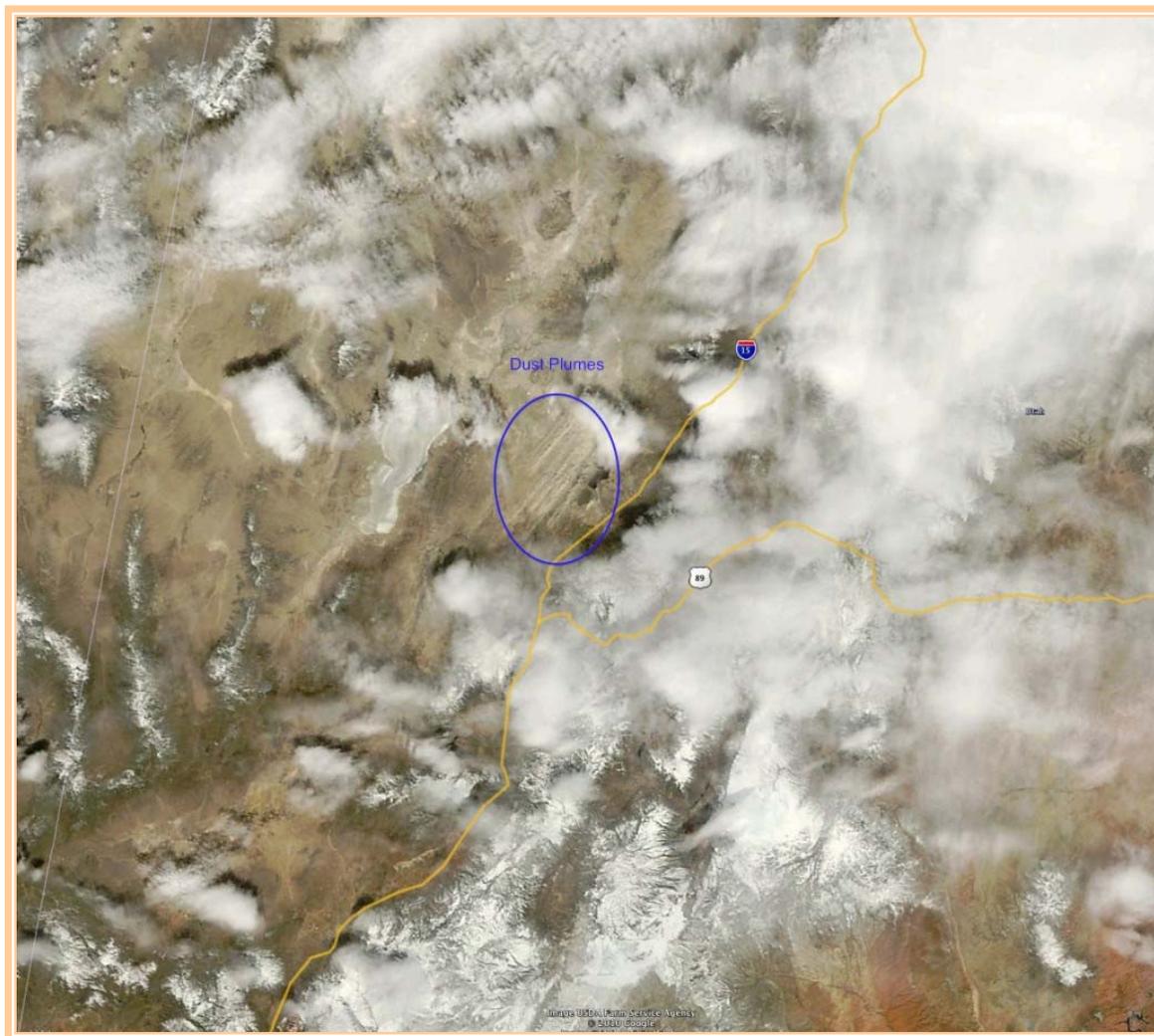


Utah Division of Air Quality

PM10 & PM2.5 Exceptional Event - High Wind



Event Date – March 30, 2010

Table of Contents

INTRODUCTION	1
CONCEPTUAL MODEL	1
DUST STORM COATS THE WASATCH FRONT	2
REPORTED BY: BRENT HUNSAKER LAST UPDATE: 3:06 AM	2
AFFECT AIR QUALITY	5
NOT REASONABLY CONTROLLABLE OR PREVENTABLE & NATURAL EVENT	8
<i>Control Analysis</i>	10
HISTORICAL FLUCTUATION	15
WIND SPEED.....	23
CLEAR CAUSAL RELATIONSHIP	24
TRAJECTORY AND IMPACTED AREA	24
SPECIATION	25
<i>Sevier Desert and Lake Playa Analysis</i>	25
<i>Coarse Mass Analysis</i>	26
NO EXCEEDANCE OR VIOLATION BUT FOR THE EVENT	27
<i>Photo Documentation</i>	27
CLEAR CAUSAL RELATIONSHIP AND BUT FOR THE EVENT SUMMARY	28
MITIGATION	29
DIVISION OF AIR QUALITY COMMUNITY OUTREACH	29
<i>Clean Utah</i>	29
<i>Smoking Vehicles</i>	29
<i>Utah Clean City</i>	29
<i>Variable Message Signage</i>	29
<i>Choose Clean Air</i>	30
<i>Dust Control Education</i>	30
<i>Utah Air Quality Public Notifications</i>	30
<i>News Release to Media</i>	30
<i>Representative County Dust Control Programs</i>	30
PUBLIC COMMENT	31
 APPENDIX 1 HOURLY PM AND WIND DATA	
 APPENDIX 2 SPECIATION DATA	

Introduction

The Code of Federal Regulations (CFR) provides the definition and criteria for determining whether air quality data is impacted by an exceptional event. The 40 CFR 50.1 (j) definition states that “exceptional event means an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, and is determined by the Administrator in accordance with 40 CFR 50.14 to be an exceptional event.” The demonstration to justify data exclusion as outlined in 40 CFR 50.14(c)(3)(iv-v) specifies that evidence must be provided that:

1. The event meets the definition of an exceptional event;
2. The event is associated with a measured concentration in excess of normal historical fluctuations, including background;
3. There is a clear causal relationship between the measurements under consideration and the event that is claimed to have affected air quality in the area;
4. There would have been no exceedance or violation but for the event; and
5. The public comment process was conducted, and documentation of such must be provided to the Environmental Protection Agency (EPA).

This report documents that the event meets the above criteria and provides analyses to demonstrate that:

- I. The natural dust event was not reasonably controllable or preventable;
- II. Reasonable controls, based on EPA guidance, are in place for anthropogenic sources through regulatory structures and programs sponsored by state, federal and local agencies as described in the Mitigation section;
- III. There is a clear-causal connection between the high wind event and the exceedance at the monitoring station network;
- IV. The measured concentrations are beyond normal historical levels; and
- V. The exceedance would not have occurred “but for” the high winds.

Conceptual Model

According to Monica Traphagan, a meteorologist at the National Weather Service, high winds on Tuesday March 30, 2010 were coming out of the south, ahead of a low pressure front that was moving into Utah from the northwest. The Salt Lake Tribune reported gusting winds clocked at 109 mph at Signal Mountain near St. George. Winds faster than 80 mph were reported at Ogden Peak, Sundance, Snowbasin and Cardiff Peak. Winds also toppled a truck in Sardine Canyon, forcing state officials to close that route to high-profile vehicles. The severity of the dust was described by ABC 4 News as “so thick you could chew it.”

Dust storm coats the Wasatch Front

Reported by: [Brent Hunsaker](#)
Last Update: 3:06 am



SALT LAKE CITY (ABC 4 News) - The air over the Wasatch Front on Tuesday was thick. It was so thick you could cut it with a knife. So thick you could chew it.

Some people might have thought the grey-brown haze was pollution. But actually it was mostly dust kicked up off the floor of the West Desert and blown up against the Wasatch Range. Bryce Bird of the Division of Air Quality said, "It's compressed in here. We had the south winds most of the day then the north winds. So we're stuck in the middle right now seeing these really elevated levels of fine particulate matter."

It coated cars and buildings and even people. Bird said most of the dust are larger particles that our bodies can handle, "but there are some fine particles as well that do impact some people."

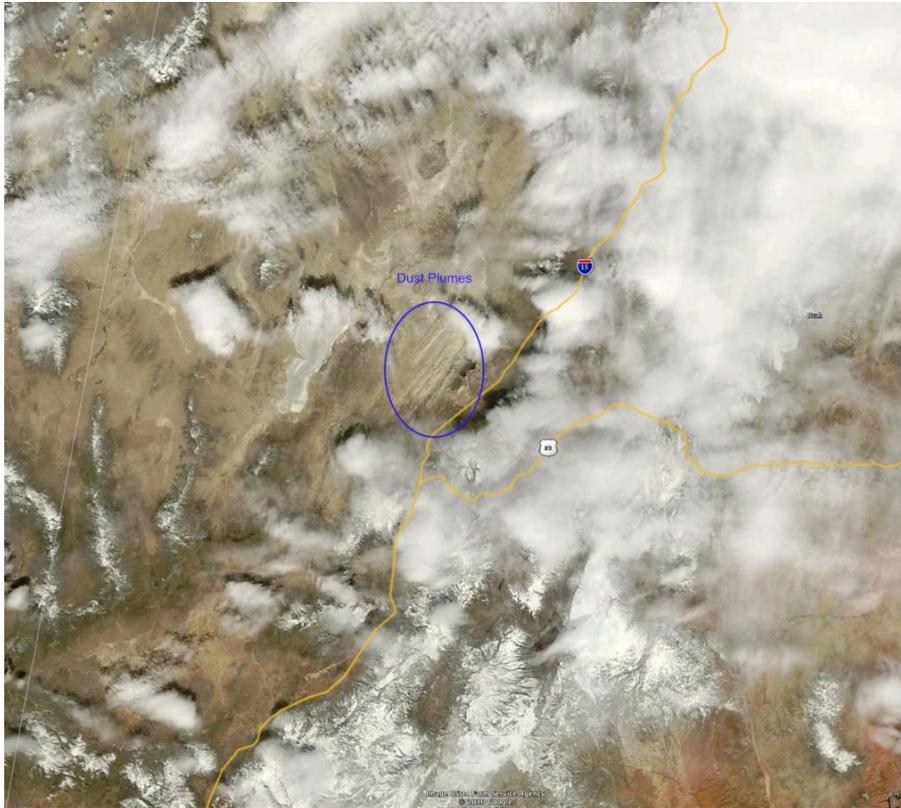
A few people went to emergency rooms at area hospitals with respiratory problems. "Mostly difficulty breathing, swelling to the throat, asthma exacerbations," explained Doctor David Hasleton at Riverton Hospital. "So the symptoms can actually be worse with the dust that's in the air and the pollen now."

Fortunately most of the dust was blowing out Tuesday night. And what remained was sure to be scoured by the forecast rain.

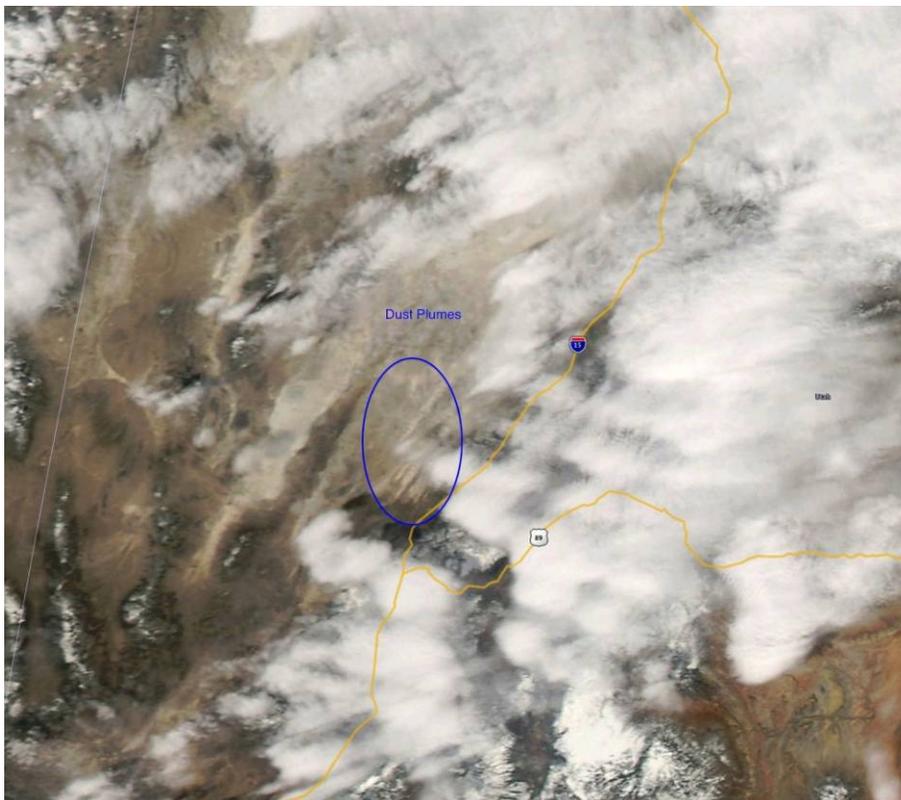
Winds died down late Tuesday afternoon in northern Utah. Southern and southeastern Utah continued to endure high winds until Wednesday according to Monica Traphagan. The National Weather Service forecast called for heavy precipitation in northern Utah from Wednesday through Thursday, including snow accumulation in the Wasatch Mountains.

According to the USGS Dust Monitoring Report (http://sgst.wr.usgs.gov/dust_monitoring/), "Day-long high winds in southwest and central Utah kicked off significant dust emissions that blanketed central and northern Utah in dust. The identified plumes in the imagery below indicates sources in the Milford Flats area of Utah. This area is a frequent dust emitter for the region. "

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010



MODIS shows dust plumes mid-morning under the clouds in UT.



MODIS showing larger dust clouds mid-afternoon.

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

Photographs taken around 1 p.m. local time, captured the Salt Lake dry beds contribution to the exceptional event. The photos were taken in Tooele County near the Saltair entertainment venue.



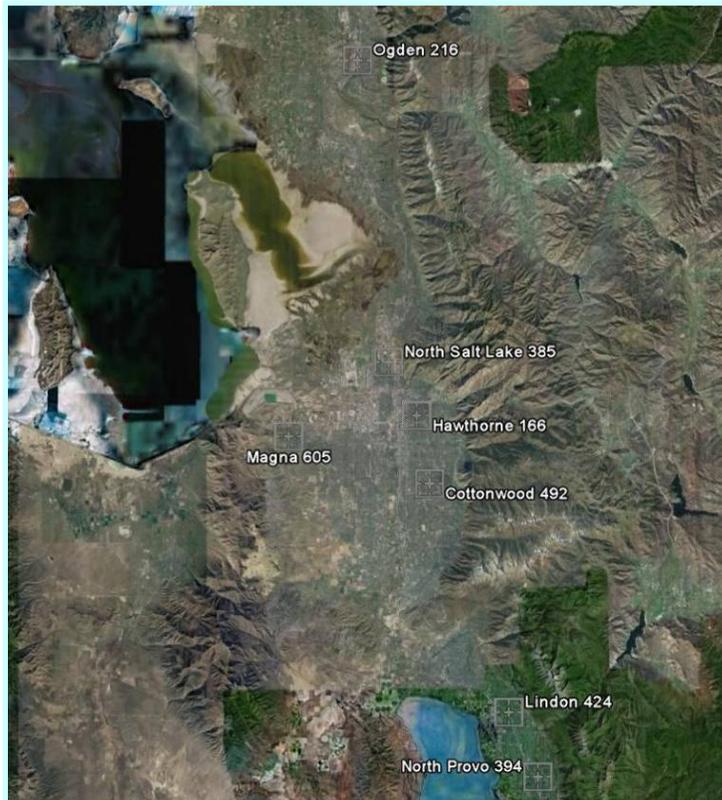
Affect Air Quality

The high wind dust storm, with hurricane force winds in portions of Utah, caused elevated PM10 and PM2.5 levels across the Utah monitoring network. Table 1 presents the PM10 and PM2.5 exceedances. Images 1 and 2 present the data on Google Earth maps.

Table 1 – Ambient Air Quality Exceedances

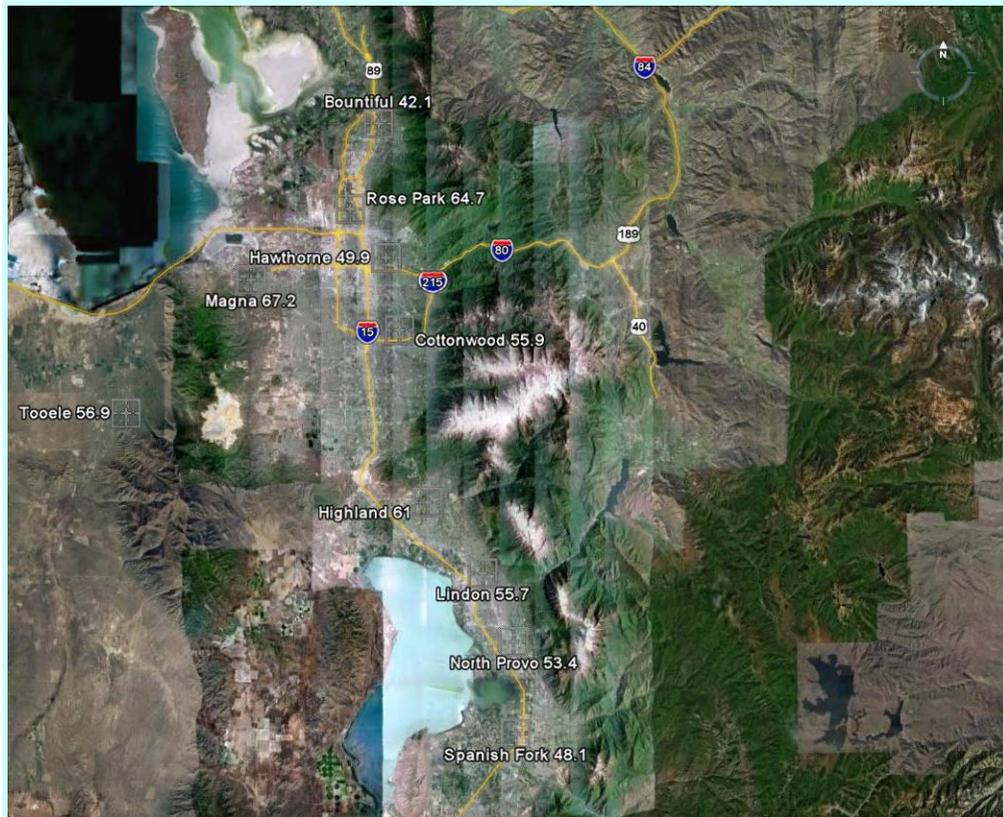
Monitoring Station	PM10 ($\mu\text{g}/\text{m}^3$)	PM2.5 ($\mu\text{g}/\text{m}^3$)	Lat.	Long.
Cottonwood	492	55.9	40.64405	-111.84976
Hawthorne	166	49.9	40.73436	-111.87201
Lindon	424	55.7	40.33952	-111.71344
Magna	605	67.2	40.70678	-112.0945
North Provo	395	53.4	40.25336	-111.66328
North Salt Lake	385		40.80536	-111.92101
Ogden	216		41.20693	-111.97509
Bountiful		42.1	40.9029	-111.88443
Highland		61	40.42819	-111.80396
Rose Park		64.7	40.79554	-111.93098
Spanish Fork		48.1	40.1383	-111.6602
Tooele		56.9	40.53939	-112.29972

Image 1 – PM10 Exceedance Locations (values in $\mu\text{g}/\text{m}^3$)



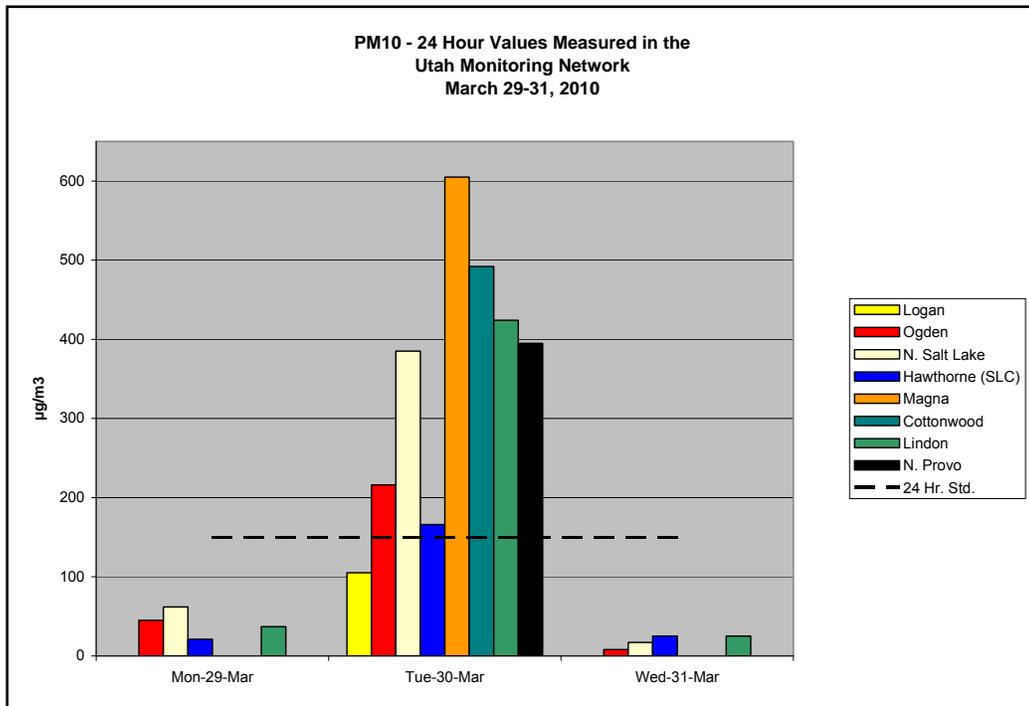
Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

Image 2 – PM_{2.5} Exceedance Locations (values in $\mu\text{g}/\text{m}^3$)



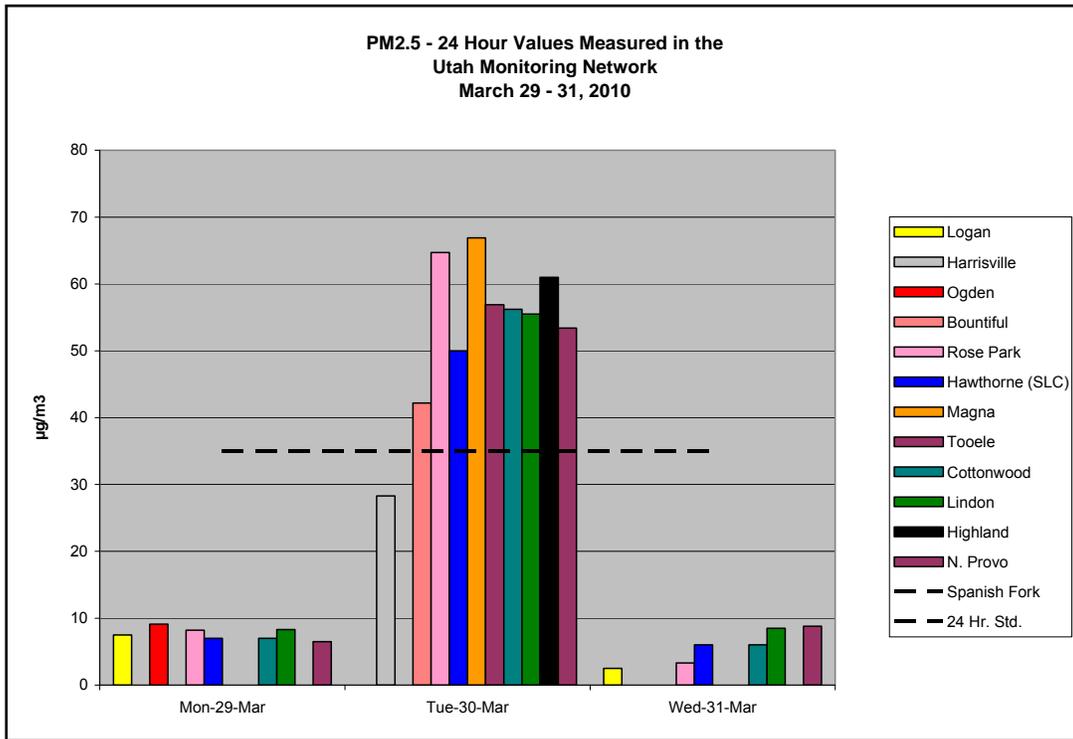
Figures 1 and 2 present the PM₁₀ and PM_{2.5} 24-hr values from March 29-31, 2010. The same general data pattern exists for both fractions.

Figure 1 – PM₁₀ 24-hr Values



**Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010**

Figure 2 – PM2.5 24-hr Values



Figures 3 and 4 show the hourly measurements for PM10 and PM2.5 at available hourly monitors. Appendix 1 contains the hourly data. Some data loss occurred across the system due to severe storm conditions.

Figure 3 – PM10 Hourly Values

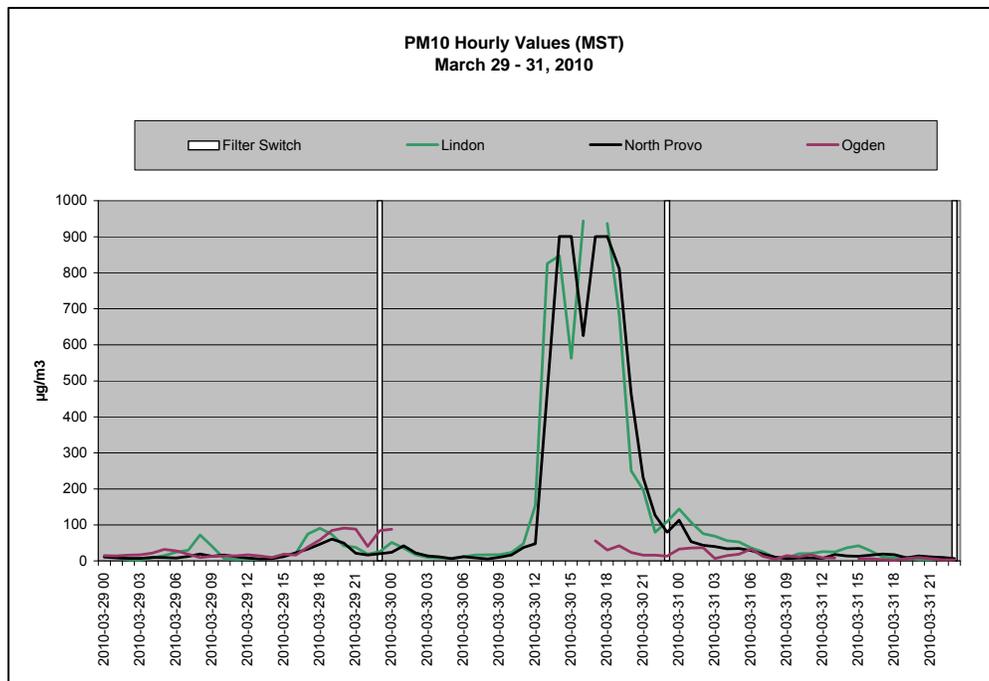
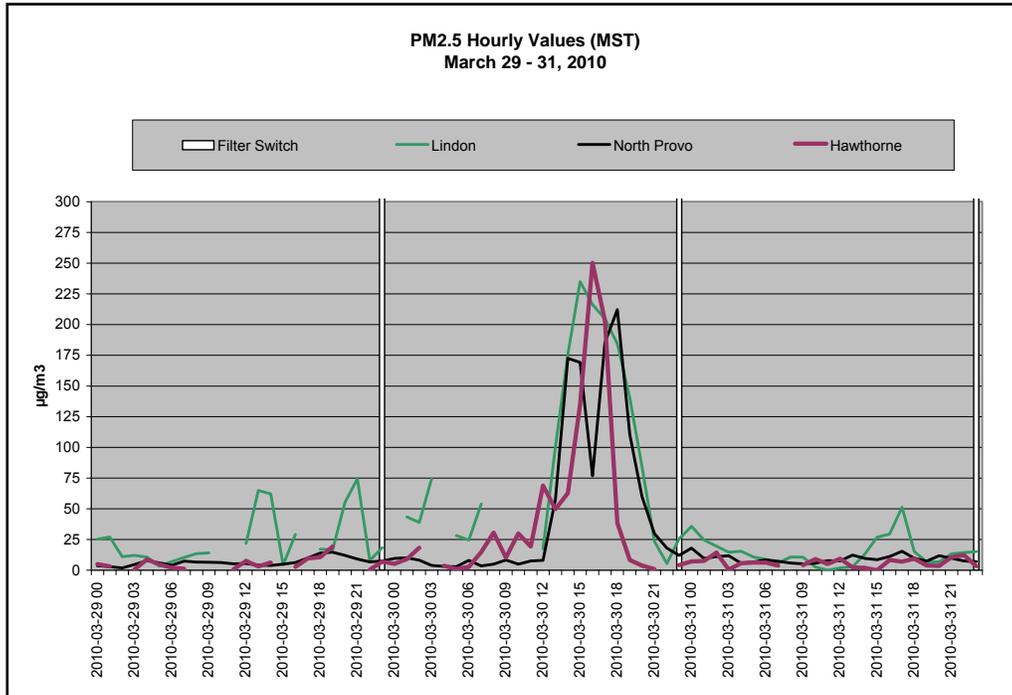


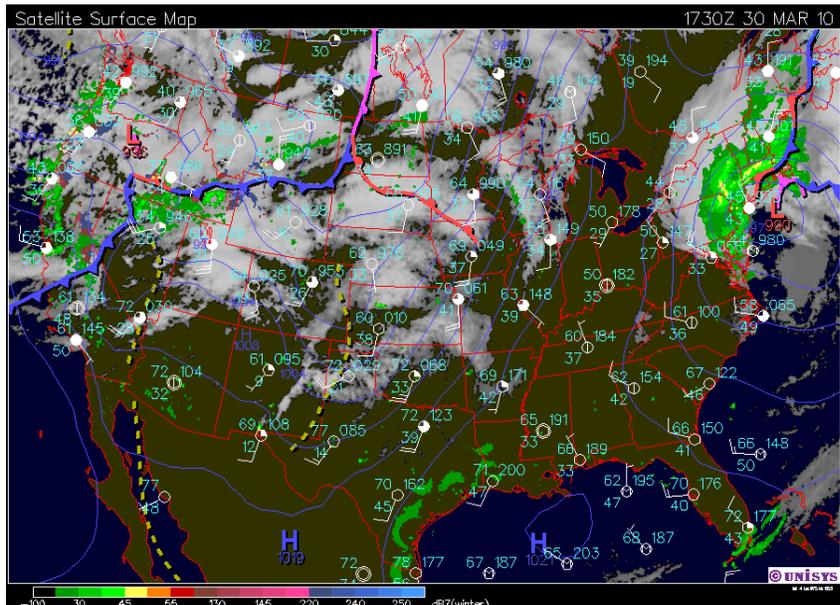
Figure 4 – PM2.5 Hourly Values



The hourly values show that the storm started to impact the stations around noon on the 3rd, peaking around 5 p.m.

Not Reasonably Controllable or Preventable & Natural Event

Rapidly developed cold fronts produce strong winds and dramatic temperature gradients over the Intermountain West. This seasonal spring occurrence creates the potential for wind eroded surface soils in the Utah and Nevada deserts. Soil particles are susceptible to erosion when rapid heating releases its adhesion to the strata and surface wind velocities are sufficient to suspend them into the air mass.

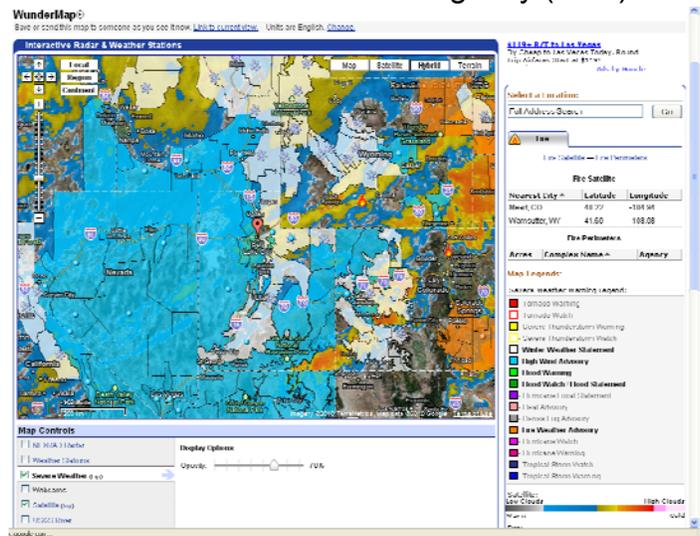
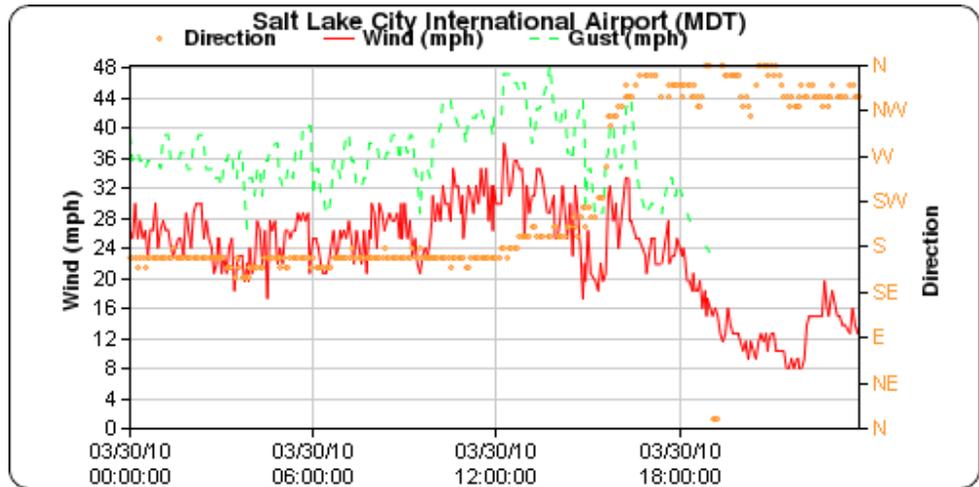
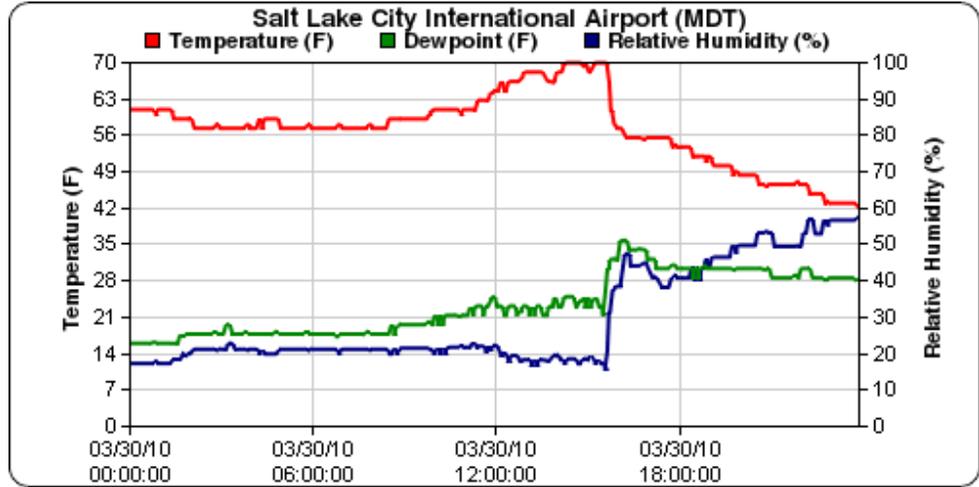


This storm displayed classical signs of a leading dry line, depicted by the yellow broken line in front of the cold front. Blowing dust from high winds are characteristic effects during dry line fronts.

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

The dry line occurs when high temperature rapidly decreases, while the dew point and relative humidity increase. That juncture occurred in the afternoon hours on March 31. Meteorological data for the Salt Lake City airport confirms this.

The winds were due south until evening hours when they shifted slowly from the north. Wind speeds were between 20 and 30 mph for most of the day, with gusting winds up to 48 mph at the Salt Lake City airport. Wind speed obviously varied substantially from location to location based on reports of hurricane force gale in southern Utah and mountainous regions of the Wasatch. These wind speeds exceed the Environmental Protection Agency (EPA) wind threshold of 25 mph for winds to entrain dust.



High Wind Advisory from St. George, Utah to

Idaho

Control Analysis

The Exceptional Events Rule Preamble states that, “where high wind events results in exceedances or violations of the particulate matter standards, EPA proposed that they be treated as natural events if..., and if anthropogenic activities which contribute to particulate matter emissions in conjunction with the high wind event are reasonably well-controlled.”

The State of Utah has developed a comprehensive program of controls for airborne fugitive dust implemented through existing Utah air quality rules, stationary source permitting, and State Implementation Plans (SIP) (approved by EPA). This system of control techniques for fugitive dust has been in place since 1992, when the current Utah PM10 SIP was developed. The SIP requires control measures for both specific and general PM10 fugitive dust sources along the Wasatch Front. The SIP process introduced Reasonably Available Control Technology (RACT) and Best Available Control Measures (BACM) for sources that existed prior to the SIP process and required Best Available Control Technology (BACT) for new sources and modifications of existing sources. BACT requirements are enforced through Utah administrative rule R307-401. Since 1992, the state has implemented two administrative rules that control fugitive dust throughout the state. R307-205 and R307-309, which taken together, apply to all significant fugitive dust sources in the state. These rules require each significant fugitive dust source to develop and implement a site-specific fugitive dust control plan. In effect, an approved dust plan defines BACM for a source, and provides a flexible mechanism for controlling airborne dust. Under the Utah SIP requirements and the Air Quality Rules, all eligible sources in Utah are subject to emission controls defined by RACT, BACT or BACM.

Control strategies contained in the SIP have been successful as evidenced by the fact that, excluding data impacted by exceptional events, Utah would be in compliance with the PM10 national ambient standard.

Utah is currently engaged in SIP development for PM2.5.

Additional Rules

R307-202 Emission Standards: General Burning, prohibits burning of trash and other waste and salvage operations by open burning. Persons/agencies wishing to open burn tree cuttings, slash in forest areas etc., must seek a permit from DEQ that include control measures.

R307-204 Emission Standards: Smoke Management, establishes rules and procedures to mitigate the impact on public health and visibility of prescribed fire and wildfire.

R307-206 Emission Standards: Abrasive Blasting, establishes work practices and emission standards to control particulates. R307-30-6, a more stringent version, applies in nonattainment areas.

R307-207 Emission Standards: Residential Fireplaces and Stoves, establishes emission standards for opacity. R307-302, a more stringent version, applies in nonattainment areas.

Additional Anthropogenic Sources

Agricultural practices, by their nature, require dry field conditions which may generate fugitive dust. Agricultural practices are under the purview of the U.S. Department of Agriculture (USDA). Recognizing the problems associated with soil erosion on agricultural cropland, rangeland and other environmentally sensitive cropland areas, the USDA included conservation provisions in the Farm Security and Rural Investment Act of 2002 (Farm Bill). The conservation provisions of the legislation are designed to assist farmers and ranchers with a number of voluntary programs, including cost-share, land rental, incentive payments, and technical assistance. The conservation programs of the Farm Bill are administered by the Natural Resources Conservation Service (NRCS).

The Farm Bill legislation created and reauthorized two programs that are designed to reduce erodible land:

- Conservation Reserve Program (CRP)
- Environmental Quality Incentives Program (EQIP)

The CRP encourages farmers to enter into contracts with USDA to place erodible cropland and other environmentally sensitive land into long-term conservation reserves. The reserves are generally 10 to 15 years in duration, and the reserve is established by the implementation of environmental practices to reduce soil erosion.

The CRP systematically reduces soil erosion by planting vegetative cover on highly erodible lands (HEL). In Utah, HEL soils are normally on steeper valley side slopes subject to erosion from washing or open areas vulnerable to high wind events. In exchange, landowners receive annual rental payments for the land and cost-sharing assistance for the established practices. In the early years of the program, the emphasis was on HEL soils. Since 1996, there is an additional authorization to address wild life habitat and air quality. The more recent authorization includes additional conservation practices including windbreaks, riparian buffers and wetland mitigation which are instrumental in reducing soil erosion. Further consideration is also given to air quality where eligible parcels located in or adjacent to nonattainment areas received a higher score in the evaluation process.

The EQIP is a voluntary program that assists farmers and ranchers, who face existing soil and water resource degradation. The EQIP promotes agricultural production in a manner that allows producers to meet federal, state and local environmental requirements. Some of the stated aims of the program are as follows:

- Reduction of non-point source pollution, such as nutrients and pesticides;
- Reduction of emissions including particulate matter, nitrogen oxides, ozone precursors, and volatile organic compounds that can contribute to degradation air quality standards; and
- Reduction in soil erosion and sedimentation on agricultural lands.

In general, NRCS programs encourage agricultural practices that improve topsoil and prevent wind-blown dust during high wind events. Notable examples of techniques and practices of these NRCS programs include:

- Planting of cover crops and perennials to protect agricultural soils with emphasis on HEL soils;

- NRCS encourages the use of perennial crops and existing weeds on corners and non-utilized areas of agricultural land to resist soil erosion;
- Using NRCS “costs shares” on conservation practices with local farmers to prevent soil erosion; and
- Working with Utah State University to identify agricultural techniques and practices to minimize soil erosion.

A primary aim of this process is to reduce soil erosion on agricultural land, which in turn reduces wind blown dust during high-wind events. This program is open to attainment and nonattainment areas in Utah. There are 1,133,687 acres in this program in Utah.

Utah Initiatives

Utah Clean Diesel Program

Agriculture: Diesel engines are a major source of pollution, emitting particulates, amongst other pollutants. DAQ applied for and received \$750,000 from the American Recovery and Reinvestment Act to replace 11 agricultural vehicles and equipment, repower 21 engines in agricultural vehicles and equipment, and install 30 Auxiliary Power Units on agricultural vehicles. DAQ collaborated with the Utah Department of Agriculture and Food and Utah State University to identify agricultural operators whose operations are negatively impacting non-attainment areas in the state. The project's scope of replacing, repowering, and installing more fuel efficient technology on agricultural vehicles and equipment will ensure that stricter emissions standards requirements are met and yield more diesel fuel conservation.

School Bus Project: In 2007, DAQ started the Utah Clean School Bus Project in conjunction with Utah Office of Education, local school districts, county and municipal governments, as well as community and non-profit organizations. This coalition is working together to secure funding sources for school districts to purchase emission reducing technologies for buses statewide. The application of these technologies is expected to reduce particulate matter by 30%. A total of 1,179 buses have been retrofitted.

Clean Diesel Trucking Initiative: DAQ initiated the Clean Diesel Grant Program to install APUs (Auxiliary Power Units) on 48 long-haul tractors that will reduce diesel emissions and fuel usage from diesel-powered, long-haul trucks that travel and idle within the non-attainment areas of the Wasatch Front. The funding was provided by a State allocation of \$352,941 through EPA's National Clean Diesel Campaign and a State match of \$235,294, for a total of \$588,235. EPA awarded DAQ a grant in 2010 to continue installation of APUs.

Clean Fuel Vehicle Tax Credit and Loan Program

The Utah Clean Fuels and Vehicle Technology Grant and Loan Program, funded through the Clean Fuels and Vehicle Technology Fund, provides grants to assist businesses and government entities in covering:

- 1) The cost of converting a vehicle to operate on clean fuels,

- 2) The incremental cost of purchasing an Original Equipment Manufacturer (OEM) clean fuel vehicle, and
- 3) The cost of retrofitting diesel vehicles with EPA verified closed crankcase filtration devices, diesel oxidation catalysts, and/or diesel particulate filters.

The Clean-Fuels Grant and Loan Program also provides loans for the cost of converting a vehicle to operate on a clean fuel, for the purchase of OEM clean fuel vehicle, and for the purchase of fueling equipment for public/private sector business and government vehicles. Finally, the program can provide grants and loans to serve as matching funds for federal and non-federal grants for the purpose of converting vehicles to operate on a clean fuel, purchasing OEM clean fuel vehicles, or retrofitting diesel vehicles.

Natural Area Sources

Draft EPA guidance on high wind exceptional events issued May 2011 states that it is unreasonable to expect states to have controls in place where states do not have jurisdiction. However, EPA believes that these major source areas should be discussed in exceptional events demonstrations. The major natural dust sources during this event were the Milford Flats, Sevier Desert and the West Desert.

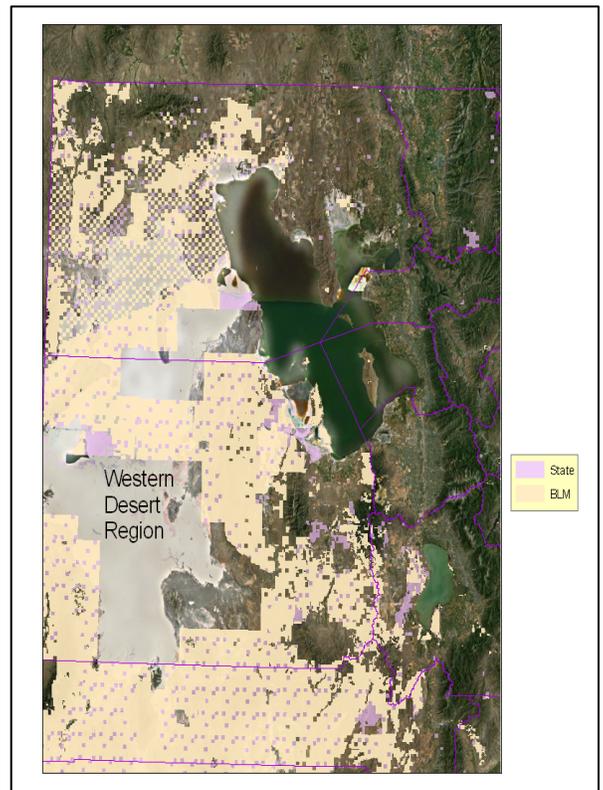
Milford Flats Fire

A lightning strike at the Milford Flats on July 6, 2007 caused a fire that consumed more than 363,000 acres of arid land. This is the largest known fire in Utah's history, that resulted in a major dust source in 2008. The Milford Flats is located east of the City of Milford, in Beaver County. The satellite image of the burn area was taken on July 17, 2007 while the fire was still smoldering. Most of the scarred area is federally owned and managed by the Bureau of Land Management (BLM). The BLM and private land owners mitigated the fire scar by re-vegetating the area, as evident in the photograph on the left taken April 2010.



Western Desert

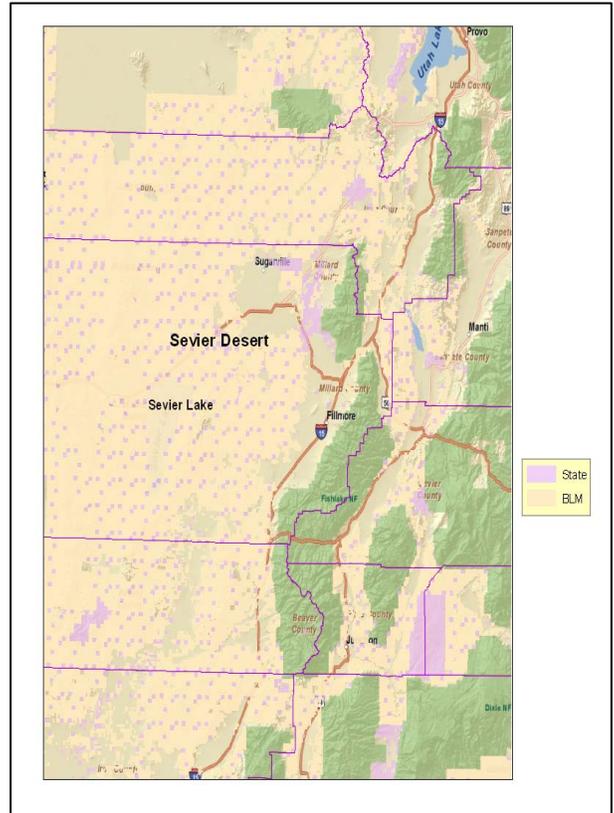
The Western Desert is a vast region located between the Salt Lake valley and Nevada. The desert consists of salt flats, playa lake beds and desert lands. Vast acreage is owned by BLM, shown in beige in the land ownership map. These areas are remnant of Pleistocene era Lake Bonneville and are a source of natural wind-blown dust.



Sevier Desert Playa

BLM is the dominant land owner for the entire region, including the Sevier Desert. The beige color indicates BLM ownership. The state of Utah owns small, mostly noncontiguous parcels of land, shown in purple, throughout the region that by themselves, are not a major dust source.

The Sevier Desert contains many low lying areas with dry lake beds (playa). The playa areas consist of silt and clay lake bed deposits with particle sizes ranging from 1 to 62.5 micrometers. The evaporite material is high in magnesium, sulfur and chloride ions, which is discussed in the speciation section below. The lake beds have been mostly dry throughout recorded history and are a source of wind-blown dust in dust storms that frequently impact the Wasatch Front. Sevier Lake is a large lake bed and is an intermittent and terminal lake which lies in the lowest part of the Sevier Desert, Millard County, Utah. The playa areas are remnants of Pleistocene Lake Bonneville.



Historical Fluctuation

Time Series - Concentration

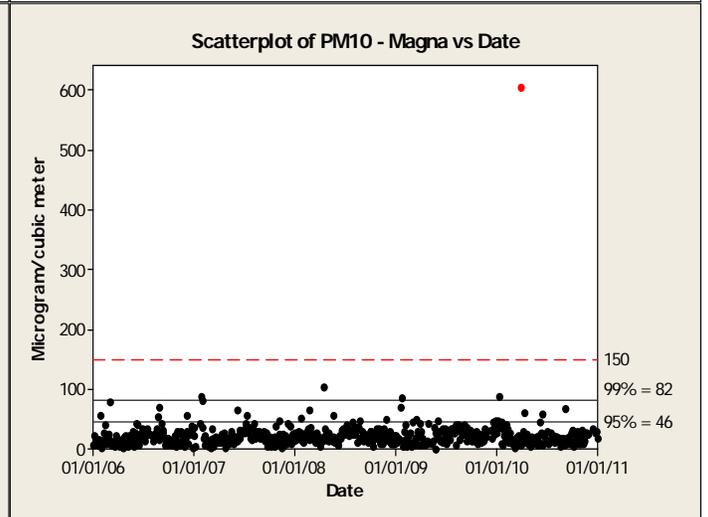
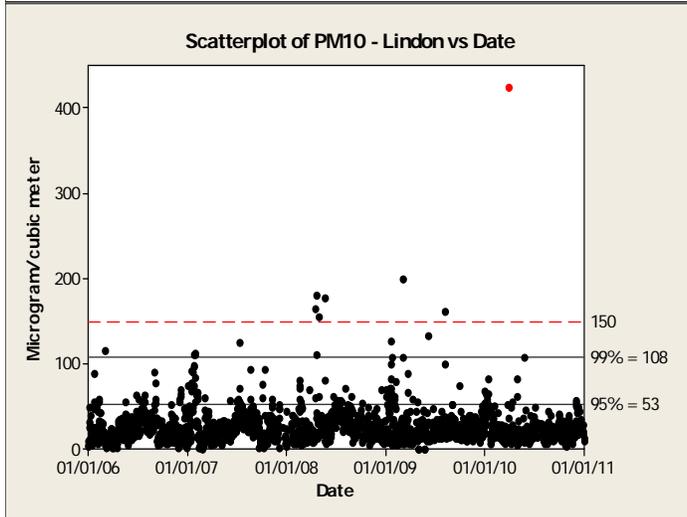
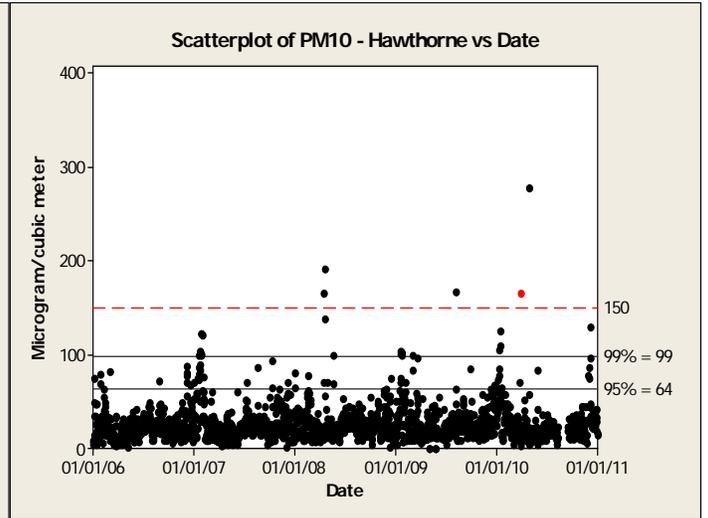
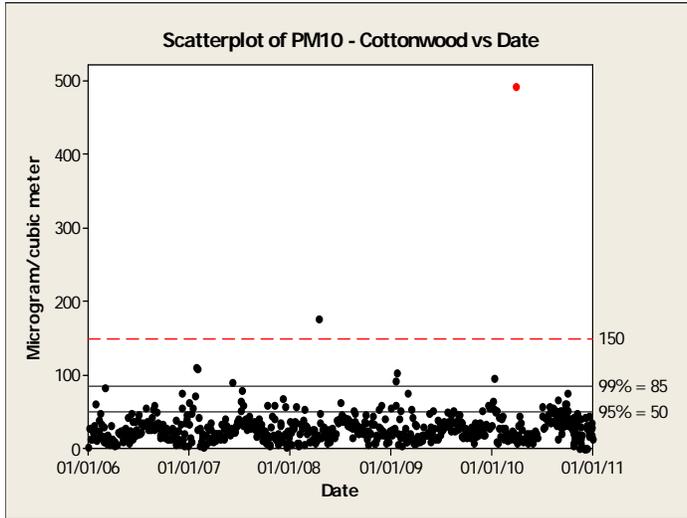
Ambient air quality standard: red dotted line.

Event concentration: red data point.

Site specific values at 99 and 95 percentile posted to the side.

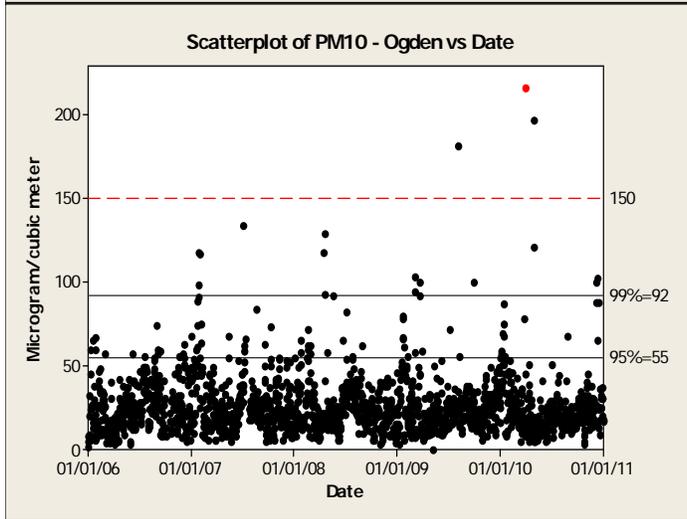
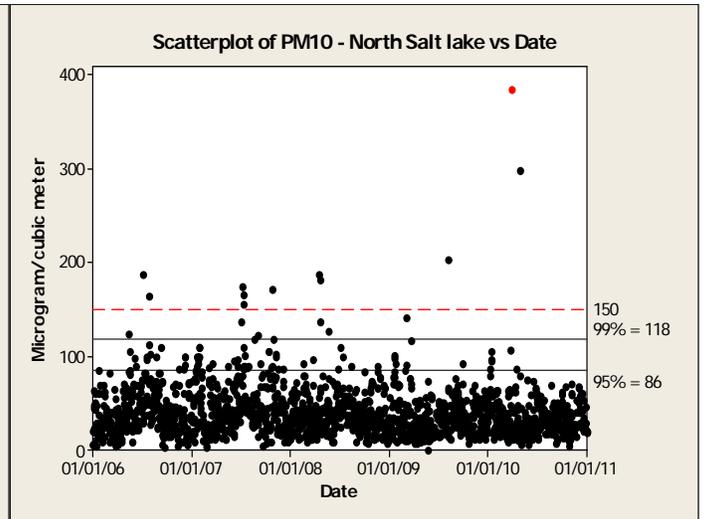
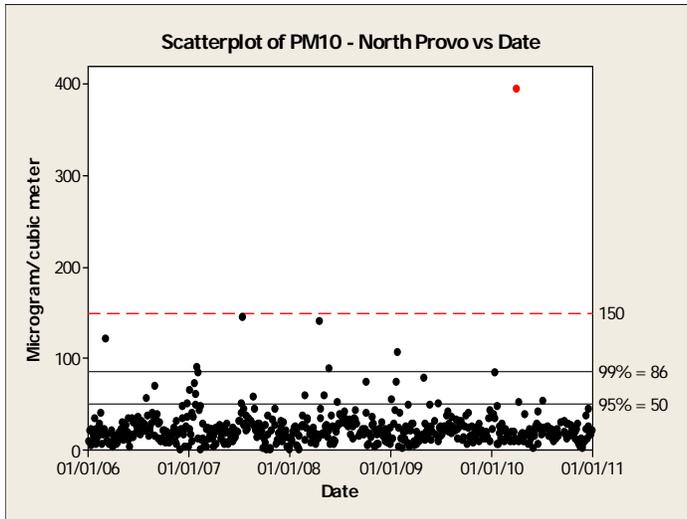
Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

PM10 Time Series Plots



Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

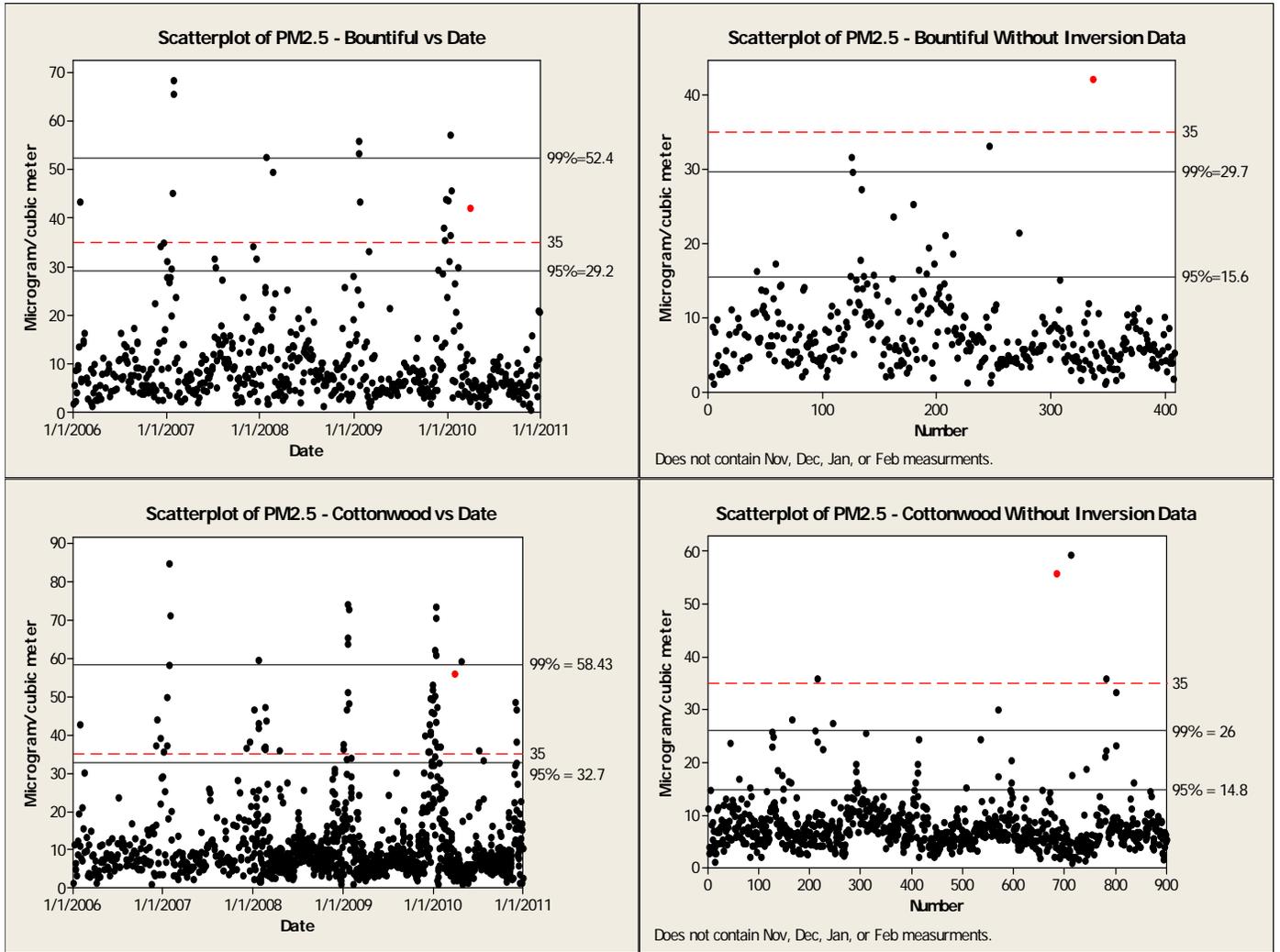
PM10 Time Series Plots - Continued



Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

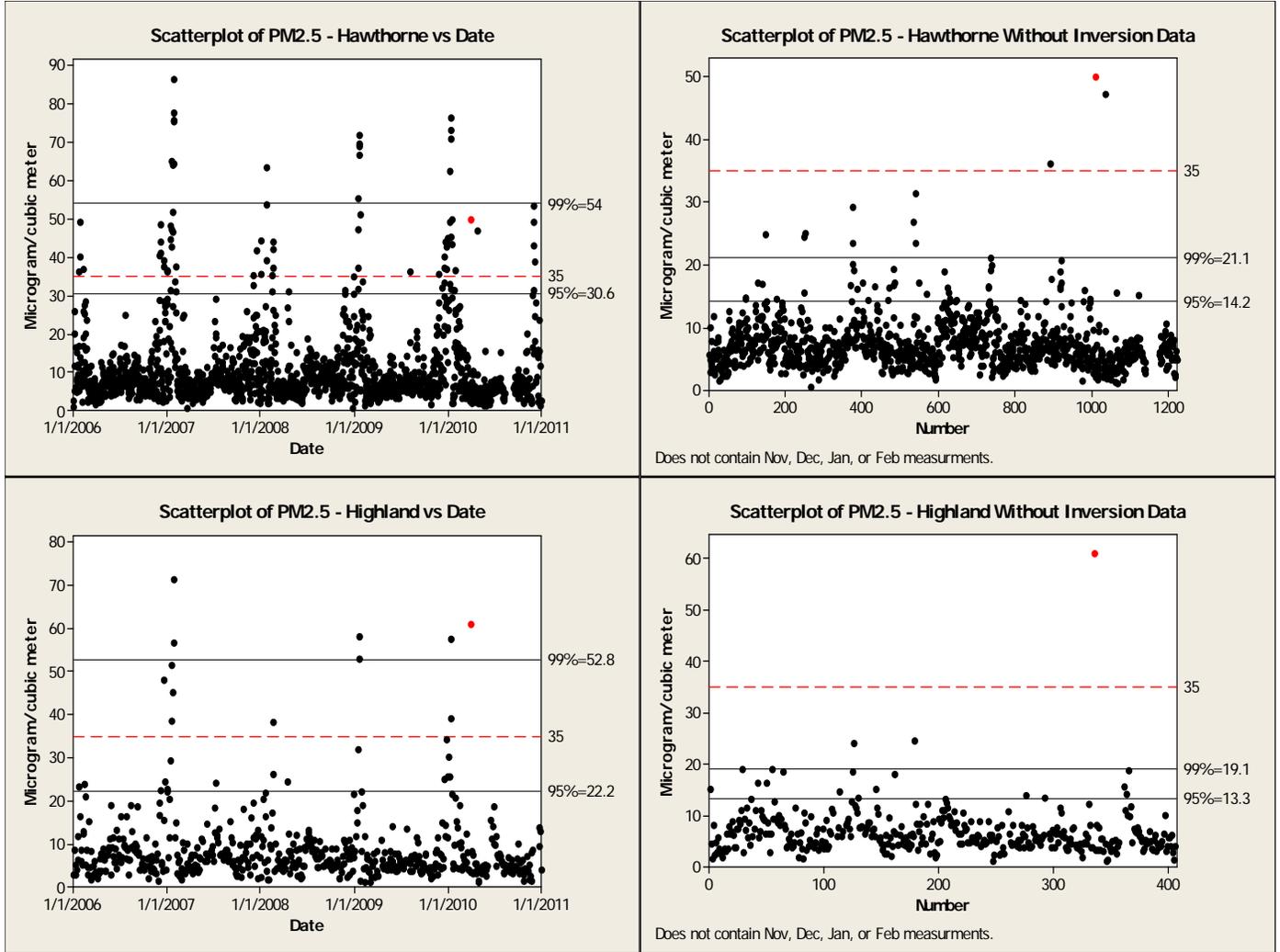
PM2.5 Time Series Plots

Winter time inversions influence PM2.5 historical data to the degree that we must evaluate the time series with and without inversion measurements.



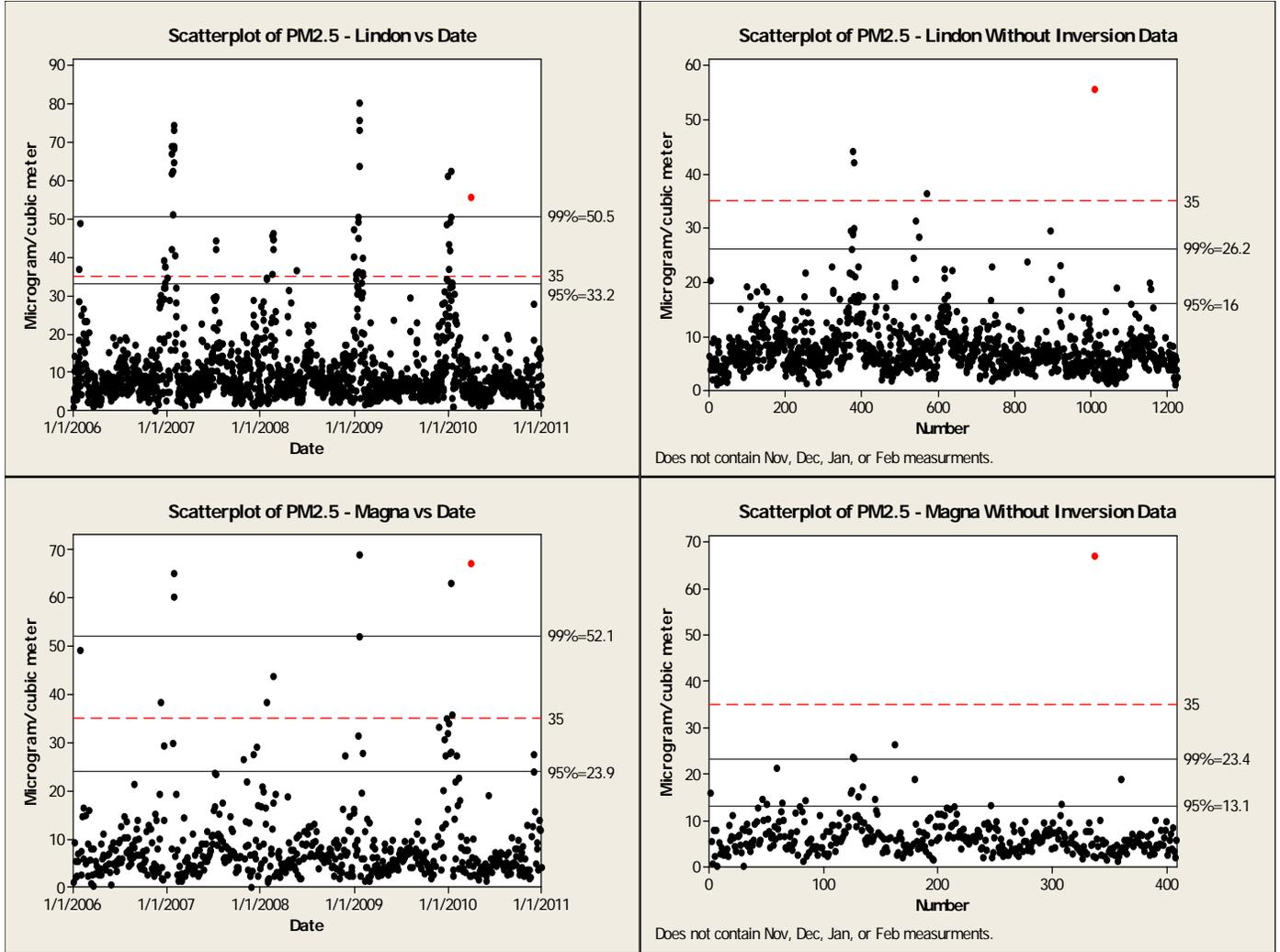
Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

PM2.5 Time Series Plots - Continued



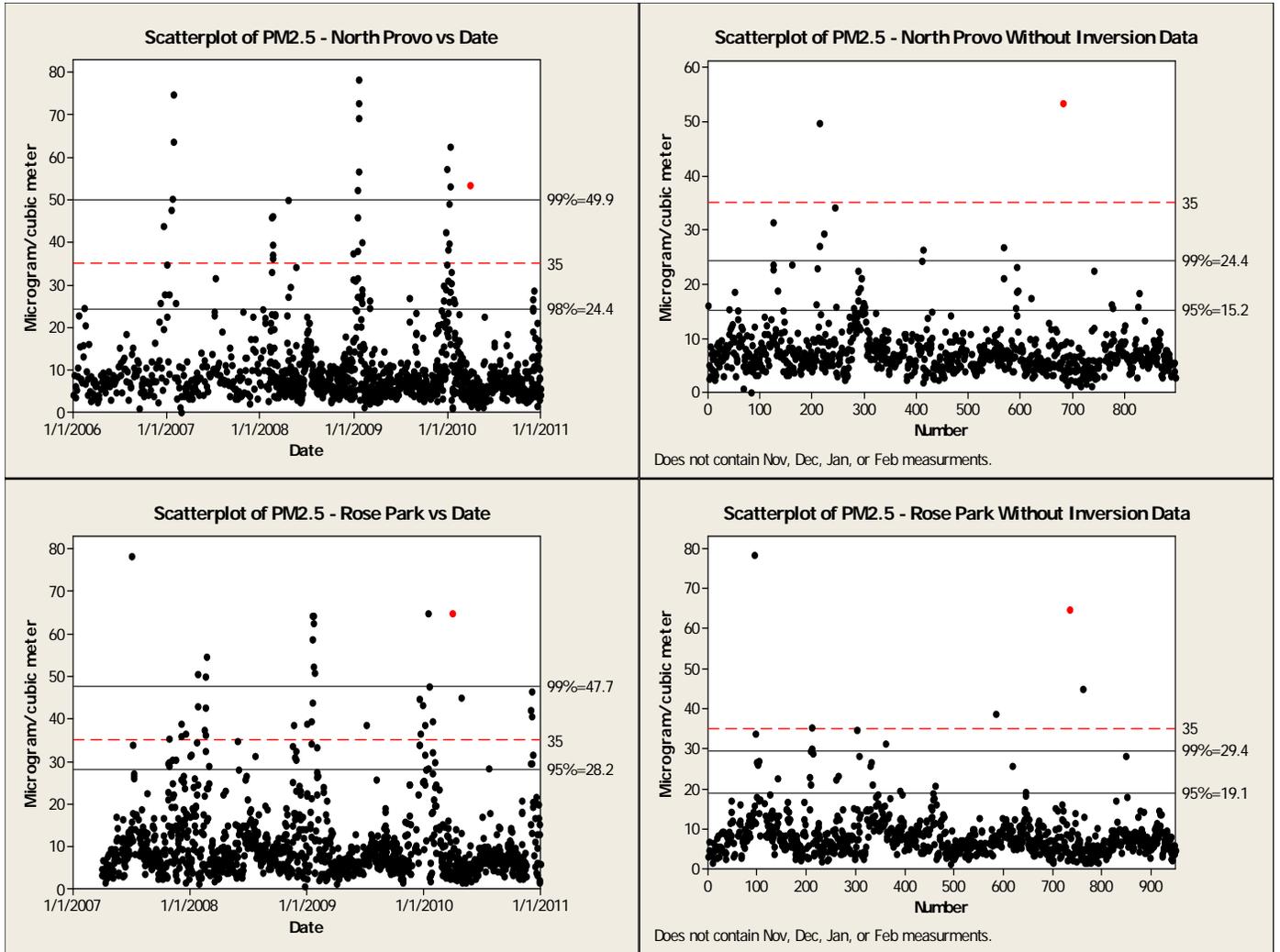
Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

PM2.5 Time Series Plots - Continued



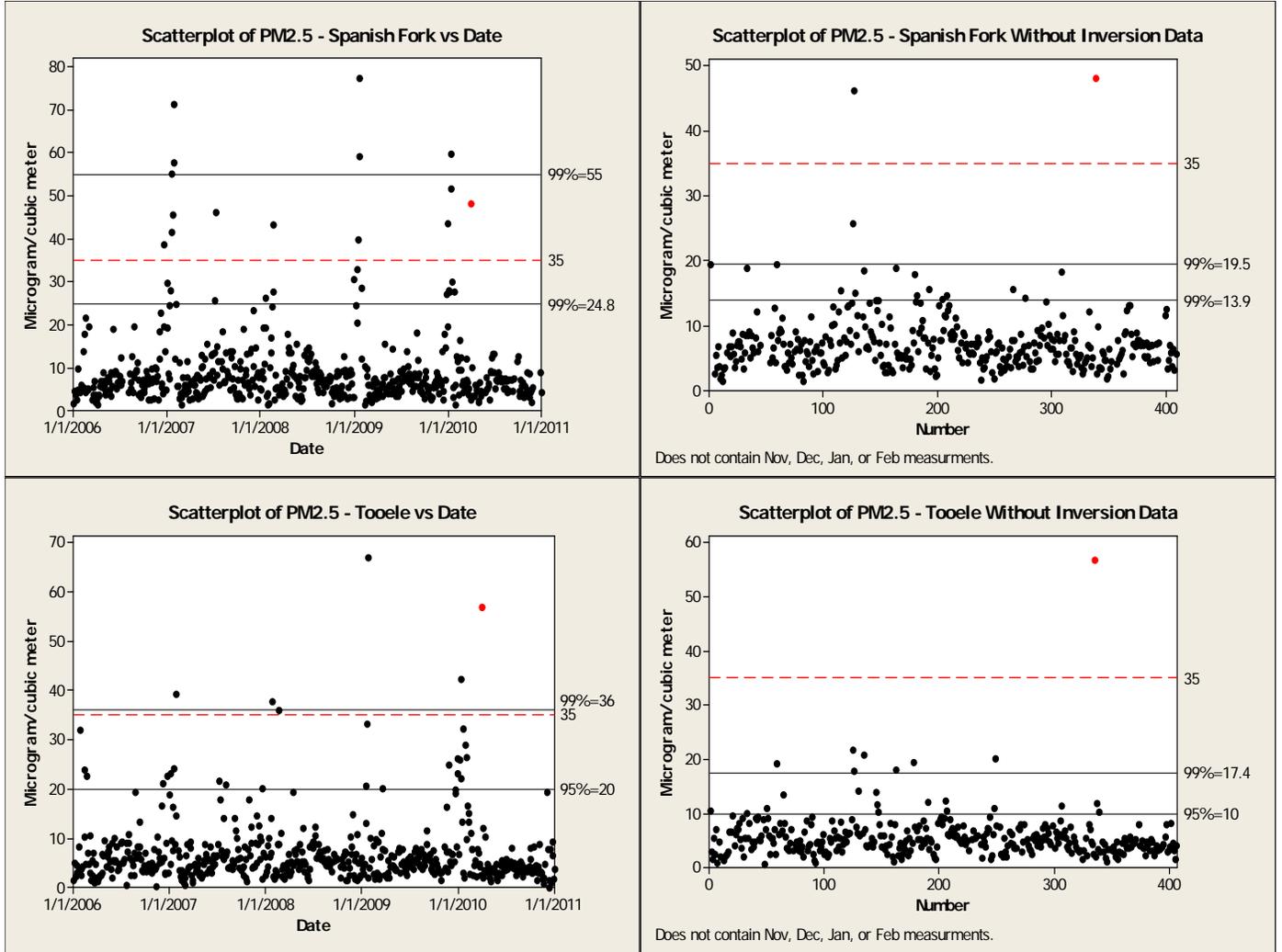
Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

PM2.5 Time Series Plots - Continued



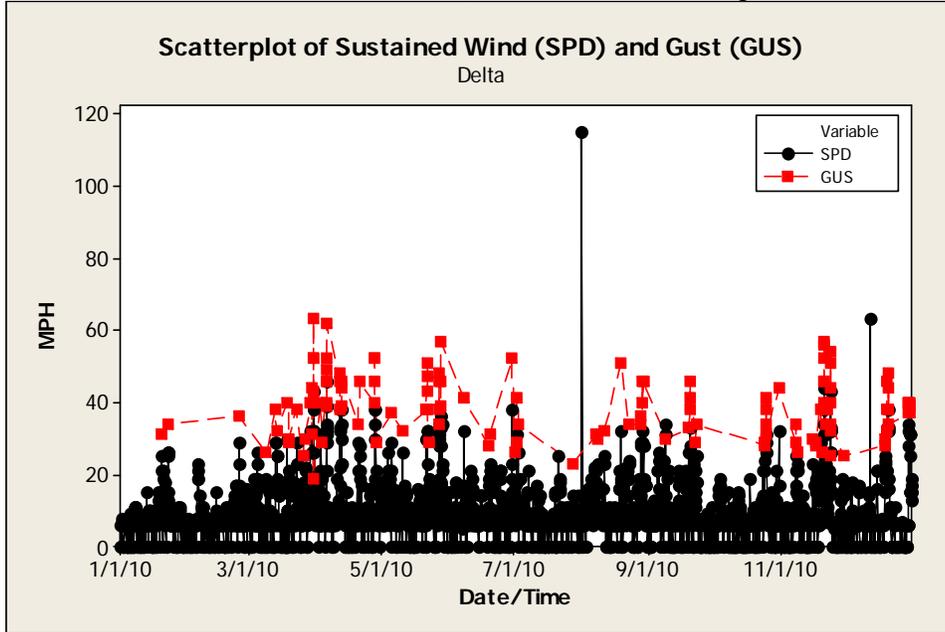
Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

PM2.5 Time Series Plots - Continued



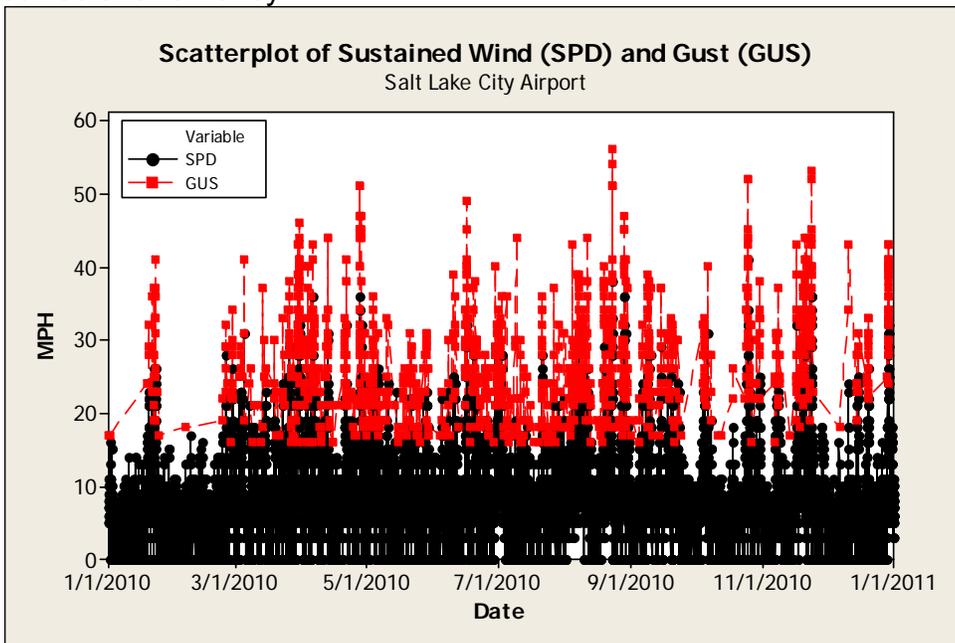
Wind Speed

Predominant Source Area: Southwest Desert, Closest Meteorological Station - Delta, Utah



Wind Speed on 3/30/2010:
Max sustained Wind = 43mph
Max Wind Gust = 63 mph

Receptor Area: Salt Lake Valley



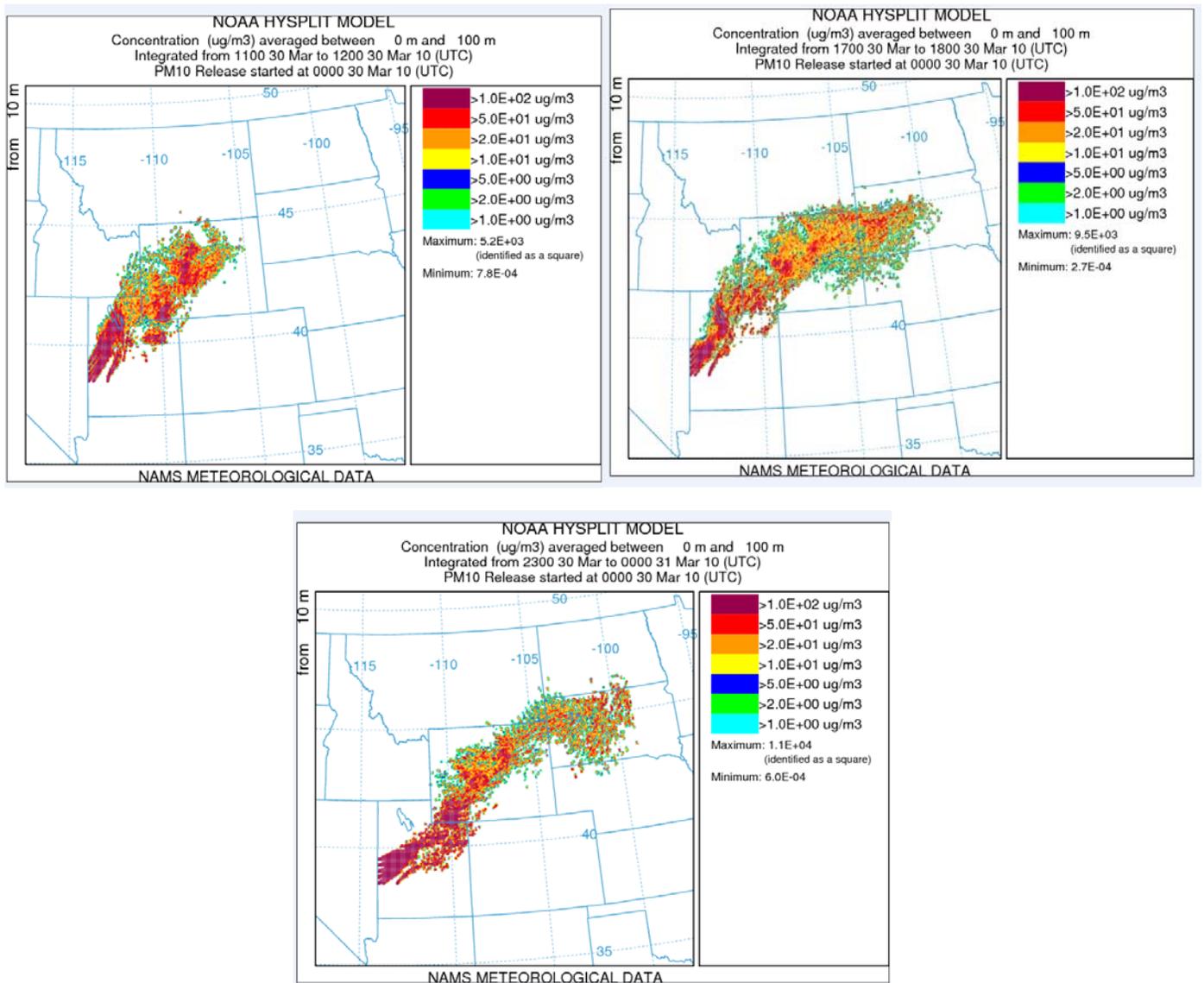
Wind Speed on 3/30/2010:
Max sustained Wind = 33mph
Max Wind Gust = 46 mph

Clear Causal Relationship

Trajectory and Impacted Area

Roland Draxler of the NOAA Air Resources Laboratory, evaluated NOAA's climatology data for the event day and determined that the Sevier Lake region was the major dust contributor and the Milford burn area a minor dust contributor to this event (e-mail correspondence between Roland Draxler and Joel Karmazyn, DEQ). Mr. Draxler conducted particle trajectory modeling using the NOAA Hysplit dust storm algorithm to project the dust storm trajectory from the sources to the monitoring stations where an exceedance was measured. Image 3 shows the progression of the storm on the 30th. Note the intensity and vastness of this storm, which explains the extreme values measured at the monitoring stations.

Image 3 – NOAA Dust Storm Tracking

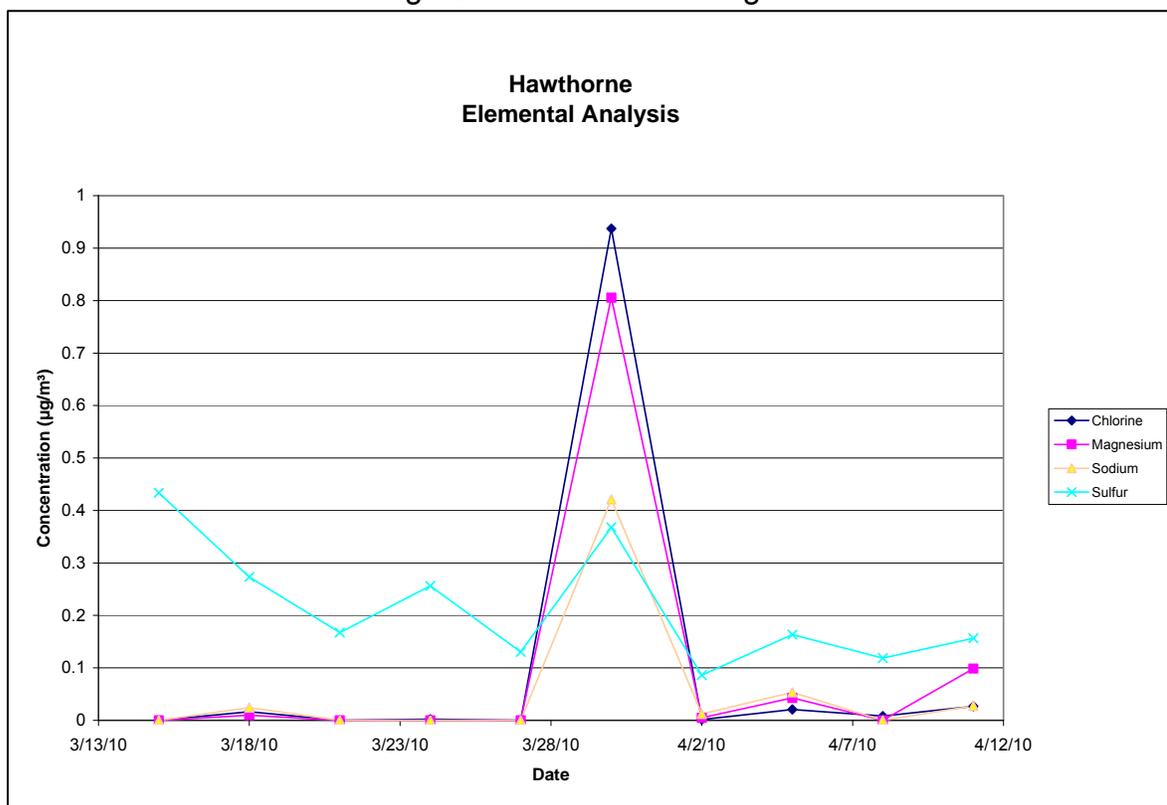


Speciation

Sevier Desert and Lake Playa Analysis

The Utah Geological Survey evaluated 81 Sevier Lake playa samples for abundance in comparison to soil, crustal earth and in common rocks. Chloride is 203 times higher and sulfur is 34 times higher in the playa samples. Plotting chloride (measured as chlorine or chloride) and sulfur content of PM_{2.5} speciated filters before, during and after the dust storm event shows a 10 fold increase in these elements during the dust storm.

Figure 5 Elemental Tracing



Major anthropogenic sources during high winds come from mining quartzite (a source of silica) and limestone (a source of calcium) that are not sources of chloride and sulfur.

Local anthropogenic sources of sulfur and chloride do exist, so we have to evaluate data before and after the wind event and investigate complaint and inspection records to determine whether anthropogenic sources could have contributed. Warm conditions precluded the need for street salting supported by the near absence of chloride before the event.

Sulfur levels were elevated on the 15th, then declined until the event day. Inspection and complaint records reveal that there were no major anthropogenic releases (an opacity complaint for a mortuary in Salt Lake City on 3/17/10) that would contribute to elevated sulfur. The atmosphere was stable on the 15th resulting in a surface inversion below the ridge top. Sulfur levels declined as atmospheric mixing occurred thus, we attribute the sulfur pre-event as inversion related.

Elevated chloride, magnesium and sulfur levels on the event day, with subsequent reduction with reduced wind speed, provides strong evidence that the elevated PM on the event day is related to dust from desert regions.

Coarse Mass Analysis

Comparison of nitrate, sulfate and crustal mineral (SiO₂, Al₂O₃, CaO, Fe₂O₃, K₂O, MgO, FeO, Na₂O, TiO₂, SO₂, P₂O₅ and Ba) fraction before, during and after the event, shows that the crustal fraction is always elevated during the event, while nitrate and sulfates are reduced during the event, which are predominately localized anthropogenic sources. This analysis further supports the weight of evidence that the PM was mostly desert dust.

Table 2 – Coarse Mass Analysis

	Bountiful 3/21/10 Pre- event	Bountiful* PM2.5 Event Day	Bountiful* 4/2/10 Post- event	Hawthorne 3/27/10 Pre-event	Hawthorne* PM2.5 Event Day	Hawthorne* 4/2/10 Post-event
Nitrate	22.9%	0.9%	9.9%	22.5%	3.1%	7.2%
Sulfate	13.4%	2.6%	7.5%	11.9%	11.7	3.6%
Crustal Mineral	18.5%	33.9%	5.2%	14.3%	31.1%	2.5%

* Data Flag(s)

Appendix 2 contains the speciation data.

No Exceedance or Violation But For the Event

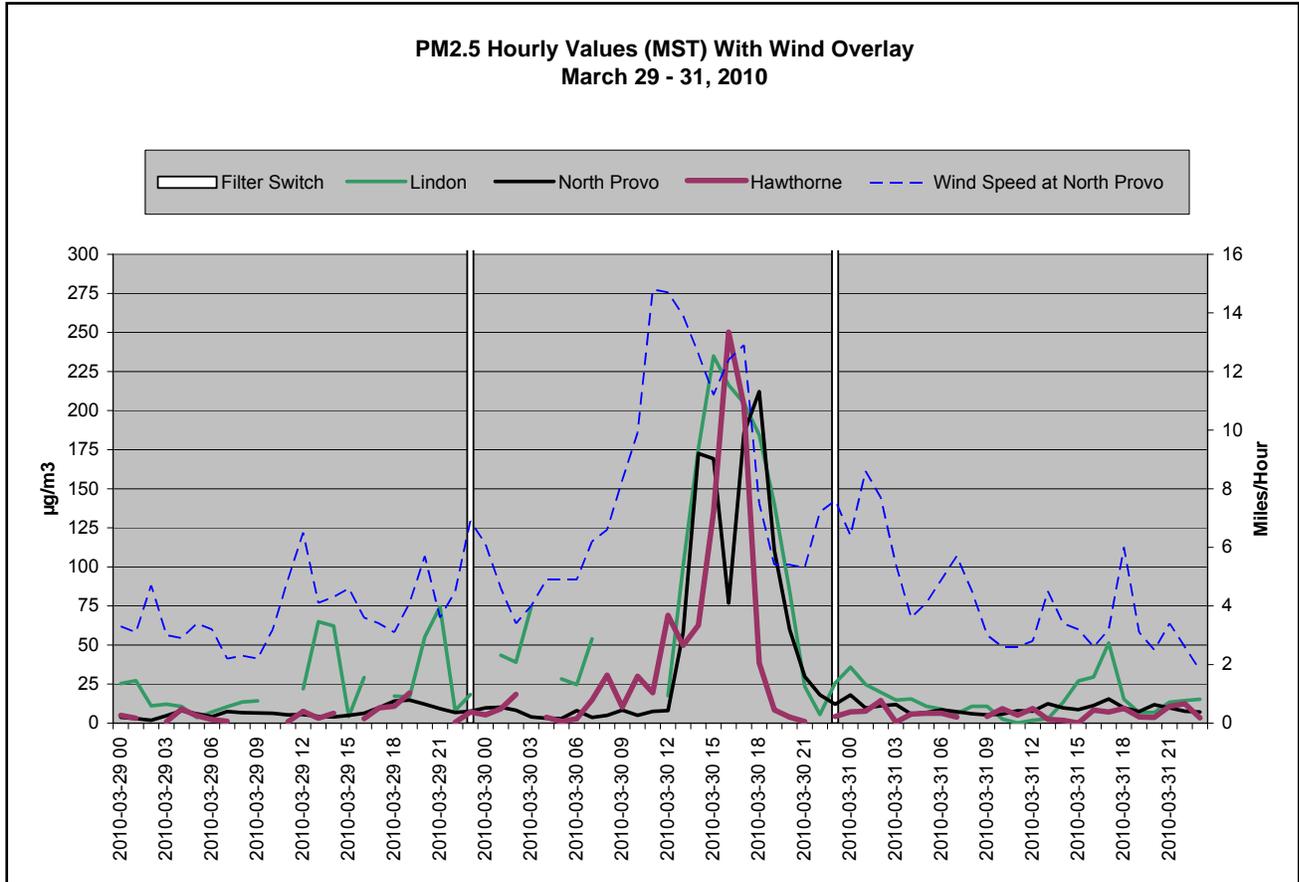
Photo Documentation

There were no unusual local anthropogenic emissions reported before, during, and after the event. A Photograph (first one) taken of the massive Kennecott impoundments around 1 p.m. local time, verifies that anthropogenic contribution was not a major factor. A minor amount of dust was generated from the western end of the impoundment, while, across the highway (second photo), dust plumes were traveling across the Great Salt Lake dry bed.



Figure 6 is a plot of the wind speed measured at the North Provo monitoring station along with the PM_{2.5} hourly values. Appendix 1 contains the hourly wind data. The wind overlay demonstrates that PM values were influenced by high wind.

Figure 6 Hourly PM_{2.5} Values and Wind Speed



There were no smoke reports or other complaints at the time that would impact the network to this degree. Anthropogenic emissions remained below the 24-hr standard before and after the event based on Figure 5, with excursions directly associated with gusting winds. If not for the high wind dust storm event crossing salt desert playa regions, PM levels would not have exceeded the 24-hr standards.

Clear Causal Relationship and But For the Event Summary

A clear and casual relationship and but for the event demonstration has been made based on:

- ❖ The cold front produced storms with high winds and dust clouds that is a natural event;
- ❖ PM concentration patterns correspond directly to the storm event winds showing a direct relationship;

- ❖ Dust cloud sources are visible in the MODIS satellite images;
- ❖ Particle trajectory modeling conducted by NOAA using the NOAA Hysplit model confirms extensive mass moving from the Sevier Lake and Milford burn areas into the Salt Lake valley; and
- ❖ Speciation analysis provides evidence that the source(s) of the PM are primarily non-anthropogenic.

Mitigation

The Exceptional Events Rule requires states to “take appropriate and reasonable actions to protect public health from exceedances or violations of the national ambient air quality standards.” The intent of this section is to describe the State of Utah’s dust control and public health protection programs.

Division of Air Quality Community Outreach

Clean Utah

DEQ is committed to working with businesses to ensure the ongoing protection of public health and the environment. Clean Utah is a program that encourages and rewards business and other permit holders for going beyond compliance to preserve and protect Utah's environment. Compliance assistance include common compliance problems, permitting information, spill reporting, small business assistance, and providing tools for business such as pollution prevention and best management practices (please refer to sample pamphlet below).

Smoking Vehicles

Vehicles emitting excessive smoke contribute to airborne particles. Five local health departments (Cache, Davis, Salt Lake, Utah and Weber Counties) operate smoking vehicle education and notification programs. People who spot a vehicle producing excessive smoke can report it through their respective county health department.

Utah Clean City

Utah's Clean Cities Coalition is one of 85 coalitions around the country that is part of the U.S. Department of Energy's strategy to reduce America's dependence on imported foreign oil. The Utah coalition sponsored Idle Free Awareness Week which included educating school bus drivers on the air quality value of limiting idling.

Variable Message Signage

The Utah Department of Transportation (UDOT), in conjunction with the DEQ air quality forecasting program, issues air quality warnings on electronic message boards placed along Utah’s highways. The signage asks drivers to limit their driving on high alert days. An informal study conducted this winter by UDOT during six days with and six days without air quality alerts indicated that there was a 3-5% auto traffic reduction on the days when UDOT issued air quality warnings on the electronic message boards (per Glen Blackwelder, UDOT Traffic Operations Engineer).

Choose Clean Air

An interactive source of information about ways individuals can help improve air quality by making smart choices in their personal lives can be found on the DEQ website. The site includes 50 suggestions for daily life.

The UDEQ also offers an electronic mail server (Listserv). Subscribers are automatically notified by e-mail when unhealthy air pollution levels are forecast for the Wasatch Front.

Dust Control Education

The DEQ website includes a page on dust control and the aggregate industry. The page is intended to educate the public about dust, control methods and community aggregate locations near them by providing links to aggregate firms Approval Orders containing fugitive dust control conditions.

Utah Air Quality Public Notifications

In order to improve the presentation of air quality information to the public, DAQ has improved its air quality forecasting web page. The web page now shows the air quality forecast for the current day as well as the next two days.

The Air Monitoring Center (AMC) provides air pollution information based on daily air quality status. The AMC data is used to determine the relationship of existing pollutant concentrations to the National Ambient Air Quality Standards. There is a three tiered air quality alert system: Green, Yellow (alert days), and Red (actions days) that is used to implement winter and summer controls on the use of wood and coal burning stoves, fire places, and motor vehicles. There are five health advisory categories: good, moderate, unhealthy advisories A and B, and very unhealthy. The AMC advisory is calculated for five major pollutants including ground-level ozone, particulate pollution (particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. To mitigate the effects of pollution for affected groups and reduce pollution levels, the AMC advisory now also makes recommendations to industry and citizens for actions to take on days when concentrations are in the red zone. The outreach program information consolidated in the three-day forecast includes the Summer and Winter Control Programs and Choose Clean Air information.

The web site includes additional information on wind-blown dust.

News Release to Media

In addition to web site alerts, DEQ also notifies the media in order to maximize public distribution.

Representative County Dust Control Programs

Salt Lake County

Salt Lake Valley Health Department regulates fugitive dust under section R307-309 of the Utah Air Conservation Rules. The County enforces fugitive dust from construction, aggregate industries, sand blasting, painting and burning. The web site includes information on reporting violations. County inspectors actively inspect dust prone activities.

Davis County

Davis, like Salt Lake County, enforces fugitive dust through Utah R307-309 and also maintains a fugitive dust web page and violation reporting. Inspectors have been known to park themselves all day long on Beck Street to enforce compliance. Beck Street contains refineries and very large aggregate industries that are a source of fugitive dust.

Weber County

Weber County has its own Excavation Ordinance for construction that includes dust control. Application must be made and approved before construction. An application fee includes the cost for reviewing engineering plans and site inspection.

Cache County

Cache County maintains zoning ordinances that include dust controls.

Public Comment

The documentation was made available for public comment through the Utah Bulletin and on the DAQ web page from November 15, 2011 to December 15, 2011. A copy of the notice follows. Public comments are attached to the documentation cover letter.

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

SPECIAL NOTICES

- 5, Plumbers Licensing Board, 9:00 a.m.
- 5, Utah Board of Accountancy, 1:30 p.m.
- 6, Dentist and Dental Hygienist Licensing Board, 8:30 a.m.
- 6, Social Worker Licensing Board, 9:00 a.m.
- 6, UBCC Plumbing Advisory Committee, 9:00 a.m.
- 6, UBCC Structural Advisory Committee, 1:00 p.m.
- 10, Physician Assistant Licensing Board, 9:00 a.m.
- 11, Nursing Education Peer Committee, 8:15 a.m.
- 11, Board of Nursing, 10:00 a.m.
- 11, State Board of Pharmacy, 8:30 a.m.
- 11, UBCC Architectural Advisory Committee, 9:00 a.m.
- 11, UBCC Mechanical Advisory Committee, 1:00 p.m.
- 12, Residence Lien Recovery Fund Advisory Board, 8:15 a.m.
- 12, Architect Licensing Board, 9:00 a.m.
- 12, Uniform Building Code Commission, 9:00 a.m.
- 13, Security Services Licensing Board, 9:00 a.m.
- 13, Marriage and Family Therapist Licensing Board, 9:00 a.m.
- 13, UBCC Electrical Advisory Committee, 1:00 p.m.
- 18, Professional Counselor Licensing Board, 9:00 a.m.
- 18, Building Inspector Licensing Board, 10:00 a.m.
- 18, Hunting Guides and Outfitters Licensing Board, 1:00 p.m.
- 18, UBCC Education Advisory Committee, 1:00 p.m.
- 19, Respiratory Care Licensing Board, 9:00 a.m.
- 20, Deception Detection Examiners Licensing Board, 1:00 p.m.
- 20, Private Probation Provider Board, 10:00 a.m.
- 26, Construction Services Commission, 9:00 a.m.

Environmental Quality
Air Quality

Notice of Public Comment Period For High Wind Exceptional Events -- Event Date: 03/30/2010

Federal regulations, 40 Code of Federal Regulations (CFR) Part 50, allow states to exclude air quality data that exceed or violate a National Ambient Air Quality Standard (NAAQS) if they can demonstrate that an "exceptional event" has caused the exceedance or violation. Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable or preventable using techniques implemented to attain and maintain the NAAQS.

Exceptional events may be caused by human activity that is unlikely to recur at a particular location, or may be due to a natural event. The Environmental Protection Agency (EPA) defines a "natural event" as an event in which human activity plays little or no direct causal role to the event in question. For example, a natural event could include such things as high winds, wild fires, and seismic/volcanic activity. In addition, the EPA will allow states to exclude data from regulatory determinations on a case-by-case basis for monitoring stations that measure values that exceed or violate the NAAQS due to emissions from fireworks displays from cultural events.

Federal regulations (40 CFR Part 50.14(c)(3)(i)) require that all relevant flagged data, the reasons for the data being flagged, and a demonstration that the flagged data are caused by exceptional events be made available by the State for 30 days of public review and comment. These comments will be considered in the final demonstration of the event that is submitted to EPA. The following monitoring station air quality exceedance has been attributed to a high wind exceptional event: Cottonwood, Hawthorne, Lindon, Magna, North Provo, North Salt Lake, Ogden, Bountiful, Highland, Spanish Fork, and Tooele.

The documentation for public review and comment to support removing this data from use in regulatory determinations is available at http://www.airquality.utah.gov/Public-Interest/Public-Commen-Hearings/Exceptional_Events/Exceptional_Events.htm or at the Multi Agency State Office Building, 195 North 1950 West, Salt Lake City. In compliance with the American with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Brooke Baker, Office of Human Resources at 801-536-4412 (TDD 536-4414).

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

SPECIAL NOTICES

The comment period will close at 5:00 p.m. on December 15, 2011. Comments postmarked on or before that date will be accepted. Comments may be submitted by electronic mail to jkarmazyn@utah.gov or may be mailed to: Joel Karmazyn, Utah Division of Air Quality, PO Box 144820, 195 N 1950 W, Salt Lake City, UT 84114-4820

**Environmental Quality
Air Quality**

Notice of Public Comment Period For High Wind Exceptional Events – Event Date: 04/27/2010

Federal regulations, 40 Code of Federal Regulations (CFR) Part 50, allow states to exclude air quality data that exceed or violate a National Ambient Air Quality Standard (NAAQS) if they can demonstrate that an "exceptional event" has caused the exceedance or violation. Exceptional events are unusual or naturally occurring events that can affect air quality but are not reasonably controllable or preventable using techniques implemented to attain and maintain the NAAQS.

Exceptional events may be caused by human activity that is unlikely to recur at a particular location, or may be due to a natural event. The Environmental Protection Agency (EPA) defines a "natural event" as an event in which human activity plays little or no direct causal role to the event in question. For example, a natural event could include such things as high winds, wild fires, and seismic/volcanic activity. In addition, the EPA will allow states to exclude data from regulatory determinations on a case-by-case basis for monitoring stations that measure values that exceed or violate the NAAQS due to emissions from fireworks displays from cultural events.

Federal regulations (40 CFR Part 50.14(c)(3)(i)) require that all relevant flagged data, the reasons for the data being flagged, and a demonstration that the flagged data are caused by exceptional events be made available by the State for 30 days of public review and comment. These comments will be considered in the final demonstration of the event that is submitted to EPA. The following monitoring stations air quality exceedance has been attributed to a high wind exceptional event: Hawthorne, North Salt Lake, Ogden, Cottonwood, and Rose Park.

The documentation for public review and comment to support removing this data from use in regulatory determinations is available at http://www.airquality.utah.gov/Public-Interest/Public-Comment-Hearings/Exceptional_Events/Exceptional_Events.htm or at the Multi Agency State Office Building, 195 North 1950 West, Salt Lake City. In compliance with the American with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Brooke Baker, Office of Human Resources at 801-536-4412 (TDD 536-4414).

The comment period will close at 5:00 p.m. on December 15, 2011. Comments postmarked on or before that date will be accepted. Comments may be submitted by electronic mail to jkarmazyn@utah.gov or may be mailed to: Joel Karmazyn, Utah Division of Air Quality, PO Box 144820, 195 N 1950 W, Salt Lake City, UT 84114-4820.

**Environmental Quality
Water Quality**

Notice to Extend the Public Comment Period on the Amendment to Rule R317-8, Utah Pollutant Discharge Elimination System (UPDES), under DAR No. 35238 from the October 1, 2011, Bulletin

The Division of Water Quality is extending the deadline for public comments on the amendment to Rule R317-8, Utah Pollutant Discharge Elimination system (UPDES), from 11/01/2011 to 12/31/2011. The proposed amendment is under DAR No. 35238 and was published in the October 1, 2011, issue of the Bulletin, 2011-19, pg. 31.

These amendments relate to the establishment and administration of a new program to permit the application of pesticides in Utah under the UPDES Program.

APPENDIX 1

HOURLY PM AND WIND DATA

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

	Lindon µg/m ³	North Provo µg/m ³	North Provo Wind MPH	PM2.5	Ogden µg/m ³	Lindon µg/m ³	North Provo µg/m ³	Hawthorne µg/m ³	North Provo Wind MPH
2010-03-29 00	13	10.6	3.3		10.5	25.3	3.7	4.9	3.3
2010-03-29 01	10	8.4	3.1		7.5	27.1	2.9	3.1	3.1
2010-03-29 02	3.4	7.2	4.7		8.6	11.1	1.8		4.7
2010-03-29 03	2.4	7.3	3		7.9	12.1	4.8	0.9	3
2010-03-29 04	8.8	9.8	2.9		6.4	10.6	7.9	8.9	2.9
2010-03-29 05	14.9	9.6	3.4		8.9	3.5	6	4.8	3.4
2010-03-29 06	24.7	8.1	3.2		5.6	7.1	4.1	2.2	3.2
2010-03-29 07	30	12.6	2.2		9.9	10.4	7.4	1.2	2.2
2010-03-29 08	72.3	19	2.3		4.2	13.5	6.7		2.3
2010-03-29 09	40.4	13.1	2.2		4.5	14.2	6.5	2.5	2.2
2010-03-29 10	7	16.5	3.2		5.8		6.3		3.2
2010-03-29 11	3.8	11.6	4.9		5.8		5.2	0.9	4.9
2010-03-29 12	4.6	8.3	6.5		6.3	22	5.5	7.5	6.5
2010-03-29 13	4.9	5.3	4.1		9.5	64.9	4.2	3.1	4.1
2010-03-29 14	8.4	6.2	4.3		6.7	62.2	4	6.2	4.3
2010-03-29 15	15.2	12.2	4.6		6.7	4.3	5		4.6
2010-03-29 16	21.2	22.6	3.6		5.5	29.2	6.2	2.8	3.6
2010-03-29 17	74.7	33.1	3.4		7		10	9.7	3.4
2010-03-29 18	90.7	46.6	3.1		12.7	17.2	14.1	10.7	3.1
2010-03-29 19	73.5	60.8	4.1		12.8	16.7	14.7	19.3	4.1
2010-03-29 20	42	49.6	5.7		16.6	55.2	12.1		5.7
2010-03-29 21	37.7	21.3	3.6		19.7	74.4	9.2		3.6
2010-03-29 22	18.7	16.4	4.5		15.5	8.1	6.8	0.4	4.5
2010-03-29 23	26	19.9	6.9		11	18.3	7.6	7.1	6.9
2010-03-30 00	51.5	23.9	6.1		12.6		9.7	5.2	6.1
2010-03-30 01	35.7	42.3	4.6		13.9	43.4	10.1	9.1	4.6
2010-03-30 02	17.7	22.1	3.4		20.1	38.9	8.2	18.4	3.4
2010-03-30 03	10	14.1	4		30.3	74.4	3.9		4
2010-03-30 04	7.9	11.1	4.9		28.6		3.1	3.7	4.9
2010-03-30 05	7.4	6.4	4.9		16.8	28.3	2.9	1	4.9
2010-03-30 06	12.1	11.9	4.9		18.1	24.6	8	2.8	4.9
2010-03-30 07	16.3	8.4	6.2		33.5	53.9	3.6	14.8	6.2
2010-03-30 08	16.8	5.3	6.6		57.3		5	30.7	6.6
2010-03-30 09	17.4	10.2	8.3		90.8		8.3	10.3	8.3
2010-03-30 10	23.4	16.5	9.9		65.6	4.3	4.9	30	9.9
2010-03-30 11	48.1	37.2	14.8		73		7.5	19.4	14.8
2010-03-30 12	154.3	47.7	14.7		37.6	17.4	8	69	14.7
2010-03-30 13	825.7	471.2	13.9		32	100.5	57.9	49.8	13.9
2010-03-30 14	847.4	900.7	12.6		42.2	175.7	172.5	62.7	12.6
2010-03-30 15	562.7	900.7	11.2		29.2	235	169.1	134.9	11.2
2010-03-30 16	944.1	625.5	12.4		15.7	216.3	76.8	250.2	12.4
2010-03-30 17		900.1	12.9		8.8	204.8	185.4	203.1	12.9
2010-03-30 18	937.1	900.7	7.5		8.6	184.3	212.2	38.5	7.5
2010-03-30 19	681.4	811	5.4		9.1	140.3	110.6	8.4	5.4
2010-03-30 20	250.1	463.5	5.4		6	84.4	59.9	3.8	5.4
2010-03-30 21	197.4	231.6	5.3		1.6	23.5	29.8	1	5.3
2010-03-30 22	79.9	126.8	7.2		5.1	5.5	18.1		7.2
2010-03-30 23	109.4	79.6	7.6		4.6	25.6	12.1	4.2	7.6

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

	Lindon µg/m ³	North Provo µg/m ³	North Provo Wind MPH	PM2.5	Ogden µg/m ³	Lindon µg/m ³	North Provo µg/m ³	Hawthorne µg/m ³	North Provo Wind MPH
2010-03-31 00	144.3	113.2	6.4		7.5	35.8	18	7.2	6.4
2010-03-31 01	107.4	53.8	8.6		4.3	24.7	9.6	7.6	8.6
2010-03-31 02	75.6	43.3	7.7		4.6	19.7	11.1	14.3	7.7
2010-03-31 03	68.7	39.8	5.4		4.5	14.7	11.9	0.6	5.4
2010-03-31 04	56.1	33.8	3.6		2.3	15.5	5.8	5.8	3.6
2010-03-31 05	52.5	34.6	4.1		4.6	10.8	6.8	6.3	4.1
2010-03-31 06	36.5	28.9	4.9		3.2	8.9	8.5	6.3	4.9
2010-03-31 07	25.5	19	5.7		5.2	6.1	7.3	3.8	5.7
2010-03-31 08	9.5	10.5	4.5		5.4	10.8	5.9		4.5
2010-03-31 09	8.2	6.3	3		4.4	10.7	5.2	4.2	3
2010-03-31 10	20.3	8.1	2.6		2.9	2.6	5.7	9.2	2.6
2010-03-31 11	20.4	8.3	2.6		2.3	0.1	7.9	5.1	2.6
2010-03-31 12	25.9	7.3	2.8		3.8	1.8	7.6	9.3	2.8
2010-03-31 13	24.9	17.9	4.5		7.2	2.8	12.4	2.4	4.5
2010-03-31 14	36.4	13.7	3.4		5.8	13.3	9.7	1.8	3.4
2010-03-31 15	42.2	12.7	3.2		5.3	27	8.6	0.1	3.2
2010-03-31 16	27.9	15.8	2.6		6	29.5	11.2	8.3	2.6
2010-03-31 17	10.7	19.1	3.2		4.6	51.3	15.5	7.1	3.2
2010-03-31 18	8.9	17.7	6		6.2	15.3	9.8	9.4	6
2010-03-31 19	10.7	8.7	3.1		4.8	6.8	7.4	4	3.1
2010-03-31 20	3.4	13.9	2.5		5.8	6.8	11.8	3.6	2.5
2010-03-31 21	3.4	11.4	3.4		5.9	13.4	9.8	10.7	3.4
2010-03-31 22	9.4	9.5	2.6		5.1	14.4	7.6	12.4	2.6
2010-03-31 23	4.6	6.7	1.8		4.1	15.2	7.1	3.3	1.8

APPENDIX 2
SPECIATION DATA

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

LOCATION **Bountiful** **3/21/2010** **AIRS_CODE** 490110004 **POC** 5
SAMPLER TYPE URG 3000N
FIELD CUSTODY NO **Q206949A** **ROUTINE**
CHANNEL 1 **SAMPLE VOLUME** 31.73
 Sample Handling Validation Checks Performed Level 0: T Level 1: T
 Event Flags: Flow Flags:

Field Sampling Data

	Value		AIRS Null Value Code
303 Average Flow	22.0		
304 End Date	3/22/2010		
305 End Time	12:00 AM		
306 Retrieval Date	3/22/2010		
307 Retrieval Time	11:15 AM		
308 Run Time	24.0		
309 Start Date	3/21/2010		
310 Start Time	12:00 AM		
311 Total Volume	31.7		

Laboratory Analysis Data

Quartz Filter (25 mm) I85456

Shipping Flags:

Module Disassembly Flags:

	Analyte Mass (ug)	Conc (ug/m ³)	Det Limit (ug)	Det Limit (ug/m ³)	Analysis Flags	AIRS Null Value Code
<u>Organic and elemental carbon IMPROVE A</u>						
312 E1 IMPROVE	11.9	0.376				
313 E2 IMPROVE	2.15	0.06790				
314 E3 IMPROVE	0.00000	0.00000				
315 EC IMPROVE TOR	8.23	0.259				
316 EC IMPROVE TOT	5.78	0.182				
317 O1 IMPROVE	3.57	0.112				
318 O2 IMPROVE	6.99	0.220				
319 O3 IMPROVE	11.3	0.357				
320 O4 IMPROVE	6.18	0.195				
321 OC IMPROVE TOR	33.9	1.07				
322 OC IMPROVE TOT	36.3	1.15				
323 OP IMPROVE TOR	5.84	0.184				
324 OP IMPROVE TOT	8.29	0.261				
325 TC IMPROVE	42.1	1.33				

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

353 Chlorine	0.03960±0.016	0.00409±0.0017	0.046	0.00470
		0		
354 Chromium	0.00000±0.0073	0.00000±0.0007	0.022	0.00230
		6		
355 Cobalt	0.00407±0.0052	0.00042±0.0005	0.014	0.00140
		4		
356 Copper	0.01340±0.0060	0.00139±0.0006	0.018	0.00190
		2		
357 Indium	0.113±0.21	0.01170±0.022	0.32	0.033
358 Iron	0.724±0.053	0.07480±0.0055	0.017	0.00180
		0		
359 Lead	0.04070±0.021	0.00420±0.0021	0.044	0.00450
		0		
360 Magnesium	0.169±0.040	0.01750±0.0041	0.092	0.00950
		0		
361 Manganese	0.01500±0.0063	0.00155±0.0006	0.018	0.00190
		5		
362 Nickel	0.01080±0.0040	0.00112±0.0004	0.012	0.00120
		1		
363 Phosphorus	0.00000±0.031	0.00000±0.0032	0.087	0.00900
		0		
364 Potassium	0.388±0.031	0.04000±0.0032	0.038	0.00390
		0		
365 Rubidium	0.00418±0.0083	0.00043±0.0008	0.025	0.00260
		6		
366 Selenium	0.01370±0.0080	0.00141±0.0008	0.024	0.00250
		3		
367 Silicon	1.98±0.17	0.204±0.018	0.12	0.012
368 Silver	0.00000±0.12	0.00000±0.012	0.36	0.037
369 Sodium	0.139±0.093	0.01440±0.0096	0.25	0.026
		0		
370 Strontium	0.00000±0.011	0.00000±0.0012	0.034	0.00350
		0		
371 Sulfur	1.91±0.14	0.197±0.014	0.060	0.00620
372 Tin	0.00000±0.12	0.00000±0.012	0.35	0.036
373 Titanium	0.04070±0.016	0.00420±0.0017	0.041	0.00420
		0		
374 Vanadium	0.00000±0.0098	0.00000±0.0010	0.029	0.00300
		0		
375 Zinc	0.02840±0.0067	0.00293±0.0006	0.020	0.00210
		9		
376 Zirconium	0.00000±0.073	0.00000±0.0076	0.22	0.023
		0		

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Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

LOCATION Bountiful

3/21/2010
490110004 POC

AIRS_CODE
5

SAMPLER TYPE SASS with URG 3000N

FIELD CUSTODY NO Q2069503 ROUTINE

CHANNEL 2 SAMPLE VOLUME 9.701

Sample Handling Validation Checks Performed Level 0: T Level 1: T

Event Flags: Flow Flags:

Field Sampling Data

	Value	AIRS Null Value Code
377 Average flow	6.73	
378 Avg ambient temp	8.3	
379 Avg BP	652	
380 Delta T Flag		
381 End date	3/22/2010	
382 End time	12:00 AM	
383 Max ambient temp	17.5	
384 Max BP	658	
385 Min ambient temp	-1.1	
386 Min BP	648	
387 Retrieval date	3/22/2010	
388 Retrieval time	11:10 AM	
389 Run Time	24.0	
390 Run Time Flag		
391 Sample volume	9.70	
392 Start date	3/21/2010	
393 Start time	12:00 AM	

Laboratory Analysis Data

Nylon Filter I5841Z

Shipping Flags:

Module Disassembly Flags:

	Analyte Mass (ug)	Conc (ug/m ³)	Det Limit (ug)	Det Limit (ug/m ³)	Analysis Flags	AIRS Null Value Code
<u>Cations - PM2.5 (NH₄, Na, K)</u>						
394 Ammonium	3.15±0.22	0.324±0.023	0.16	0.016		
395 Potassium	0.00000±0.010	0.00000±0.0010	0.13	0.014		
396 Sodium	0.697±0.64	0.07180±0.066	0.29	0.030		
<u>Nitrate - PM2.5</u>						
397 Nitrate	9.15±0.66	0.943±0.068	0.070	0.00720		
<u>Sulfate - PM2.5</u>						
398 Sulfate	5.34±0.40	0.550±0.041	0.10	0.010		

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

449 Chlorine	4.65±0.33	0.478±0.034	0.075	0.00770
450 Chromium	0.00408±0.011	0.00042±0.0011	0.025	0.00260
		0		
451 Cobalt	0.01020±0.012	0.00105±0.0013	0.013	0.00130
		0		
452 Copper	0.01390±0.0059	0.00143±0.0006	0.016	0.00160
	0	0		
453 Indium	0.00000±0.069	0.00000±0.0071	0.15	0.016
		0		
454 Iron	8.64±0.61	0.889±0.063	0.016	0.00170
455 Lead	0.03050±0.016	0.00314±0.0016	0.025	0.00260
		0		
456 Magnesium	5.53±0.47	0.570±0.049	0.11	0.012
457 Manganese	0.206±0.018	0.02120±0.0019	0.018	0.00190
		0		
458 Nickel	0.00407±0.0044	0.00042±0.0004	0.012	0.00120
	0	6		
459 Phosphorus	0.343±0.066	0.03530±0.0068	0.15	0.016
		0		
460 Potassium	7.13±0.51	0.734±0.052	0.070	0.00720
461 Rubidium	0.02490±0.013	0.00256±0.0013	0.019	0.00200
		0		
462 Selenium	0.01140±0.0087	0.00118±0.0009	0.013	0.00130
	0	0		
463 Silicon	42.7±3.5	4.39±0.36	0.093	0.00960
464 Silver	0.00000±0.046	0.00000±0.0047	0.13	0.013
		0		
465 Sodium	3.46±0.36	0.356±0.037	0.30	0.031
466 Strontium	0.136±0.12	0.01400±0.013	0.023	0.00230
467 Sulfur	2.90±0.21	0.299±0.022	0.095	0.00980
468 Tin	0.00000±0.086	0.00000±0.0089	0.20	0.020
		0		
469 Titanium	0.769±0.064	0.07920±0.0065	0.051	0.00530
		0		
470 Vanadium	0.09070±0.019	0.00934±0.0020	0.037	0.00380
		0		
471 Zinc	0.171±0.015	0.01770±0.0015	0.017	0.00180
		0		
472 Zirconium	0.03390±0.14	0.00349±0.014	0.032	0.00330

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Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

LOCATION Bountiful

3/30/2010
490110004 POC

AIRS_CODE
5

SAMPLER TYPE SASS with URG 3000N

FIELD CUSTODY NO Q2069525 ROUTINE

CHANNEL 2 SAMPLE VOLUME 9.651

Sample Handling Validation Checks Performed Level 0: T Level 1: T

Event Flags: Flow Flags:

Field Sampling Data

	Value	AIRS Null Value Code
473 Average flow	6.70	
474 Avg ambient temp	13.6	
475 Avg BP	638	
476 Delta T Flag		
477 End date	3/31/2010	
478 End time	12:00 AM	
479 Max ambient temp	20.6	
480 Max BP	643	
481 Min ambient temp	5.5	
482 Min BP	635	
483 Retrieval date	4/1/2010	
484 Retrieval time	08:30 AM	
485 Run Time	24.0	
486 Run Time Flag		
487 Sample volume	9.65	
488 Start date	3/30/2010	
489 Start time	12:00 AM	

Laboratory Analysis Data

Nylon Filter I58442

Shipping Flags:

Module Disassembly Flags:

	Analyte Mass (ug)	Conc (ug/m ³)	Det Limit (ug)	Det Limit (ug/m ³)	Analysis Flags	AIRS Null Value Code
<u>Cations - PM2.5 (NH₄, Na, K)</u>						
490 Ammonium	1.59±0.11	0.165±0.012	0.16	0.017	5, QAC	5
491 Potassium	1.15±0.089	0.120±0.00920	0.13	0.014	5, QAC	5
492 Sodium	5.08±0.89	0.526±0.092	0.29	0.030	5, QAC	5
<u>Nitrate - PM2.5</u>						
493 Nitrate	2.88±0.22	0.298±0.023	0.070	0.00730	5, QAC	5
<u>Sulfate - PM2.5</u>						
494 Sulfate	8.64±0.63	0.895±0.066	0.10	0.010	5, QAC	5

**Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010**

544 Cesium	0.00000±0.035 0	0.00000±0.0036 0	0.079	0.00820	5
545 Chlorine	0.00226±0.016 0	0.00023±0.0016 0	0.046	0.00470	5
546 Chromium	0.00045±0.0073 0	0.00005±0.0007 6	0.022	0.00230	5
547 Cobalt	0.00000±0.0047 0	0.00000±0.0004 8	0.014	0.00140	5
548 Copper	0.01540±0.0061 0	0.00159±0.0006 3	0.018	0.00190	5
549 Indium	0.03390±0.20	0.00350±0.021	0.32	0.033	5
550 Iron	0.261±0.021 0	0.02690±0.0021 0	0.017	0.00180	5
551 Lead	0.00565±0.015 0	0.00058±0.0015 0	0.044	0.00450	5
552 Magnesium	0.00000±0.037 0	0.00000±0.0038 0	0.092	0.00950	5
553 Manganese	0.00000±0.0060 0	0.00000±0.0006 2	0.018	0.00190	5
554 Nickel	0.00000±0.0040 0	0.00000±0.0004 1	0.012	0.00120	5
555 Phosphorus	0.00000±0.031 0	0.00000±0.0032 0	0.087	0.00900	5
556 Potassium	0.08140±0.014 0	0.00840±0.0014 0	0.038	0.00390	5
557 Rubidium	0.00000±0.0083 0	0.00000±0.0008 6	0.025	0.00260	5
558 Selenium	0.00000±0.0080 0	0.00000±0.0008 3	0.024	0.00250	5
559 Silicon	0.554±0.064 0	0.05720±0.0066 0	0.12	0.012	5
560 Silver	0.00000±0.12	0.00000±0.012	0.36	0.037	5
561 Sodium	0.00000±0.13	0.00000±0.013	0.25	0.026	5
562 Strontium	0.00000±0.011 0	0.00000±0.0012 0	0.034	0.00350	5
563 Sulfur	1.07±0.081	0.111±0.00840	0.060	0.00620	5
564 Tin	0.00000±0.12	0.00000±0.012	0.35	0.036	5
565 Titanium	0.00113±0.016 0	0.00012±0.0016 0	0.041	0.00420	5
566 Vanadium	0.00000±0.0098 0	0.00000±0.0010 0	0.029	0.00300	5
567 Zinc	0.01620±0.0067 0	0.00167±0.0006 9	0.020	0.00210	5
568 Zirconium	0.03840±0.084 0	0.00397±0.0086 0	0.22	0.023	5

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Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

1497 Chlorine	0.00000±0.025	0.00000±0.0026	0.075	0.00780
		0		
1498 Chromium	0.00746±0.0097	0.00077±0.0010	0.025	0.00260
	0	0		
1499 Cobalt	0.00102±0.0057	0.00011±0.0005	0.013	0.00130
	0	8		
1500 Copper	0.01250±0.0056	0.00130±0.0005	0.016	0.00160
	0	8		
1501 Indium	0.00000±0.051	0.00000±0.0053	0.15	0.016
		0		
1502 Iron	0.616±0.046	0.06360±0.0047	0.016	0.00170
		0		
1503 Lead	0.00000±0.013	0.00000±0.0013	0.025	0.00260
		0		
1504 Magnesium	0.00000±0.038	0.00000±0.0039	0.11	0.012
		0		
1505 Manganese	0.02090±0.0074	0.00216±0.0007	0.018	0.00190
	0	6		
1506 Nickel	0.00486±0.0041	0.00050±0.0004	0.012	0.00120
	0	2		
1507 Phosphorus	0.00000±0.052	0.00000±0.0053	0.15	0.016
		0		
1508 Potassium	0.476±0.038	0.04920±0.0039	0.070	0.00720
		0		
1509 Rubidium	0.01900±0.011	0.00196±0.0011	0.019	0.00200
		0		
1510 Selenium	0.00678±0.0085	0.00070±0.0008	0.013	0.00130
	0	8		
1511 Silicon	1.62±0.14	0.167±0.015	0.093	0.00960
1512 Silver	0.04520±0.15	0.00467±0.015	0.13	0.013
1513 Sodium	0.00000±0.10	0.00000±0.010	0.30	0.031
1514 Strontium	0.00000±0.081	0.00000±0.0084	0.023	0.00240
		0		
1515 Sulfur	1.26±0.095	0.130±0.00980	0.095	0.00980
1516 Tin	0.04520±0.34	0.00467±0.035	0.20	0.020
1517 Titanium	0.01580±0.022	0.00163±0.0022	0.051	0.00530
		0		
1518 Vanadium	0.00000±0.012	0.00000±0.0013	0.037	0.00380
		0		
1519 Zinc	0.05150±0.0077	0.00532±0.0008	0.017	0.00180
	0	0		
1520 Zirconium	0.00000±0.085	0.00000±0.0088	0.032	0.00330
		0		

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Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

LOCATION Hawthorne

3/27/2010
490353006 POC

AIRS_CODE
5

SAMPLER TYPE SASS with URG 3000N

FIELD CUSTODY NO Q203025Z ROUTINE

CHANNEL 2 SAMPLE VOLUME 9.752

Sample Handling Validation Checks Performed Level 0: T Level 1: T

Event Flags: Flow Flags:

Field Sampling Data

	Value	AIRS Null Value Code
1521 Average flow	6.73	
1522 Avg ambient temp	4.8	
1523 Avg BP	653	
1524 Delta T Flag		
1525 End date	3/28/2010	
1526 End time	12:00 AM	
1527 Max ambient temp	11.2	
1528 Max BP	656	
1529 Min ambient temp	-1.6	
1530 Min BP	650	
1531 Retrieval date	3/28/2010	
1532 Retrieval time	11:30 AM	
1533 Run Time	24.0	
1534 Run Time Flag		
1535 Sample volume	9.75	
1536 Start date	3/27/2010	
1537 Start time	12:00 AM	

Laboratory Analysis Data

Nylon Filter I1196D

Shipping Flags:

Module Disassembly Flags:

	Analyte Mass (ug)	Conc (ug/m ³)	Det Limit (ug)	Det Limit (ug/m ³)	Analysis Flags	AIRS Null Value Code
<u>Cations - PM2.5 (NH₄, Na, K)</u>						
1538 Ammonium	2.06±0.15	0.212±0.015	0.16	0.016		
1539 Potassium	0.00000±0.0000	0.00000±0.0000	0.13	0.014		
	0	0				
1540 Sodium	0.0±0.25	0.0±0.026	0.29	0.030		
<u>Nitrate - PM2.5</u>						
1541 Nitrate	7.86±0.57	0.806±0.059	0.066	0.00680		
<u>Sulfate - PM2.5</u>						
1542 Sulfate	4.17±0.31	0.427±0.032	0.074	0.00760		

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

1593 Chlorine	9.07±0.64	0.937±0.067	0.046	0.00480	5
1594 Chromium	0.02860±0.0092	0.00295±0.0009	0.022	0.00230	5
	0	5			
1595 Cobalt	0.01700±0.013	0.00175±0.0013	0.014	0.00140	5
		0			
1596 Copper	0.01660±0.0062	0.00172±0.0006	0.018	0.00190	5
	0	4			
1597 Indium	0.00000±0.11	0.00000±0.011	0.32	0.033	5
1598 Iron	10.7±0.76	1.10±0.078	0.017	0.00180	5
1599 Lead	0.00678±0.020	0.00070±0.0021	0.044	0.00450	5
		0			
1600 Magnesium	7.80±0.67	0.806±0.069	0.092	0.00950	5
1601 Manganese	0.236±0.020	0.02440±0.0021	0.018	0.00190	5
		0			
1602 Nickel	0.00668±0.0046	0.00069±0.0004	0.012	0.00120	5
	0	7			
1603 Phosphorus	0.840±0.093	0.08680±0.0096	0.087	0.00900	5
		0			
1604 Potassium	8.46±0.60	0.874±0.062	0.038	0.00390	5
1605 Rubidium	0.03390±0.012	0.00350±0.0012	0.025	0.00260	5
		0			
1606 Selenium	0.00000±0.0080	0.00000±0.0008	0.024	0.00250	5
	0	3			
1607 Silicon	56.7±4.7	5.86±0.49	0.12	0.012	5
1608 Silver	0.00000±0.12	0.00000±0.013	0.36	0.038	5
1609 Sodium	4.08±0.44	0.421±0.045	0.25	0.026	5
1610 Strontium	0.306±0.031	0.03170±0.0032	0.034	0.00350	5
		0			
1611 Sulfur	3.56±0.26	0.368±0.027	0.060	0.00620	5
1612 Tin	0.00000±0.12	0.00000±0.012	0.35	0.036	5
1613 Titanium	0.922±0.072	0.09520±0.0074	0.041	0.00420	5
		0			
1614 Vanadium	0.00000±0.014	0.00000±0.0014	0.029	0.00300	5
		0			
1615 Zinc	0.05220±0.0079	0.00539±0.0008	0.020	0.00210	5
	0	2			
1616 Zirconium	0.09380±0.094	0.00969±0.0097	0.22	0.023	5
		0			

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Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

LOCATION Hawthorne

3/30/2010
490353006 POC

AIRS_CODE
5

SAMPLER TYPE SASS with URG 3000N

FIELD CUSTODY NO Q2030271 ROUTINE

CHANNEL 2 SAMPLE VOLUME 9.686

Sample Handling Validation Checks Performed Level 0: T Level 1: T

Event Flags: **5, DST, QMB** Flow Flags:

Field Sampling Data

	Value	AIRS Null Value Code
1617 Average flow	6.72	5
1618 Avg ambient temp	14.0	5
1619 Avg BP	636	5
1620 Delta T Flag		5
1621 End date	3/31/2010	5
1622 End time	12:00 AM	5
1623 Max ambient temp	21.4	5
1624 Max BP	641	5
1625 Min ambient temp	6.0	5
1626 Min BP	632	5
1627 Retrieval date	4/1/2010	5
1628 Retrieval time	01:30 PM	5
1629 Run Time	24.0	5
1630 Run Time Flag		5
1631 Sample volume	9.69	5
1632 Start date	3/30/2010	5
1633 Start time	12:00 AM	5

Laboratory Analysis Data

Nylon Filter I1193A

Shipping Flags:

Module Disassembly Flags:

	Analyte Mass (ug)	Conc (ug/m ³)	Det Limit (ug)	Det Limit (ug/m ³)	Analysis Flags	AIRS Null Value Code
<u>Cations - PM2.5 (NH₄, Na, K)</u>						
1634 Ammonium	1.41±0.100	0.146±0.010	0.16	0.017	5, QAC	5
1635 Potassium	1.64±0.12	0.170±0.013	0.13	0.014	5, QAC	5
1636 Sodium	8.43±1.1	0.870±0.11	0.29	0.030	5, QAC	5
<u>Nitrate - PM2.5</u>						
1637 Nitrate	3.10±0.24	0.320±0.024	0.070	0.00720	5, QAC	5
<u>Sulfate - PM2.5</u>						
1638 Sulfate	11.7±0.85	1.21±0.088	0.10	0.010	5, QAC	5

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

1688 Cesium	0.00000±0.034	0.00000±0.0036	0.097	0.010		5
		0				
1689 Chlorine	0.01470±0.026	0.00152±0.0027	0.078	0.00810		5
		0				
1690 Chromium	0.01980±0.0088	0.00204±0.0009	0.019	0.00200		5
		0				
1691 Cobalt	0.00644±0.0056	0.00067±0.0005	0.014	0.00140		5
		0				
1692 Copper	0.06890±0.020	0.00712±0.0020	0.024	0.00250		5
		0				
1693 Indium	0.02260±0.26	0.00233±0.027	0.13	0.014		5
1694 Iron	0.431±0.032	0.04450±0.0034	0.020	0.00210		5
		0				
1695 Lead	0.00000±0.015	0.00000±0.0016	0.027	0.00280		5
		0				
1696 Magnesium	0.04470±0.058	0.00462±0.0060	0.18	0.018		5
		0				
1697 Manganese	0.01220±0.0067	0.00126±0.0006	0.015	0.00160		5
		0				
1698 Nickel	0.00475±0.0055	0.00049±0.0005	0.016	0.00170		5
		0				
1699 Phosphorus	0.00000±0.034	0.00000±0.0035	0.10	0.011		5
		0				
1700 Potassium	0.113±0.035	0.01170±0.0036	0.11	0.011		5
		0				
1701 Rubidium	0.00000±0.0049	0.00000±0.0005	0.014	0.00140		5
		0				
1702 Selenium	0.00136±0.0090	0.00014±0.0009	0.025	0.00260		5
		0				
1703 Silicon	0.558±0.066	0.05760±0.0069	0.18	0.018		5
		0				
1704 Silver	0.00000±0.072	0.00000±0.0074	0.082	0.00840		5
		0				
1705 Sodium	0.117±0.18	0.01210±0.018	0.53	0.054		5
1706 Strontium	0.00000±0.0064	0.00000±0.0006	0.017	0.00170		5
		0				
1707 Sulfur	0.834±0.066	0.08610±0.0068	0.085	0.00880	5, QL1	5
		0				
1708 Tin	0.00000±0.088	0.00000±0.0091	0.19	0.020		5
		0				
1709 Titanium	0.00000±0.016	0.00000±0.0017	0.048	0.00500		5
		0				
1710 Vanadium	0.00000±0.010	0.00000±0.0011	0.031	0.00320		5
		0				
1711 Zinc	0.01580±0.015	0.00163±0.0015	0.025	0.00260		5
		0				
1712 Zirconium	0.00000±0.10	0.00000±0.011	0.027	0.00280		5

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

LOCATION Hawthorne

4/2/2010
490353006 POC

AIRS_CODE
5

SAMPLER TYPE SASS with URG 3000N

FIELD CUSTODY NO Q2030293 ROUTINE

CHANNEL 2 SAMPLE VOLUME 9.697

Sample Handling Validation Checks Performed Level 0: T Level 1: T

Event Flags: **5, DST, QMB** Flow Flags:

Field Sampling Data

	Value	AIRS Null Value Code
1713 Average flow	6.73	5
1714 Avg ambient temp	3.9	5
1715 Avg BP	644	5
1716 Delta T Flag		5
1717 End date	4/3/2010	5
1718 End time	12:00 AM	5
1719 Max ambient temp	7.7	5
1720 Max BP	647	5
1721 Min ambient temp	-0.5	5
1722 Min BP	640	5
1723 Retrieval date	4/4/2010	5
1724 Retrieval time	12:50 PM	5
1725 Run Time	24.0	5
1726 Run Time Flag		5
1727 Sample volume	9.70	5
1728 Start date	4/2/2010	5
1729 Start time	12:00 AM	5

Laboratory Analysis Data

Nylon Filter I1202U

Shipping Flags:

Module Disassembly Flags:

	Analyte Mass (ug)	Conc (ug/m ³)	Det Limit (ug)	Det Limit (ug/m ³)	Analysis Flags	AIRS Null Value Code
<u>Cations - PM2.5 (NH₄, Na, K)</u>						
1730 Ammonium	2.19±0.15	0.226±0.016	0.16	0.016		5
1731 Potassium	0.00000±0.0000	0.00000±0.0000	0.13	0.014		5
	0	0				
1732 Sodium	0.0±0.25	0.0±0.026	0.29	0.030		5
<u>Nitrate - PM2.5</u>						
1733 Nitrate	7.17±0.52	0.740±0.054	0.066	0.00680		5
<u>Sulfate - PM2.5</u>						
1734 Sulfate	3.55±0.27	0.366±0.028	0.074	0.00760	5, QL1	5

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

Data Flags

This table contains all the data flags that appear on the reports. These include flags that are generated by the instruments, informational flags generated by RTI, and the null value and validity status codes that are reported to AQS. The AQS codes are also shown in the second table. Check the AQS code column for information on how results will be flagged in AQS.

Flag	Description
1	Critical Criteria Not Met
2	Operational criteria not met
3	Possible field contamination
4	Possible lab contamination
5	Outlier - cause unknown
6	Data prior to QAPP approval
AAR	Above Analytical Range
AB	TECHNICIAN UNAVAILABLE
AC	CONSTRUCTION/REPAIRS IN AREA
AD	SHELTER STORM DAMAGE
AE	SHELTER TEMPERATURE OUTSIDE LIMITS
AF	SCHEDULED BUT NOT COLLECTED
AG	SAMPLE TIME OUT OF LIMITS
AH	SAMPLE FLOW RATE OUT OF LIMITS
AI	INSUFFICIENT DATA (CAN'T CALCULATE)
AJ	FILTER DAMAGE
AK	FILTER LEAK
AL	VOIDED BY OPERATOR
AM	MISCELLANEOUS VOID
AN	MACHINE MALFUNCTION
AO	BAD WEATHER
AP	VANDALISM
AQ	COLLECTION ERROR
AR	LAB ERROR
AS	POOR QUALITY ASSURANCE RESULTS
AU	MONITORING WAIVED
AV	POWER FAILURE (POWR)
AW	WILDLIFE DAMAGE
AZ	Q C AUDIT (AUDT)
BA	MAINTENANCE/ROUTINE REPAIRS
BB	UNABLE TO REACH SITE
BE	BUILDING/SITE REPAIR
BI	LOST OR DAMAGED IN TRANSIT
BJ	OPERATOR ERROR
DCI	CHANNEL INVALID
DEC	Module end cap(s) missing
DFM	Filter missing
DMA	Module assembled in correctly
DMC	Module Condition
DSI	Shipment Invalid

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

DST	Shipping temperature out of specifications
FBS	Field or Trip Blank appears to be actual sample
FC1	Channel 1 used instead of designated channel
FC2	Channel 2 used instead of designated channel
FC3	Channel 3 used instead of designated channel
FC4	Channel 4 used instead of designated channel
FC5	Channel 5 used instead of designated channel
FC6	Channel 6 used instead of designated channel
FC7	Channel 7 used instead of designated channel
FCE	Corrected - operator data entry error
FCT	Channels operated at different times
FDC	Some or all of the field data was taken from the sampler card
FDT	Field delta temperature out of limits
FES	Field environmental data taken from other flow channel
FEX	Exposure duration outside limits
FFL	Filter Leak
FHT	Pickup Holding Time Exceeded
FIC	Exposure Session Canceled or modules returned unexposed
FIL	Impactor heavily loaded
FMC	Moisture contamination
FNA	Field operator designates no analysis
FSB	Sample is blank
FSL	Sample lost
FVL	Total volume sampled out of limits
G	HIGH POLLEN COUNT
HCI	Carbonate Carbon by Acid Treatment
IA	African Dust
IB	Asian Dust
IC	Chem. Spills and Industrial Accidents
ID	Cleanup After a Major Disaster
IE	Demolition
IF	Fire - Canadian
IG	Fire - Mexico/Central America
IH	Fireworks
II	High Pollen Count
IJ	High Winds
IK	Infrequent Large Gatherings
IL	Other
IM	Prescribed Fire
IN	Seismic Activity
Integ	Carbonate Carbon by integration
IO	Stratospheric Ozone Intrusion
IP	Structural Fire
IQ	Terrorist Act
IR	Unique Traffic Disruption
IS	Volcanic Eruptions

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

IT	Wildfire-U. S.
IU	Wildland Fire Use Fire-U. S.
LBD	Laboratory Blank duplicate (reweighing) outside limits
LBF	Field Blank reweighing outside specs
LBL	Laboratory Blank values outside of limits
LCA	Laboratory calibration out of limits
LDU	Lab duplicates out of limits
LEQ	Laboratory Environmental Criteria out of limits
LFA	Filter inspection flags* - filter wet
LFD	Filter inspection flags* -Discoloration
LFH	Filter inspection flags* - Holes in filter
LFL	Filter inspection flags* -Loose Material
LFO	Filter inspection flags* -Other (wrinkling, warping, etc.)
LFP	Filter inspection flags* -Pinholes
LFS	Filter inspection flags* -Separation of reinforcing ring
LFT	Filter inspection flags* - Tear
LFU	Filter inspection flags* -Non-uniformity
LHT	Lab holding times exceeded
LLI	ANALYSIS INVALID - Other
LLM	Laboratory Maintenance Outside Limits
LLP	Calibration loop response (area counts)
LPW	Pre-exposure filter weight outside specs
LRT	Laser reflectance/transmittance flag
LST	Daily Calibration Check Standard out of limits
QAC	Cation/Anion total charge ratio out of limits
QCR	Between-analyte correlations
QL1	Outlier detected by QAO based on Level 1 check
QMB	Total mass balance outside limits
SA	Storm Approaching
T	MULTIPLE FLAGS; MISC.
V	VALIDATED VALUE
W	FLOW RATE AVERAGE OUT OF SPEC.
X	FILTER TEMPERATURE DIFFERENCE OUT OF SPEC.
Y	ELAPSED SAMPLE TIME OUT OF SPEC.

Utah Division of Air Quality – High Wind Exceptional Event
Event Day – March 30, 2010

Playa Tracer Analysis

LOCATION_NAME	AIRS_CODE	DATE	CHART_UNITS	Chlorine	Magnesium	Sodium	Sulfur
Hawthorne	490353006	3/15/10	ug/m ³	0	0	0	0.433718
Hawthorne	490353006	3/18/10	ug/m ³	0.016153	0.009743	0.024241	0.273144
Hawthorne	490353006	3/21/10	ug/m ³	0	0	0	0.167335
Hawthorne	490353006	3/24/10	ug/m ³	0.002221	0	0	0.25605
Hawthorne	490353006	3/27/10	ug/m ³	0	0	0	0.130419
Hawthorne	490353006	3/30/10	ug/m ³	0.93749	0.805575	0.42118	0.367691
Hawthorne	490353006	4/2/10	ug/m ³	0.00152	0.004616	0.012053	0.086088
Hawthorne	490353006	4/5/10	ug/m ³	0.020819	0.04265	0.053384	0.163346
Hawthorne	490353006	4/8/10	ug/m ³	0.008064	0	0	0.11865
Hawthorne	490353006	4/11/10	ug/m ³	0.026835	0.098582	0.027575	0.15635