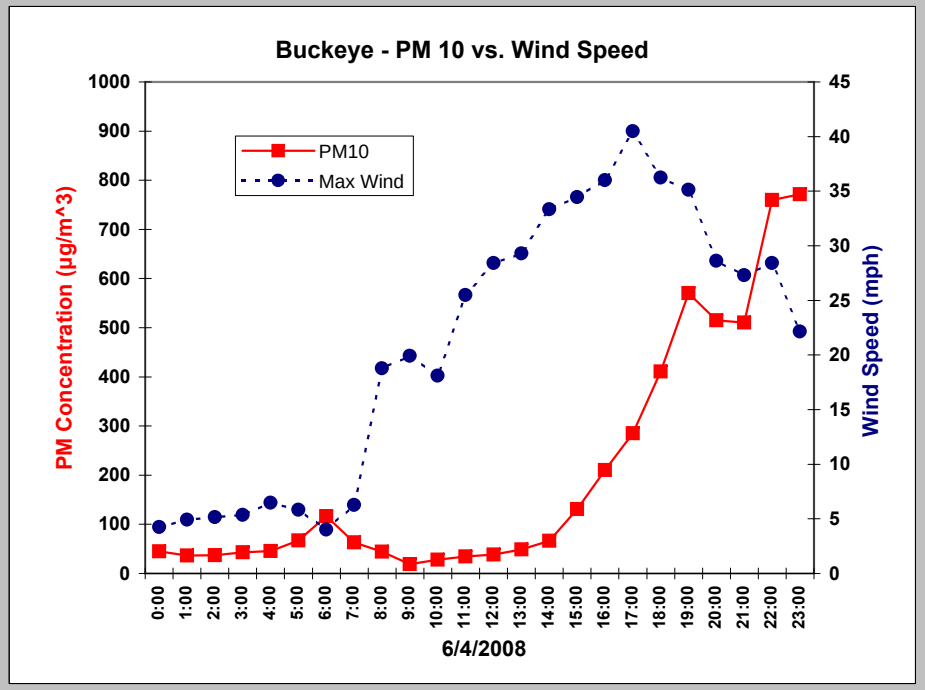
Reduction tips – Stabilize loose soils, minimize travel on dirt roads, utilize tarps on haul trucks, limit use of leaf-blowers, and on high-wind days reduce outdoor activities.

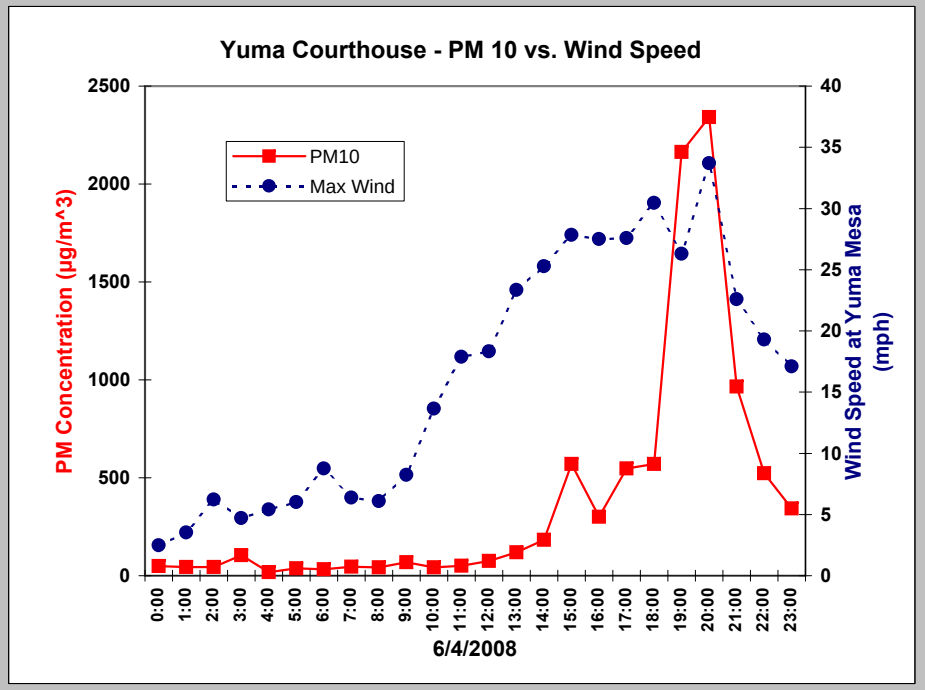
CKR 05/09/2005

06/04/2008 - ADDITIONAL GRAPHS 1

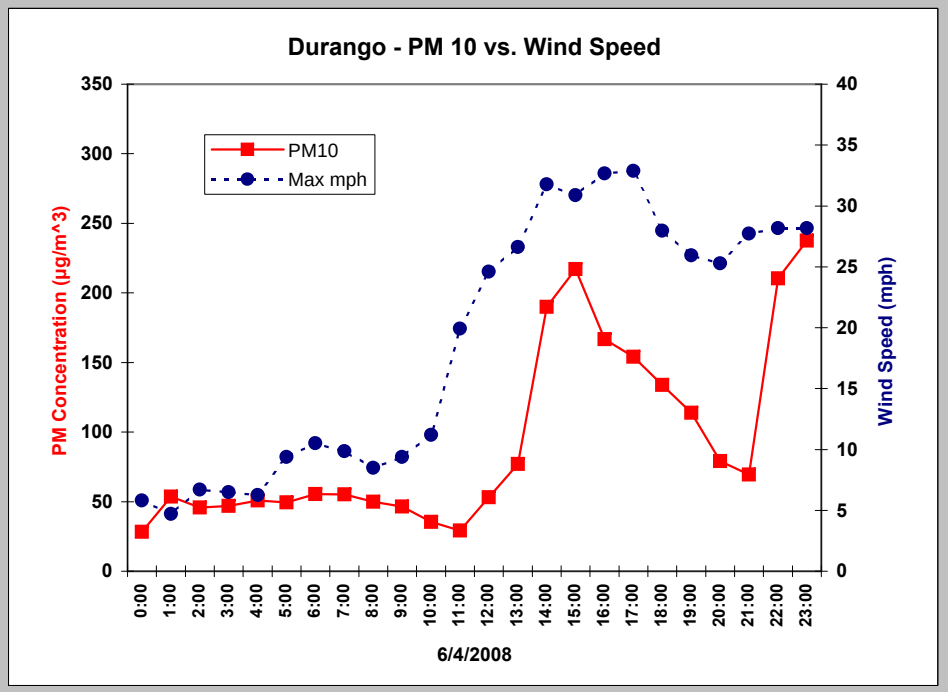


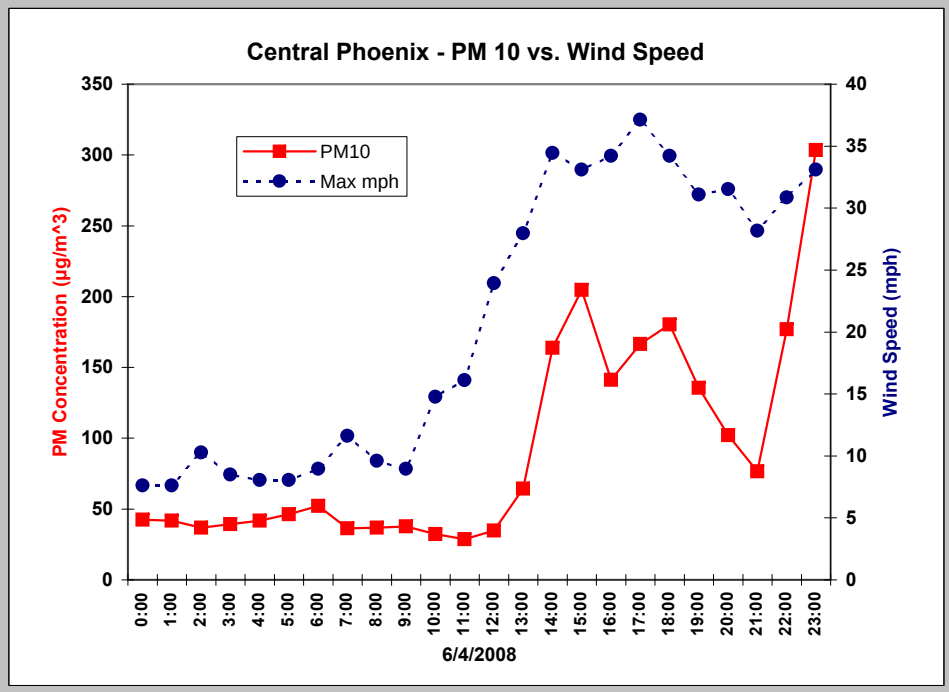


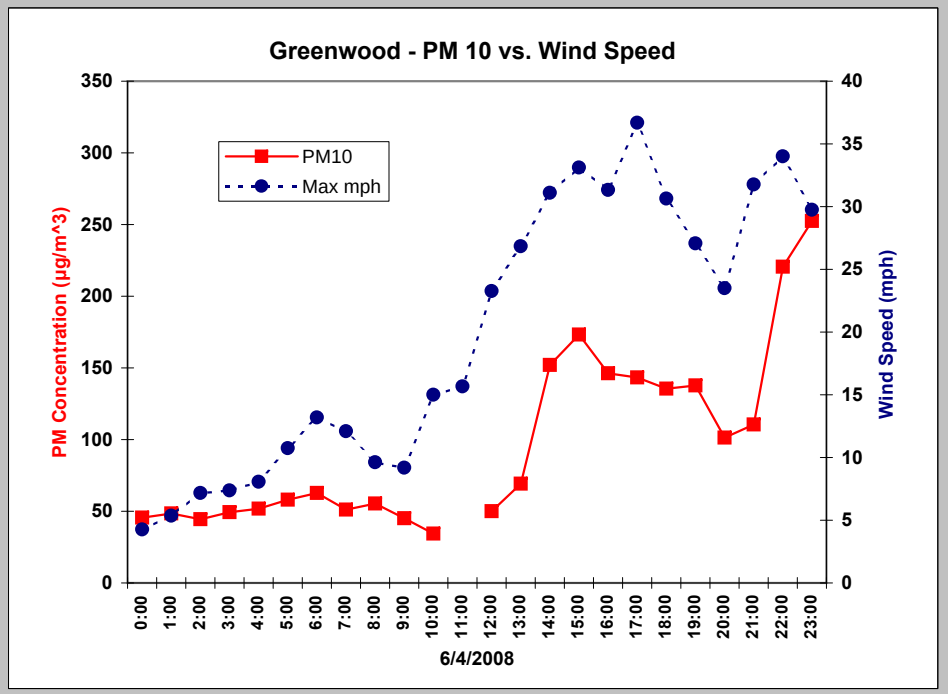


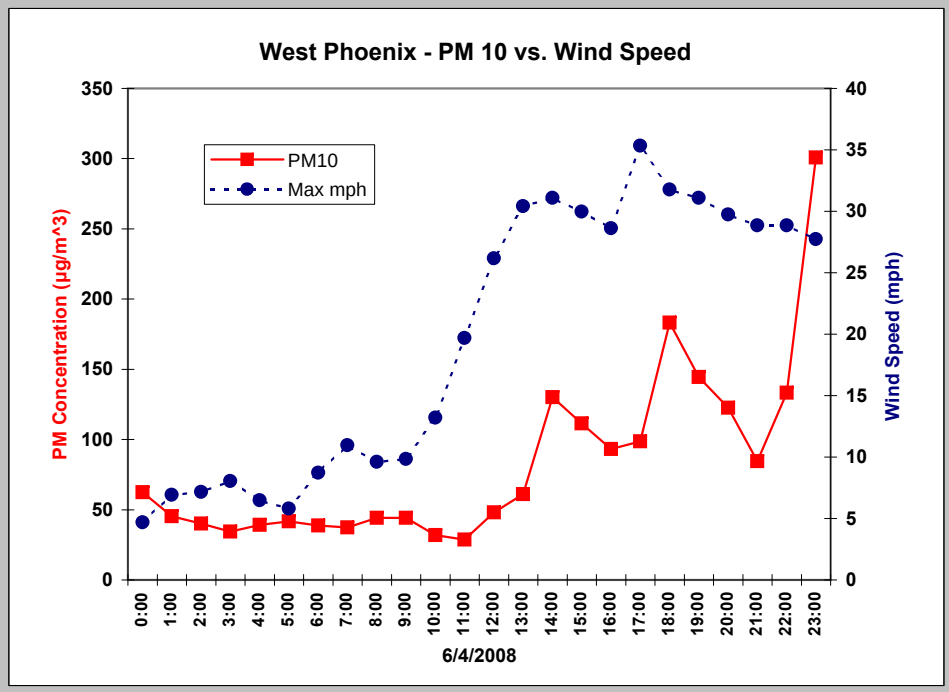


06/04/2008 - ADDITIONAL GRAPHS 2

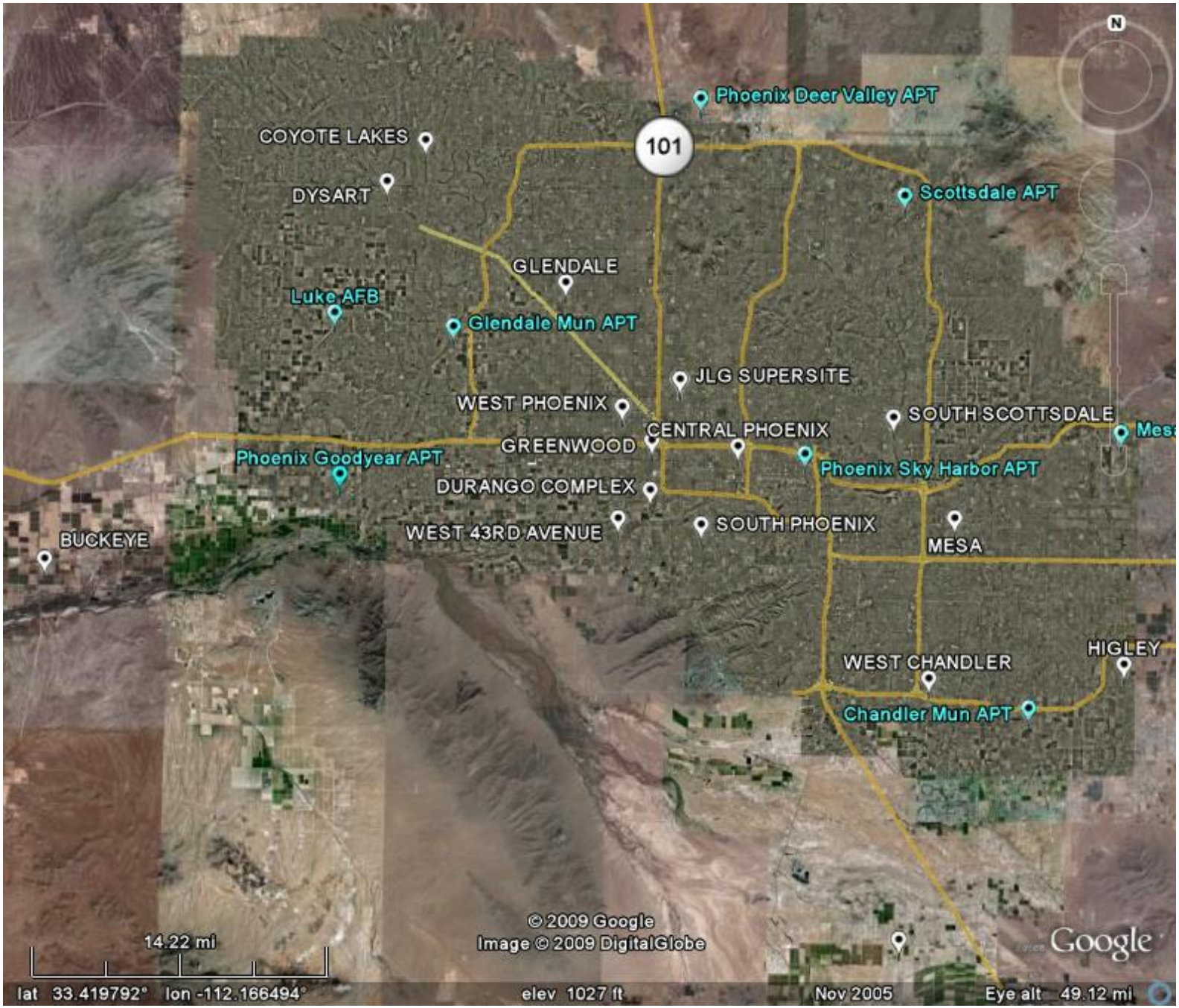






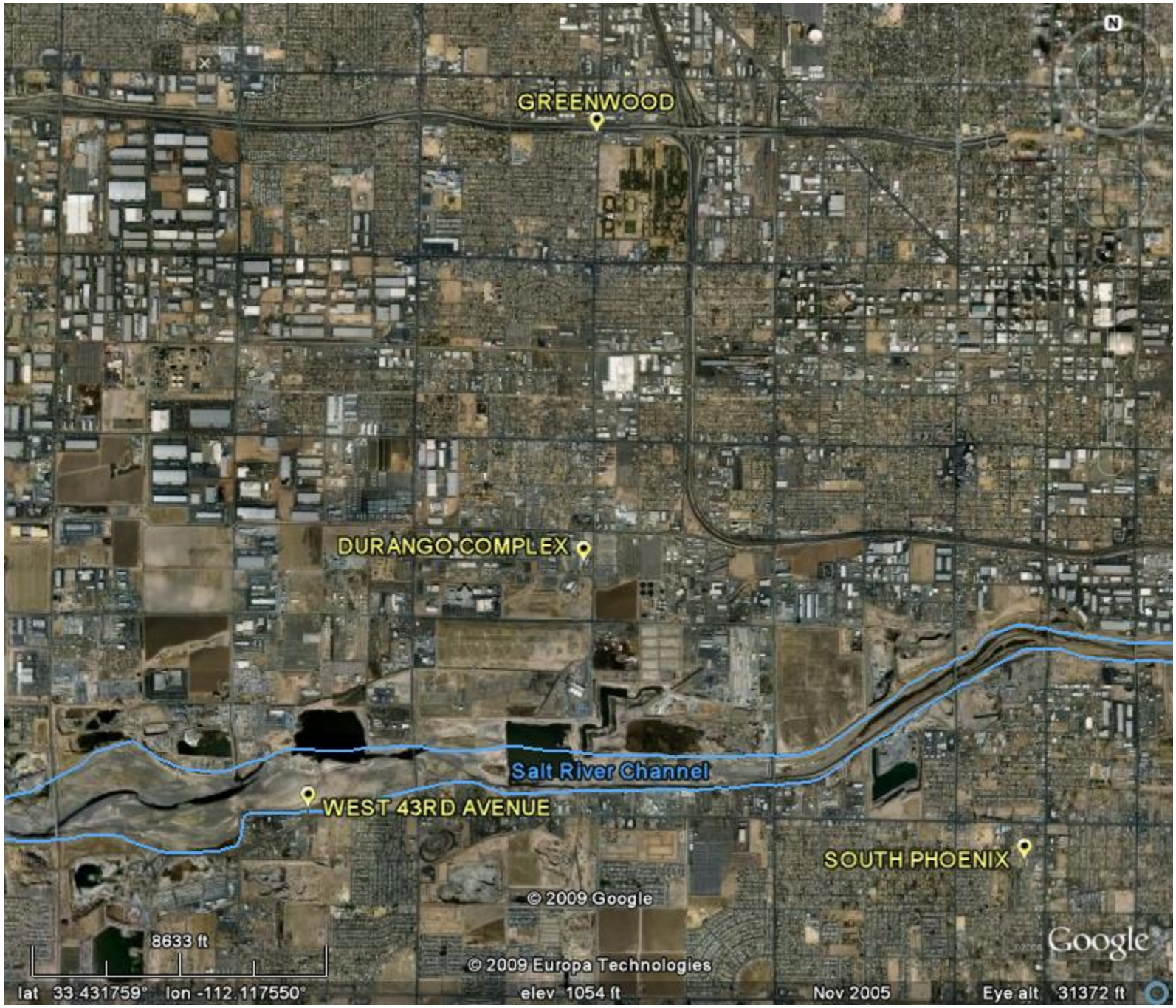


Phoenix Area PM_{10} and Meteorological Monitors



Source: US EPA, ADEQ, & Google Earth

Salt River Area PM_{10} and Meteorological Monitors



Source: US EPA, ADEQ, & Google Earth

Yuma Area PM_{10} and Meteorological Monitors

Source: US EPA, ADEQ, & Google Earth

June 4th 2008 Radar and Satellite Data

Radar data obtained from the National Oceanic and Atmospheric Administration's National Climatic Data Center in conjunction with MODIS satellite photography obtained from NASA's Rapid Response System allows for a visual reassessment of the event. These data were downloaded as KMZ files and displayed using Google Earth software. The overlay of the products clearly shows that much of the suspended dust originated in southeastern California and was transported to the east. It can be seen that large sources of dust appear to come from the Imperial Sand Dunes of southern California (also known as the Algodones Dunes) and other similar dunes or open desert areas to the southwest of the Salton Sea. Another common source of blowing dust appears to be an area of open desert to the south / southeast of Yuma. While some of the radar images are obscured by noise, the dust sources are still clearly visible.

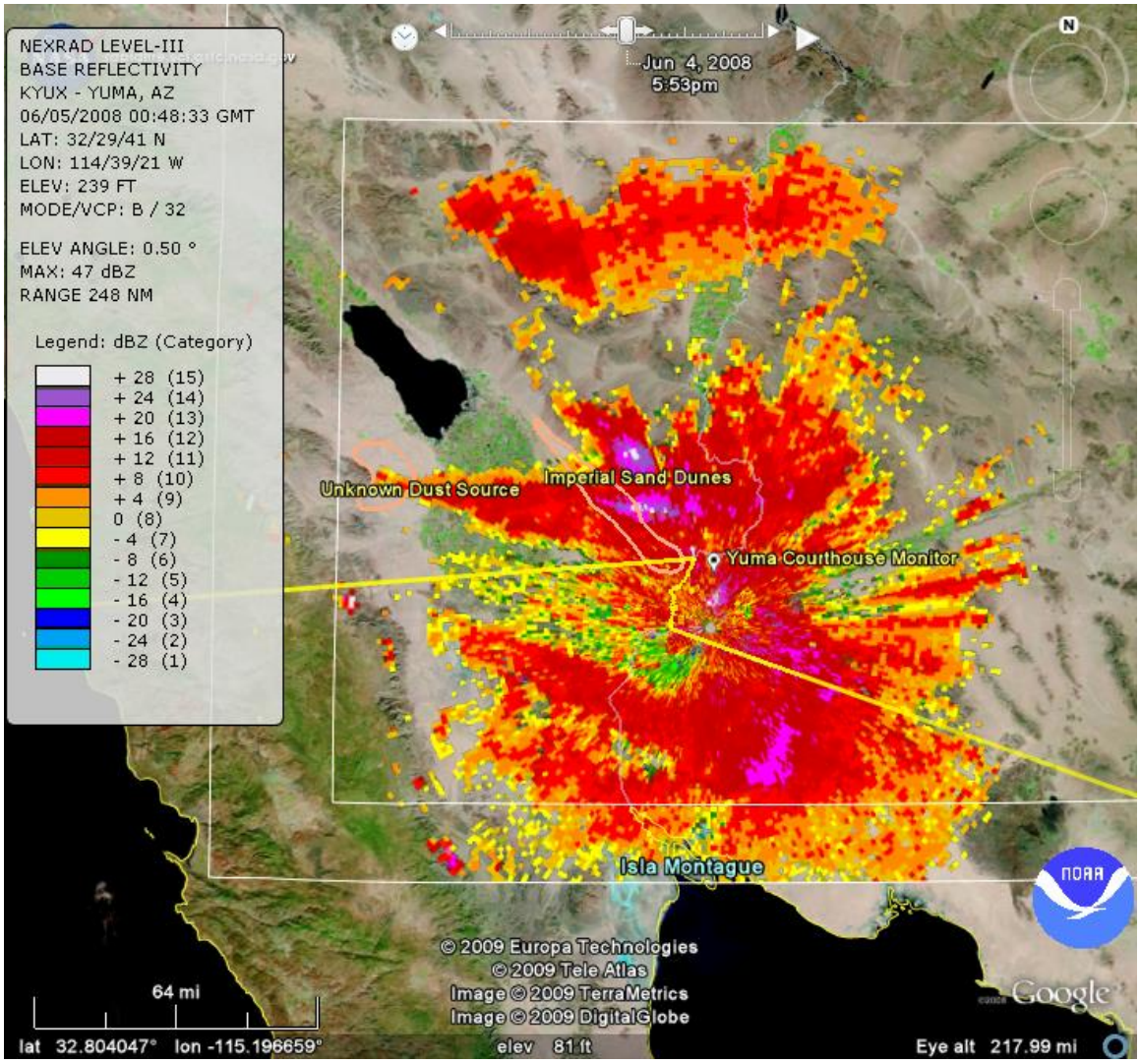


Figure 1 - Radar data and MODIS satellite imagery show a major source of blowing dust located to the southwest of the Salton Sea.

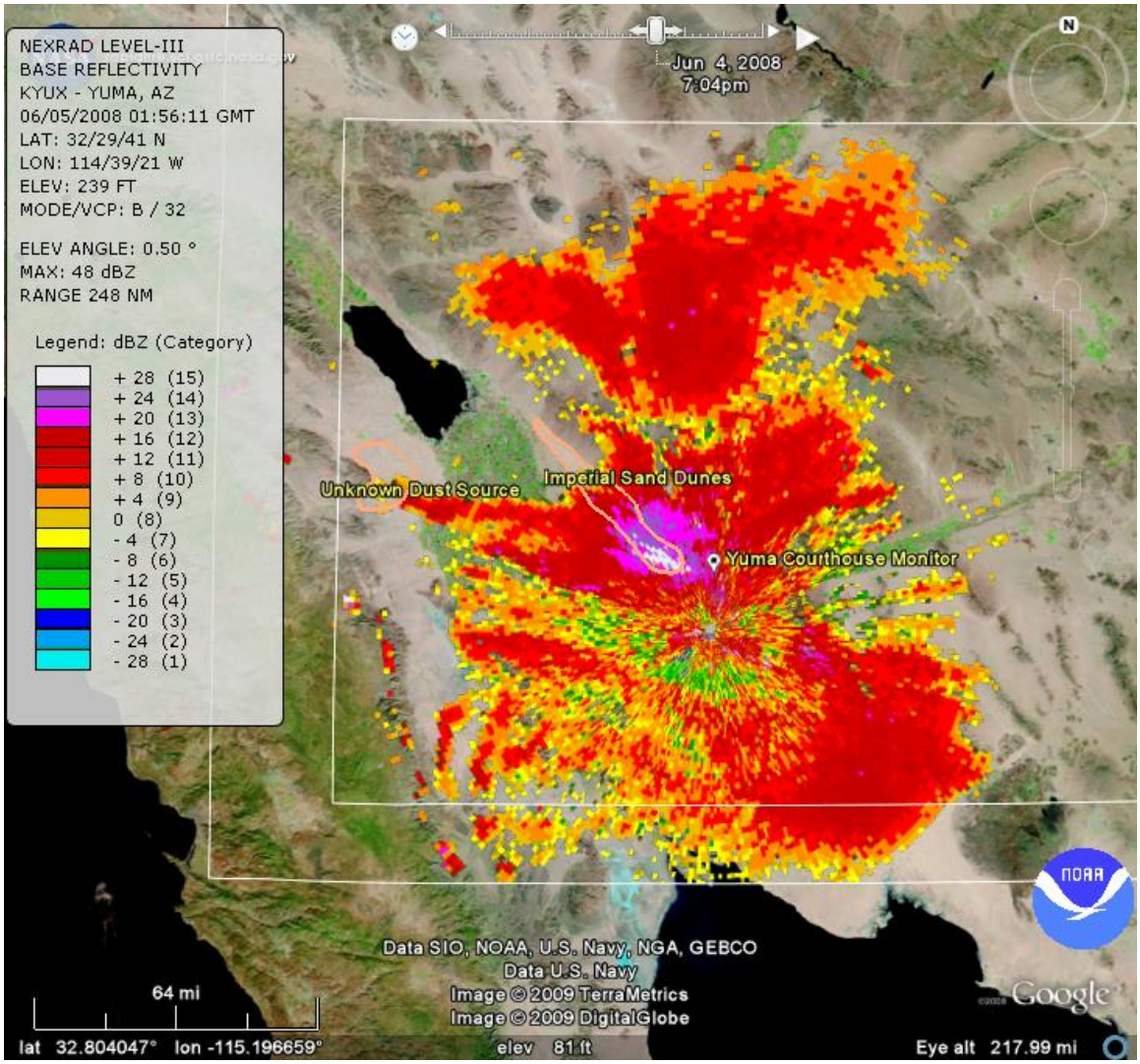


Figure 2 – Just prior to the time of highest PM_{10} concentrations in the Yuma area, radar data show what are likely high concentrations of blowing dust to the west / northwest of Yuma. These returns (shown as white colors) are likely indicative of blowing dust originating from the Imperial Sand Dunes.

The MODIS satellite data are from the Terra satellite with 250 meter resolution and use bands 7, 2, and 1 to accentuate vegetation. Lighter tan areas are indicative of open desert while darker brown areas indicate areas of higher elevation or differing soil type (compared to that of the open desert). The suspected PM sources are outlined in the image below.

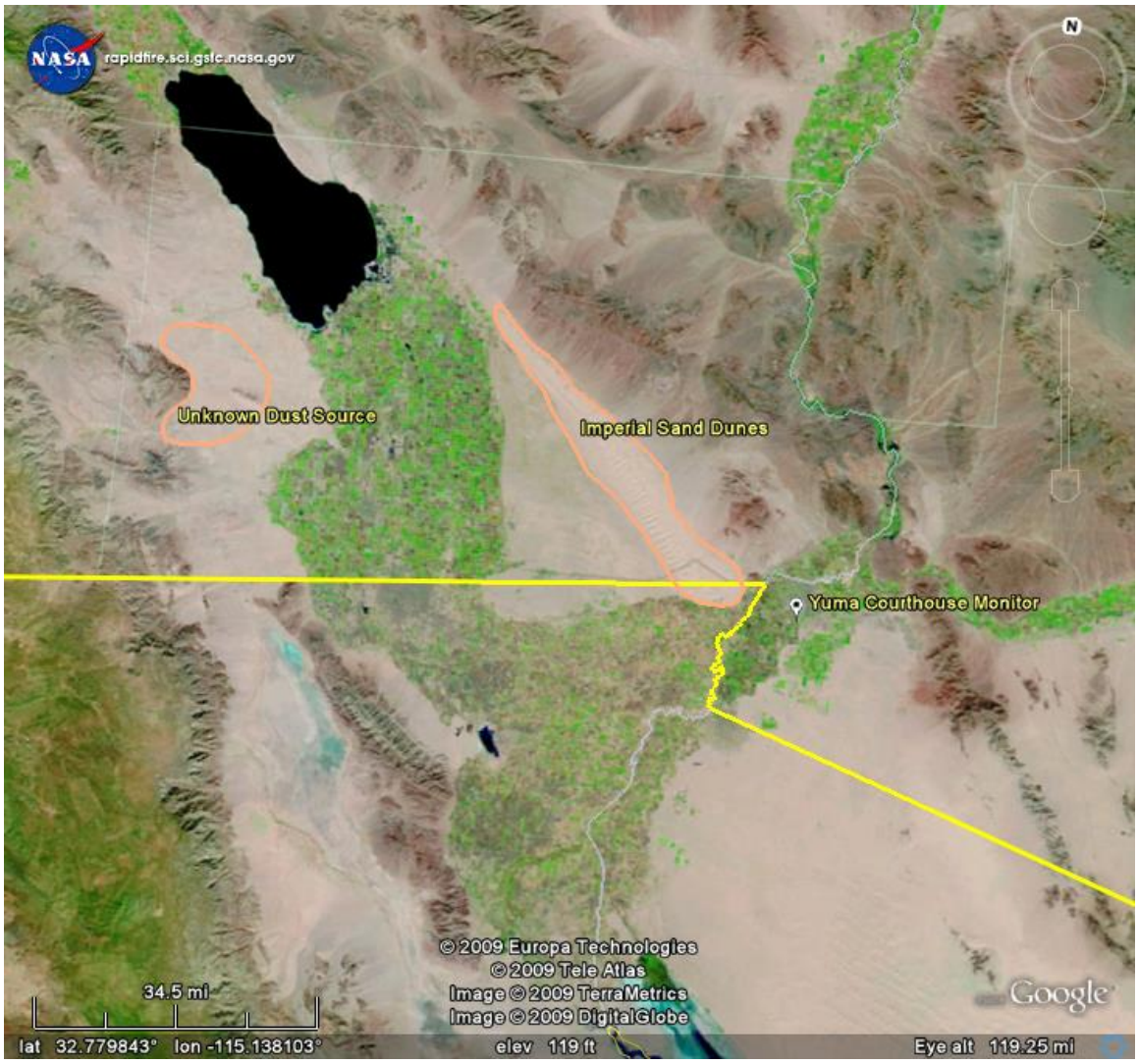


Figure 3 - Image courtesy of MODIS Rapid Response Project at NASA/GSFC displayed using Google Earth software.

PM_{10} Control Measures Reporting Form
High Wind Exceptional Event Demonstration

Date of Flagged Event June 4, 2008

PM_{10} Planning Area Maricopa County PM10 Nonattainment Area

Exceeding Monitor(s) Buckeye, Coyote Lakes, and West 43rd Monitors

AQI/High Wind/Dust Forecast (rolling three day forecast) Issued?

Yes	No
X	

Type: PM10 Health Watch (issued between 10 am and noon, same day)

In the spaces below, please provide information about the 72-hour period preceding the event, the day of the event, and the 72-hour period following the event. For a list of control measures for the planning area, see back of this form. Account for minimum 2 mile area around exceeding monitor(s). *Please attach additional information if necessary.*

Complaints:

No complaints for agricultural activities for all three areas during time frame, and two fields within radius of West 43rd and Durango monitors were *not* in crop production; no County complaints for **Buckeye area**; June 4th County complaint inspection of vacant lot for **Coyote Lakes** area; June 4th County complaint inspection_ of a dust control permit for **West 43rd** area.

Inspections:

June 4th four inspections of dust control permits under Rule 310 BACM measures for **Buckeye** area (no violations); June 2nd one inspection of Rule 316 point source for Rule 316 BACM measures for **Coyote Lakes** area (no violations); June 3rd three inspections of dust control permits for Rule 310 BACM measures, June 5th two inspections – one for a dust control permit for Rule 310 BACM measures and one for Rule 316 source (no violations), June 6th five inspections of dust control permits for Rule 310 BACM measures (no violations) all for **West 43rd** area.

Notices or Enforcement Actions:

None for **Buckeye** area; one 60-day letter for unstable vacant lot under Rule 310.01 for **Coyote Lakes** area; one NOV issued on June 4th for trackout under Rule 310 and one NOV issued on June 5th for failure to install a wheel washer under Rule 316 both for **West 43rd** area.

Regulating Agency(s) ADEQ (Agriculture); Maricopa County

Information Supplied By Emily Bonanni, ADEQ Planning Division, Compliance Section; Jo Crumbaker, Maricopa County Air Quality Department

Date Completed October 14, 2009

FOR INTERNAL PURPOSES ONLY
Reviewed by / date: _____

Measures included in the Maricopa County PM_{10} 5 Percent Plan
(25 committed measures in parentheses)

1. Extensive dust control training program (2).
2. Dust managers/Coordinators at earthmoving sites < than or equal to 5 acres (3,16).
3. Increase proactive Rule 310 and 316 inspections (9, 10, 44).
4. Strengthen Rule 310 to promote continuous compliance (36 thru 38, 28).
5. Conduct nighttime and weekend inspections (8).
6. Ban leaf blowers from blowing debris into streets (21).
7. Prohibit use of leaf blowers on unstabilized surfaces (45).
8. Implement a leaf blower outreach program (22).
9. Ban ATV use on high pollution advisory days (23).
10. Pave or stabilize existing unpaved parking lots (25).
11. Pave or stabilize unpaved road shoulders (28).
12. Strengthen and increase enforcement of Rule 310.01 for vacant lots (31, 32)
13. Recover costs for stabilizing vacant lots (33).
14. Restrict and enforce vehicle use/parking on vacant lots (31, 32).
15. Increase fines for open burning (34).
16. Restrict use of outdoor fireplaces/pits/ambience fireplaces (35).
17. Other wood burning restrictions in SB 1552 (47, 48).
18. Repave or overlay paved roads with rubberized asphalt (53).

Various additional SIP measures or sources:

1. Agriculture – Agricultural Best Management Practices (AgBMP) Program
2. Point sources – Permit Conditions (stack, fugitive, and area source emissions)
3. Rule 310 and 310.01; sand and gravel – Rule 316
4. Windblown, area sources – mobile, roadway, vacant lots, fires, et al.
5. Maintenance of micro-scale Salt River stabilization/improvement
6. Pave and stabilize public dirt roads and alleys
7. Covered loads
8. Registered subcontractors