Appendix A:

Natural Event Documentation
High Winds
Corcoran, California
September 3, 2004

San Joaquin Valley Unified Air Pollution Control District

March 3, 2005

San Joaquin Valley
Air Pollution
Control District

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EXECUTIVE SUMMARY

On September 3, 2004, a Corcoran, California air monitor detected a PM10 (particulate matter 10 microns or less) concentration of 217μg/m^3, which exceeds the 24-hour National Ambient Air Quality Standard (NAAQS) of 150μg/m^3 for PM10. As part of the San Joaquin Valley Air Basin (SJVAB), Corcoran is designated as a serious nonattainment area for PM10. Best available control measures (BACM) were in place in Corcoran on the day of the exceedance by way of control measures in the San Joaquin Valley Air Pollution Control District's (District) 2003 PM10 plan and the District's various rules regulating PM and its precursors. There is no indication of unusual emissions before or during this exceedance.

Abnormally high winds that were experienced throughout the Sacramento and San Joaquin Valley Air Basins on September 2 and 3, 2004 entrained dust. Wind speeds at Corcoran on September 3, 2004 tended to be higher than normal, but were still much weaker than wind speeds north of Corcoran. This change in wind speed led to high concentrations of wind-suspended PM10 in the vicinity of the Corcoran monitor. The natural wind event overcame BACM, resulting in a NAAQS exceedance for PM10.

The 1996 EPA memorandum, *Areas Affected by PM10 Natural Events*, allows areas to request a data flag by submitting documentation showing that a PM10 exceedance would not have occurred in the absence of a natural event, such as high wind events. If the data flag is approved, then that exceedance will not count against an area's attainment status. The District presents this documentation as evidence that data from the PM10 exceedance in Corcoran, California on September 3, 2004 should be flagged so that it does not count towards the area's attainment status. Public notice of the documentation appeared in eight Valley newspapers (see Appendix A for notice text and proof of publication.

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has published policies for documenting when exceedances of particulate matter standards result from a natural event. The San Joaquin Valley Air Basin (SJVAB) experienced high levels of particulate matter on September 3, 2004 that fall under the EPA's natural event policies. The purpose of this report is to provide documentation supporting the San Joaquin Valley Unified Air Pollution Control District's (District) determination that the event meets the EPA criteria for a natural event.

The term "particulate matter (PM)" refers to a group of air pollutants suspended in the air as solid particles or liquid droplets and varying in size and composition. The size of PM varies from coarse wind blown dust particles to fine particles; PM can be formed from chemical reactions in the atmosphere or directly emitted. PM10 consists of particles with an aerodynamic diameter of 10 microns or less (human hair has a diameter of about 70 microns). PM10 is a health concern because it is small enough to reach the air spaces deep in the lungs.

The 24-hour National Ambient Air Quality Standard (NAAQS) for PM10 is 150 $\mu g/m^3$. The 24-hour standard for PM10 is attained when the 24-hour average concentration of PM10 does not exceed the NAAQS more than one day per year. The SJVAB has exceeded this standard in the past and is currently classified as a Serious Nonattainment Area for PM10 under federal criteria. Within the SJVAB, a PM10 exceedance occurred in the City of Corcoran on September 3, 2004. The District holds that this exceedance was caused by a natural event of high winds and, as such, should be flagged so that it does not count against the SJVAB's attainment status. An event of strong gusty winds in parts of the Sacramento and northern San Joaquin Valley transported particulates to areas where winds slowed, the particles were deposited near the surface, and high PM10 levels resulted.

This report contains several elements. First, it provides a summary of the federal policy allowing for natural event data flagging. Second, it provides a description of the PM10 problem in the SJVAB. Third, it provides a technical analysis of the conditions that occurred during the exceedance that demonstrates it was caused by a natural event.

Once the District obtains the concurrence of the California Air Resources Board (ARB) and EPA that the data should be flagged, the District will start developing a Natural Events Action Plan (NEAP). The NEAP provides a series of actions to inform the public of future natural events and to mitigate the impacts.

FEDERAL POLICY

The EPA has published several federal policies that are relevant to this discussion. The policies have focused on air quality data, PM10 exceedances, and unusual conditions. A discussion of these follows, and a summary is provided in Table 1. This information provides the framework for flagging exceedances as natural events.

The EPA's *Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events* (1986) introduced a flagging system to help prevent misinterpretation or misuse of air quality data reflecting high pollutant levels that had resulted from natural or man-made events considered unlikely to reoccur at a given location. The system includes eighteen types of exceptional events. One type of event is high winds, defined as conditions in which there is only trace or no precipitation in addition to one of the following conditions: hourly wind speeds averaging at least 40 mph or lower hourly wind speeds with gusts of at least 30 mph. Additionally, these high wind events were to be associated with PM10 samples composed primarily (85%) of natural sources, so dust from industrial sources was not to be flagged (EPA 1986).

Rather than using data flags, Section 188(f) of the 1990 federal Clean Air Act (CAA) amendments waives data if the cause of a PM10 exceedance was shown to be nonanthropogenic. Appendix K to the Code of Federal Regulations Title 40 (*Protection of Environment*), part 50 (2.4), also discounts data from exceptional events rather than applying data flags. Here, exceptional events are uncontrollable natural events and any non-reoccurring event.

EPA's *Guidelines on the Identification and Handling of Ambient Air Quality Data Affected by Special Events or Special Conditions* (1994) introduced a new data flagging system. These flags are applied to events happening only once in any five-year period.

Most recent, and of primary interest here, is the EPA memorandum, *Areas Affected by PM10 Natural Events* (1996). When a clear, causal relationship is shown between a PM10 exceedance and one of three categories of natural events (volcanic and seismic activity, unwanted wildland fires, and high wind events), air quality data can be flagged so that it does not count toward an area's attainment status. Since the conditions that create high winds vary from area to area, the State must determine the high wind conditions that are likely to overcome best available control measures (BACM) for dust in each region.

According to this 1996 memorandum, documentation of the causal relationship between the PM10 exceedance and the natural event must be available for public review and comment. Then, it is submitted to the Regional EPA Office within 180 days of the exceedance. The Regional Office will confirm or deny the data flag within 60 days of receiving the documentation. If the data is flagged, a

Table 1 Summary of Federal Policy Related to Natural Events and Exceedances of Federal Ambient Air Quality Standards

POLICY TITLE	DATE	APPLICATION
Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events	1986	Defined 18 exceptional human and natural events to be flagged
Federal CAA Amendments, Section 188(f)	1990	Waived data from exceedances caused by nonanthropogenic sources
Appendix K to 40 CFR, part 50 (2.4)	revised 2001	Discounted data from uncontrollable natural events or any nonreoccuring event
Guidelines on the Identification and Handling of Ambience Air Quality Data Affected by Special Events or Special Conditions	1994	Flagged data influenced by events that occur once in any five-year period
Memorandum: Areas Affected by PM10 Natural Events	1996	Flags data for exceedances caused by one of three types of natural events so that they do not count against an area's attainment status; requires NEAP

NEAP is to be developed within 18 months of the exceedance date to address pubic health and future events. The NEAP should be reevaluated every five years, at minimum.

PM10 IN THE SAN JOAQUIN VALLEY

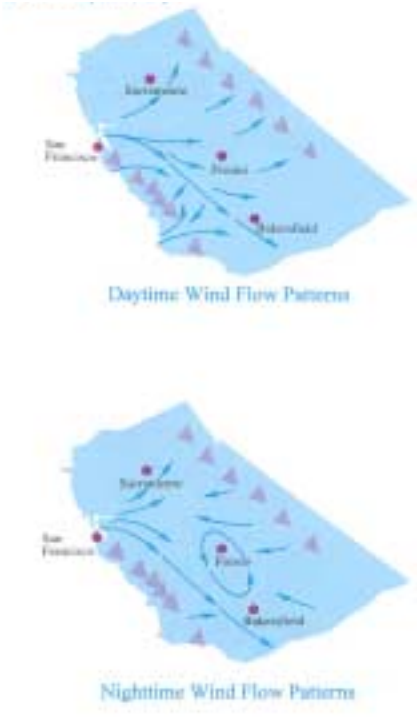


Figure 1 San Joaquin Valley Wind Flow Patterns

The SJVAB is an inter-mountain valley in central California that is approximately 250 miles long, averages 80 miles wide, and is partially enclosed by the Coast Mountain range on the west, the Tehachapi Mountains on the south, and the Sierra Nevada range on the east. Figure 1 shows generalized summer wind flow patterns in the San Joaquin Valley. The SJVAB includes eight counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and a portion of Kern.

The SJVAB is currently classified as a Serious Nonattainment Area for PM10 under federal criteria. To meet federal requirements, the San Joaquin Valley Air Pollution Control District (District) adopted the *2003 PM10 Plan* on June 19, 2003 and amended the plan on December 18, 2003. The District is currently working on the *2006 PM10 Plan*, which is due to the EPA on March 31, 2006.

The District operates an extensive network of air quality monitoring stations in the SJVAB. Figure 2 shows the locations of stations with PM10 monitors. Each PM10 monitor is on a six-day reading cycle, which is maintained for ease of PM10 filter changing while ensuring that samples are not taken on the same day of the week

every week. Most of the PM10 monitors are on the same six-day cycle, but one monitor (indicated by the circled "x" on Figure 3) is on an alternate six-day cycle, lagging three days apart from the other monitoring cycles. This particular monitor is in the City of Corcoran, part of Kings County, and herein shall be referred to as the alternate Corcoran monitor.

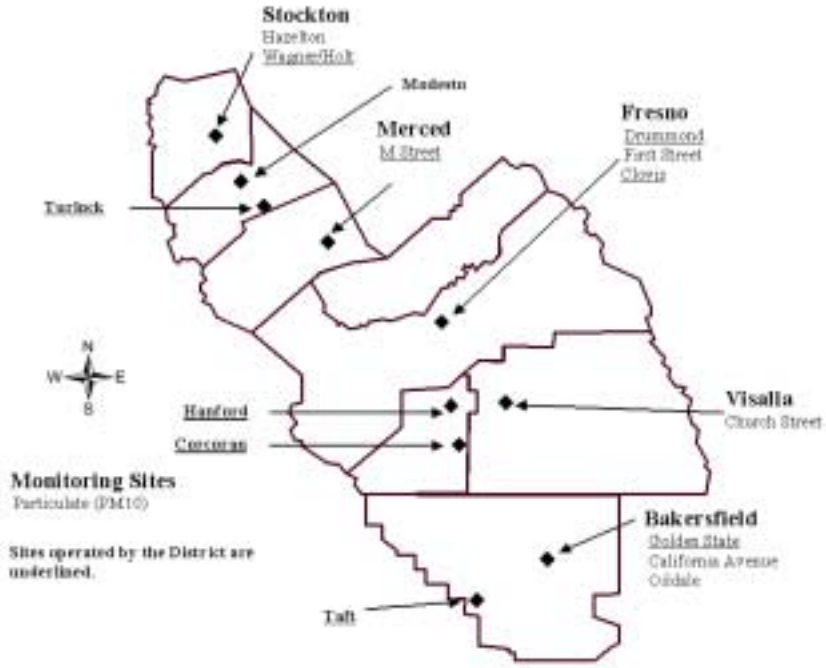


Figure 2 PM Monitoring Sites in the SJVAPCD

Figure 3 Alternate Corcoran monitor location, *Source*: USGS

Land Use

The City of Corcoran, which had a 2000 population of 14,458, is part of Kings County, which had a total 2000 population of 129,461 (U.S. Census Bureau 2005). Of the estimated 26.75 tons per day of PM10 emitted in Kings County in 2004, 2.7% came from mobile sources (on-road and off-road), 5.1% came from stationary sources (including industrial processes and fuel combustion), and 92.2% came from area-wide sources (ARB 2005). Figure 4 illustrates area-wide contributions to PM10 in Kings County.

The primary land use for many miles upwind of the alternate Corcoran monitor site is farming. The San Joaquin Valley has the most productive farmland in the world with over 4.4 million harvested acres in 2002. The high temperatures and normal summer drought in the region add to the productivity of the crops, but these conditions can create low soil moisture conditions after harvest is complete and irrigation is discontinued. September is peak harvest season for many crops. In the absence of best available control methods (BACM), certain soil types may be subject to wind entrainment during the period after being disturbed by harvest activities and until the soil is prepared for the next crop. However, the infrequency of high winds in the area limits the occasions when this condition causes a problem. After the first substantial rain of the season, which usually occurs in late September or early October, the potential for windblown dust is greatly reduced.

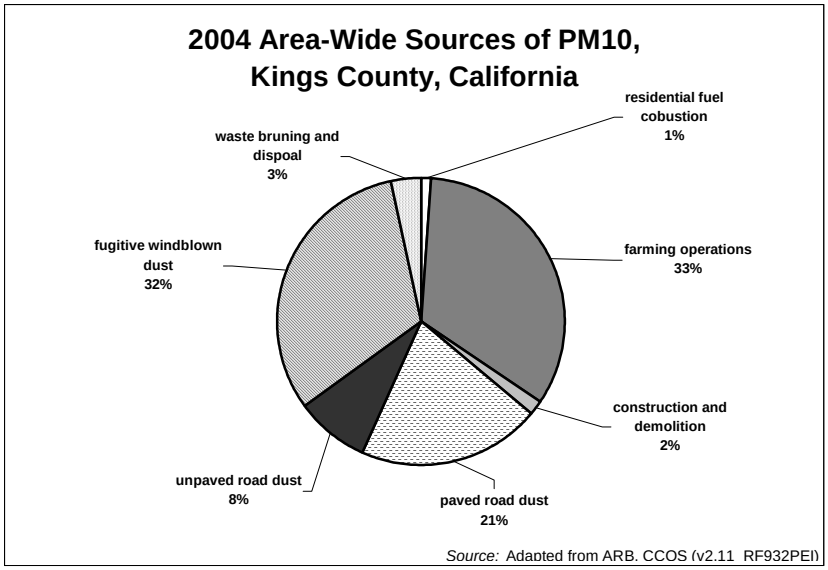


Figure 4 PM10 in Kings County

Best Available Control Measures

The District has adopted BACM in the San Joaquin Valley that control the significant sources of PM10 in the air basin, including Corcoran. While there are several rules that limit PM precursors, the two most important controls of fugitive dust are Regulation VIII (Fugitive PM10 Prohibitions) and Rule 4550 (Conservation Management Practices, CMP). The rules are discussed at length in the 2003 PM10 Plan, and the full text of adopted rules can be found on the District web site (http://www.valleyair.org/rules/1ruleslist.htm).

The CMP program requires farmers with 100 acres or more of contiguous farmland to implement and document a biennial plan to reduce dust and PM10 emissions from on-farm sources. A Conservation Management Practice is an activity or practice that farmers implement on their farms to help reduce dust or particulate matter from the air. The District rule requires farmers to implement five CMPs for each crop, including one from each of the following categories: land preparation and cultivation, harvest activities, unpaved roads, unpaved equipment yards, other cultural practices. CMPs are listed by category in Table 2. Crop categories include alfalfa; citrus; corn, grain, and silage; cotton; dry beans, cereal grains, safflower, wheat, and barley; grapes; nut crops; onions and garlic; sugar beets; tree fruit; and vegetables, tomatoes, melons, and other. Rule 3190 (Conservation Management Practices Free) provides funding for District administrative costs for plan review. The CMP rule was adopted by the District Governing Board on May 20, 2004 (re-adopted August 19, 2004) and took effect on July 1, 2004.

One of the requirements in Rule 4550 is the submission of a CMP Plan for approval to the District by December 31, 2004. The District, in conjunction with the agriculture industry, the USDA Natural Resources Conservation Service (NRCS), and the Resources Conservation Districts (RCD) held almost 40 workshops during May-December 2004 to facilitate implementation of the CMP rule. The workshops were conducted in each of the eight counties under the jurisdiction of the District. The workshops also covered the requirements for operating fuel-fired engines triggered by Senate Bill 700 and provided assistance with the permit applications. Over 2500 attendees participated. Farmers and producers had the option to complete their applications and submit them at the workshop or to provide them to the District at a later time. Since the workshops, the District has received over 6,000 applications, including over 800 animal feeding operation (AFO) facilities, covering over three million acres, 1 million cows, and 39 million chickens. The District began reviewing the applications in late 2004 and continues its review process. The goal is to finish issuing the approved CMP Plans by the end of December 2005. To date, several hundred CMP Plans have mailed.

Fugitive dust is also control by Regulation VIII. Table 3 presents a summary of rules in Regulation VIII as of September 2004. Regulation VIII has been amended subsequent to September 2004, and these amendments and their intended implementation dates, as well as the CMP rule, were declared BACM in the EPA approval of the 2003 PM10 Plan on May 26, 2004 (69 *FR* 30013-30022).

Table 2 Conservation Management Practices (Rule 4550)
Land Preparation/Cultivation CMPs Alternate Till, Bed/Row Size or Spacing, Chemigation/Fertigation, Combined Operations, Conservation Irrigation, Conservation Tillage (e.g.: no tillage, minimum tillage), Cover Crops, Equipment Changes/Technological Improvements, Fallowing Land, Floor Management, Integrated Pest Management, Mulching, Night Farming, Non Tillage/Chemical Tillage, Organic Practices, Precisions Farming (GPS), Time of Planting, Transgenic Crops, Transplanting
Harvest CMPS Baling/Large Bales, Combined Operations, Continuous Tray/D.O.V., New Drying Techniques for Dried Fruit, Equipment Changes/Technological Improvements, Floor Management, Green Chop, Hand Harvesting, Fallowing Land, Hight Harvesting, No Burning, Pre-Harvest Soil Preparation, Shed Packing, Shuttle System/Larger Carrier
Other CMPs Alternate Till, Application Efficiencies, Baling/Large Bales, Bulk Materials Control, Chemigation/Fertigation, Conservation Irrigation, Fallowing Land, Grinding/Chipping/Shredding, Integrated Pest Management, Irrigation Power Units, Mulching, Night Farming, No Burning, Non Tillage/Chemical Tillage, Organic Practices, Permanent Crops, Reducing Pruning, Soil Amendments, Soil Incorporation, Sulfur: Reduction or Elimination of Dusting, Surface Roughening, Transgenic Crops, Wind Barrier
Unpaved Roads & Vehicle/Equipment Traffic Areas Chips/Mulches, Organic Materials, Polymers, Road Oil & Sand; Gravel; Mechanical Pruning; Paving; Restricted Access; Speed Limits; Track-Out Control; Water; Wind Barrier

Exceedance on September 3, 2004

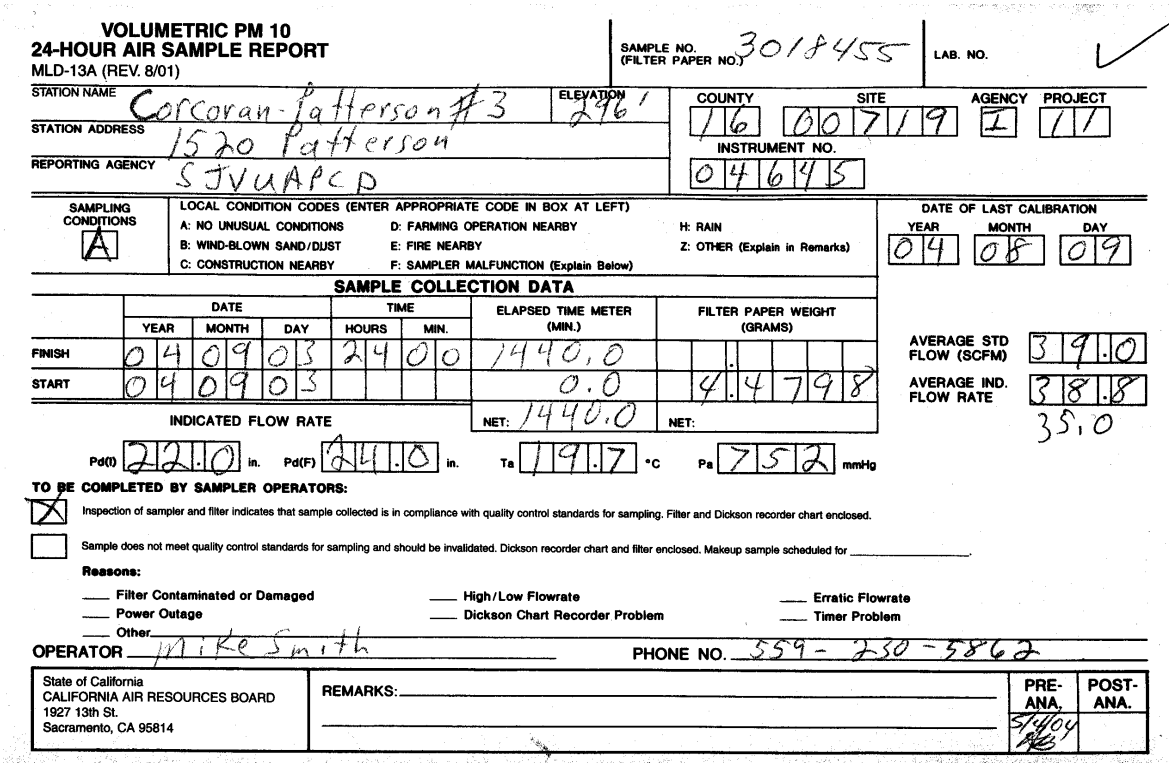
Corcoran has a total of three official PM10 monitors (pictures of the Corcoran monitoring site can be found in Appendix B). Two of the monitors are on the same cycle to allow checks of monitor accuracy. The third monitor, the alternate Corcoran monitor, allows for more data to be taken since its six day monitoring cycle is on a three day lag from the cycles of the other monitors. This alternate Corcoran monitor recorded a PM10 exceedance on September 3, 2004. This monitor was functioning properly when the exceedance was recorded (see Figures 5 and 6).

On September 3, 2004, the alternate-cycle monitor collected a PM10 sample reflecting a PM10 concentration of 217$\mu g/m^3$ (see Figure 7), which is well above the 150$\mu g/m^3$ NAAQS. This exceedance was likely due to a combination of several factors, but the exceedance would not have occurred in the absence of regional high winds.

Table 3 Regulation VIII Rule Summary
As in effect in September 2004

Rule	Requirements
8011: General Requirements	Definitions to be used in all Reg. VIII rules; requirements for test methods and record keeping
8021: Construction, Demolition, Excavation, Extraction, and other Earthmoving activities	Pre-Activities: Pre-water site to limit Visible Dust Emissions (VDE) to 20% opacity and phase work to reduce the mount of disturbed surface are at any one time. During Active operations: Apply water or chemical/organic stabilizers/suppressants to area and unpaved roads being used to limit VDE to 20% opacity utilize wind barriers Temporary Stabilization during periods of inactivity: restrict vehicular access, apply water or chemical/organic stabilizers
8031: Bulk Materials	Limit VDE to 20% opacity during handling or storage of bulk materials by way of application of water or chemical/organic stabilizers/suppressants, wind barriers, tarps, vehicular speed limits, and prevention of spillage
8041: Carryout and Trackout	Prevent or cleanup carryout and trackout by manually sweeping and picking-up, operating a rotary brush or broom with sufficient wetting to limit VDE to 20% opacity, operating a pm10-effieient street sweeper with pick-up efficiency of at least 80%, flushing with water, installing and maintaining a trackout control device, removing deposits of mud and dirt on paved interior roads
8051: Open Areas	For areas having 3.0 acres or more of disturbed surface areas limit VDE to 20% opacity with dust suppressants or water, vegetation, pavement or gravel, or limiting vehicle access with signs or barriers.
8061: Paved and Unpaved Roads	Control measures and design criteria according to daily vehicle trips, paved or unpaved, and speed limits; for shoulders, medians, curbing, intersections, entry and exit lanes
8071: Unpaved Vehicle/Equipment Traffic Areas	On days with 75 or more vehicle trips, owner/operator shall limit VDE to 20% opacity from the unpaved vehicle/equipment traffic area with application/maintenance of watering, gravel, chemical/organic dust suppressants, vegetative materials, paving, or other methods demonstrated to the satisfaction of the APCO; days with 100 or more vehicle trips must also comply with the requirements of a stabilized unpaved road; inactive areas must comply with conditions for a stabilized surface
8081: Agricultural Sources	At least one control measure per section for bullk materials must be implemented VDE must be limited to 20% opacity for; also requirements for paved/unpaved road segments and carryout/trackout

District staff examined other potential sources for the high reading meausred that day at the alternate Corcoran monitor. Fires were taking place in the Sierra Nevada area before and on the afternoon of the exceedance. A 400-acre, 70% contained wildfire burned near Mariposa, and active wildland fire use (WFU) fire was taking place in Sequoia and Kings Canyon National Park (SEKI), which is approximately 60 miles from Corcoran. The largest SEKI fire was 74 acres. However, the PM2.5 reading for Corcoran was low, at 25 $\mu g/m^3$. A low level of fine particulates (PM2.5) occurring with high levels of the more coarse PM10 typically indicates that wind-blown dust, not fire, is the source. The National Weather Service (NWS) in Hanford noted lowered visibilities due to localized blowing dust (documented in Appendix C). The NWS in Sacramento, also noting blowing dust and strong winds, issued a wind advisory (also documented in Appendix C). Several agricultural burns were initially permitted for September 3 in the area in and around Corcoran through the District's Smoke Management Allocation System (Rule 4103). The District subsequently set burn allocations to zero when stronger winds set in. PM10 levels recorded in Corcoran by BAM (beta attenuation monitor) were much lower on the days prior to and the days immediately following September 3. Based on a survey of local media in the days surrounding the event, there is no evidence of unusual emissions on September 2 or 3. Other sources having been ruled out, the exceedance would not have occurred in the absence of the wind event discussed in the next section.



VOLUMETRIC PM 10
24-HOUR AIR SAMPLE REPORT
MLD-13A (REV. 8/01)

SAMPLE NO. (FILTER PAPER NO.) 3018455 | LAB. NO. ✓

STATION NAME: Corcoran-Patterson #3 | ELEVATION: 296'
STATION ADDRESS: 1520 Patterson
REPORTING AGENCY: SJVUAPCD

COUNTY: 16 | SITE: 0019 | AGENCY: I | PROJECT: 11
INSTRUMENT NO.: 04645

SAMPLING CONDITIONS: A

LOCAL CONDITION CODES (ENTER APPROPRIATE CODE IN BOX AT LEFT)
A: NO UNUSUAL CONDITIONS | D: FARMING OPERATION NEARBY | H: RAIN
B: WIND-BLOWN SAND/DUST | E: FIRE NEARBY | Z: OTHER (Explain in Remarks)
C: CONSTRUCTION NEARBY | F: SAMPLER MALFUNCTION (Explain Below)

DATE OF LAST CALIBRATION: YEAR 04 | MONTH 08 | DAY 09

SAMPLE COLLECTION DATA

	DATE YEAR	MONTH	DAY	TIME HOURS	MIN.	ELAPSED TIME METER (MIN.)	FILTER PAPER WEIGHT (GRAMS)
FINISH	04	09	03	24	00	1440.0	
START	04	09	03			0.0	4.4798
					NET:	1440.0	NET:

AVERAGE STD FLOW (SCFM): 391.0
AVERAGE IND. FLOW RATE: 388.8 (35.0)

INDICATED FLOW RATE
Pd(i) 212.0 in. | Pd(f) 241.0 in. | Ta 19.7 °C | Pa 752 mmHg

TO BE COMPLETED BY SAMPLER OPERATORS:

☒ Inspection of sampler and filter indicates that sample collected is in compliance with quality control standards for sampling. Filter and Dickson recorder chart enclosed.

☐ Sample does not meet quality control standards for sampling and should be invalidated. Dickson recorder chart and filter enclosed. Makeup sample scheduled for _____.

Reasons:
___ Filter Contaminated or Damaged | ___ High/Low Flowrate | ___ Erratic Flowrate
___ Power Outage | ___ Dickson Chart Recorder Problem | ___ Timer Problem
___ Other

OPERATOR: Mike Smith | PHONE NO.: 559-230-5862

State of California
CALIFORNIA AIR RESOURCES BOARD
1927 13th St.
Sacramento, CA 95814

REMARKS:

PRE-ANA.: 9/14/04 | POST-ANA.:

Figure 5 Documentation of sample collection in compliance with quality control standards for sampling for the September 3, 2004 PM10 sample collected at Corcoran.

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT
VOLUMETRIC FLOW CONTROL
PM10 CALIBRATION DATA SHEET

Date: 8/9/2004 Calibration: AS-IS ____ Final X

Site Name:	Corcoran-Patterson #3	Site Elevation:	296
Site Number:	16-719	Ambient Temp C: (Ta)	38.5
Log Number:	NA	Ambient press. mmHg: (Pa)	753

Calibration Standards

Orifice Std. Make/Model:	GMW VAR. ORFICE
Property Number	9253
Date Certified	1/8/2004
P Std. Property Number:	DELTA CAL 9219
P Date Certified:	1/14/2004

Sampler Being Calibrated

Make and Model:	Sierra -Anderson
VFC Serial Number:	P4894
Property Number:	4645
Last Cal. Date:	4/8/2004
Flow During Last Cal Date:	39.2
Sampler Magnehelic Zero:	0
Dickson Chart reading:	36.0

Single-Point Calibration Verification

True Volumetric Flow (Qt)

GMW Magnehelic Pg "H2O" 3.2
Qt CFM 39.74

Qt= K1 Sqrt (ΔP Pa/Tk) + K2
Tk= Ta+273

Sampler Volumetric Flow (Qv)

Pf Std Abs Pres mmHg 42.0
Magnehelic Pf "H2O" 22.0
Pa/Pa 0.9454
Qv CFM 39.95

$Pa/Pa = 1 - \frac{Pf\ "H2O"}{Pa * 0.535}$

$\%\ Diff\ from\ True = \frac{Qv - Qt}{Qt} \times 100 = 0.53\ \%$

$\%\ Diff\ from\ previous\ cal = \frac{Qt - Qt\ Prev}{Qt\ Prev} \times 100 = 1.38\ \%$

$Magnehelic\ \%\ Accuracy = \frac{[(Pf\ in\ "H2O" \times 1.867) - (Pa - Pfstd)]}{(Pa - Pfstd)} \times 100 = 2.1\ \%$

* Pfstd = PmmHg measured at stagnation tap by pressure standard (clean filter in calibrated orifice) while sampler is running
**QvCFM = m3m (chart look up value)(35.3146667215)

Comments: Motor brushes failed- reconditioned motor installed, calibration checked. Operates normal.

Figure 6 Documentation of normal operation for Corcoran PM10 monitor

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
RAW DATA MAX VALUES REPORT

Jan. 25, 2005

(81102) PM10 Total 0-10um STP

SITE ID: 06-031-0004 POC: 4
COUNTY: (031) Kings
CITY: (16224) Corcoran
SITE ADDRESS: 1520 PATTERSON AV., CORCORAN
SITE COMMENTS: SITE IS PARALLEL MONITOR TO 06-031-0003 WHICH IS TO BE CLOSED MID 97
MONITOR COMMENTS: GMW HI-VOL SSI SIERRA ANDERSON ALTERNATE 6 DAY SAMPLING

SUPPORT AGENCY: (0945) San Joaquin Valley Unified Air Pollution Control Dist
MONITOR TYPE: OTHER
COLLECTION AND ANALYSIS METHOD: (063) HI-VOL SA/GMW-1200 GRAVIMETRIC
REPORTING ORG: (0145) California Air Resources Board

STATE: (06) California
AQCR: (031) SAN JOAQUIN VALLEY
URBANIZED AREA: (0000) NOT IN AN URBAN AREA
LAND USE: RESIDENTIAL
LOCATION SETTING: SUBURBAN

REPORT FOR: 2004

CAS NUMBER:
LATITUDE: 36.101389
LONGITUDE: -119.565833
UTM ZONE: 11
UTM NORTHING: 3998073
UTM EASTING: 269015
ELEVATION-MSL: 0
PROBE HEIGHT:

DURATION: 24 HOURS
UNITS: UG/CU METER (25 C)
MIN DETECTABLE: 2

Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3									P 217			
4												
5												
6												
7												
8												
9									138			
10												
11												
12												
13												
14												
15									85			
16												
17												
18												
19												
20												
21									60			
22												
23												
24												
25												
26												
27									71			
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	1	5	0	0
MAX:									217.			
MEAN:									114.2			

ANNUAL OBSERVATIONS: 5 ANNUAL MEAN: 114.2 ANNUAL MAX: 217.

1 Values marked with 'P' exceed the PRIMARY STANDARD of: 155
1 Values marked with 'S' exceed the SECONDARY STANDARD of: 155

Note: A plus sign ("+") following a value indicates that the computed average includes one or more raw data values effected by a special event.

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Figure 7 Raw Data Maximum Values Report for the Corcoran Monitoring Site measuring a PM10 level of 217 g/m3 in Corcoran on September 3, 2004

SYNOPTIC METEOROLOGY DISCUSSION FOR THE SEPTEMBER 2 AND 3, 2004 EPISODE

The last measurable precipitation had occurred 98 days before the start of this episode, which started on September 2 and continued through September 3. During this episode, the average hourly wind speed in Corcoran was 10 mph, and wind gusts reached 14 mph. In contrast, the average hourly wind speed for the area for September 2004 was only 5 mph. Windy conditions are rare in the Corcoran area. According to analysis of modeling of Corcoran climate data from 1988 to 2000 in CART (Classification and Regression Trees), a statistically based computer model, "[high] wind speeds [at Corcoran] make little difference in [PM] concentrations in Corcoran" (SJVAPCD 2003, p L18).

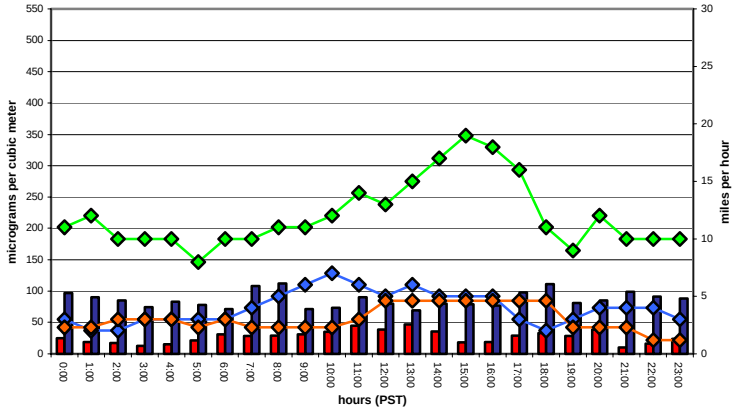
However, the September 2 and 3, 2004 episode in the SJVAB was exceptional in that wind speeds were much higher than normal not just in Corcoran, but throughout the Central Valley. In addition, the high winds persisted for many hours, which is also atypical. In the SJVAB and some areas of Sacramento Valley, 18 out of 42 CIMIS (California Irrigation Management Information System) weather stations recorded daily average wind speeds far out of historical range (more than 3 standard deviations). The high wind event resulted in entrainment of dust followed by deposition as the plume moved further down the San Joaquin Valley from Stockton to Bakersfield. The northwesterly winds slowed in Corcoran, PM10 that had been entrained upwind of the site was deposited, and the result was higher PM10 levels.

While the high wind event is best viewed regionally, the District makes no projections regarding the zone of influence for PM transport, which is beyond the scope of the project. Information on particulate levels in Central California during this wind event is limited. Since September 3 was the sampling day for the alternate Corcoran monitor, no other monitors gave official readings for that day. A TEOM (Tapered Element Oscillating Monitor) in Stockton recorded a PM10 concentration of 176 $\mu g/m^3$, which would have also constituted an exceedance, but the Stockton TEOM is not certified as data for record. Table 4 shows a comparison of hourly wind speeds in Madera, Stockton, and Corcoran with BAM PM10 concentrations for Stockton and Corcoran for September 1, 2, 3, and 4. This demonstrates a link between wind speeds and particulate levels on September 2 and 3 and shows that these days were a deviation from adjoining days.

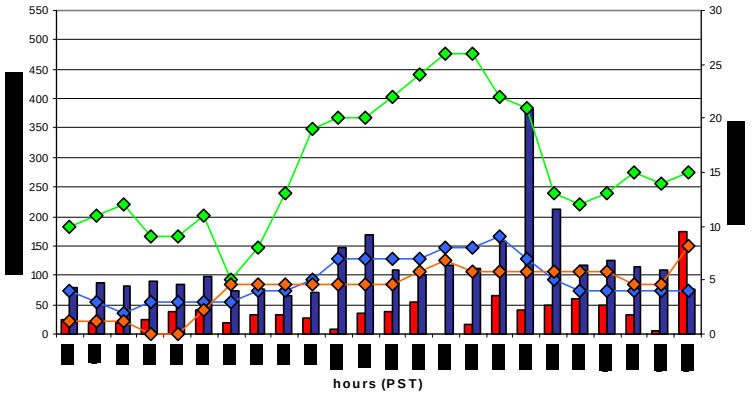
As the wind speeds intensified upwind of Corcoran, the particulate readings became elevated. Since September 3 experienced high winds during most of the day, the 24-hour average PM10 measurements exceeded the NAAQS. Figures 8 and 9 illustrate the wind roses by location for September 2 and 3, 2004 for select monitoring sites across the San Joaquin Valley. Larger depictions of the individual wind roses can be found in Appendix D. Although the wind roses are limited in the way the program used to create them handles their scales, they still indicate a predominately strong northwesterly wind flow across the northern and central parts

Table 4 Wind speed and PM Comparison for September 1, 2, 3, and 4, 2004

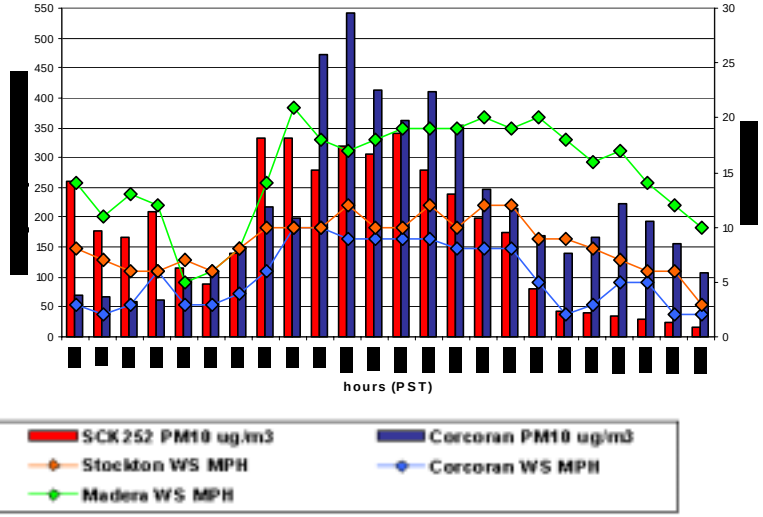
September 1, 2004 Wind and PM Analysis



September 2, 2004 Wind and PM Analysis



September 3, 2004 Wind and PM Analysis



September 4, 2004 Wind and PM Analysis

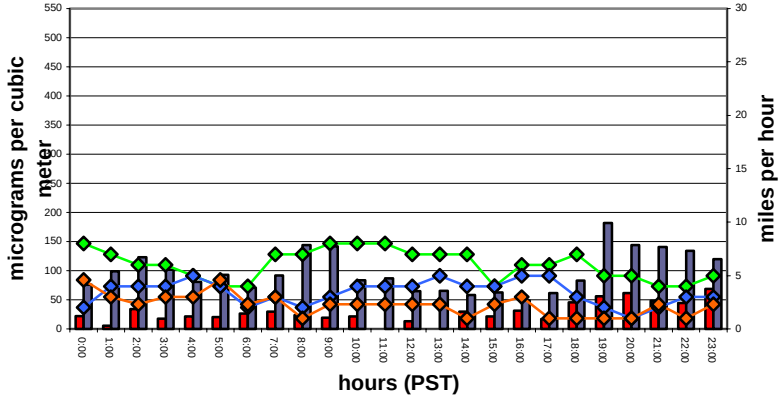
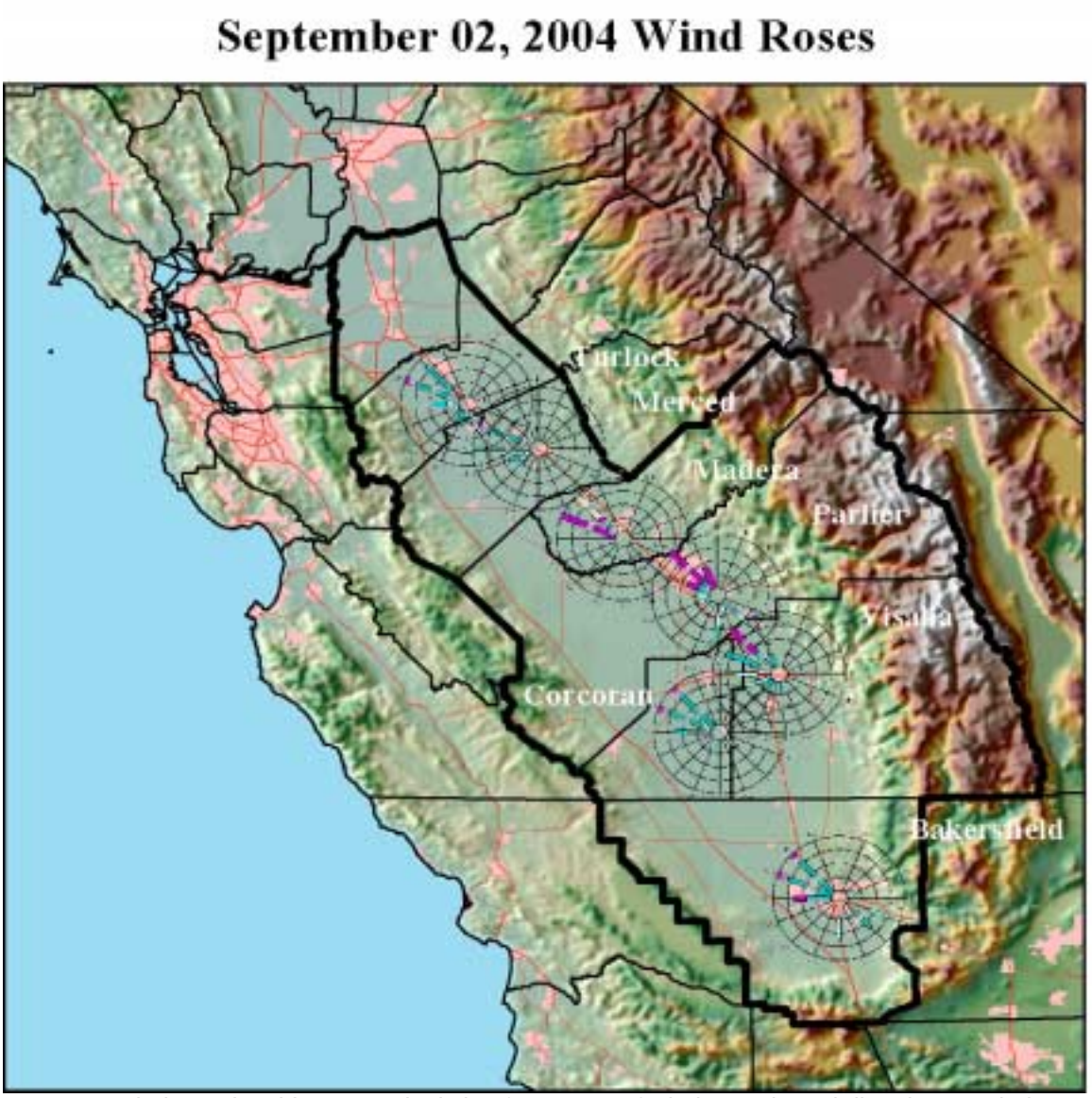
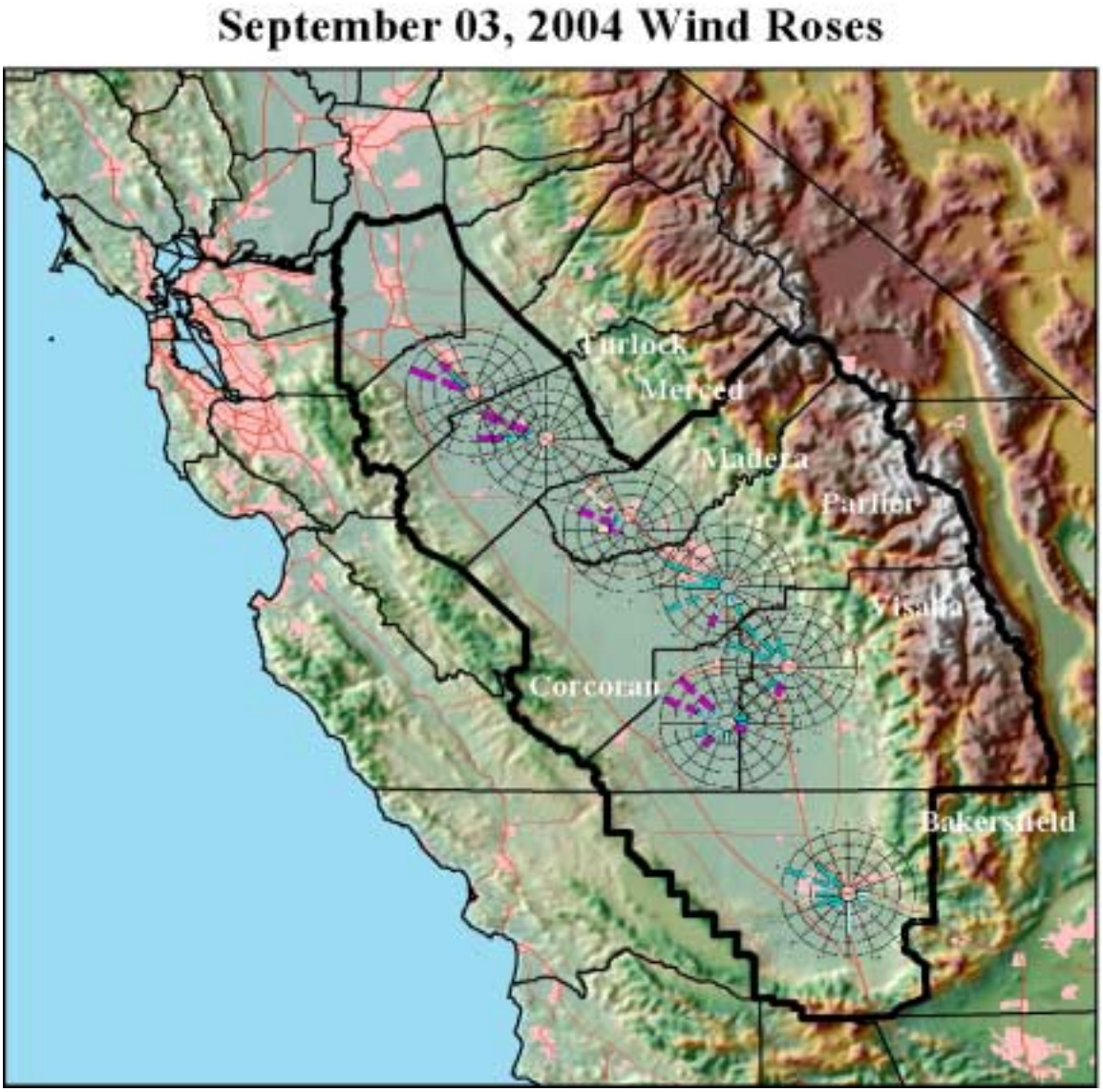


Figure 8 Wind Roses for the San Joaquin Valley, September 2



* Note: A wind rose is a histogram depicting frequency of wind speeds and directions. Wind speed ranges are denoted by the colors of the bins (the colored bars emanating from the center of the wind rose and extending out the edge), direction is indicated by where the bin is on the circle, and the length of the bin specifies what percentage of all the winds for that day had that speed and direction. The red bins represent hourly wind speeds between 8 and 16 MPH, dark blue indicates 4-8 MPH winds, and light blue stands for 2-4 MPH winds. However, the wind rose program utilized by the District, the Environmental Monitoring Company's (EMC) System Manager software used with Station Manager software data, only shows the scale up to 20%. If the percent of winds of a certain direction are more than 20% of the total winds for the day, then the outermost bins are compressed (but not truncated) and their actual percentages are shown as labels. Therefore, the proportions of the bins in a certain direction on the wind rose may not necessarily reflect the ratio of those wind speeds and direction as actually experienced. See Appendix D for individual wind roses, which have bin
labels for the percentages.

Figure 9 Wind Roses for the San Joaquin Valley, September 3



of the District, decreasing to the south towards Bakersfield. The following discussion details the meteorology for those two days.

<u>September 2, 2004</u>

A wind blown dust event began across parts of Sacramento and San Joaquin Valley late in the day on September 2, 2004. The alternate Corcoran monitor measured a 24-hour PM10 concentration of 119 µg/m^3 on that day. Table 5 outlines the peak and daily average particulate matter measurements at Stockton, Modesto, Bakersfield-California, Corcoran, Clovis, and Fresno-1st. In order to understand the variability of these measurements, District staff conducted an in-depth examination

Table 5 Peak and Daily Average Particulate Matter Measurements for sites across the SJV for September 2, 2004

	10-TEOM[1]		10-BAM[2]		2.5-BAM		FRM-10[3]
Site Name	**Peak**	**24-Avg.**	**Peak**	**24-Avg.**	**Peak**	**24-Avg.**	**24-Avg.**
Stockton	173	40	*	*	*	*	*
Modesto	*	*	*	*	21	9	*
Corcoran	111	55	380	119	21	15	*
Clovis	60	41	*	*	*	*	*
Fresno-1st	*	*	73	50	*	*	*
Bak-Cal	*	*	*	*	22	12	*

Units in μg/m^3, *-N/A

of the synoptic pattern and surface winds and observations, aircraft soundings, and lower air profiler measurements leading to the episode.

The meteorological synoptic analysis showed that an unseasonably deep trough developed near Vancouver Island on the morning of the September 1, 2004. The trough slowly pushed southeastward toward California. The upper level system reached northern California on the morning of September 2, 2004 and pushed southeastward into the Great Basin by the September 3, 2004. The afternoon surface charts depicted a surface high pressure ridge draped across central California to Tonopah, with a thermal low near Kingman, Arizona. The 0Z[4] (17:00 PDT) surface pressure gradient was +10.9 millibars (MB) from San Francisco (SFO) to Las Vegas (LAS). A +10.9 MB pressure gradient means onshore or up-valley flow (from low elevations to high elevations on the Valley floor), which results in strong northwesterly winds across the San Joaquin Valley. A moderately strong dry cold front curved westward from Tonopah, Nevada toward Redding. The morning temperature soundings over Fresno showed a strong inversion of 12 degrees Fahrenheit from the surface up to 1,500 feet. At Bakersfield, the temperature sounding showed a moderate inversion of 7 degrees Fahrenheit from the surface up to 1,000 feet.

Upper level charts indicated a strong low over the Intermountain Region, with a trough digging south-southwestward across extreme northeastern California. A strong temperature gradient (packing) at 850 MB and an intense upper level (300 MB) jet were evident across northwestern California on the 05:00 PDT (12 Z) analysis maps. The moderate temperature gradient aloft, along with a strong upper level jet, manifested the

[1] Tapered Element Oscillating Monitor (TEOM)
[2] Beta Attenuation Monitor (BAM)
[3] Federal Reference Method (FRM)
[4] 0Z is midnight Zulu time. The National Oceanic and Atmospheric Association (NOAA) satellites use Zulu time. 0Z is equivalent to midnight Universal Coordinated Time (UTC, formerly referred to as Greenwich Mean Time). 0Z is also equivalent to 17:00 Pacific Daylight Savings Time (PDT). 12Z is equivalent to 05:00 PDT.

surface pressure gradient and resulted in strong gusty winds measured at several hourly-surface meteorological monitoring sites during the evening hours on September 2. Table 6 shows the 24-hour daily average wind speeds at SJVAPCD air monitoring, ASOS (Automated Surface Observing System), and CIMIS (California Irrigation Management Information System) sites for September 2, 2004. *Italicized* sites recorded wind speeds moderately out of normal range and bolded sites recorded wind speeds far out of normal range.

Lower air profiler data from Chowchilla showed that with solar insolation (heating), the inversion present in the morning began to mix out by 11:00-12:00 PDT (18 -19Z), resulting in winds aloft mixing to the surface (Figure 10, Figures 11 and 12 show later observations). The ASOS hourly observations showed northwesterly wind flow across the San Joaquin Valley (up-valley). As the upper level trough and strong jet-stream aloft began to move over the region by the late afternoon hours, northwesterly winds strengthened over the San Joaquin Valley resulting in blowing dust conditions. As the winds upwind of Corcoran intensified to 15 to 25 mph, particulate levels became elevated in Corcoran late on September 2 and into September 3. The monitor showed slower wind speeds between 5 to 10 mph in Corcoran, illustrating a down-wind deposition of particulate material from a distant source site.

The wind event on September 2, 2004 began in the afternoon hours and continued into the early evening. Northwesterly winds led to a regional transport of particulates with local deposition occurring where winds speeds decreased.

The highest 24-hour average PM10 measurement was 119 $\mu g/m^3$ at Corcoran. A majority of the PM10 fraction was coarse, as approximately 13% of the PM10 sample was PM2.5 or smaller. A violation of the PM10 NAAQS did not occur on September 2 because the wind event only lasted eight to nine hours (and the standard of interest for this report is a 24-hour standard). During the overnight hours, the upper level jet-stream moved out of the area and a weak inversion formed over the San Joaquin Valley, resulting in lower wind speeds and particulate levels.

Table 6 24-hour average wind speeds (WS) at SJVAPCD air monitoring, ASOS, and CIMIS sites for September 02, 2004.

SJVAPCD Air Monitor		ASOS		CIMIS			
	WS mph		WS mph		WS mph		WS mph
Visalia LAP	5.0	BFLD Meadows	7.3	FivePoints	7.3	Famoso	2.8
Clovis	7.0	Fresno YI	10.4	Shafter/USDA	3.3	Orange Cove	6.7
Fresno SSP	3.0	Hanford	9.0	Firebaugh/Telles	5.8	Madera	6.2
Madera Pump	15.0	Madera-AP	9.1	Stratford	7.1	Belridge	3.8
Maricopa	6.0	Merced-AP	7.9	Kettleman	*6.4*	Merced	5.4
Merced-Coffee	5.0			Visalia/Americas	3.9	Patterson	**9.3**
Parlier	6.0			Parlier	*5.0*	Lodi West	3.0
Turlock	6.0			Blackwells Corner	5.6	Tracy	*7.6*
				Los Banos	7.5	Porterville	3.7
				Manteca	5.7	Arvin-Edison	4.5
				Modesto	5.8	Delano	3.6
				Fresno State	6.5	Westlands	**9.1**
				Lindcove	2.8	Panoche	5.6
				Kesterson	5.9		

September 3, 2004

A regional wind blown dust event occurred across the San Joaquin Valley on September 3, 2004. This regional event extended from the Sacramento Valley southward into the San Joaquin Valley. The Stockton-Hazleton and Corcoran-Patterson stations measured 24-hour PM10 concentrations of 176 and 217 $\mu g/m^3$, respectively. Table 7 outlines the peak and daily average particulate matter measurements at Stockton, Modesto, Bakersfield-California, Corcoran, Clovis, and Fresno-1st. In order to understand the variability of these measurements, District staff conducted an in depth examination of the synoptic pattern, surface winds and observations, aircraft soundings, and lower air profiler measurements leading to the episode.

Figure 10 Chowchilla Lower Air Profiler image for September 1 through September 2, 2004.

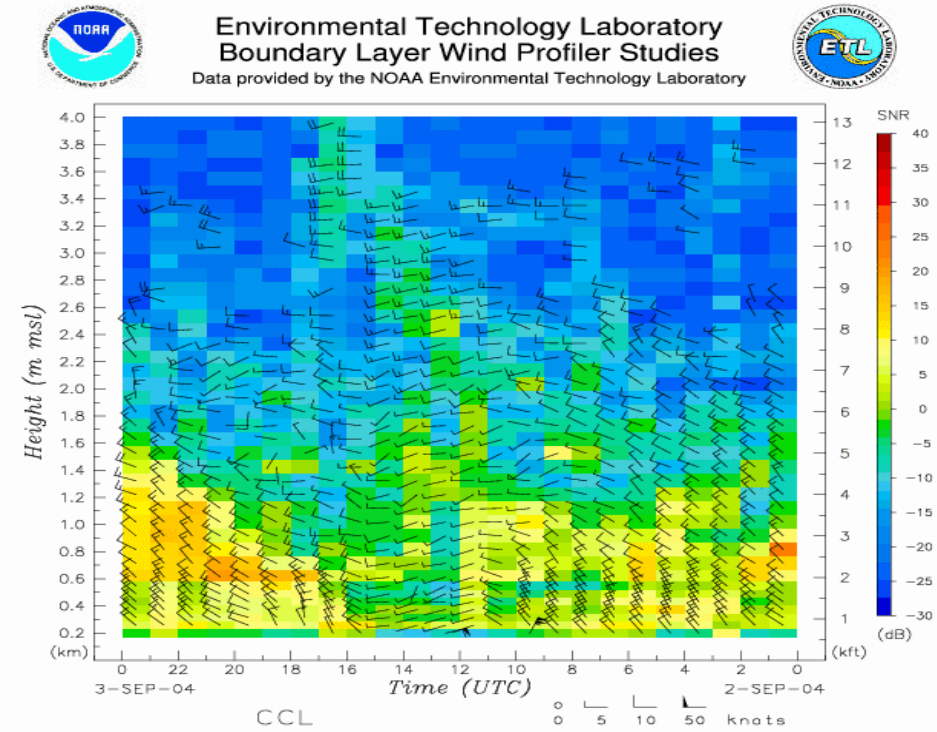


Figure 11 Chowchilla Lower Air Profiler image for September 2 through September 3, 2004.

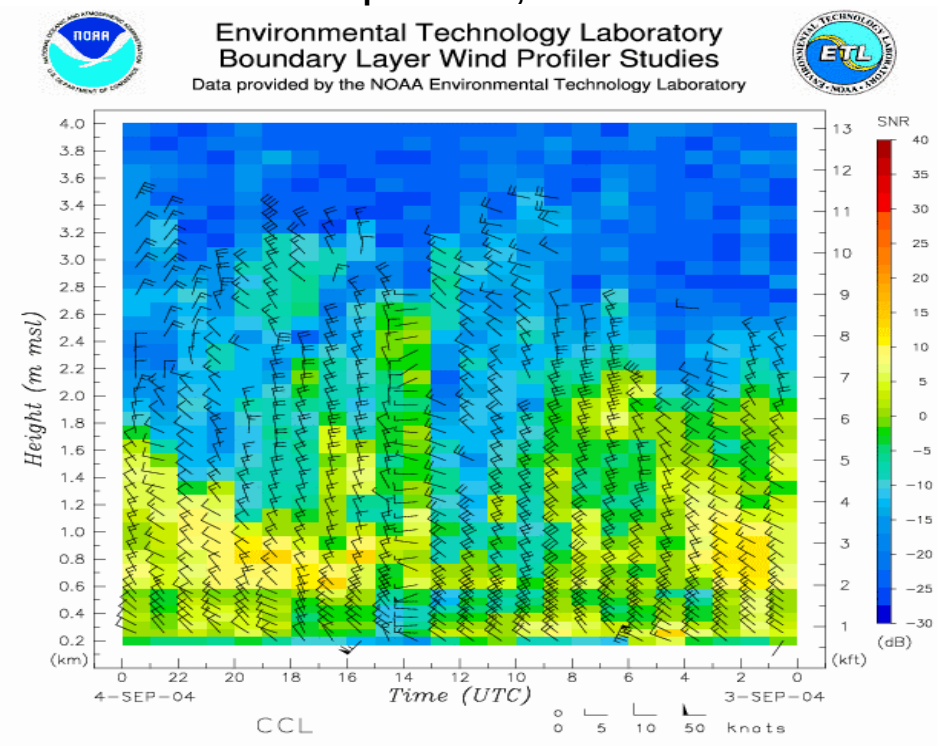
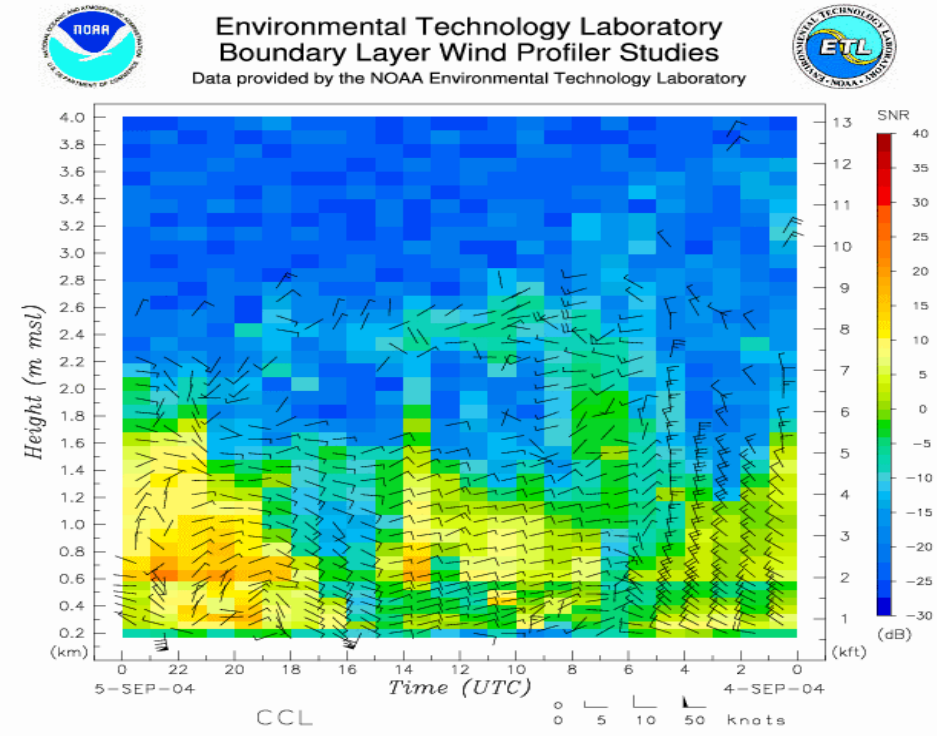


Figure 12 Chowchilla Lower Air Profiler image for September 3 through September 4, 2004



The meteorological synoptic analysis showed the jet-stream re-intensified over central California on the morning of September 3, 2004. The morning surface charts depicted a strong, dry surface cold front that stretched westward across central California from Las Vegas to Monterey. The 05:00 PDT (12Z) surface pressure gradient was +10.5 millibars from San Francisco (SFO) to Las Vegas (LAS). A +10.5 millibars pressure gradient means onshore or up-valley flow (from low elevations to high elevations on the Valley floor). The morning temperature sounding over Fresno showed a moderate inversion of 7 degrees Fahrenheit from the surface up to 2,500 feet turning unstable above. At Bakersfield the temperature sounding showed a slightly unstable atmosphere. Upper level charts indicated a deep trough across the Great Basin, the vast area of valleys and narrow mountain ranges centered on Nevada and extending to the Sierra Nevada Range in California on the west and to the Rockies in Utah on the east. A strong high located 900 NM (nautical miles) west of Eureka, and a ridge was building northeastward into British Columbia. A moderate temperature gradient at 850 MB and an intense upper level (300 MB) jet were evident across northern California on the 05:00 PDT (12Z) analysis maps. With afternoon heating, the inversion rapidly dissipated. With strong upper-level mixing in the afternoon, northwest to northerly winds were mixed to the ground.

Table 8 shows the 24-hour daily average wind speeds at District air monitoring, ASOS, and CIMIS sites for September 03, 2004. *Italicized* sites recorded wind speeds moderately out of normal range and bolded sites recorded wind speeds far out of

normal range. Lower air profiler data from Chowchilla indicated that with solar heating, the weak morning inversion rapidly mixed out by 09:00 – 10:00 PDT (16 - 17Z), resulting in strong winds aloft mixing to the surface (Figure 11). Madera had higher wind speeds on September 2, 2004 compared to September 3 whereas Stockton had higher wind speeds on September 3, 2004 compared to September 2. Figures 13 through 20 depict the hourly wind speeds at several sites in the San Joaquin Valley, showing that the higher winds lasted for a longer period of time on September 3 as compared to September 2. Figures 13 and 14 show that on the September 2, 2004, wind characteristics at Madera and Stockton were marked by a short duration event of elevated winds. On the other hand, September 3 was marked by gusty, strong winds occurring for most of the day. Peak one-hour average wind speed measurements at Madera measured 19 mph from 12:00 – 15:00 PDT (19 – 22Z), with a 20 mph wind speed measurement recorded at 15:00 – 16:00 PDT (22 – 23Z) and 17:00 –18:00 PDT (0 – 1Z).

In summary, the regional wind event on the September 3, 2004 across the Sacramento and San Joaquin Valley resulted in a PM10 measurements of 176 and 217 $\mu g/m^3$ in Stockton and Corcoran respectively; these levels exceeded the federal 24-hour PM10 standard. Many sites recorded daily average wind speeds that were more than 3 standard deviations from the normal, resulting in a natural wind-blown dust event occurring on September 3, as is evident with the widespread elevated PM10 measurements. Strong to gusty winds in parts of the Sacramento and San Joaquin Valley transported particulates to areas where winds slowed, the particles were deposited near the surface, and high PM10 levels resulted. Local sources may have contributed to the samples, but the large regional transport component overwhelmed their contribution.

Table 7 Peak and Daily Average Particulate Matter Measurements for sites across the SJV for September 3, 2004, units in $\mu g/m^3$, *-N/A

	10-Teom		10-BAM		2.5-BAM		FRM-10
Site Name	**Peak**	**24-Avg.**	**Peak**	**24-Avg.**	**Peak**	**24-Avg.**	**24-Avg.**
Stockton	341	*176*	*	*	*	*	*
Modesto	*	*	*	*	20	10	*
Corcoran	262	120	542	*217*	41	25	*217*
Clovis	144	88	*	*	*	*	*
Fresno-1st	*	*	145	92	*	*	*
Bak-Cal	*	*	*	*	23	14	*

Table 8 24-hour average wind speeds at District air monitoring, ASOS, and CIMIS sites for September 3, 2004

SJVAPCD Air Monitor		ASOS		CIMIS			
	WS mph		WS mph		WS mph		WS mph
Visalia LAP	5.0	BFLD Meadows	5.8	FivePoints	*9.4*	Famoso	3.5
Clovis	6.0	Fresno YI	8.9	Shafter/USDA	3.2	Orange Cove	4.4
Fresno SSP	3.0	Hanford	9.3	Firebaugh/Telles	**9.3**	Madera	6.3
Madera Pump	15.0	Madera-AP	7.9	Stratford	**10.0**	Belridge	3.9
Maricopa	7.0	Merced-AP	11.5	Kettleman	*6.4*	Merced	6.8
Merced-Coffee	7.0			Visalia/Americas	2.9	Patterson	**18.8**
Parlier	5.0			Parlier	3.7	Lodi West	*5.8*
Turlock	11.0			Blackwells Corner	6.5	Tracy	**11.4**
				Los Banos	**13.3**	Porterville	3.1
				Manteca	*7.7*	Arvin-Edison	4.5
				Modesto	**10.1**	Delano	4.4
				Fresno State	5.4	Westlands	**10.5**
				Lindcove	2.9	Panoche	**9.1**
				Kesterson	**14.4**		

Figure 13 Hourly average Wind Speeds, Madera, September 2-3, 2004

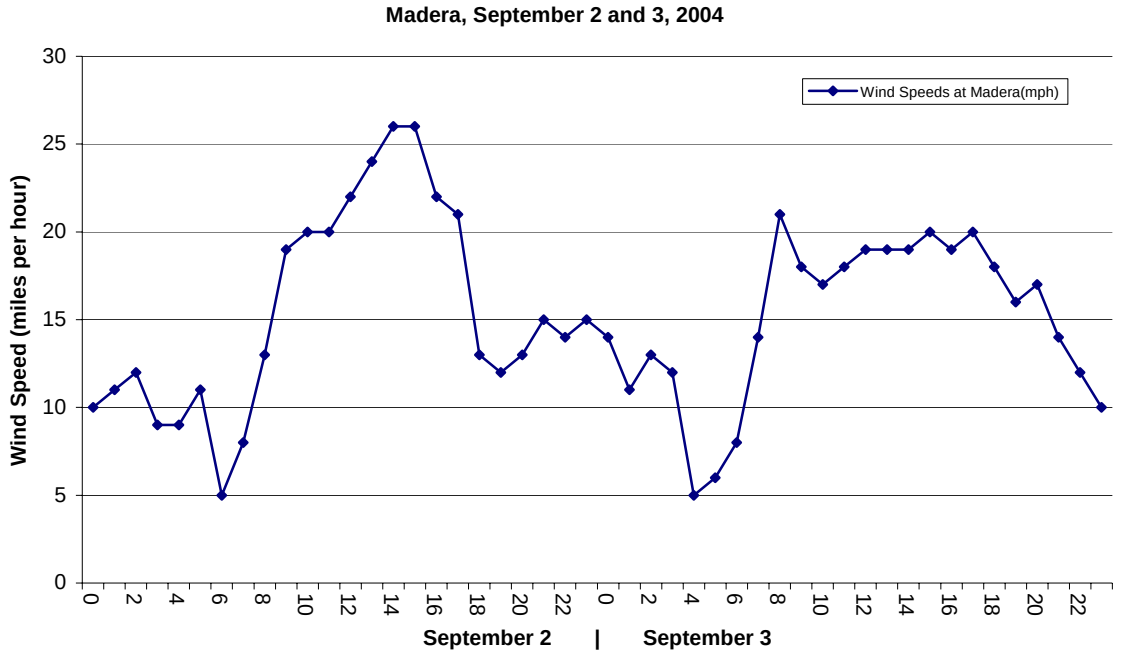


Figure 14 Hourly Average Wind Speeds, Stockton, September 2-3, 2004

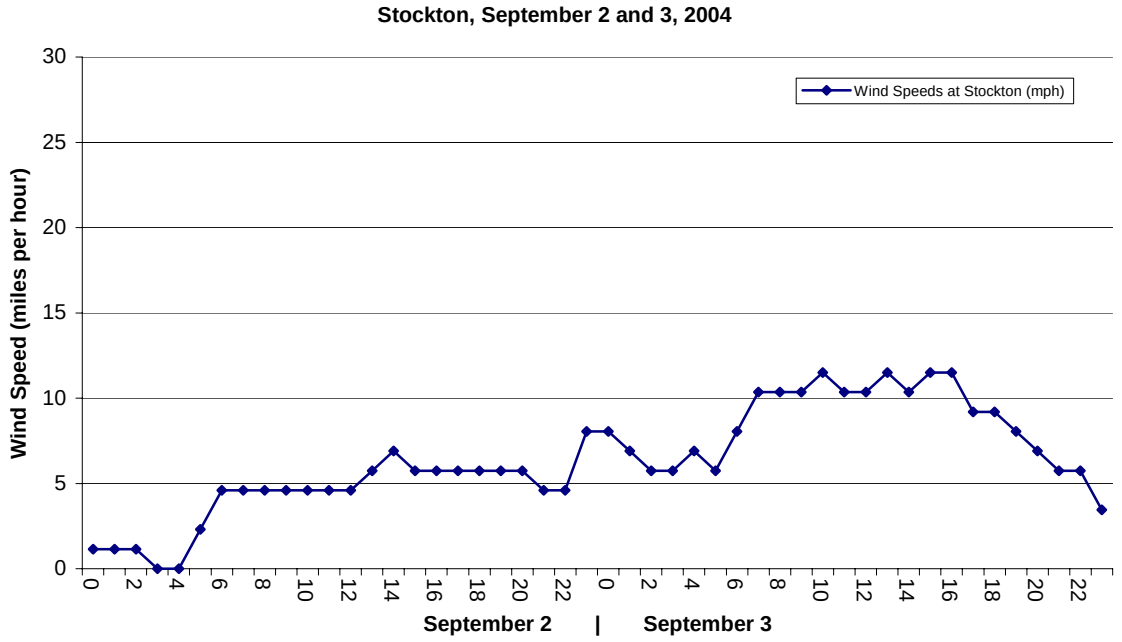


Figure 15 Hourly Average Wind Speeds, Patterson, September 2-3, 2004

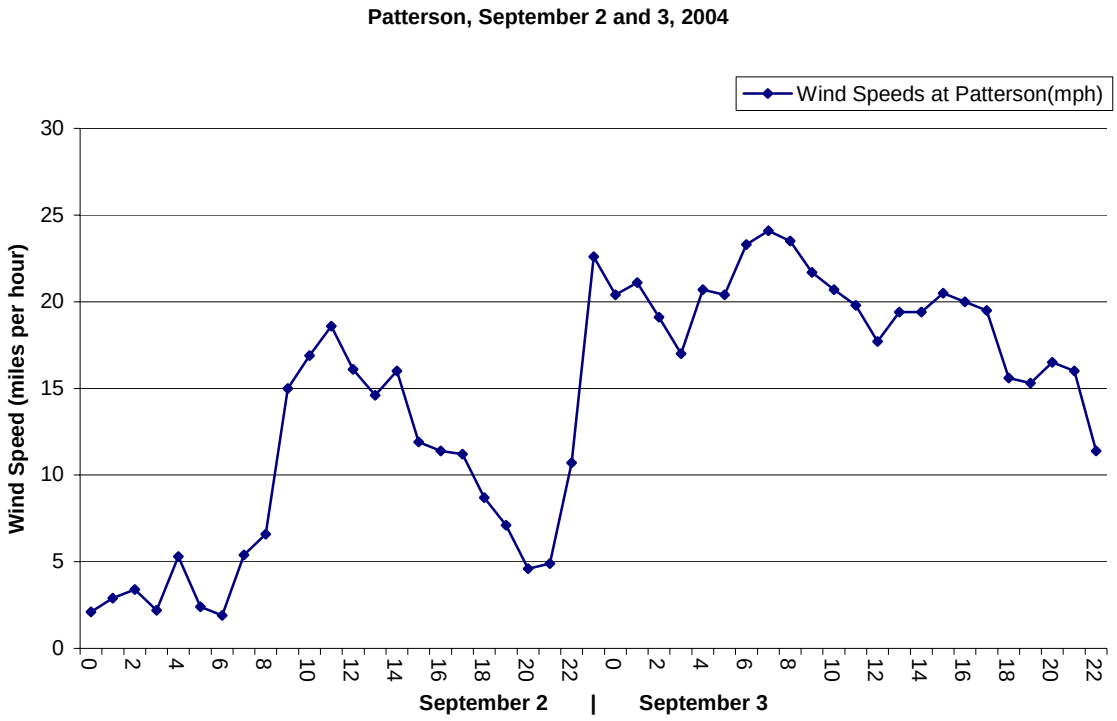


Figure 16 Hourly Average Wind Speeds, Kesterson, September 2-3, 2004

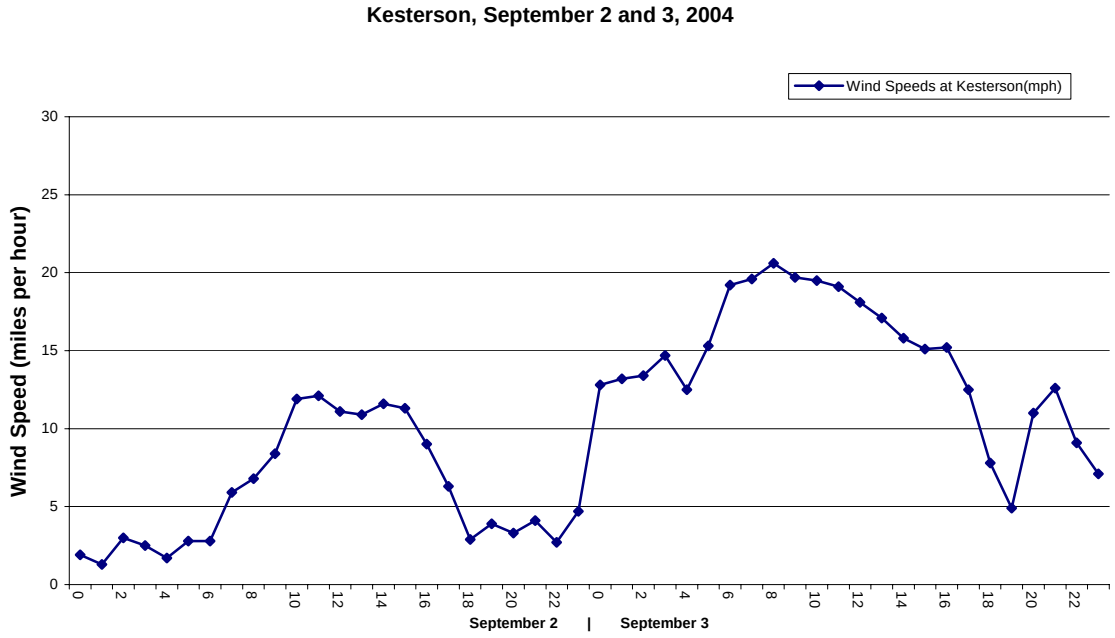


Figure 17 Hourly Average Wind Speeds, Corcoran, September 2-3, 2004

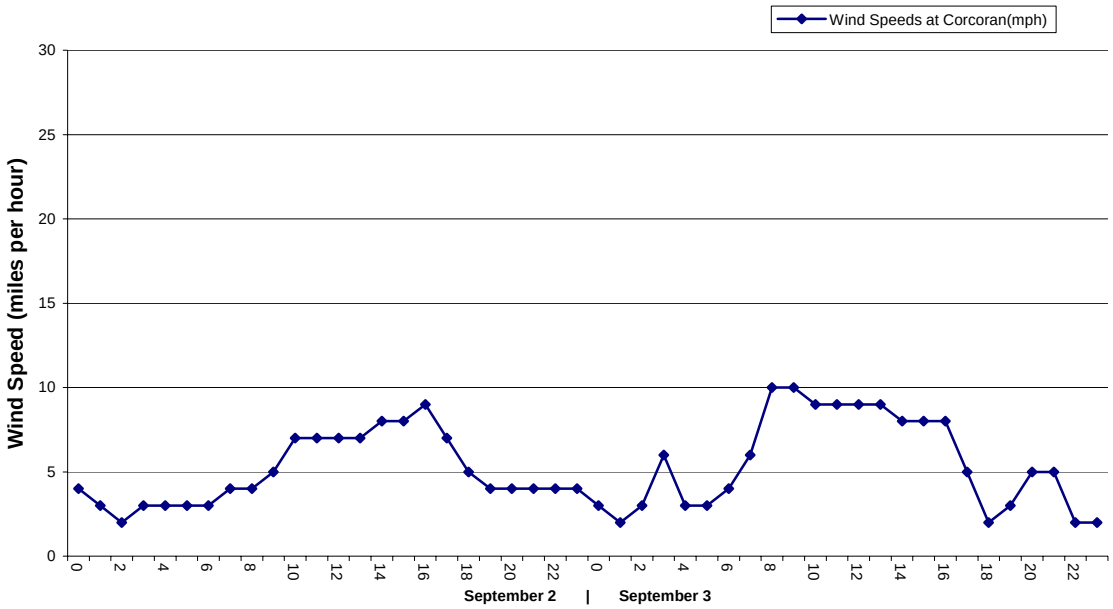


Figure 18 Hourly Average Wind Speeds, Clovis, September 2-3, 2004

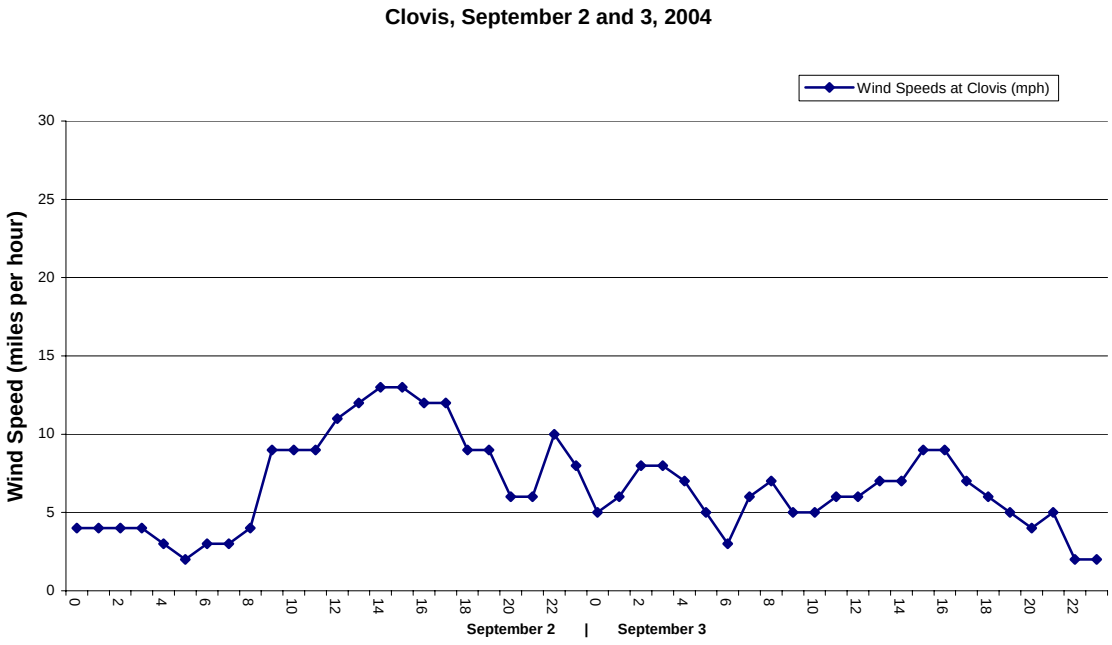


Figure 19 Hourly Average Wind Speeds, Turlock, September 2-3, 2004

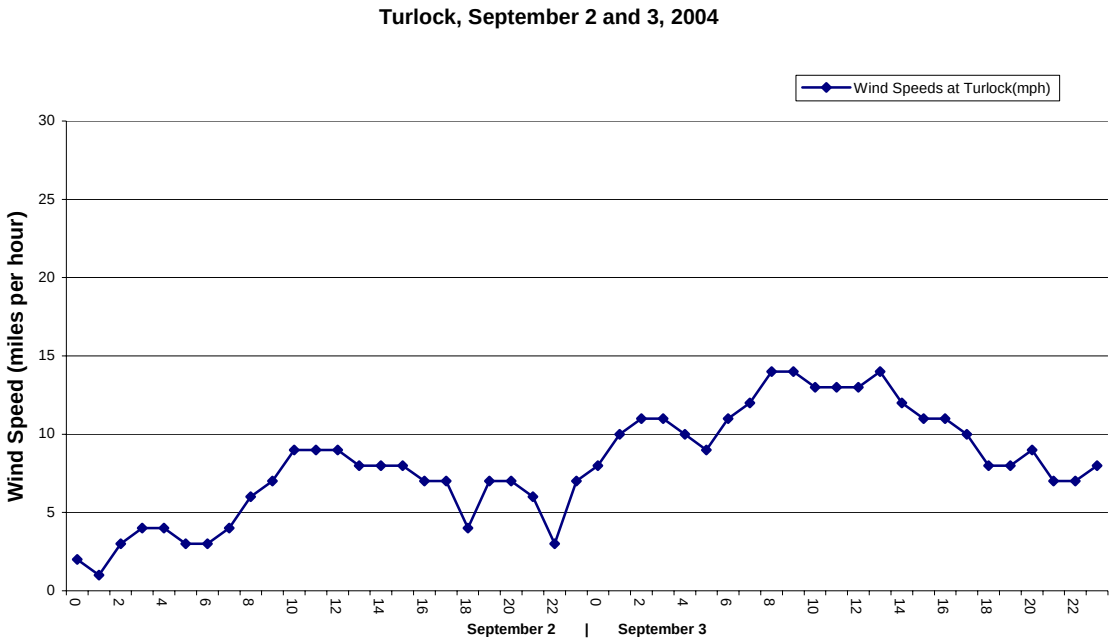
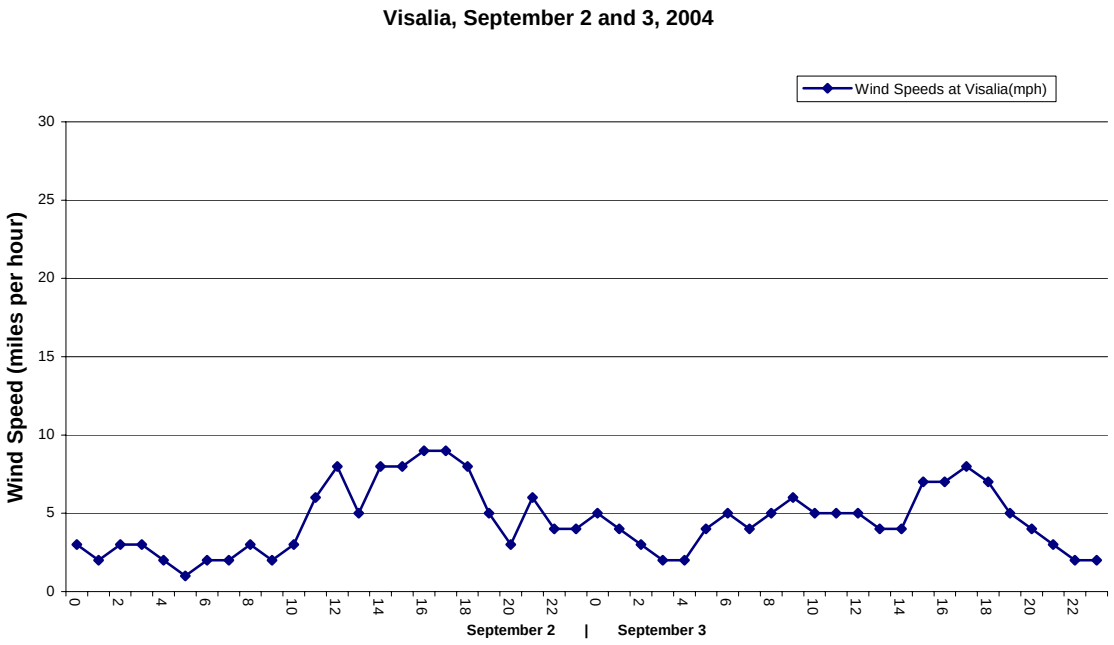


Figure 20 Hourly Average Wind Speeds, Visalia, September 2-3, 2004



CONCLUSIONS

The 1996 EPA memorandum, *Areas Affected by PM10 Natural Events*, allows areas to define the natural, high wind events that will overcome the best available control measures (BACM) for fugitive dust. When documentation shows that a natural high wind event caused a PM10 exceedance, then the air quality data from that event will be flagged so that it does not count towards attainment status.

The PM10 exceedance recorded in Corcoran, California on September 3, 2004 was the result of high winds throughout the Central Valley that affected the Corcoran area by upwind transport. This documentation is to be submitted to the ARB and the EPA by March 3, 2005, and if the flag request is approved, the District will prepare a NEAP (Natural Events Action Plan) and submit it to the EPA by March 3, 2006.

This documentation became available on the District website (<www.valleyair.org>) under "Public Documents," with paper copies available upon request, on February 17, 2005, and comments were taken through the close of business on February 28, 2005. No public comments were received. Public notice of document availability and the public comment period appeared in eight San Joaquin Valley newspapers (as well as some of their web sites): the Bakersfield Californian, the Fresno Bee, the Hanford Sentinel, the Madera Daily Tribune, the Merced Sun-Star, the Modesto Bee, the Stockton Record, and the Visalia Times-Delta. The text of the public notice and proof of publication can be found in Appendix A.

REFERENCES

California Air Resources Board (ARB). *Forecast Emissions by Summary Category Reports: CCOS (v2.11_RF932PEI)*. February 3, 2005, <www.arb.ca.gov/emsinv/ccos>.

Environmental Protection Agency (EPA). *Guideline on the Identification and Handling of Ambient Air Quality Data Affected by Special Events or Special Conditions.* April 1994.

Environmental Protection Agency (EPA). *Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events*. July 1986.

Environmental Protection Agency (EPA). Memorandum: Areas Affected by PM10 Natural Events. May 1996.

San Joaquin Air Pollution Control District. *2003 PM10 Plan*. Amended December 18, 2003.

U.S. Census Bureau. *Census Bureau Home Page*. February 3, 2005, <http://www.census.gov>.

Appendix A Public notice and Proof of Publication for Eight Valley Newspapers

Public notice of natural event documentation

San Joaquin Valley Unified Air Pollution Control District
NOTICE OF NATURAL EVENT DETERMINATION

NOTICE IS HEREBY GIVEN that information will be available for comment regarding the San Joaquin Valley Unified Air Pollution Control District's (District) request to flag data showing high levels of particulate matter of 10 microns or less (PM10) on September 3, 2004 in Corcoran, California as being caused by a natural event.

On September 3, 2004, the federal 24-hour PM10 standard of 150μg/m^3 was exceeded in Corcoran with a reading of 217μg/m^3. In accordance with federal policy, the District may evaluate PM10 exceedances to determine if they were caused by a natural event such as abnormally high wind speeds. After evaluating all available data for this event, the District has determined that this PM10 exceedance was caused by a natural event, specifically blowing dust from the abnormally high winds that were experienced throughout the air basin that day. The 1996-2001 average 24-hour maximum PM10 concentration measured at the Corcoran monitoring station is 134 μg/m^3. The average wind speed for the area in September 2004 was approximately 5 mph. On September 3, 2004, average hourly wind speeds at Corcoran reached 10 mph with gusts of up to 14 mph. More importantly, strong winds coming from the northwest led to regional transport of particulate matter that was deposited where the wind speeds decreased. Wind gusts in Fresno reached 21 mph and wind gusts in Hanford reached 24 mph. The lower wind speeds in Corcoran allowed the particulate matter to be deposited there. The District will submit documentation supporting its conclusion to the California Air Resources Board (ARB) and the Environmental Protection Agency (EPA) for approval. Once approved, the data will be flagged so that it will not count against the air basin for attainment of the federal 24-hour standard for PM10. Then the District must develop a *Natural Events Action Plan (NEAP)* by March 3, 2006. The NEAP will establish public notification and education programs and identify and implement mitigating measures to reduce impacts from any future natural events. The EPA set guidelines for the flagging of exceedance data caused by natural events and NEAP preparation in a 1996 memorandum titled, "Areas Affected by PM-10 Natural Events."

The natural event documentation will be available for public review and comment on February 17, 2005. It will be obtainable online under "Public Notices" at www.valleyair.org or by calling Daphne Garcia at (559) 230-5800. Written comments on the natural event documentation should be submitted by the close of business on Monday, February 28, 2005 to Evan Shipp at the San Joaquin Valley Unified Air Pollution Control District, 1990 E. Gettysburg Avenue, Fresno, California 93726. For additional information, contact Evan Shipp by phone at (559) 230-5800 or by email at: evan.shipp@valleyair.org

The BAKERSFIELD CALIFORNIAN
P.O. BOX 440
BAKERSFIELD, CA 93302

PROOF OF PUBLICATION

RECEIVED
FEB 17 2005
ADMIN. SERVICES

SAN JOAQUIN VALLEY A.P.C.D.
1990 E GETTYSBURG
FRED BATES
FRESNO CA 93726

Ad Number	5034286	**PO #**	Natural Event
Edition	TBC	**Run Times**	1
Class Code	2620 Legal Notices		
Start Date	2/16/05	**Stop Date**	2/16/05
Run Date(s)	02/16		
Billing Lines	98	**Inches**	8.17
Total Cost	180.42	**Account**	1SAN51
Billing Address	SAN JOAQUIN VALLEY A.P.C.D. 1990 E GETTYSBURG FRED BATES FRESNO CA 93726		
Solicitor I.D.:	C010		

--

STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN.

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT:

02/16

ALL IN THE YEAR 2005

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Elaine Rau

DATED AT BAKERSFIELD CALIFORNIA

2-16-05

First Text
San Joaquin Valley Unified Air Pollution

Ad Number 5034286

Proof of publication, Bakersfield Californian

SAN JOAQUIN VALLEY APCD

ATTN FINANCE DEPARTMENT

1990 E GETTYSBURG AVE

FRESNO , CA 93726

PROOF OF PUBLICATION

RECEIVED
FEB 17 2005
ADMIN. SERVICES

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE

#41476

San Joaquin Valley Unified Air Pollution Control District

NOTICE OF NATURAL EVENT DETERMINATION

NOTICE IS HEREBY GIVEN that information will be available for comment regarding the San Joaquin Valley Unified Air Pollution Control District's (District) request to flag data showing high levels of particulate matter of 10 microns or less (PM10) on September 3, 2004 in Corcoran, California as being caused by a natural event.

On September 3, 2004, the federal 24-hour PM10 standard of 150ug/m3 was exceeded in Corcoran with a reading of 217ug/m3. In accordance with federal policy, the District may exclude PM10 exceedances or violations if they were caused by a natural event such as abnormally high wind speeds. After evaluating all available data for this event, the District has determined that this PM10 exceedance was caused by a natural event, specifically, blowing dust from the abnormally high winds that were experienced throughout the San Joaquin Valley that day. The 1996-2001 average 24-hour maximum PM10 concentration measured at the Corcoran monitoring station is 134 ug/m3. The average wind speed for the area in September 2004 was approximately 3 mph. On September 3, 2004, average hourly wind speeds increased reaching 10 mph with gusts of up to 14 mph. More importantly, strong winds coming from the northwest led to regional transport of particulate matter that was deposited where the wind speeds decreased. Wind gusts in Fresno reached 31 mph and wind gusts in Stratford reached 24 mph. The lower wind speeds in Corcoran allowed the particulate matter to be deposited there. The District will submit documentation supporting its conclusion to the California Air Resources Board (ARB) and the Environmental Protection Agency (EPA) for approval. Once approved, the data will be flagged so that it will not count against the air basin for attainment of the federal 24-hour standard for PM10. Then the District must develop a Natural Events Action Plan (NEAP) by March 3, 2006. The NEAP will establish public notification and education programs and identify and implement mitigating measures to reduce impacts from any future natural events. The EPA set guidelines for the flagging of exceedances and violations caused by natural events and NEAP preparation in a 1996 memorandum titled, "Areas Affected by PM-10 Natural Events."

The natural event documentation will be available for public review and comment on February 17, 2005. It will be obtainable online under "Public Notices" at www.valleyair.org or by calling Daphne Dennis at (559) 230-5800. Written comments on the natural event documentation should be submitted by the close of business on Monday, February 28, 2005 to Evan Shipp at the San Joaquin Valley Unified Air Pollution Control District, 1990 E. Gettysburg Avenue, Fresno, California 93726. For additional information, contact Evan Shipp by phone at (559) 230-5800 or by email at: evan.shipp@valleyair.org

(PUB: February 16, 2005)

FPROOFAD

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

February 16, 2005

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated FEBRUARY 16,2005

Cathy Aguilera

Proof of publication, Fresno Bee

AFFIDAVIT OF PUBLICATION

ACCOUNT NUMBER 1656

AD NUMBER 0000027995-01

AD SIZE 2.0 X 5.29"

AD AMOUNT $81.95

RECEIVED
FEB 15 2005
ADMIN. SERVICES

San Joaquin Valley Air Pollution Control Dist.
1990 E. Gettysburg Ave, .
Fresno, CA 93726

PUBLICATION SENT

STATE OF CALIFORNIA

COUNTY OF KINGS

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY FORESAID; I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PART TO OR INTERESTED IN THE ABOVE-ENTITLED MATTER. I AM THE PRINCIPAL CLERK OF HANFORD SENTINEL, INC., A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF HANFORD, COUNTY OF KINGS, AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KINGS, STATE OF CALIFORNIA, UNDER THE DATE OF OCTOBER 23, 1951, CASE NUMBER 11623,

THAT I KNOW FROM MY OWN PERSONAL KNOWLEDGE THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY (SET IN TYPE NOT SMALLER THAN NONPAREIL), HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT:

PUBLISHED ON: 2/14/2005

FILED ON: 02/14/2005

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

DATED AT KINGS COUNTY, CALIFORNIA,

THIS DAY 14 OF February 2005

SIGNATURE Allyson B. Dow

Proof of publication, Hanford Sentinel

RECEIVED
FEB 17 2005
ADMIN. SERVICES

DECLARATION OF PUBLICATION
(C.C.P. S2015.5)

COUNTY OF STANISLAUS
STATE OF CALIFORNIA

I am a citizen of the United States and a resident Of the County aforesaid; I am over the age of Eighteen years, and not a party to or interested In the above entitle matter. I am a printer and Principal clerk of the publisher of **THE MODESTO BEE**, printed in the City of **MODESTO**, County of **STANISLAUS**, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of **STANISLAUS**, State of California, Under the date of **February 25, 1951, Action No. 46453**; that the notice of which the annexed is a printed copy, has been published in each issue thereof on the following dates, to wit:

FEBRUARY 16, 2005

I certify (or declare) under penalty of perjury That the foregoing is true and correct and that This declaration was executed at **MODESTO**, California on

FEBRUARY 16, 2005

Cynthia Ortega
(Signature)

San Joaquin Valley Unified
Air Pollution Control District

NOTICE OF NATURAL EVENT DETERMINATION

NOTICE IS HEREBY GIVEN that information will be available for comment regarding the San Joaquin Valley Unified Air Pollution Control District's (District) request to flag data showing high levels of particulate matter of 10 microns or less (PM10) on September 3, 2004 in Corcoran, California as being caused by a natural event.

On September 3, 2004, the federal Salinas Pines [illegible] was exceeded in Corcoran with a reading of [illegible]. In accordance with law and policy, the District may evaluate PM10 exceedances to determine if they were caused by a natural event such as abnormally high wind speeds. After evaluating all available data for this event, the District has determined that this PM10 exceedance was caused by a natural event, specifically showing that from the abnormally high winds that were experienced throughout the air basin that day. The [illegible] average [illegible] maximum [illegible] concentration measured at the Corcoran monitoring station is [illegible]. The average wind speed for the area in September 2004 was approximately 8 mph. On September 3, 2004, average hourly wind speeds at Corcoran reached 18 mph with gusts of up to 14 mph. [illegible] strong wind speeds from the northwest led to regional transport of particulate matter that was deposited where the wind speeds decreased. Wind gusts in Pinero reached 31 mph and wind gusts in Corcoran reached 24 mph. The [illegible] wind speeds in Corcoran allowed the particulate matter to be deposited there. The District will submit documentation regarding its conclusion to the California Air Resources Board (ARB) and the Environmental Protection Agency (EPA) for [illegible]. Once approved, the data will be flagged so that it will not count against the air basin for attainment of the federal 24-hour standard for PM10. Then the District must develop a Natural Events Action Plan (NEAP) by March 3, 2006. The NEAP will establish public notification and education programs and identify and implement mitigating measures to reduce impacts from any future natural events. The EPA set guidelines for the flagging of exceedance data caused by natural events and NEAP preparation is a 1996 memorandum titled, "Areas Affected by PM-10 Natural Events."

The natural event documentation will be available for public review and comment on February 17, 2005. It will be obtainable online under "Public Notices" at www.valleyair.org or by calling Stephen Garcia at (559) 230-5888. Written comments on the natural event documentation should be submitted by the close of business on Monday, February 28, 2005 to Evan Shipp at the San Joaquin Valley Unified Air Pollution Control District, 1990 E. Gettysburg Avenue, Fresno, California 93726. For additional information, contact Evan Shipp by phone at (559) 230-5888 or by email at: [illegible]

February 16, 2005

Proof of publication, Modesto Bee

PROOF OF PUBLICATION
NOTICE

STATE OF CALIFORNIA
COUNTY OF SAN JOAQUIN

THE UNDERSIGNED SAYS:

I am a citizen of the United States and a resident of San Joaquin County; I am over the age of 18 years and not a part to or interested in the above-entitled matter. I am the principal clerk of the printer of THE RECORD, a newspaper of general publication, printed and published daily in the City of Stockton, County of San Joaquin and which newspaper has been adjudged a newspaper of general circulation by the superior Court of the County of San Joaquin, State of California, under the date of February 26, 1952, File No. 52857, San Joaquin County Records; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates,
To wit: *February 16, 2005*

All in the year, 2005.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on: *February 16, 2005*
In Stockton, California.

Sandra Johansen

RECEIVED
FEB 2 2 2005
ADMIN. SERVICES

San Joaquin Valley Unified Air Pollution Control District

NOTICE OF NATURAL EVENT DETERMINATION

NOTICE IS HEREBY GIVEN that information will be available for comment regarding the San Joaquin Valley Unified Air Pollution Control District's (District) request to flag data showing high levels of particulate matter of 10 microns or less (PM10) on September 3, 2004 in Corcoran, California as being caused by a natural event.

On September 3, 2004, the federal 24-hour PM10 standard of 150mg/m3 was exceeded in Corcoran with a reading of 211mg/m3. In accordance with federal policy, the District may evaluate PM10 exceedances to determine if they were caused by a natural event such as abnormally high wind speeds. After evaluating all available data for this event, the District has determined that this PM10 exceedance was caused by a natural event, specifically blowing dust from the abnormally high winds that were experienced throughout the air basin that day. The 1999-2001 average 24-hour maximum PM10 concentration measured at the Corcoran monitoring station is 134 mg/m3. The average wind speed for the area in September 2004 was approximately 5 mph. On September 3, 2004, average hourly wind speeds at Corcoran reached 10 mph with gusts of up to 14 mph. More importantly, strong winds coming from the northwest led to substantial transport of particulate matter that was deposited where the wind speeds decreased. Wind gusts in Firebaugh reached 21 mph and wind gusts in Hanford reached 31 mph. The lower wind speeds in Corcoran allowed the particulate matter to be deposited there. The District will submit documentation supporting its conclusion to the California Air Resources Board (ARB) and the Environmental Protection Agency (EPA) for approval. Once approved, the data will be flagged so that it will not count against the air basin for attainment of the federal 24-hour standard for PM10. Then the District must develop a Natural Events Action Plan (NEAP) by March 3, 2006. The NEAP will establish public notification and education programs and identify and implement mitigating measures to reduce impacts from any future natural events. The EPA will guidelines for the flagging of exceedance data caused by natural events and NEAP preparation in a 1996 memorandum titled, "Areas Affected by PM-10 Natural Events."

The natural event documentation will be available for public review and comment on February 17, 2005. It will be obtainable online under "Public Notices" at www.valleyair.org or by calling Daphne Garcia at (559) 230-5800. Written comments on the natural event documentation should be submitted by the close of business on Monday, February 28, 2005 to Evan Shipp at the San Joaquin Valley Unified Air Pollution Control District, 1990 E. Gettysburg Avenue, Fresno, California 93726. For additional information, contact Evan Shipp by phone at (559) 230-5800 or by email at evan.shipp@valleyair.org

#383279 2/16/05

Proof of publication, Stockton Record

VISALIA TIMES-DELTA
www.VisaliaTimesDelta.com
Tulare Advance-Register
www.TulareAdvanceRegister.com

RECEIVED
FEB 22 2005
ADMIN. SERVICES

SAN JOAQUIN VALLEY AIR POLLUTION
1990 EAST GETTYSBURG AVE
FRESNO, CA 93726

Ad Number: **06521167**

In the Superior Court of the State of California in and for the County of Tulare

Certificate of Publication

STATE OF CALIFORNIA ss.
COUNTY OF TULARE

I, NINA OMAR am over the age of 18 years old, citizen of the United States and not a party to, or have an interest in this matter, hereby certify that the VISALIA TIMES DELTA is a newspaper of general circulation within the provisions of the Government Code of the State of California, adjudicated a newspaper of general circulation on April 22, 1929 by Superior Court order no. 20576 as entered in book 35 page 85 of said court, printed and published in the City of Visalia, County of Tulare, State of California, and that I am the principal clerk of the printer of said newspaper. I also certify that the

NOTICE IS HEREBY GIVEN

copy of which is annexed on the margin hereof, is a true printed copy as published in said newspaper on the following date(s):

FEBRUARY 16, 2005

I certify under penalty of perjury that the foregoing is true and correct. Executed in Visalia, California, on FEBRUARY 17, 2005

NINA OMAR

Proof of publication, Visalia Times Delta

03/08/2005 TUE 09:34 [TX/RX NO 6270] 001

Proof of Publication

(2015.5 C.C.P.)

NOTICE OF NATURAL EVENT DETERMINATION RE: CORCORAN

STATE OF CALIFORNIA)
) ss.
County of Madera)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Madera Tribune, a newspaper of general circulation, published in the City of Madera, County of Madera, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Madera, State of California, under the date of November 9, 1966, Case Number 4875 that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates to wit:

FEBRUARY 16, 2005

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Signature

Date: February 16, 2005

Proof of Publication - The Madera Tribune, P.O. Box 260, Madera, CA 93
Adjudged a newspaper of general circulation by court decree No. 4875 (a
The Madera Tribune

San Joaquin Valley Unified
Air Pollution Control District

NOTICE OF
NATURAL EVENT DETERMINATION

NOTICE IS HEREBY GIVEN that information will be available for comment regarding the San Joaquin Valley Unified Air Pollution Control District's (District) request to flag data showing high levels of particulate matter of 10 microns or less (PM10) on September 3, 2004 in Corcoran, California as being caused by a natural event.

On September 3, 2004, the federal 24-hour PM10 standard of 150mg/m3 was exceeded in Corcoran with a reading of 217mg/m3. In accordance with federal policy, the District may evaluate PM10 adj usedence to determine if they were caused by a natural event such strategically high wind speeds. After evaluating all available data for this event, the District has determined that this PM10 exceedance was caused by a natural event, specifically blowing dust from the abnormally high winds that were experienced throughout the air basin that day. The 1996-2001 average 24-hour maximum PM10 concentration measured at the Corcoran monitoring station is 134 mg/m3. The average wind speed for the area in September 2004 was approximately 5 mph. On September 3, 2004, average hourly wind speeds at Corcoran reached 10 mph with gusts of up to 14 mph. More importantly, strong winds coming from the northwest led to regional transport of particulate matter that was deposited where the wind speeds decreased. Wind gusts in Fresno reached 21 mph and wind gusts in Hanford reached 24 mph. The lower wind speeds in Corcoran allowed the particulate matter to be deposited there. The District will submit documentation supporting its resolution to the California Air Resources Board (ARB) and the Environmental Protection Agency (EPA) for approval. Once approved, the data will be flagged so that it will not count against the air basin for attainment of the federal 24-hour standard for PM10. Then the District must develop a Natural Events Action Plan (NEAP) by March 3, 2006. The NEAP will establish public notification and education programs and identify and implement mitigating measures to reduce impacts from any future natural events. The EPA set guidelines for the flagging of exceedance data caused by natural events and NEAP preparation in a 1996 memorandum titled, "Areas Affected by PM-10 Natural Events."

The natural event documentation will be available for public review and comment on February 17, 2005. It will be obtainable online under "Public Notices" at www.valleyair.org or by calling Daphne Davis at (559) 230-5800. Written comments on the natural event documentation should be submitted by the close of business on Monday, February 28, 2005 to Evan Shipp at the San Joaquin Valley Unified Air Pollution Control District, 1990 E. Gettysburg Avenue, Fresno, California 93726. For additional information, contact Evan Shipp by phone at (559) 230-5800 or by email at: evan.shipp@valleyair.org
No. 9038 - Feb. 16, 2005

03/08/2005 09:29 5596736526 MADERA TRIBUNE PAGE 01/01

Proof of Publication, Madera Tribune

03/11/2005 14:59 2093852468 CLASSIFIED PAGE 01

Proof of Publication

(2015.5 C.C.P.)

Proof of Publication of

NOTICE

STATE OF CALIFORNIA } ss.
County of Merced }

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of the Merced Sun-Star, a newspaper of general circulation, printed and published in the City of Merced, County of Merced, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Merced, State of California, under the date of July 14, 1954, Case Number 33224 that the notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

MARCH 9, 2005

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Signature

Date: MARCH 11, 2005

This space is for the County Clerk's Filing Stamp

San Joaquin Valley Unified Air Pollution Control District

NOTICE OF NATURAL EVENT DETERMINATION NOTICE IS HEREBY GIVEN that information will be available for comment regarding the San Joaquin Valley Unified Air Pollution Control District's (District) request to flag data showing high levels of particulate matter of 10 microns or less (PM10) on September 3, 2004 in Corcoran, California as being caused by a natural event.

On September 3, 2004, the federal 24-hour PM10 standard of 150ng/m3 was exceeded in Corcoran with a reading of 217ng/m3. In accordance with federal policy, the District may evaluate PM10 exceedances to determine if they were caused by a natural event such as abnormally high wind speeds. After evaluating all available data for this event, the District has determined that this PM10 exceedance was caused by a natural event, specifically blowing dust from the abnormally high winds that were experienced throughout the air basin that day. The 1998-2001 average 24-hour maximum PM10 concentration measured at the Corcoran monitoring station is 104 ng/m3. The average wind speed for the area in September 2004 was approximately 6 mph. On September 3, 2004, average hourly wind speeds at Corcoran reached 10 mph with gusts of up to 14 mph. More importantly, strong winds coming from the northwest led to regional transport of particulate matter that was deposited where the wind speeds decreased. Wind gusts in Fresno reached 21 mph and wind gusts in Hanford reached 24 mph. The lower wind speeds in Corcoran allowed the particulate matter to be deposited there. The District will submit documentation supporting its conclusion to the California Air Resources Board (ARB) and the Environmental Protection Agency (EPA) for approval. Once approved, the data will be flagged so that it will not count against the air basin for attainment of the federal 24-hour standard for PM10. Then the District must develop a *Natural Events Action Plan (NEAP)* by March 3, 2006. The NEAP will establish public notification and education programs and identify and implement mitigating measures to reduce impacts from any future natural events. The EPA set guidelines for the flagging of exceedance data caused by natural events and NEAP preparation in a 1996 memorandum titled, "Areas Affected by PM-10 Natural Events."

The natural event documentation is available for public review and comment. It is also available online under "Public Notices" at www.valleyair.org or by calling Dashne Garcia at (559) 230-5800. Written comments on the natural event documentation should be submitted by the close of business on Monday, March 21, 2005 to Evan Shipp at the San Joaquin Valley Unified Air Pollution Control District, 1990 E. Gettysburg Avenue, Fresno, California 93726. For additional information, contact Evan Shipp by phone at (559) 230-5800 or by email at evan.shipp@valleyair.org

Legal 05-186 March 9, 2005

Proof of Publication - Merced Sun-Star, P.O. Box 739, Merced, California
newspaper of general circulation by court decree No. 33224

03/11/2005 FRI 13:52 [TX/RX NO 8837] 001

Proof of Publication, Merced Sun-Star

Note: Due to a noticing error, this paper ran the notice on March 9 instead of on the originally intended date, so the public comment period was extended to March 21, 2005. No public comments were received.

Appendix B Corcoran-Patterson Avenue air quality monitor, 2004 Site Photos

Looking North from the probe.

Looking East from the probe.

Looking South from the probe.

Looking West from the probe.

Looking at the probe from the North.

Looking at the probe from the East.

Looking at the probe from the South.

Looking at the probe from the West.

Appendix C Hanford National Weather Service Discussion for September 3, 2004.

04/28/2005 13:36 FAX 5593541152 NationalWeatherService 010

FXUS66 KHNX 032107
AFDHNX

AREA FORECAST DISCUSSION
NATIONAL WEATHER SERVICE SAN JOAQUIN VALLEY - HANFORD CA
207 PM PDT FRI SEP 3 2004

SHORT TERM...FOR INTERIOR CENTRAL CALIFORNIA...HIGH AMPLITUDE RIDGE IMMEDIATELY ALONG THE CALIFORNIA COAST WITH HIGH PRESSURE BUILDING OVER THE GREAT BASIN AT THE SURFACE. NORTH WIND HAS MIXED TO THE SURFACE ALONG THE WEST SIDE OF THE CENTRAL AND SOUTHERN SAN JOAQUIN VALLEY AND RESULTED IN LOWERED VISIBILITIES DUE TO DUST AND LOCALIZED BLOWING DUST. N-S SURFACE PRESSURE GRADIENTS ARE DIMINISHING BUT WIND LIKELY TO REMAIN GUSTY THROUGH THE AFTERNOON BEFORE VEERING AND DIMINISHING OVERNIGHT ON THE S.J.VALLEY FLOOR. WEAK OFFSHORE TENDENCY IN PRESSURE GRADIENT WILL KEEP WIND FOR THE FORECAST AREA PRIMARILY INFLUENCED BY LOCAL TERRAIN EFFECTS OVER THE WEEKEND.

SOME LOW-TOPPED CONVECTION DUE TO STEEPENED LAPSE RATES WITH POST-TROF COOL AIR ALOFT OVER HIGH S.SIERRA/CA EN96 THIS AFTERNOON. NORTHERLY FLOW PUSHING CONVECTION SOUTH OFF THE CREST. SHOWERS TO DIMINISH AT SUNSET AS AIRMASS STABILIZES DUE TO SUBSIDENCE ALOFT AND LOSS OF SURFACE HEATING.

MAX TEMPS TODAY LIKELY TO BE DOWN 10 TO 13 DEGREES FROM THURSDAYS READINGS. OVERNIGHT LOWS WILL BE BELOW SEASONAL NORMAL BEFORE TEMPERATURE RECOVERY BEGINS IN EARNEST OVER THE WEEKEND. HEIGHTS AND THICKNESSES RISE ABOUT 150M OVER THE NEXT 72 HOURS. TEMPERATURES AT 850MB JUMPING 6+ DEG.C OVER THAT SAME TIME PERIOD. STRONGER TEMPERATURE RECOVERY AT LOWER LEVELS WITH SOME DOWNSLOPE WARMING. WHILE TEMPERATURES WILL CLIMB RAPIDLY BACK TO NEAR SEASONAL ON SATURDAY...CONTINUED WARMING WILL PUSH MAX AND MIN TEMPERATURES ABOVE SEASONAL READINGS FOR SUNDAY AND LABOR DAY MONDAY ALL AREAS.

WITH HIGH PRESSURE ALOFT SUBSIDENCE WILL KEEP THE AIRMASS DRY WITH LITTLE CLOUDINESS NOTED FOR THE FORECAST AREA. MOISTURE FROM EAST PACIFIC HURRICANE HOWARD EXPECTED TO REMAIN SOUTHEAST TO SOUTHWEST OF THE AREA AS W-E DIFLUENT AXIS REMAINS QUASI-STATIONARY OVER NEXT 72 HOURS.
GUDGEL

.LONG TERM...FOR MONDAY NIGHT THROUGH FRIDAY...ZONAL FLOW WITH RELATIVELY HIGH HEIGHTS ALOFT INITIALLY WILL TRANSLATE TO TEMPERATURES ABOVE NORMAL FOR ALL ZONES. SOME DIVERGENCE AMONG MODEL SOLUTIONS BY MIDWEEK...THOUGH...WITH THE 00Z OPERATIONAL GFS BRINGING A FAIRLY DEEP INSIDE SLIDER INTO THE PICTURE. THE 12Z RUN OF THIS MODEL IS MUCH LESS PRONOUNCED...AND OTHER INDICATIONS ARE OF ONLY A SLIGHT WEAKNESS IN UPPER HEIGHTS ALONG THE COAST. GFS ENSEMBLES SHOW SOME SPREAD ALSO...UNDERSCORING THE UNCERTAINTY...BUT MOST MEMBERS REMAIN CLOSE TO CLIMO. WILL THUS ONLY INDICATE A SLIGHT COOLING MORE CONSISTENT WITH THE MAJORITY AND DISCOUNT THE 00Z GFS. NOT SURPRISINGLY...TROPICAL MOISTURE ALLUDED TO YESTERDAY LOOKS TO REMAIN SOUTH OF THE DISTRICT WITH THE NEW RUNS AND WILL DECREASE SKY COVER A BIT. THE LATTER PORTION OF THE FORECAST LOOKS REASONABLY CLOSE TO SEASONAL AVERAGES...WHICH MEANS WARM DAYS AND PLEASANT NIGHTS.
BURGER

&&

04/28/2005 TUE 13:34 [TX/RX NO 8075] 010

NATIONAL WEATHER SER 916 979 3052 04/29/05 05:02pm P. 002

WWUS86 KSTO 022333
SPSSTO

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE SACRAMENTO CA
430 PM PDT THU SEP 2 2004

CAZ013>019-063-064-066>069-032000-
SHASTA LAKE AREA/NORTHERN SHASTA COUNTY-
BURNEY BASIN/EASTERN SHASTA COUNTY-NORTHERN SACRAMENTO VALLEY-
CENTRAL SACRAMENTO VALLEY-SOUTHERN SACRAMENTO VALLEY-
CARQUINEZ STRAIT AND DELTA-NORTHERN SAN JOAQUIN VALLEY-
MOUNTAINS SOUTHWESTERN SHASTA TO NORTHERN LAKE COUNTIES-CLEAR
LAKE/SOUTHERN LAKE COUNTY-EAST FOOTHILLS/NORTH SACRAMENTO VALLEY-
MOTHERLODE-WESTERN PLUMAS COUNTY/LASSEN PARK-
WEST SLOPE NORTHERN SIERRA NEVADA-
430 PM PDT THU SEP 2 2004

...GUSTY NORTH WINDS TO AFFECT THE INTERIOR OR NORTHERN CALIFORNIA TONIGHT THROUGH FRIDAY NIGHT...

HIGH PRESSURE BUILDING ACROSS OREGON AND INTO NEVADA WILL CAUSE STRONG AND GUSTY NORTH TO NORTHEAST WINDS OVER THE INTERIOR OF NORTHERN CALIFORNIA THROUGH FRIDAY NIGHT. WIND GUSTS TO NEAR 30 MPH FROM THE NORTH OCCURRED OVER PORTIONS OF THE NORTHERN SACRAMENTO VALLEY AND SURROUNDING FOOTHILLS INCLUDING REDDING...RED BLUFF AND CORNING THURSDAY AFTERNOON.

THE STRONGEST WINDS ARE EXPECTED TO OCCUR OVER THE COASTAL MOUNTAINS WITH GUSTS 30 TO 35 POSSIBLE TONIGHT...AND THROUGH THE EVENING OVER THE NORTHERN SACRAMENTO VALLEY. ALTHOUGH WINDS IN THE VALLEY SHOULD BEGIN TO DECREASE TONIGHT...THEY ARE EXPECTED TO INCREASE BY MIDDAY ON FRIDAY...REACHING SUSTAIN SPEEDS AROUND 25 MPH WITH GUSTS TO 35 MPH. STRONG AND GUSTY NORTHEAST TO EAST WINDS FROM 40 TO 50 MPH ARE POSSIBLE OVER THE SIERRA NEVADA FRIDAY NIGHT.

PERSONS DRIVING HIGH PROFILE VEHICLES SHOULD EXERCISE CAUTION WHILE DRIVING IN WINDY CONDITIONS. IN ADDITION...THE DRY NORTH OR NORTHEAST WINDS WILL RESULT IN HIGH FIRE DANGER.
$$
JHM

Printed by FXA user

Sep 03, 04 9:12 **SFONOWSTO** Page 1/1

FPUS76 KSTO 030912
NOWSTO

SHORT TERM FORECAST
NATIONAL WEATHER SERVICE SACRAMENTO CA
210 AM PDT FRI SEP 3 2004

CAZ015-016-031203-
CENTRAL SACRAMENTO VALLEY CA-NORTHERN SACRAMENTO VALLEY CA-
INCLUDING THE CITIES OF...YUBA CITY...WILLOWS...SHINGLETOWN...
REDDING...RED BLUFF...PALO CEDRO...PALERMO...OROVILLE...ORLAND...
CORNING AND CHICO
210 AM PDT FRI SEP 3 2004

.NOW...GUSTY NORTH TO NORTHWEST WINDS HAVE DEVELOPED EARLY THIS MORNING IN THE NORTHERN SACRAMENTO VALLEY. AT 2 AM WIND GUSTS OF 36 MPH WERE OBSERVED AT THE SACRAMENTO INTERNATIONAL AIRPORT. WIND GUSTS TO 30 MPH WERE ALSO OCCURRING AT RED BLUFF...MARYSVILLE AND TRAVIS AIR FORCE BASE. GUSTY NORTH TO NORTHWEST WINDS OF 25 TO 35 MPH WILL CONTINUE FOR THE NEXT FEW HOURS. AREAS OF BLOWING DUST MAY ACCOMPANY THE GUSTY WINDS. WINDS ARE EXPECTED TO SUBSIDE BY SUNRISE AS AN UPPER LEVEL DISTURBANCE MOVES EAST OF THE AREA.

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SG

Printed by FXA user

Sep 03, 04 12:14 **SFONOWSTO** Page 1/1

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FPUS76 KSTO 031214
NOWSTO

SHORT TERM FORECAST
NATIONAL WEATHER SERVICE SACRAMENTO CA
513 AM PDT FRI SEP 3 2004

CAZ015-016-031609-
CENTRAL SACRAMENTO VALLEY CA-NORTHERN SACRAMENTO VALLEY CA-
INCLUDING THE CITIES OF...YUBA CITY...WILLOWS...SHINGLETOWN...
REDDING...RED BLUFF...PALO CEDRO...PALERMO...OROVILLE...ORLAND...
CORNING AND CHICO
513 AM PDT FRI SEP 3 2004

.NOW...
GUSTY NORTH TO NORTHWEST WINDS CONTINUE EARLY THIS MORNING IN THE
NORTHERN SACRAMENTO VALLEY.  AT 5 AM WINDS AT SACRAMENTO
INTERNATIONAL AIRPORT WERE GUSTING TO 34 MPH.  WIND GUSTS TO 30 MPH
WERE ALSO OCCURRING AT RED BLUFF...MARYSVILLE AND TRAVIS AIR FORCE
BASE.  GUSTY NORTH TO NORTHWEST WINDS OF 25 TO 35 MPH WILL CONTINUE
THROUGHOUT THIS MORNING. LOCAL GUSTS TO 40 MPH ARE POSSIBLE ON
EASTERN FACING FOOTHILLS. AREAS OF BLOWING DUST MAY ACCOMPANY THE
GUSTY WINDS.  WINDS ARE EXPECTED TO SUBSIDE THIS AFTERNOON AS AN
UPPER LEVEL DISTURBANCE MOVES EAST OF THE AREA.

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Sep 03, 04 6:28 **Text Warngen** Page 1/1

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WWUS86 KSTO DDHHMM
SPSSTO

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE SACRAMENTO CA
625 AM PDT FRI SEP 3 2004

CAZ013>019-063-064-066>069-032000-
SHASTA LAKE AREA/NORTHERN SHASTA COUNTY-
BURNEY BASIN/EASTERN SHASTA COUNTY NORTHERN SACRAMENTO VALLEY-
CENTRAL SACRAMENTO VALLEY-SOUTHERN SACRAMENTO VALLEY-
CARQUINEZ STRAIT AND DELTA-NORTHERN SAN JOAQUIN VALLEY-
MOUNTAINS SOUTHWESTERN SHASTA TO NORTHERN LAKE COUNTIES-CLEAR
LAKE/SOUTHERN LAKE COUNTY-EAST FOOTHILLS/NORTH SACRAMENTO VALLEY-
MOTHERLODE-WESTERN PLUMAS COUNTY/LASSEN PARK-
WEST SLOPE NORTHERN SIERRA NEVADA-
625 AM PDT FRI SEP 3 2004

...GUSTY NORTH WINDS TO AFFECT THE INTERIOR OR NORTHERN CALIFORNIA
THROUGH TONIGHT...

HIGH PRESSURE BUILDING ACROSS OREGON AND INTO NEVADA WILL CAUSE
STRONG AND GUSTY NORTH TO NORTHEAST WINDS OVER THE INTERIOR OF
NORTHERN CALIFORNIA THROUGH TONIGHT. WIND GUSTS TO NEAR 35 MPH FROM
THE NORTH HAVE OCCURRED OVER PORTIONS OF THE NORTHERN SACRAMENTO
VALLEY AND SURROUNDING FOOTHILLS INCLUDING REDDING...RED BLUFF AND
CORNING EARLY THIS MORNING.

THE STRONGEST WINDS ARE EXPECTED TO OCCUR OVER THE COASTAL MOUNTAINS
AND THE NORTHERN SACRAMENTO VALLEY TODAY.  GUSTS TO 40 MPH ARE
POSSIBLE ALONG EASTERN FACING FOOTHILLS THROUGHOUT THE DAY TODAY.
WINDS IN THE VALLEY SHOULD BEGIN TO DECREASE THIS AFTERNOON.
HOWEVER...THEY ARE EXPECTED TO INCREASE AGAIN OVERNIGHT TONIGHT.
STRONG AND GUSTY NORTHEAST TO EAST WINDS FROM 40 TO 50 MPH ARE
POSSIBLE OVER THE SIERRA NEVADA AS WELL THROUGH TONIGHT.

PERSONS DRIVING HIGH PROFILE VEHICLES SHOULD EXERCISE CAUTION WHILE
DRIVING IN WINDY CONDITIONS. IN ADDITION...THE DRY NORTH OR
NORTHEAST WINDS WILL RESULT IN HIGH FIRE DANGER.
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Printed by FXA user

Sep 03, 04 15:34 **SFONPWSTO** Page 1/1

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WWUS76 KSTO 031534
NPWSTO

URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE SACRAMENTO CA
835 AM PDT FRI SEP 3 2004

CAZ015>018-040000-
CARNIQUEZ STRAIT AND DELTA CA-CENTRAL SACRAMENTO VALLEY CA-
NORTHERN SACRAMENTO VALLEY CA-SOUTHERN SACRAMENTO VALLEY CA-
835 AM PDT FRI SEP 3 2004

...WIND ADVISORY IN EFFECT UNTIL 5 PM PDT THIS AFTERNOON...

THE NATIONAL WEATHER SERVICE IN SACRAMENTO, CA HAS ISSUED A WIND
ADVISORY UNTIL 5 PM TODAY FOR AREAS OF NORTH WINDS 25 TO 30 MPH WITH
GUSTS AROUND 35 MPH. THE WINDS WILL DECREASE LATE THIS AFTERNOON.

$$

CAZ063-064-040000-
CLEAR LAKE/SOUTHERN LAKE COUNTY CA-
MOUNTAINS SOUTHWESTERN SHASTA COUNTY TO NORTHERN LAKE COUNTY CA-
835 AM PDT FRI SEP 3 2004

...WIND ADVISORY IN EFFECT UNTIL 5 PM PDT THIS AFTERNOON...

THE NATIONAL WEATHER SERVICE IN SACRAMENTO, CA HAS ISSUED A WIND
ADVISORY UNTIL 5 PM TODAY FOR AREAS OF NORTH WINDS 25 TO 30 MPH WITH
GUSTS AROUND 40 MPH. THE WINDS WILL DECREASE BY LATE AFTERNOON.

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RB
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Sep 04, 04 0:05 **SFONPWSTO** Page 1/1

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WWUS76 KSTO 040005
NPWSTO

URGENT - WEATHER MESSAGE
NATIONAL WEATHER SERVICE SACRAMENTO CA
505 PM PDT FRI SEP 3 2004

CAZ015>018-040030-
CARNIQUEZ STRAIT AND DELTA CA-CENTRAL SACRAMENTO VALLEY CA-
NORTHERN SACRAMENTO VALLEY CA-SOUTHERN SACRAMENTO VALLEY CA-
505 PM PDT FRI SEP 3 2004

...WIND ADVISORY HAS BEEN ALLOWED TO EXPIRE...

WINDS HAVE DECREASED BELOW ADVISORY CRITERIA AND EXPECTED TO
CONTINUE TO DIMINISH OVERNIGHT.

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CAZ063-064-040030-
CLEAR LAKE/SOUTHERN LAKE COUNTY CA-
MOUNTAINS SOUTHWESTERN SHASTA COUNTY TO NORTHERN LAKE COUNTY CA-
505 PM PDT FRI SEP 3 2004

...WIND ADVISORY HAS BEEN ALLOWED TO EXPIRE...

WINDS HAVE DECREASED BELOW ADVISORY CRITERIA AND EXPECTED TO
CONTINUE TO DIMINISH OVERNIGHT.

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PFJ
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WWUS86 KSTO 041456
SPSSTO

SPECIAL WEATHER STATEMENT/PUBLIC INFORMATION STATEMENT
NATIONAL WEATHER SERVICE SACRAMENTO CA
800 AM PDT SAT SEP 4 2004
CAZ013>019-063-064-066>069-042300-

...SELECTED PEAK WIND GUSTS THROUGHOUT NORTHERN CALIFORNIA
ON FRIDAY...


...PEAK WIND GUSTS FROM AUTOMATED SURFACE OBSERVING SYSTEM...

REDDING AP.....................NORTHWEST 36 MPH AT 0909 AM

RED BLUFF......................NORTHWEST 39 MPH AT 1120 AM

OROVILLE.......................NORTHWEST 32 MPH AT 1236 PM

MARYSVILLE.....................NORTHWEST 37 MPH AT 1224 PM

SACRAMENTO EXEC AP............NORTHWEST 37 MPH AT 0157 PM

SACRAMENTO INTL AP............NORTHWEST 39 MPH AT 0935 AM

VACAVILLE......................NORTHWEST 39 MPH AT 0934 AM

TRAVIS AFB.....................NORTHWEST 47 MPH AT 1238 PM

STOCKTON AP....................NORTHWEST 35 MPH AT 0422 PM

MODESTO AP.....................NORTHWEST 30 MPH AT 1146 AM


....PEAK WIND GUSTS FROM SELECTED RAWS STATIONS...

EAGLE PEAK.....................NORTHWEST 49 MPH AT 0900 AM

MENDOCINO PASS.................NORTHWEST 51 MPH AT 0742 AM

KNOXVILLE CREEK................NORTHWEST 52 MPH AT 0805 AM

THOMES CREEK...................NORTHWEST 41 MPH AT 0851 AM

CORNING........................NORTHWEST 35 MPH AT 0151 PM


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POWELL
NNNN
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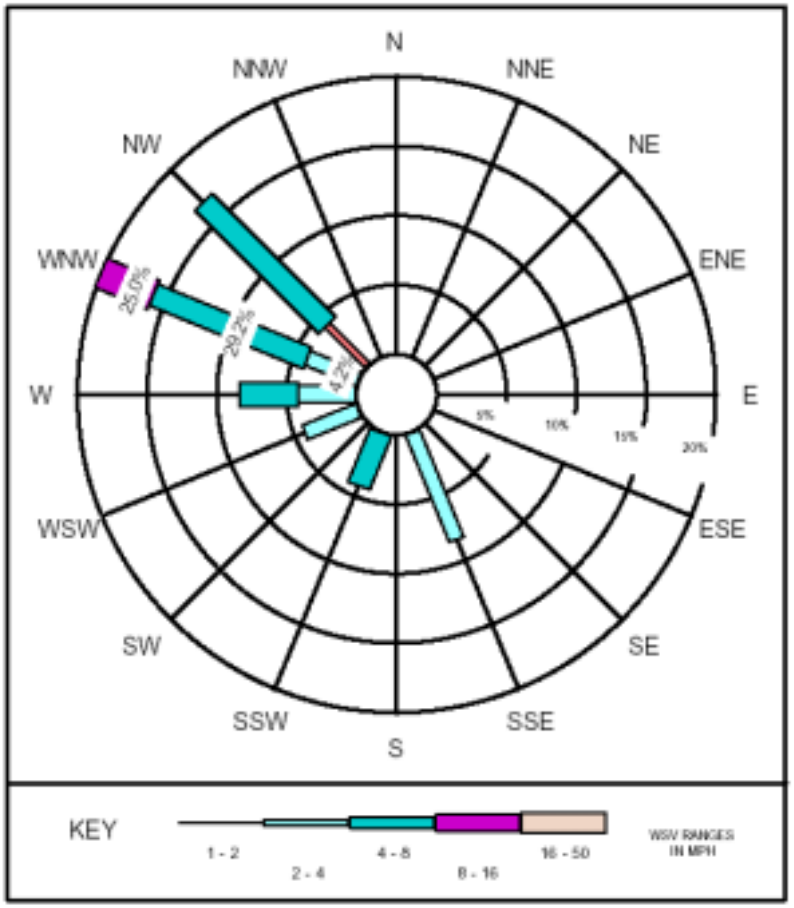
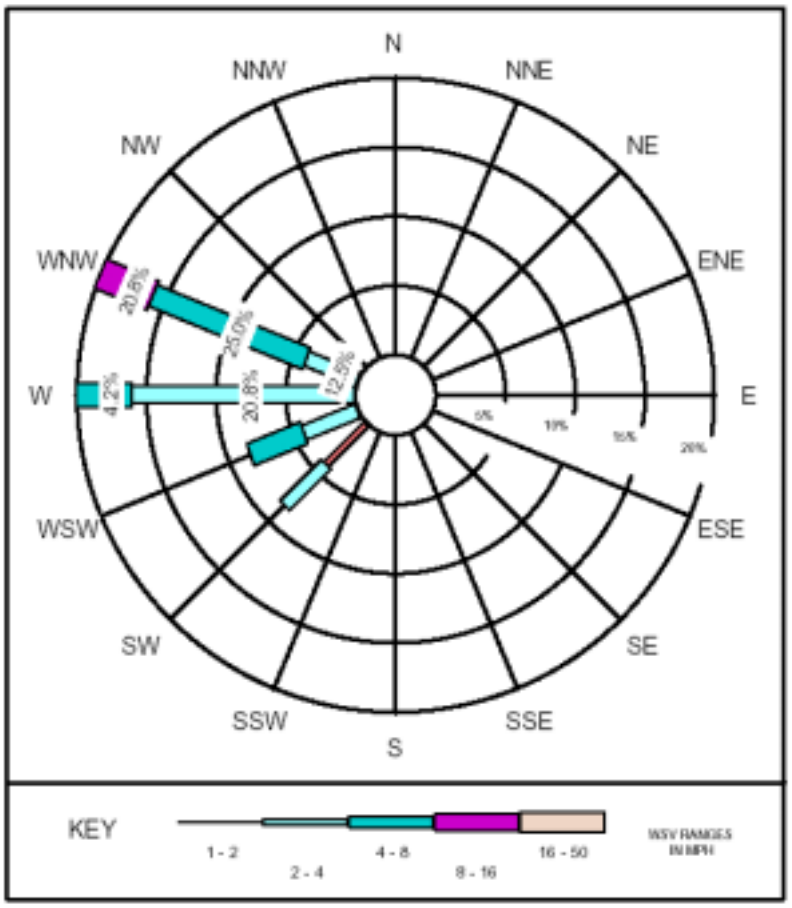
Appendix D Wind Roses, North to South, for September 2 and 3, 2004

September 2, 2004

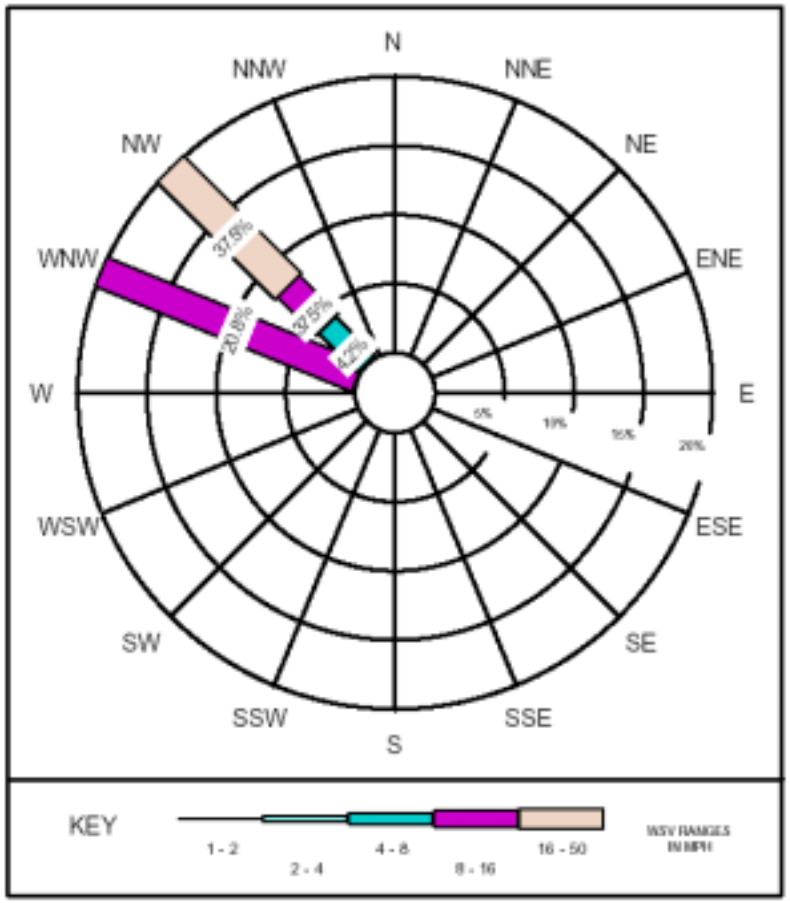
02 Sep 04 - 02 Sep 04
Station: Turlock
WSV versus WDV
Frequency of Occurrence (%)



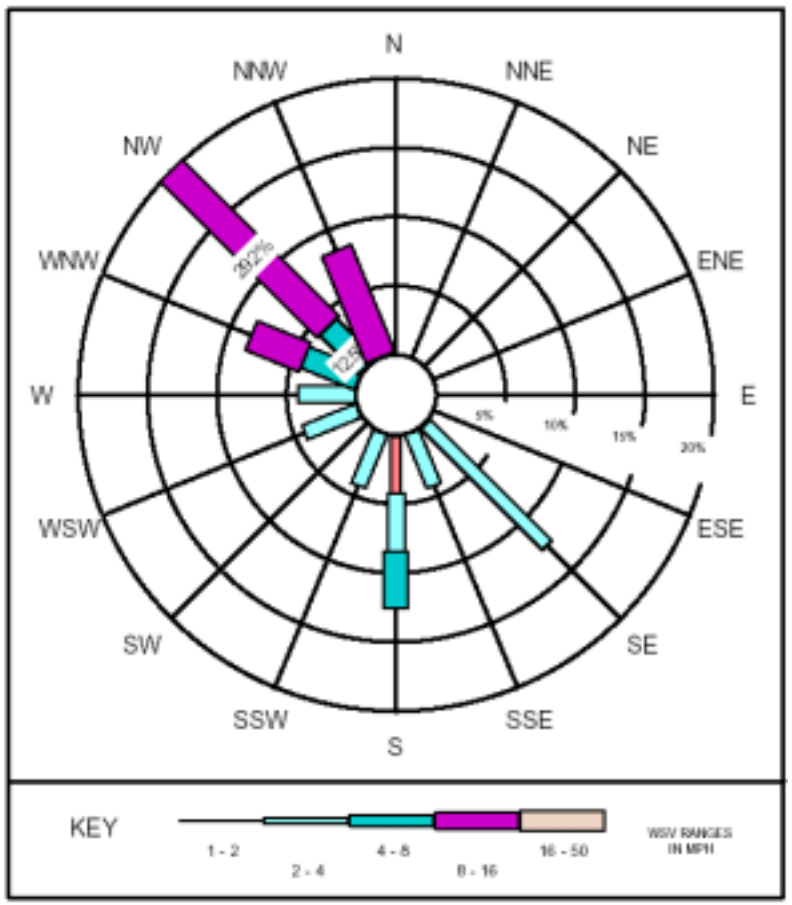
02 Sep 04 - 02 Sep 04
Station: Coffee
WSV versus WDV
Frequency of Occurrence (%)



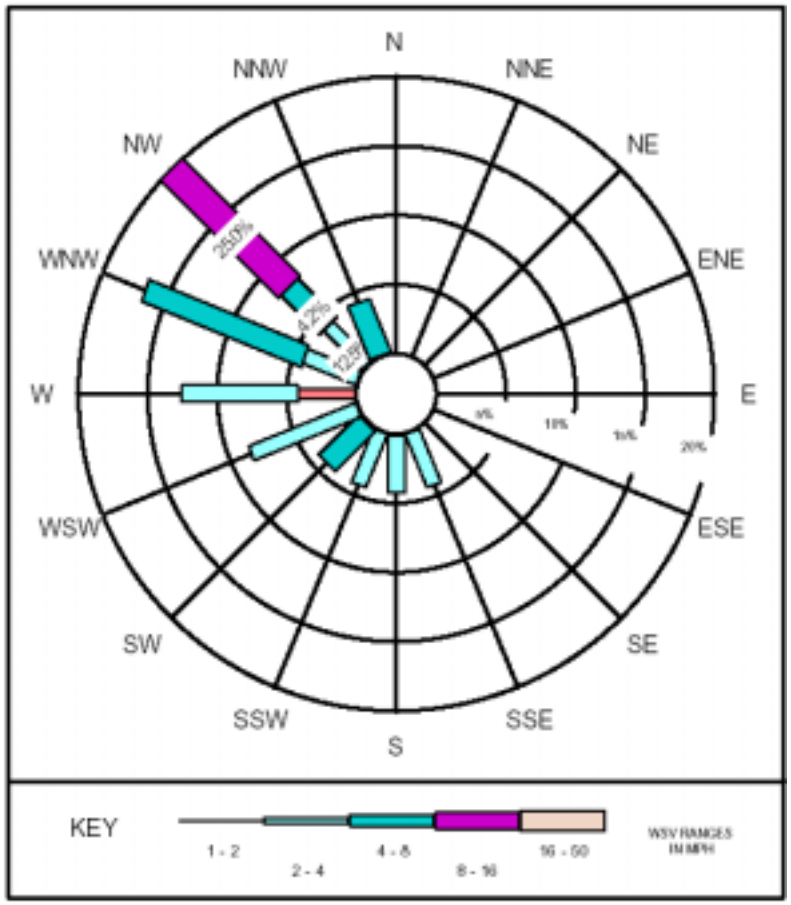
02 Sep 04 - 02 Sep 04
Station: Madera
WSV versus WDV
Frequency of Occurrence (%)



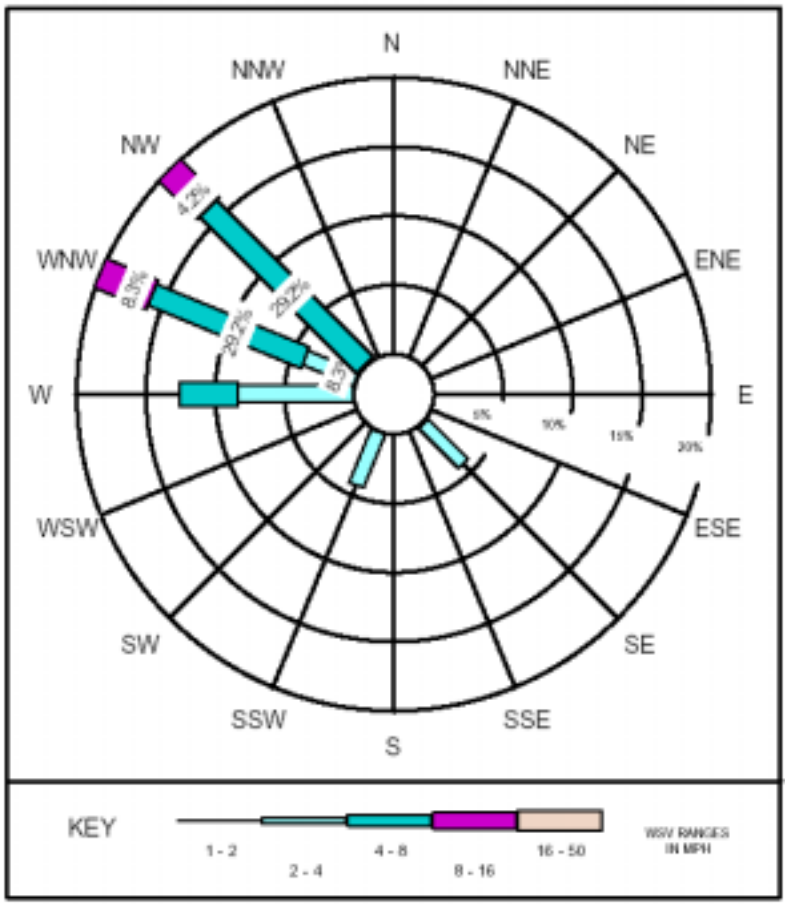
02 Sep 04 - 02 Sep 04
Station: Parlier
WSV versus WDV
Frequency of Occurrence (%)



02 Sep 04 - 02 Sep 04
Station: Visalia
WSV versus WDV
Frequency of Occurrence (%)



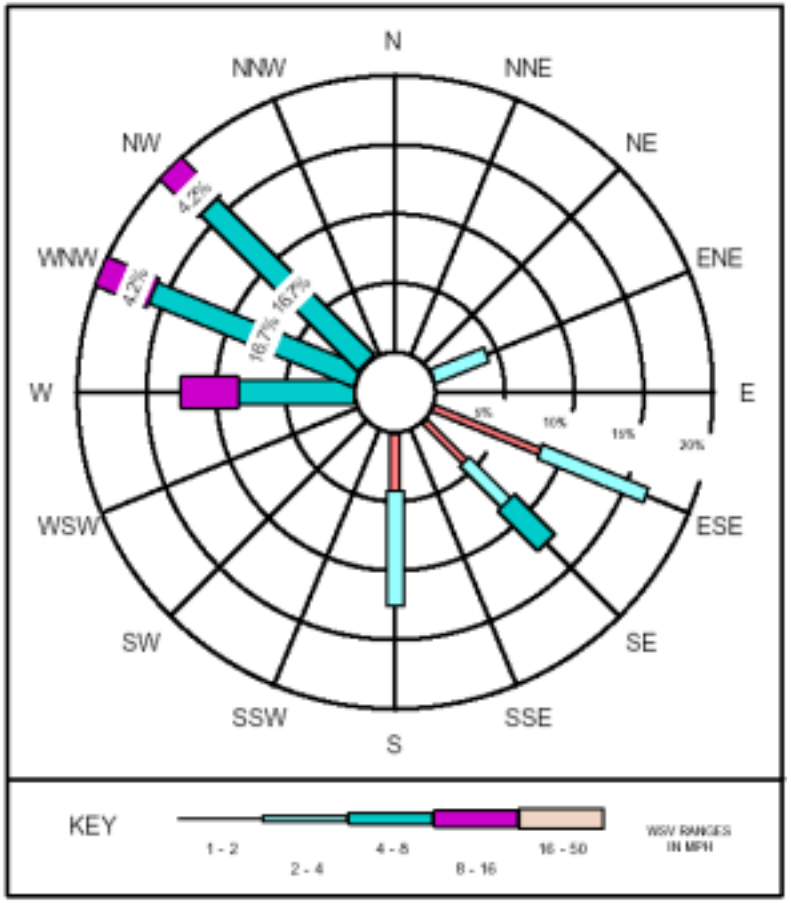
02 Sep 04 - 02 Sep 04
Station: Corcoran
WSV versus WDV
Frequency of Occurrence (%)



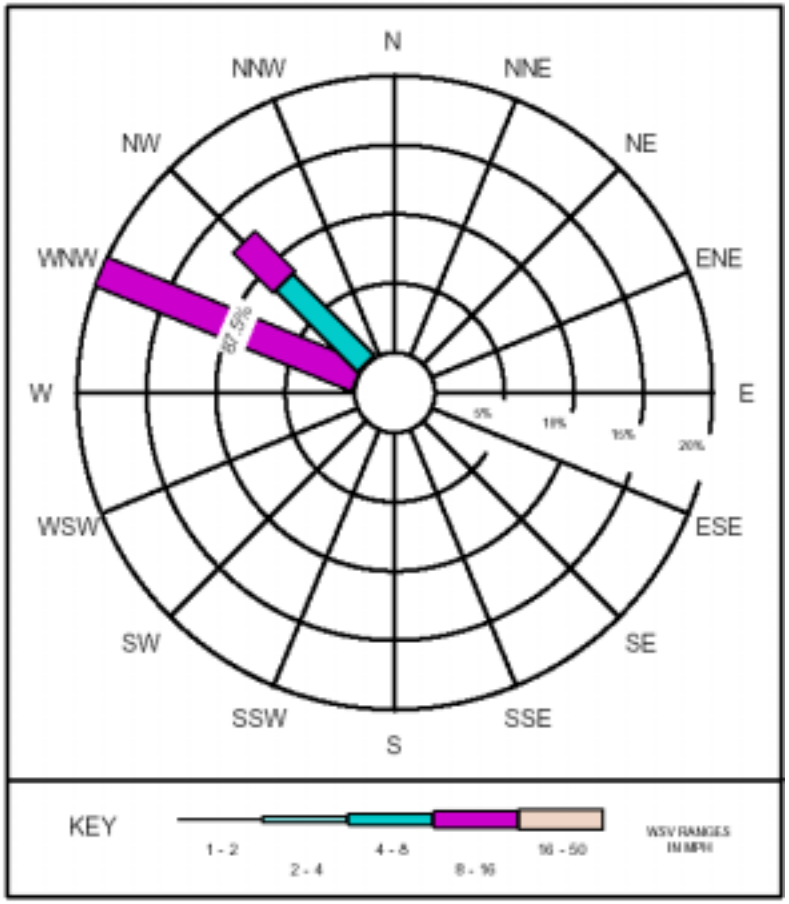
Bakersfield

September 3, 2004

02 Sep 04 - 02 Sep 04
Station: BFL256
WSV versus WDV
Frequency of Occurrence (%)

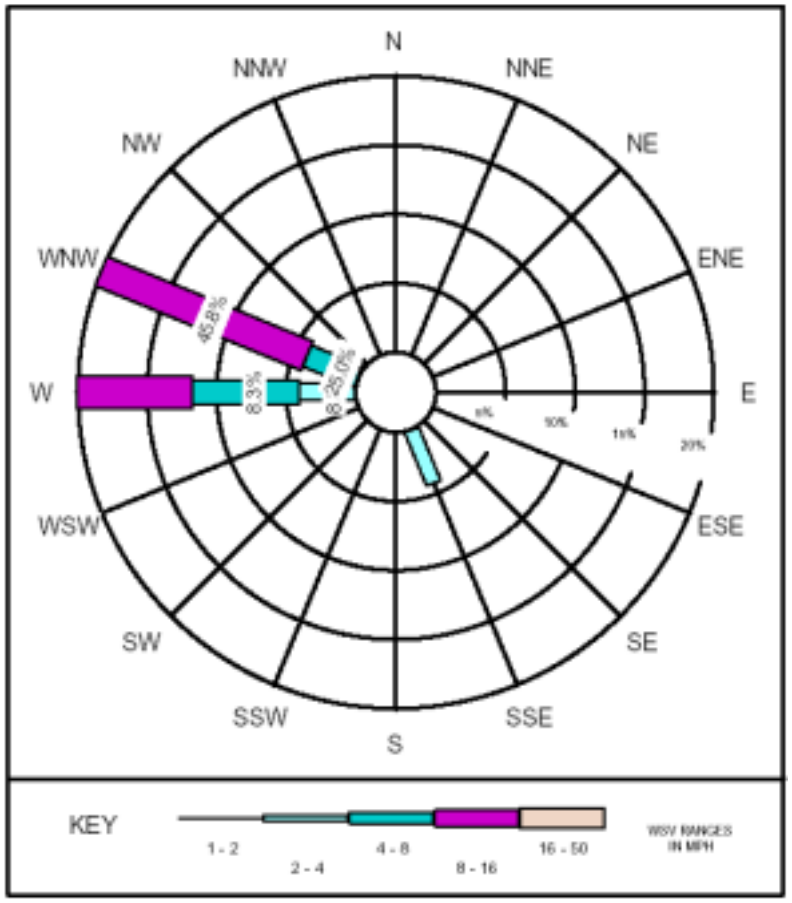


03 Sep 04 - 03 Sep 04
Station: Turlock
WSV versus WDV
Frequency of Occurrence (%)

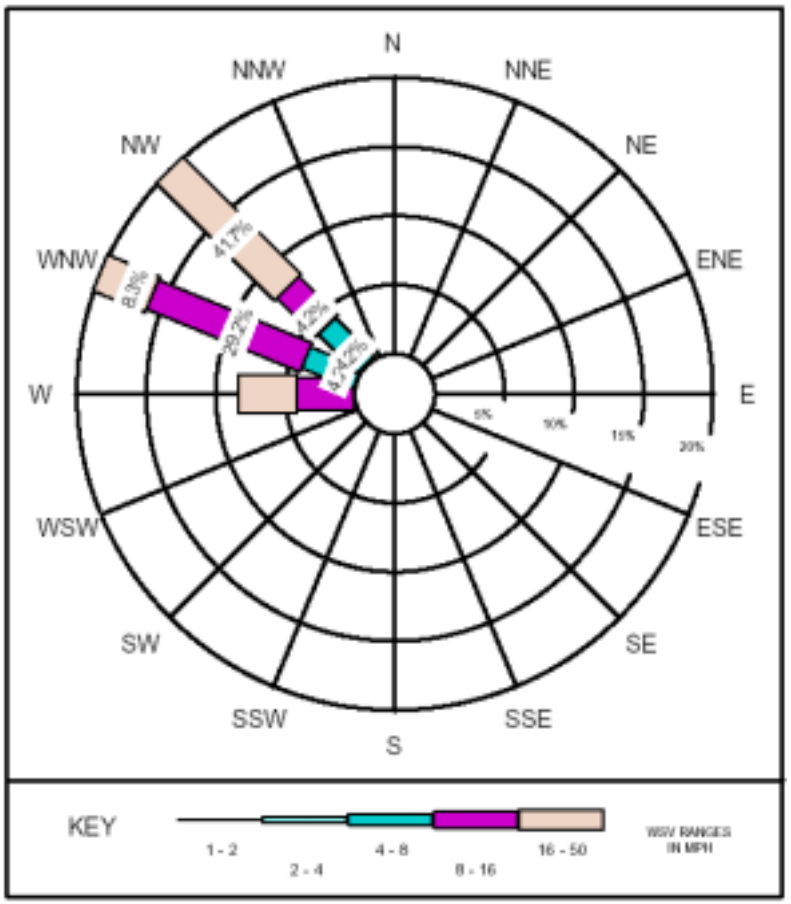


Merced

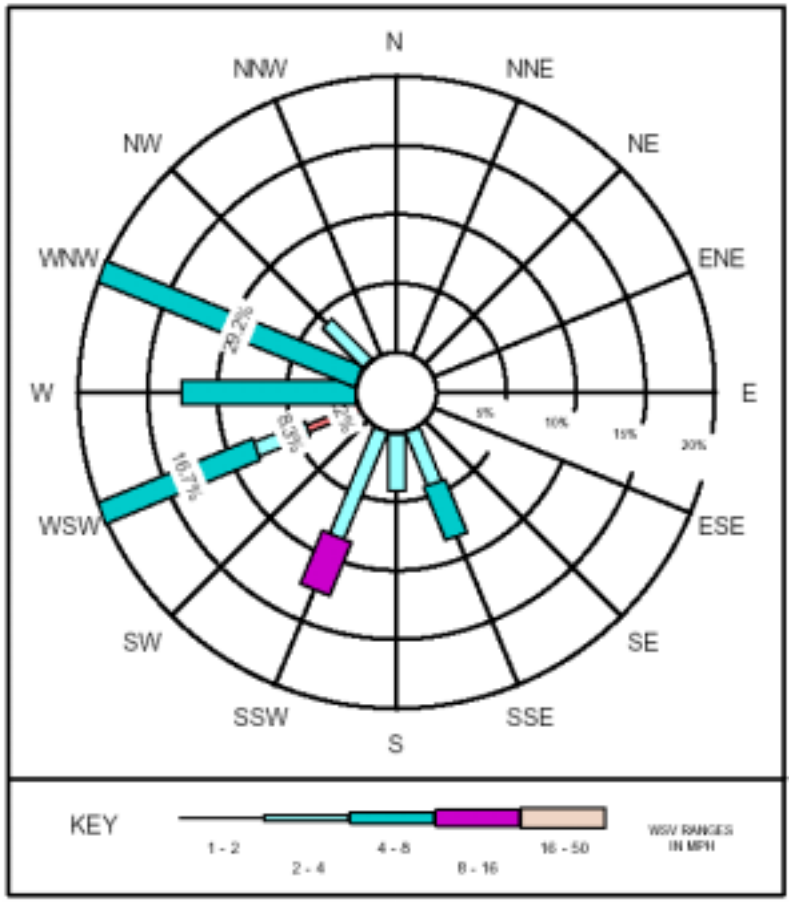
03 Sep 04 - 03 Sep 04
Station: Coffee
WSV versus WDV
Frequency of Occurrence (%)



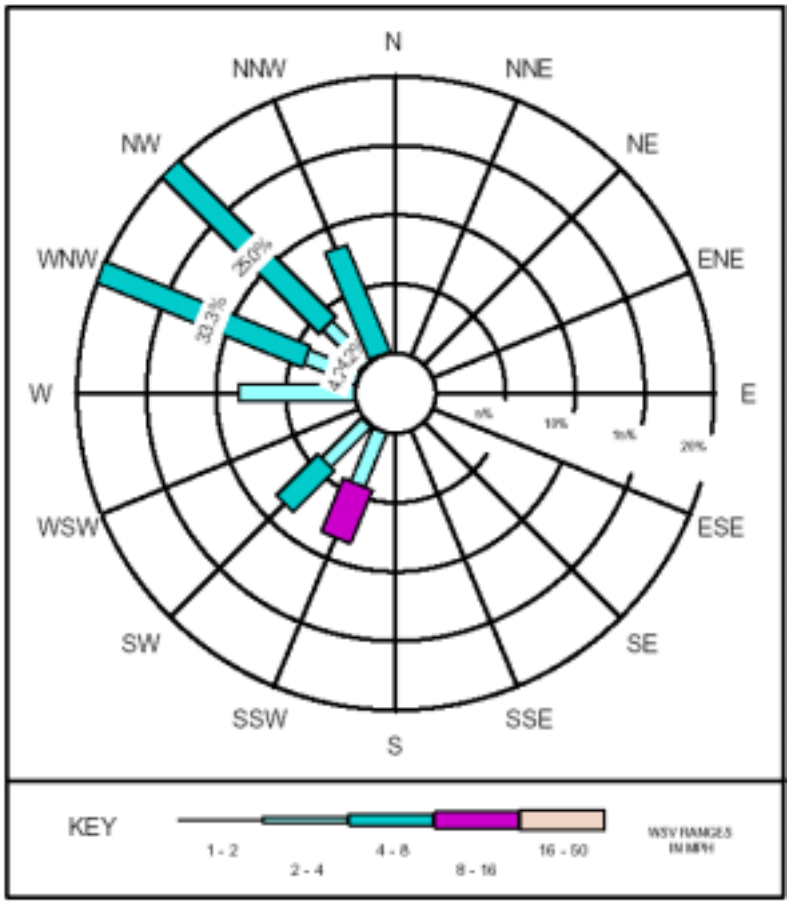
03 Sep 04 - 03 Sep 04
Station: Madera
WSV versus WDV
Frequency of Occurrence (%)

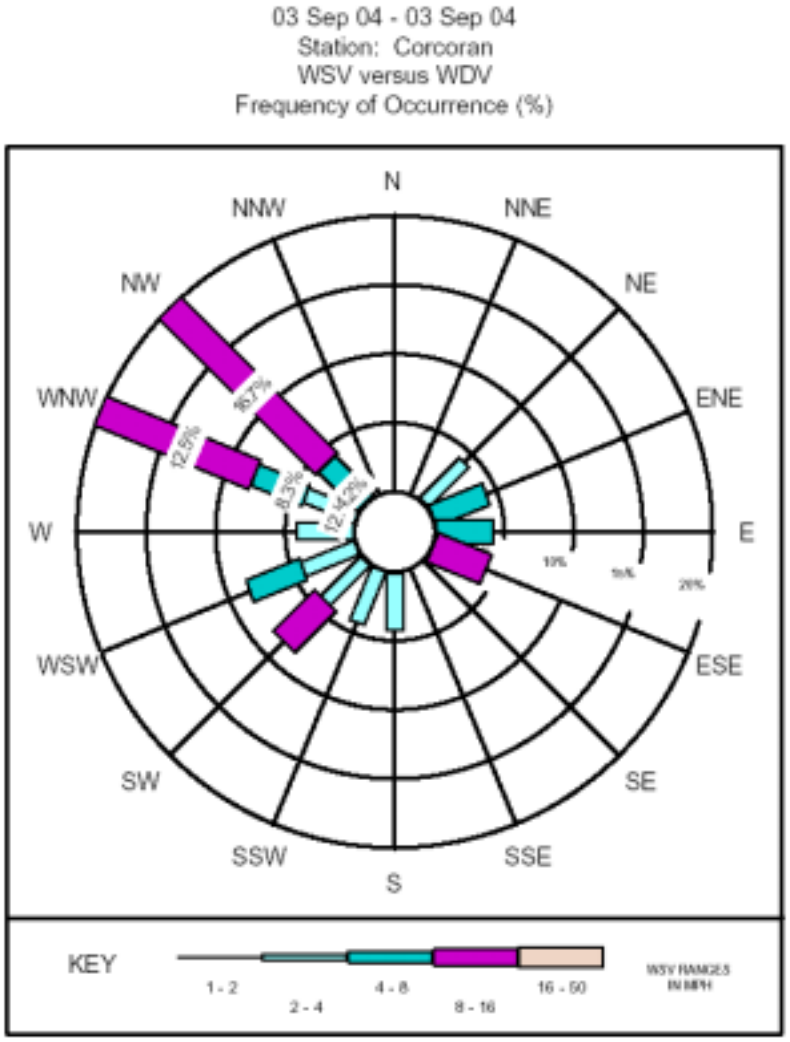
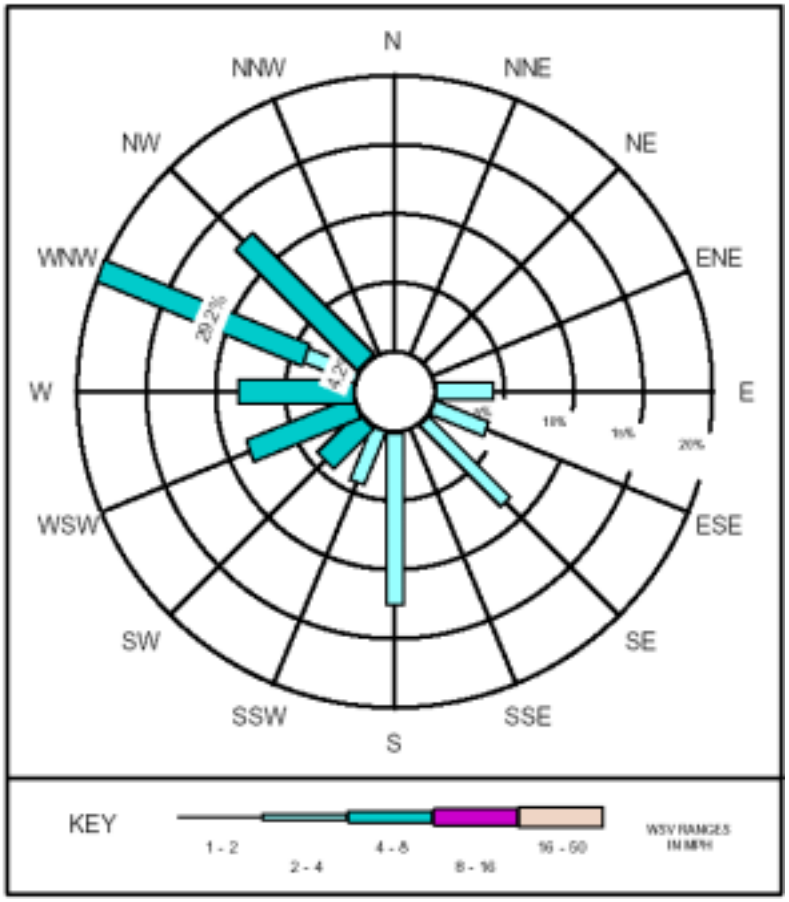


03 Sep 04 - 03 Sep 04
Station: Parlier
WSV versus WDV
Frequency of Occurrence (%)



03 Sep 04 - 03 Sep 04
Station: Visalia
WSV versus WDV
Frequency of Occurrence (%)





Bakersfield