UTAH

2008 AIR MONITORING NETWORK PLAN

Prepared by the Division of Air Quality

Utah State Department of Environmental Quality

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MONITORING NETWORK PLAN

1.0 INTRODUCTION

This Air Monitoring Network Plan meets the requirements of 40 CFR 58.10(a)(1). The purpose of this plan is to provide for the establishment and maintenance of an air quality monitoring system in Utah that consists of a network of National Air Monitoring Stations (NAMS), State and Local Air Monitoring Stations (SLAMS) and Special Purpose Monitoring (SPM) sites that include federal reference method (FRM) monitors.

The Utah air monitoring network has been described in network reviews from 1982 through 2007. A complete description of each station is on file at the Air Monitoring Center and is available to review upon request.

1.1 COMMENTS ON UTAH AIR MONITORING NETWORK PLAN

This Monitoring Network Plan will be made available for public review for 30 days starting November 24, 2008 to December 24, 2008.

Comments will be reviewed to determine if changes or modifications to the plan are necessary.

1.2 CURRENT UTAH AIR MONITORING NETWORK

The following pages list the SLAMS, and SPM sites in Utah's current air monitoring network and identifies the location (address), the objective, and the spatial scale represented by each site. The location identified is the actual address where each monitoring site is situated. The Aerometric Information Retrieval System (AIRS) # is a unique number that identifies the site by state, county, and location. Under the listed parameters:

- A station may be designated as a State and Local Air Monitoring Station (SLAMS), or as a Special Purpose Monitor (SPM).

- The spatial scale represented is described in terms of the physical dimensions of the air parcel surrounding an air monitoring station throughout which pollutant concentrations are reasonably homogeneous. The scales used for Utah's network as listed in Table 1 are:

Micro:	Several meters to about 100 meters
Middle:	About 100 to 500 meters
Neighborhood:	About 500 meters to 4 kilometers

Urban:	Overall citywide conditions, usually about 4 to 50 kilometers. Requires more than one station to define
Regional:	Defines a rural area, usually of reasonably homogeneous geography, extending for tens to hundreds of kilometers

- The monitoring objectives include population exposure (Population), source impact (Source), highest expected concentration (High) or background station (Background).

The following tables provide a technical summary of the current monitoring network including: the type of telemetry used to retrieve the data, the type of analyzer used and frequency of data collection, the source of gases used to calibrate the gaseous monitors, other parameters monitored at each site, and the latitude and longitude of each site.

In addition, Utah conducts some "survey" monitoring using state funding to get an initial assessment of some areas of interest. This monitoring is less formal than the SPM monitoring discussed above and focuses on a local project or issue. Based on the results of the survey monitoring, the State may determine that more formal monitoring would be appropriate.

1.3 METROPOLITAN STATISTICAL AREAS (MSA)

Population statistics are used to assess various characteristics of populated areas. The primary descriptor used is Metropolitan Statistical Areas (MSA's). It is convenient to use the MSA designations when discussing air pollution monitoring. Each MSA is composed of a large number of people in similar geographic settings exposed to similar air pollution emissions and similar air pollution concentrations. The MSA for each monitoring site is identified so air pollution concentration for monitoring stations in the same MSA can be compared.

There are five MSA's in Utah. The following populations are based on the Governors Planning Office July 1, 2007 population estimates.

Salt Lake MSA 1,113,852

Ogden-Clearfield MSA 526,075

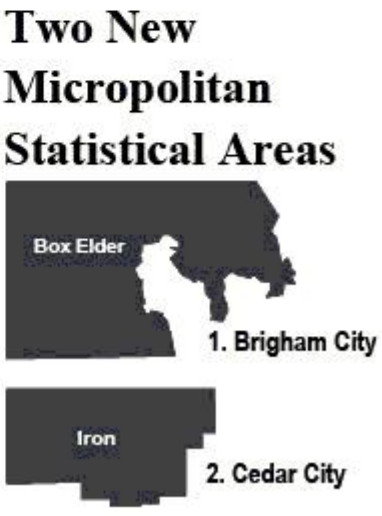
Provo-Orem MSA 511,101

Logan MSA 120,351

St. George MSA 140,908

The following graphic shows the counties that make up each MSA. The air

monitoring effort is concentrated in these MSA's. The monitoring stations in each MSA are identified in the discussion of each monitoring location.



1.4 MONITORING DATA QUALITY ASSURANCE

A Quality Monitoring Plan (QMP) was prepared by the Utah Department of Environmental Quality and approved by EPA Region 8. The air monitoring network meets the criteria identified in the QMP.

A Quality Assurance Project Plan (QAPP) was prepared by the Utah Division of Air Quality and also approved by EPA Region 8. The QAPP identifies in greater detail the monitoring effort and quality assurance procedures the data must meet before it is considered quality assured and acceptable for submittal to the public and EPA.

A Standard Operating Procedure (SOP) manual has been prepared by the Air Monitoring Section that identifies the steps, procedures and criteria that must be met in operating the monitoring network and validating the air pollution data.

1.5 MONITORING SITE DISCUSSION

The following pages discuss each monitoring site, the objective of the monitoring site, and if that objective is being met. The instruments used at each site are also identified. Monitoring for the criteria pollutants identified by EPA is to be performed using EPA reference or equivalent samplers or analyzers. In all cases the instruments used in the DAQ monitoring network are EPA reference or equivalent instruments. The instruments used to measure the criteria pollutants comply with 40 CFR Part 58, appendix C.

UTAH AIR MONITORING STATION LOCATION

SITE CODE	STATIONS	CITY	COUNTY	ADDRESS
AMC	Air Monitoring Cen	Salt Lake	Salt Lake	2861 W Parkway Blv.
AI	Antelope Island	Not in a city	Salt Lake	Antelope Island
BI	Badger Island	Not in a city	Salt Lake	Badger Island
B4	Beach #4	Magna	Salt Lake	1200 South 12100 West
BV	Bountiful	Bountiful	Davis	171 West 1370 North
BR	Brigham City	Brigham City	Davis	140 West Fishburn
CW	Cottonwood	Holladay	Salt Lake	5715 South 1400 East
HV	Harrisville	Harrisville	Weber	425 West 2550 North
HW	Hawthorne	Salt Lake	Salt Lake	1675 South 600 East
HG	Highland	Highland	Utah	10865 North 6000 West
LN	Lindon	Lindon	Utah	50 North Main
L4	Logan	Logan	Cache	125 West Center
MG	Magna	Magna	Salt Lake	2935 South 8560 West
NP	North Provo	Provo	Utah	1355 North 200 West
N2	North Salt Lake #2	Salt Lake	Salt Lake	1795 North 1000 West
O2	Ogden	Ogden	Weber	228 East 32nd Street
RP	Rose Park	Salt Lake City	Salt Lake	1400 W Goodwin Ave
SA	Salt Air	Slat Lake City	Salt Lake	6640 West 1680 North
SC	Santa Clara	Santa Clara	Washington	1215 N Lava Flow Dr.
SF	Spanish Fork	Spanish Fork	Utah	312 West 2050 North
SY	Syracuse	Not in a city	Davis	4528 West 1700 South
T3	Tooele	Tooele	Tooele	434 North 50 West
W2	Washington Blvd	Ogden	Weber	2540 Washington Blvd
WJ	West Jordan	West Jordan	Salt Lake	7602 So Airport Road

Site: Air Monitoring Center
AQS#: 49-035-3011
Address: 2861 West Parkway Blvd. West Valley, Uta
Longitude : 111.96085 **Latitude:** 40.71179

Station Type: SPM
MSA: Salt Lake City-1,113,852
Elevation (M) 1295

Site Objective: This site is established to determine Mercury in Wet Deposition.
Does the site meet the objective: The site meets the objective. Wet deposition mercury samples are collected and analyzed for mercury.
Site Description: The site is located at the Air Monitoring Center, in the city of West Valley, Salt Lake County.
Can data from this site be used to evaluate NAAQS ?: No

Gas/Particulate parameters:

Parameter	**Sampling &** Analysis Method	**Operating** Schedule	**Monitoring** Objective	**Spatial** Scale
Wet Dep. Mercury	Manual NADP MDN	integrated 7 day	Population Exposure	SPM Regional

Site: Antelope Island **Station Type:** SPM
AQS#: 49-011-6001 **MSA: Salt Lake City**-1,113,852
Address: Antelope Island
Longitude : 112.3707 **Latitude:** 41.0414 **Elevation (M)** 1349

Site Objective: This site is established to collect meteorological information for air quality modeling inputs.
Does the site meet the objective: The site meets the objective. Meteorological data are collected at the site.
Site Description: The site is on Antelope Island state park, near the ranger residences, in Davis County.
Can data from this site be used to evaluate NAAQS ?: No

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	6 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	6 meters	Urban
WD Sigma	Elec. EPA method	Continuous	6 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	6 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	6 meter	Urban

Site: Beach #4 **Station Type:** SLAMS
AQS#: 49-035-2004 **MSA: Salt Lake City**-1,113,852
Address: 12100 West 1200 South, Magna, UT. Great Salt Lake Marina
Longitude : 112.21029 **Latitude :** 40.73426 **Elevation (M)** 1284

Site Objective: This site is established to determine SO2 concentrations from Kennecott Copper smelter. Ozone is monitored based on an ozone saturation study and the interaction with the Great Salt Lake. Does the site meet the objective: The site meets the objective
Site Description: The site is located at the Great Salt Lake Marina on the south east end of the Great Salt Lake.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Sulfur Dioxide	Instrumental Pulsed Florescent	Continuous	Industrial Exposure	SLAMS-High Neighborhood
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-High Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Badger Island **Station Type:** SPM
AQS#: 49-045-6001 **MSA: Salt Lake City**- 1,113,852
Address: Badger Island
Longitude : 112.6067 **Latitude :** 40.9339 **Elevation (M)** 1282

Site Objective: This site is established to collect meteorological information for air quality modeling inputs.
Does the site meet the objective: The site meets the objective. Meteorological information are collected at the site.
Site Description: The site is located on the south end of the Great Salt Lake on the remnants of Badger Island in Tooele County.
Can data from this site be used to evaluate NAAQS ?: No

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 meter	Urban
Solar Radiation	Elec. LiCor	Continuous	2 meter	Urban

Site: Bountiful Viewmont **Station Type:** SLAMS
AQS#: 49-011-0004 **MSA: Ogden-Clearfield**- 526,075
Address: 171 West 1370 North Bountiful, UT.
Longitude : 111.88443 **Latitude :** 40.9029 **Elevation (M)** 1309

Site Objective: The Bountiful Viewmont site is established to determine public exposure to air pollution. The site also is to monitor emissions from the oil refineries and local sand and gravel operations. Previous monitoring and saturation studies have recorded high ozone concentrations. This site is chosen for intensive speciation of PM2.5 under the EPA Chemical Speciation Network (CSN) and gasesous Volatile Organic Compounds under the EPA National Air Toxics Trends Network (NTTN) including Hexavalent Chromium and Carbonyl compounds. Nitrogen dioxide is monitored in support of the ozone monitoring.
Does the site meet the objective: The site meets the objective of determining public exposure.
Site Description: The site is located near Viewont High School at the north end of the city of Bountiful, Davis County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Sulfur Dioxide	Instrumental Pulsed Florescent	Continuous	Industrial Exposure	SLAMS-Impact Neighborhood
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-High Neighborhood
Nitrogen dioxide	Instrumental Chemiluminescence	Continuous	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$ Speciation	Manual EPA CSN	1 in 6 days	Population Exposure	SPM-Neighborhood
VOC	Manual EPA NTTN	1 in 6 days	Population Exposure	SPM-Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 Meter	Urban
Ambient Pressure	Barometric Pressure Transducer	Continuous	1 Meter	Urban

Site: Brigham City **Station Type:** SLAMS
AQS#: 49-003-0003 **MSA: Not in an MSA but is in the Salt Lake City-Ogden-Clearfield CSA**
Address: 140 West Fishburn Dr, Brigham City, UT.
Longitude : 112.01775 **Latitude :** 41.49289 **Elevation (M)** 1334

Site Objective: This site is established to determine the boundary of ozone concentrations greater than the NAAQS and $PM_{2.5}$ comparison to Cache County
Does the site meet the objective: The site meets the objective
Site Description: The site is located in a neighborhood area of Brigham City in Box Elder County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$	Manual Gravimetric	1 in 3 days	Population Exposure	SPM-Neigh. Population

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Cottonwood **Station Type:** SLAMS
AQS#: 49-035-0003 **MSA: Salt Lake City**- 1,113,852
Address: 5715 South 1400 East, Holladay, UT.
Longitude : 111.84976 **Latitude :** 40.64405 **Elevation (M)** 1335

Site Objective: This site is established to determine Ozone and Ozone precursor compounds.
Does the site meet the objective: The site meets the objective
Site Description: The site is located in the southeastern section of Salt Lake County at Cottonwood High School.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-Neighborhood
Nitrogen dioxide	Instrumental Chemiluminescence	Continuous	Population Exposure	SLAMS-High Neighborhood
Carbon Monoxide	Instrumental Gas Phase Correlation	Continuous	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-Neigh. Population
PM_{10}	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-Neigh. Population

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Hawthorne **Station Type:** SLAMS
AQS#: 49-035-3006 **MSA: Salt Lake City**- 1,113,852
Address: 1675 South 600 East, Salt Lake City, UT
Longitude : 111.87201 **Latitude :** 40.73436 **Elevation (M)** 1306

Site Objective: This site is established to represent the population exposure in the Salt Lake City area.
Does the site meet the objective: The site meets the objective
Site Description: The site is located at Hawthorne Elementary School in the southeast section of Salt Lake City, Salt Lake County .
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Continuous	Population Exposure	SLAMS-High Neighborhood
Nitrogen dioxide	Instrumental Chemiluminescence	Continuous	Population Exposure	SLAMS-High Neighborhood
Carbon Monoxide	Instrumental Gas Phase Correlation	Continuous	Population Exposure	SLAMS-Neigh. Population
Ammonia	Instrumental Chemiluminescence	Seasonal	Population Exposure	SLAMS-Neighborhood
$PM_{2.5}$	Manual Gravimetric	Daily	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$ Speciation	Manual EPA CSN	1 in 3 days	Population Exposure	SPM-Neighborhood
$PM_{2.5}$ Real time	Instrumental TEOM FDMS	Continuous	Air Pollution Index	SPM-Neighborhood
PM_{10}	Manual Gravimetric	Daily	Population Exposure	SLAMS-Neigh. Population
PM_{10} Real time	Instrumental TEOM	Continuous	Air Pollution Index	SPM-Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 Meter	Urban
Ambient Pressure	Barometric Pressure Transducer	Continuous	3 Meter	Urban
Solar Radiation	Elec. EPPLY	Continuous	3 Meter	Urban

Site: Harrisville **Station Type:** SLAMS
AQS#: 49-057-1003 **MSA: Ogden-Clearfield**- 526,075
Address: 425 West 2550 North, Ogden, UT.
Longitude : 111.98641 **Latitude :** 41.30266 **Elevation (M)** 1311

Site Objective: This site is established in response to an Ozone saturation study indicating this as a potential high Ozone concentration area.
Does the site meet the objective: The site meets the objective
Site Description: The site is located on the grounds of an elementary school in the city of Harrisville, Weber County. ***
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-Neighborhood
$PM_{2.5}$	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-Regional Background

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Highland **Station Type:** SLAMS
AQS#: 49-049-5008 **MSA: Provo-Orem**- 511,101
Address: 10865 N 6000 West, Highland, UT.
Longitude : 111.80396 **Latitude:** 40.42819 **Elevation (M)** 1485

Site Objective: This site is established in response to an ozone saturation study indicating elevated Ozone levels. The site is to evaluate ozone concentrations.
Does the site meet the objective: The site meets the objective
Site Description: The site is located at an elementary school in the city of Highland, Utah County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS- High Neighborhood
$PM_{2.5}$	Manual Gravimetric	1 in 3 days	Population Exposure	SPM-Neighborhood Population

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Lindon **Station Type:** SLAMS
AQS#: 49-049-4001 **MSA: Provo-Orem**-511,101
Address: 50 North Main, Lindon UT.
Longitude : 111.71344 **Latitude :** 40.33952 **Elevation (M)** 1442

Site Objective: This site is established to determine Particulate matter from commercial and industrial sources. Historically this site has reported the highest PM values in Utah County.
Does the site meet the objective: The site meets the objective of reporting PM levels in this part of Utah County.
Site Description: The site is located at the Lindon Elementary School in the City of Lindon, Utah County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
$PM_{2.5}$	Manual Gravimetric	Daily	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$	Manual Gravimetric co-located	1 in 6 days	Precision and accuracy assessment	
$PM_{2.5}$ Speciation	Manual EPA CSN	1 in 6 days	Population Exposure	SPM-Neighborhood
$PM_{2.5}$ Real time	Instrumental TEOM FDMS	Continuous	Air Pollution Index	SPM-Neighborhood
PM_{10}	Manual Gravimetric	Daily	Population Exposure	SLAMS-Impact Neighborhood
PM_{10} Real time	Instrumental TEOM	Continuous	Air Pollution Index	SPM-Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 meter	Urban

Site: Logan #4 **Station Type:** SLAMS
AQS#: 49-005-0004 **MSA: Logan**- 109,022
Address: 125 West Center Street, Logan, UT.
Longitude : 111.83821 **Latitude :** 41.73092 **Elevation (M)** 1380

Site Objective: This site is established to determine general population exposure based on increased population.
Does the site meet the objective: The site meets the objective of measuring the population exposure to the measured air pollutants.
Site Description: The site is located down town in the city of Logan, Cache County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Continuous	Population Exposure	SLAMS-Neigh. Population
Nitrogen dioxide	Instrumental Chemiluminescence	Continuous	Population Exposure	SLAMS-Neighborhood
$PM_{2.5}$	Manual Gravimetric	Daily	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$	Manual Gravimetric co-located	1 in 6 days	Precision and accuracy assessment	
$PM_{2.5}$ Real time	Instrumental TEOM FDMS	Continuous	Air Pollution Index	SPM-Neighborhood
PM_{10}	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-High Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 meter	Urban
Solar Radiation	Elec. LiCore	Continuous	3 Meter	Urban

Site: Magna **Station Type:** SLAMS
AQS#: 49-035-1001 **MSA: Salt Lake City**- 1,113,852
Address: 2935 South 8560 West, Magna, UT
Longitude : 112.0945 **Latitude :** 40.70678 **Elevation (M)** 1289

Site Objective: This site is established to determine SO2 and Particulate matter concentrations from Kennecott smelter.
Does the site meet the objective: The site meets the objective.
Site Description: The site is located on the roof of Brockbank Junior High School in the city of Magna located in western Salt Lake County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Sulfur Dioxide	Instrumental Pulsed Florescent	Continuous	Industrial Exposure	SLAMS-Impact Neighborhood
$PM_{2.5}$	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-Neigh. Population
PM_{10}	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-High Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: North Provo **Station Type:** SLAMS
AQS#: 49-049-0002 **MSA: Provo-Orem**- 501,101
Address: 1355 North 200 West, Provo, UT.
Longitude : 111.66328 **Latitude :** 40.25336 **Elevation (M)** 1402

Site Objective: This site is established to determine general population exposure to air pollutants.
Does the site meet the objective: The site meets the objective
Site Description: The site is located at north end of the city of Provo, Utah county. It is located on the grounds of the Dale Rex Army Armory.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-Neigh. Population
Carbon Monoxide	Instrumental Gas Phase Correlation	Continuous	Population Exposure	SLAMS-Neigh. Population
Nitrogen dioxide	Instrumental Chemiluminescence	Continuous	Population Exposure	SLAMS- High Neighborhood
$PM_{2.5}$	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-Neigh. Population
PM_{10}	Manual Gravimetric	1 in 3 days	Population Exposure	SLAMS-High Neighborhood
PM_{10}	Manual Gravimetric co-located	1 in 6 days	Precision and accuracy assessment	

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: North Salt Lake #2 **Station Type:** SLAMS
AQS#: 49-035-0012 **MSA: Salt Lake City**- 1,113,852
Address: 1795 North 1000 West, Salt Lake City, UT.
Longitude : 111.92101 **Latitude :** 40.80536 **Elevation (M)** 1286

Site Objective: This site is established to determine SO2 concentrations from the petroleum refineries in the area.
Does the site meet the objective: The site meets the objective
Site Description: The site is located in the city of Salt Lake City in Salt Lake County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Sulfur Dioxide	Instrumental Pulsed Florescent	Continuous	Industrial Exposure	SLAMS-High Neighborhood
PM_{10}	Manual Gravimetric	Daily	Population Exposure	SLAMS-High Middle
PM_{10}	Manual Gravimetric co-located	1 in 6 days	Precision and accuracy assessment	

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	6 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	6 meters	Urban
WD Sigma	Elec. EPA method	Continuous	6 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	6 meters	Urban

Site: Ogden #2 **Station Type:** SLAMS
AQS#: 49-057-0002 **MSA: Ogden-Clearfield**- 526,075
Address: 228 East 32nd Street, Ogden, UT.
Longitude : 111.97509 **Latitude :** 41.20693 **Elevation (M)** 1317

Site Objective: This site is established to replace the original Ogden site to determine population exposure based on population.
Does the site meet the objective: The site meets the objective
Site Description: The site is located in the city of Ogden in Weber County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Carbon Monoxide	Instrumental Gas Phase Correlation	Continuous	Population Exposure	SLAMS-Neigh. Population
Nitrogen dioxide	Instrumental Chemiluminescence	Continuous	Population Exposure	SLAMS- High Neighborhood
$PM_{2.5}$	Manual Gravimetric	1 in 3 day	Population Exposure	SLAMS-High Neighborhood
$PM_{2.5}$ Real time	Instrumental TEOM FDMS	Continuous	Air Pollution Index	SPM-Neighborhood
PM_{10}	Manual Gravimetric	Daily	Population Exposure	SLAMS-High Neighborhood
PM_{10} Real time	Instrumental TEOM	Continuous	Air Pollution Index	SPM-Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 meter	Urban

Site: Rose Park **Station Type:** SLAMS
AQS#: 49-035-3010 **MSA: Salt Lake City**-1,113,852
Address: 1400 West Goodwin Avenue, Salt Lake City, UT.
Longitude : 111.93098 **Latitude :** 40.79554 **Elevation (M)** 1286

Site Objective: This site is established to represent this area of Salt Lake City for $PM_{2.5}$ exposure..
Does the site meet the objective: The site meets the objective
Site Description: The site is located in the community of Rose Park at the north end of Salt Lake City, Salt Lake County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
$PM_{2.5}$	Manual Gravimetric	Daily	Population Exposure	SLAMS-Neigh. Population

Site: Saltaire **Station Type:** SPM
AQS#: 49-035-3005 **MSA: Salt Lake City**- 1,113,852
Address: 6640 West 1680 North, Salt Lake City, Utah
Longitude: 112.0493 **Latitude :** 40.8044 **Elevation (M)** 1285

Site Objective: This site is established to collect meteorological information for air quality modeling inputs.
Does the site meet the objective: The site meets the objective
Site Description: The site is located West of the Salt Lake Airport in Salt Lake County.
Can data from this site be used to evaluate NAAQS ?: No

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 meter	Urban
Solar Radiation	Elec. LiCor	Continuous	2 meter	Urban

Site: Santa Clara **Station Type:** SLAMS
AQS#: 49-053-0006 **MSA: St. George**-140,908
Address: 1215 North Lava Flow Drive, St. George, UT.
Longitude: 113.637 **Latitude:** 37.129 **Elevation (M)** 846

Site Objective: This site is established to determine the population exposure to ozone in Washington County.
Does the site meet the objective: The site meets the objective.
Site Description: The site is located on the grounds of the Snow Canyon Middle School, St. George, Washington County.
Can data from this site be used to evaluate NAAQS?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-Neigh. Population

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Spanish Fork **Station Type:** SLAMS
AQS#: 49-049-5010 **MSA: Provo-Orem**-511,101
Address: 312 West 2050 North, Spanish Fork, Ut.
Longitude : 111.6602 **Latitude :** 40.1383 **Elevation (M)** 1380

Site Objective: This site is established to determine the boundary of the high Ozone and $PM_{2.5}$ concentrations in Utah County.
Does the site meet the objective: The site meets the objective
Site Description: The site is located at the Spanish Fork airport in the city of Spanish Fork, Utah County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$	Manual Gravimetric	Daily	Population Exposure	SLAMS-Regional Transport

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Syracuse **Station Type:** SPM
AQS#: 49-011-6002 **MSA: Ogden-Clearfield**-526,075
Address: 4528 West 1700 South
Longitude : 112.11879 **Latitude :** 41.08846 **Elevation (M)** 1285

Site Objective: This site is established for air quality modeling inputs.
Does the site meet the objective: The site meets the objective
Site Description: The site is located in the city of Syracuse near the causeway to Antelope Island State Park, Davis County.
Can data from this site be used to evaluate NAAQS ?: No

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 meter	Urban

Site: Tooele #3 **Station Type:** SLAMS
AQS#: 49-045-0003 **MSA: Salt Lake City**- 1,113,852
Address: 50 West 434 North, Tooele, UT.
Longitude : 112.29972 **Latitude :** 40.53939 **Elevation (M)** 1511

Site Objective: This site is established to determine population exposure to air pollutants.
Does the site meet the objective: The site meets the objective
Site Description: The site is located in the city of Tooele, Tooele County.
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Ozone	Instrumental Ultra Violet	Seasonal	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$	Manual Gravimetric	1 in 3 day	Population Exposure	SLAMS-Neigh. Population
$PM_{2.5}$ Real time	Instrumental TEOM FDMS	Continuous	Air Pollution Index	SPM-Neighborhood

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban

Site: Washington Boulevard
AQS#: 49-057-0006
Address: 2540 South Washington Boulevard, Ogden, UT.
Longitude : 111.97029 **Latitude :** 41.21964

Station Type: SLAMS
MSA: Ogden-Clearfield-526,075
Elevation (M) 1317

Site Objective: This site is established to monitor ground level, mid block mid sidewalk exposure to carbon monoxide.
Does the site meet the objective: The site meets the objective
Site Description: The site is located in downtown city of Ogden, Weber County
Can data from this site be used to evaluate NAAQS ?: Yes

Gas/Particulate parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Monitoring Objective	Spatial Scale
Carbon Monoxide	Instrumental Gas Phase Correlation	Continuous	Population Exposure	SLAMS-High Microscale

Site: West Jordan **Station Type:** SPM
AQS#: 49-35-3004 **MSA: Salt Lake City**- 1,113,852
Address: 7602 S. Airport Road
Longitude : 112.00116 **Latitude :** 40.61136 **Elevation (M)** 1419

Site Objective: This site is established for air quality modeling inputs.
Does the site meet the objective: The site meets the objective
Site Description: The site is located in the city of West Jordan, Salt Lake County.
Can data from this site be used to evaluate NAAQS ?: No

Meteorological parameters:

Parameter	Sampling & Analysis Method	Operating Schedule	Tower Height	Spatial Scale
Wind Speed	Elec. Chopped signal Level 1	Continuous	10 meters	Urban
Wind Direction	Elec. Resistance Level 1	Continuous	10 meters	Urban
WD Sigma	Elec. EPA method	Continuous	10 meters	Urban
Ambient Temperature	Elec. Resistance	Continuous	10 meters	Urban
Relative Humidity	Elec. Thin Film	Continuous	10 meter	Urban
Solar Radiation	Elec. LiCor	Continuous	2 meter	Urban

1.6 NETWORK MODIFICATION PROCESS

Utah's monitoring network is reviewed annually to verify that the objectives of the network are being met. The most recent emissions inventories for each pollutant are reviewed along with population data and ambient data gathered in the area. When it is available, current computer air pollution dispersion modeling is also reviewed. Based on that information, the State may identify the need for an additional monitoring station or the need to relocate a station to better meet the initial objectives of the site. The State may also identify sites that are no longer needed to meet the monitoring needs of the State. If a change is needed in the monitoring network, a Network Modification Form is submitted to EPA Region VIII prior to or as part of installing, modifying, or removing a monitor.

1.7 REVIEW OF NETWORK MODIFICATIONS IN 2007

The extent geographically of ozone and $PM_{2.5}$ impacts in Salt Lake, Utah and Weber Counties has been addressed during past several years.

$PM_{2.5}$ monitoring has been performed at Herriman and West Valley in Salt Lake County and at Washington Terrace in Weber County. These sites are not the highest $PM_{2.5}$ sites in the respective counties and are no longer necessary to define the area of concern for $PM_{2.5}$. The same sites measured ozone and the sites were not the highest ozone sites in the counties and they are no longer necessary to define ozone concerns in those counties. Since these three sites are no longer needed to address $PM_{2.5}$ or ozone these stations were closed on April 30, 2008. Network modification forms were completed and submitted to EPA, and approval was received before closing the stations.

1.8 PROPOSED NETWORK MODIFICATIONS

On March 12, 2008, EPA announced a revision to the National Ambient Air Quality Standard (NAAQS) for ozone. A new standard for the ozone was set at .075 PPM daily high 8-hour average. The new ozone standard was promulgated on March 27, 2008, and became effective on May 27, 2008. Based on data already collected by the DAQ, there are several areas within the state that will not meet this new standard. The new ozone standard did not establish new monitoring requirements. EPA intends to issue an ozone monitoring rule in response to the new NAAQS. Any change in ozone monitoring requirements will be reviewed and addressed after they are promulgated. In 2006, EPA modified the air monitoring requirements contained in 40 CFR Part 58 as part of a national effort to realign monitoring requirements to focus on pollutants that are of the greatest concern. The changes in the monitoring requirements continue to be of concern to DAQ.

A significant portion of the funding for the monitoring program comes from federal grants to the State. That federal funding has decreased over the past several years with a

significant decrease in FY2007. At the same time, the costs associated with equipment replacement, personnel, and overhead have steadily increased, and EPA continues to add new monitoring requirements the states must meet with this reduced funding.

With these increased monitoring needs and new constraints on spending, the State determined that it is critical to verify that the monitoring network is operating as efficiently as possible. To meet that goal we must determine that each station addresses a critical need without duplicating existing information. To that end, the following criteria for review have been put in place. The Utah air monitoring network needs to be reviewed to:

1. Ensure that the air monitoring network meets the requirements of 40 CFR 58;

2. Identify the monitoring sites that are required to evaluate compliance with the NAAQS, provide public notification of air quality conditions, and to meet the needs for technical analysis of current and future air modeling work.

3. Meet the available budget allocations by consolidating monitoring equipment to select sites and removing monitoring stations that are collecting redundant or immaterial data.

As a result of this network redesign, many modifications to the monitoring network are envisioned for next year. The first priority for the monitoring network is that it meets the requirements of 40 CFR 58 and the goals of the State of Utah. For that portion of the monitoring budget that is funded by state resources beyond federal monitoring grants, Utah priorities will take precedence over national priorities.

The following proposed changes to the monitoring plan are grouped into those resulting from a change in EPA's focus or a change to federal monitoring requirements, data needs identified by the DAQ, additional monitoring necessitated by growth in an area, or changes to meteorological monitoring due to the computer modeling needs of the Division.

Change in EPA Focus and Changes to Federal Requirements

On December 18, 2006, revisions to 40 CFR 58 which implement the National Ambient Air Monitoring Strategy became effective. That strategy increases EPA's monitoring of non-criteria pollutants and reduces monitoring of criteria pollutants that are no longer a national concern because emission reduction strategies have been successful. To do this, EPA proposes the reallocation of funding currently used to monitor criteria pollutants to fund increased air toxics monitoring. The changes to the monitoring requirements in 40 CFR 58 will result in changes to the DAQ monitoring effort, and are identified in this monitoring network review.

The revised 40 CFR 58 changes the name of the Annual Network Review to an "Annual Network Plan" and requires that the plan discuss the DAQ monitoring needs, goals and

objectives. It also requires a somewhat more global 5 year monitoring "assessment" that will be prepared and submitted to EPA by July 1, 2010.

The December 2006 revisions to 40 CFR 58 also include a new federal requirement to establish multi-pollutant National Core (NCore) multi-pollutant monitoring sites and to reduce the number of single pollutant monitoring sites nationally. Before July 1, 2009, the Annual Network Plan will be revised to discuss how NCore requirements will be implemented in the Utah network. The NCore monitoring stations are to be operational by January 1, 2011.

DAQ Identified Data Needs

The DAQ staff have met to consider how to collect the air monitoring data needed to meet the goals and objectives of DAQ and implement the new EPA monitoring regulations, while, at the same time, EPA was significantly reducing federal funding for the monitoring program. A number of primary objectives were identified and served as the basis for a major realignment of Utah's monitoring network. Those objectives are:

- Provide timely air quality data to the public to support and enhance DAQ's public notification process whenever unhealthy air quality conditions are forecast or already exist. This notification allows the public to take the appropriate precautions to protect their health while providing them and local industry the opportunity to reduce their emissions and their impact on air pollution.

- Collect air pollution data to evaluate areas against the NAAQS.

- Focus on monitoring air pollutants of current concern. Carbon monoxide and SO_2 are currently considered "solved problems" because it has been many years since either pollutant violated their respective NAAQS. At the same time, EPA has revised the NAAQS for $PM_{2.5}$ and ozone to lower levels. Therefore, the focus for monitoring CO and SO_2 needs to be the assessment of the role these pollutants play in the formation of $PM_{2.5}$ and ozone, which requires measuring them at very low concentrations.

- Collect detailed, continuous, and short-term multi-pollutant data at common sites in each urban area to be used in scientific research, including the support of reactive computer modeling. $PM_{2.5}$ and ozone are generally formed from the reaction of other pollutants over time under the right meteorological conditions; therefore, multiple hotspot-type monitors are not necessary. The current network has shown that $PM_{2.5}$ and ozone concentrations are generally homogeneous in each of the air sheds with only slight variability; therefore, DAQ is proposing concentrating the monitoring efforts into fewer sites. Selection of those sites was based on how well the site represented the air shed, how long of a historic perspective was available for the site, and how well the site met the monitoring siting criteria for all of the pollutants to be monitored as well as meteorological data collection. This objective parallels EPA's emphasis on NCore monitoring sites.

- Increase the capability of the monitoring network to measure non-criteria or toxic air pollutants.

- Monitor air quality in the fast-growing areas of Southern Utah to ensure compliance with the NAAQS and to identify air pollution trends in the area.

- Monitor air quality in areas with significant oil and gas development to determine whether this development is adversely affecting air quality.

- Gather baseline monitoring data in rural Utah to determine if and where air pollution problems may exist.

- Define future nonattainment areas for pollutants based on air quality data rather than geo-political boundaries.

  Based on the above changes in DAQ data needs and changes in EPA's focus and funding, the following changes to the Utah air monitoring network are necessary to meet future needs of the DAQ. Details of these changes will be discussed in the sections discussing individual pollutants.

- **Changes to the SO_2 network:** There will be no changes in the SO_2 monitoring network until EPA takes final action on the SO_2 SIP. The post SIP SO_2 monitoring needs will be evaluated at that time.

- **Changes to the CO network:** We intend to move the CO monitoring currently at Washington Blvd. to the Ogden site, after we evaluate the data we collected last winter season of CO data at both sites to see if the move is appropriate.

- **Changes to the NO_2 network:** The State intends to add two additional NO_2 monitors, one at a new site in West Jordan or South Jordan and the other at a new site in Draper as funding becomes available from closing monitoring stations that are not needed.

- **Changes to the ozone network:** The State will continue ozone monitoring at Beach, Brigham City, Bountiful, Cottonwood, Hawthorne, Highland, Logan, Ogden, North Provo, Spanish Fork and Tooele. The State intends to establish two new ozone monitoring sites in the Salt Lake Valley, one in West Jordan or South Jordan and the other in Draper as funds become available from closing monitoring stations that are not needed. Additionally, the State has established an ozone SLAMS site in Washington County. That Washington County site will operate seasonally.

- **Changes to the PM_{10} network:** The State will not change the existing PM_{10} monitoring network.

- **Changes to the $PM_{2.5}$ network:** The State will continue to monitor $PM_{2.5}$ at Cottonwood, Bountiful, Brigham City, Harrisville, Hawthorne, Lindon, Logan, Magna,

North Provo, Ogden, Rose Park, Spanish Fork, and Tooele. The State intends to add two additional monitors for $PM_{2.5}$, one in West Jordan or South Jordan and the other in Draper as funds become available from closing monitoring stations that are not needed.

- **Changes to the meteorological monitoring network:** The State will continue meteorological monitoring at Antelope Island, Badger Island, Beach, Bountiful, Brigham City, Cottonwood, Harrisville, Hawthorne, Lindon, Logan, Magna, North Provo, Ogden, Rose Park, Salt Air, Spanish Fork, Syracuse, and Tooele. The meteorological monitoring currently occurring at the West Jordan site will be moved to a proposed new location in South or West Jordan where monitoring for criteria pollutants will also occur and a new meteorological monitoring site will be added to a proposed new site in Draper where criteria pollutants will be monitored as well.

- **Summary:** The changes to the individual monitors listed above will help in the goal of the creation of four consolidated monitoring stations where multiple pollutants are monitored year round: North Provo, Hawthorne, Ogden, and Logan. Hourly $PM_{2.5}$ data will be collected at these sites to support future modeling. DAQ intends to install a new monitoring location somewhere in South Jordan or West Jordan, and a new monitoring site in Draper which may eventually replace the Cottonwood monitoring site. The new sites are dependant on funds becoming available from closing monitoring stations that are not needed. This major realignment of DAQ's monitoring network will take several years to complete and will continue to support near-real-time notifications of air quality conditions for Utah's population centers.

Additional Monitoring Needs Due to Growth

The significant population growth that Utah has experienced over the past 15 years is projected to continue, as shown on the governor's demographics web site (see: http://governor.utah.gov/dea/Projections/05Baseline/Jan05Populationbyarea.pdf). Changes to the monitoring network the past couple of years have addressed some of the population growth.

The population growth in Washington County has reached an estimated population over 100,000. According to the new monitoring regulations, an ozone monitor was required to be installed in Washington County. That station actually began operation July 10, 2008.

Modifications to Meteorological Monitoring Because of Computer Modeling Needs

There is a need to collect Solar Radiation/Delta T (SRDT) data for use in computer modeling. Delta T is the differential temperature at 2 and 10 meters and shows the stability of the air mass that is being modeled. Sources outside the Wasatch Front will be required to collect SRDT data as part of any PSD permitting actions. However, in nonattainment areas such as along the Wasatch Front where PSD permitting is not required, it may be necessary for DAQ to begin to collect SRDT data based on available funding.

2.0 UTAH AIR MONITORING NETWORK

The following sections discuss the air monitoring network in Utah for the criteria pollutants identified by EPA that have a National Ambient Air Quality Standard. The need for ambient air monitoring for each criteria pollutant is different, and the requirements for selecting an appropriate monitoring site are identified by EPA in 40 CFR 58.

2.1 SULFUR DIOXIDE

The sulfur dioxide (SO_2) monitoring sites were installed at their present locations based on proximity to large SO_2 emission sources, the results of early computer modeling, or in response to concerns expressed by the public.

Monitoring sites were established at Beach and Magna in response to emissions from a nearby copper smelter operation. Changes made in the operations and emissions control by the smelter have reduced the SO_2 emissions by over 99% from those years when violations of the SO_2 NAAQS were monitored. Concentrations at the Beach and Magna monitors are much less than 10% of the NAAQS. On-going compliance activities assure the current level of control will be maintained into the future. Since the last violation of the SO_2 standard occurred in 1978, the need to measure SO_2 around the smelter operation is for support of the SIP.

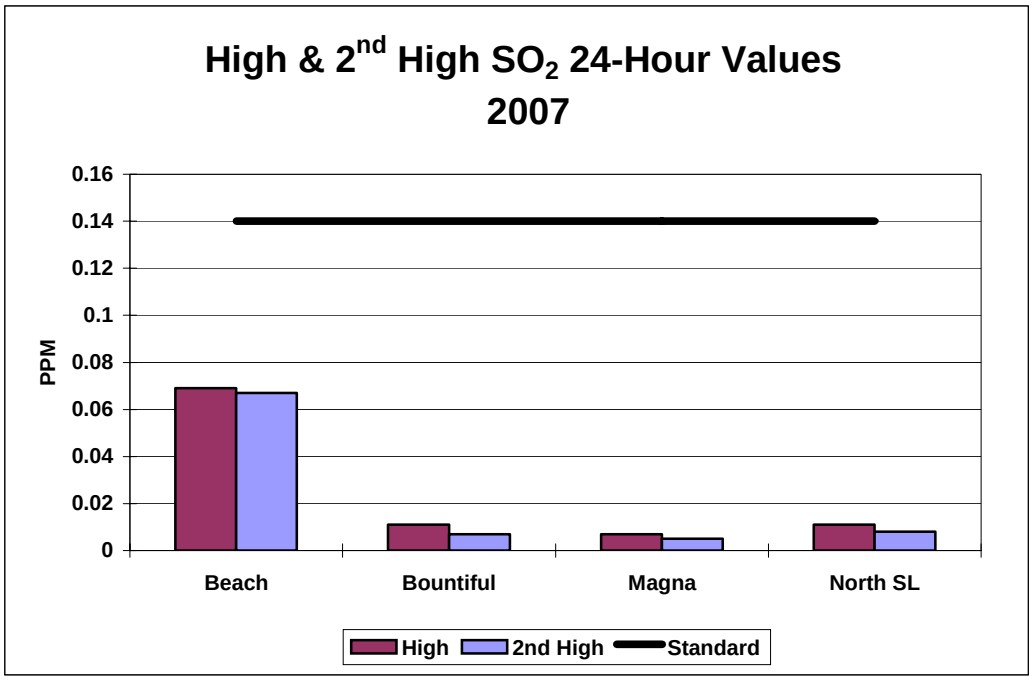
A violation of the SO_2 NAAQS has never been reported since the start of monitoring SO_2 at the North Salt Lake site in November 1981. As with the copper smelter, compliance activities will assure continued control of the oil refineries. DAQ plans to continue SO_2 monitoring year around at Bountiful and will be able to continue a trend analysis of SO_2 concentrations in North Salt Lake.

Salt Lake County and a portion of Tooele County are still officially designated nonattainment, pending EPA approval of Utah's SO_2 maintenance plan which is based on more than 25 years of continued monitoring showing attainment of the NAAQS. Once the area is redesignated to attainment, at least one monitor will need to be operated in the maintenance area to ensure that the area continues to maintain the standard.

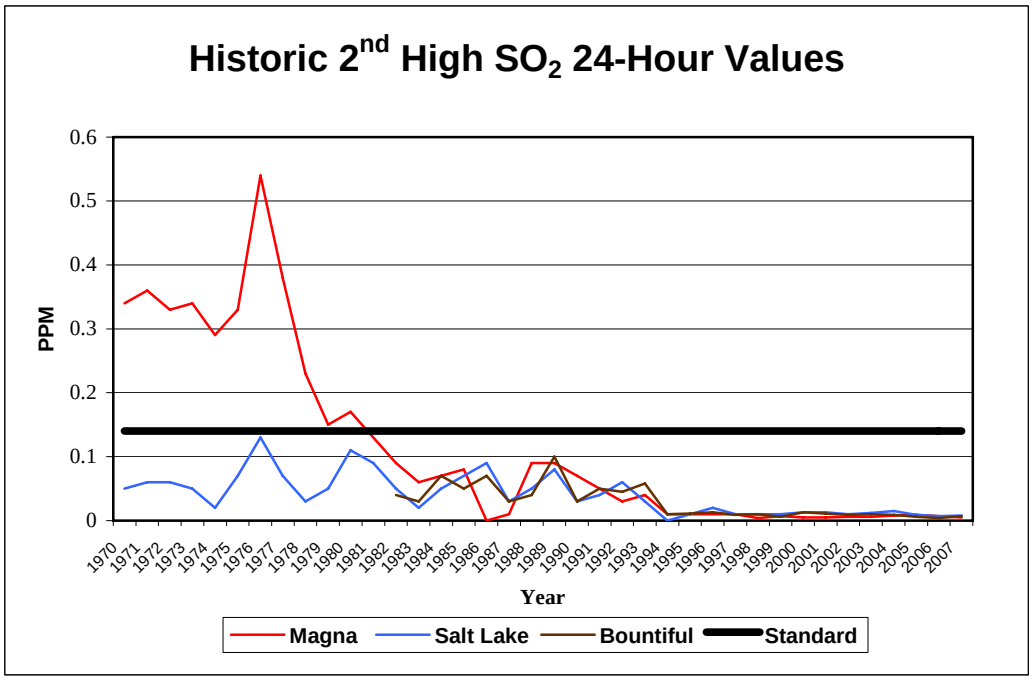
An SO_2 monitor will be installed at the Hawthorne consolidated site to ensure that the area continues to maintain the SO_2 standard.

Data Review from the Existing Monitoring Network

The following graph displays the highest and second highest 24-hour average for the monitoring stations. As can be seen, the highest values are much less than the standard.



The following graph shows the history of SO_2 concentrations measured in Utah. The graph shows the last time the standard was exceeded was 1981. Since that time SIP requirements and control measures implemented by industrial operations have resulted in low SO_2 levels.



Changes To The SO_2 Monitoring Network

The State will continue SO_2 monitoring at Beach, Bountiful, Magna and North Salt Lake.

Special Studies

No special studies are planned.

2.2 NITROGEN DIOXIDE

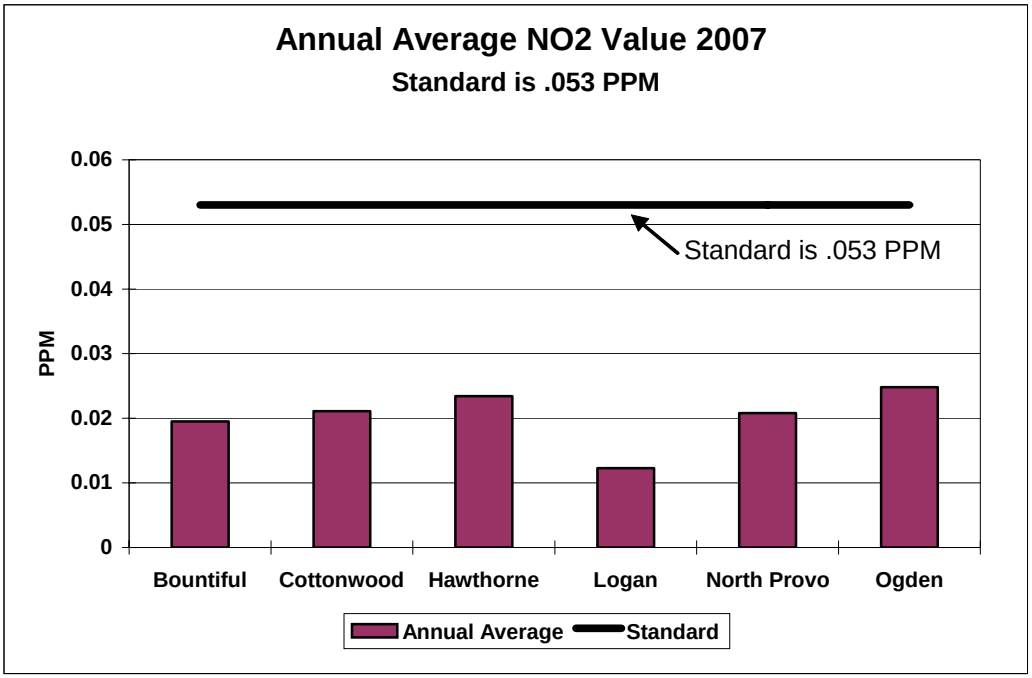
The existing Nitrogen Dioxide (NO_2) monitoring stations were installed at their current locations based on a combination of emissions inventories and population centers. EPA's guidance that monitoring should be performed in areas with a population of 200,000 or greater was considered, but monitoring for the NO_2 NAAQS has been a secondary consideration in Utah. The oxides of nitrogen (NO_x) are important precursors in the secondary formation of particulate matter and ozone. These pollutants tend to be more regional in nature, rather than occurring directly downwind of major sources of NO_x. For this reason, NO_2 monitoring stations have been co-located with $PM_{2.5}$ and ozone monitors to better understand and model the formation of these pollutants.

All NO_2 monitoring sites have consistently measured concentrations well below the NAAQS. However, DAQ plans to increase the NO_2 monitoring network with the addition of two monitoring sites, one in West Jordan or South Jordan and the other in Draper, both at new sites that would also monitor ozone and $PM_{2.5}$. These new sites will be down wind of the urban center and transport will allow the chemical reactions to occur. The information will be necessary for studies in $PM_{2.5}$ and ozone formation.

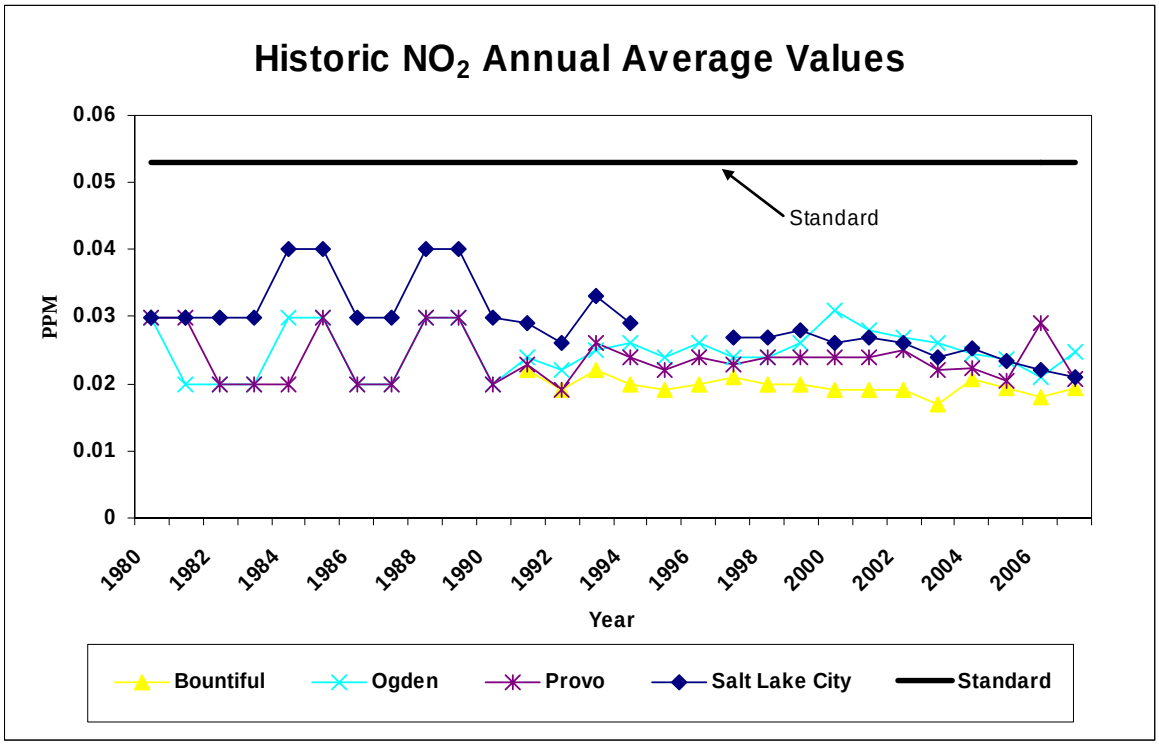
Data Review from the Existing Monitoring Network

The existing NO_2 monitoring stations are Ogden, North Provo, Bountiful, Hawthorne, Logan, and Cottonwood.

The following graph shows the annual average NO_2 concentrations for 2007. As can be seen, the measured values are less than half of the standard.



Over the years, NO_2 has not been close to exceeding the standard as the following graph displays. The concern from NO_2 is its involvement in the creation of ozone and fine particulate matter. Because of that concern, NO_2 controls have been required on vehicles and industry. As a result of those controls, a close review of the graph shows a slight decreasing trend.



Changes To The NO_2 Monitoring Network

DEQ will establish a new NO_2 monitoring site in West Jordan or South Jordan and a new site in Draper. Additional NO_2 monitoring sites may be established to respond to growth-associated state monitoring needs.

Special Studies

No additional studies are necessary.

2.3 CARBON MONOXIDE

Historically, elevated CO concentrations occurred near high traffic areas. Therefore, traffic information was obtained from the Utah Department of Transportation and the two local Municipal Planning Organizations (Wasatch Front Regional Council for Salt Lake, Davis and Weber Counties and Mountainlands Association of Governments for Utah County) to establish CO monitoring sites based on traffic patterns and densities.

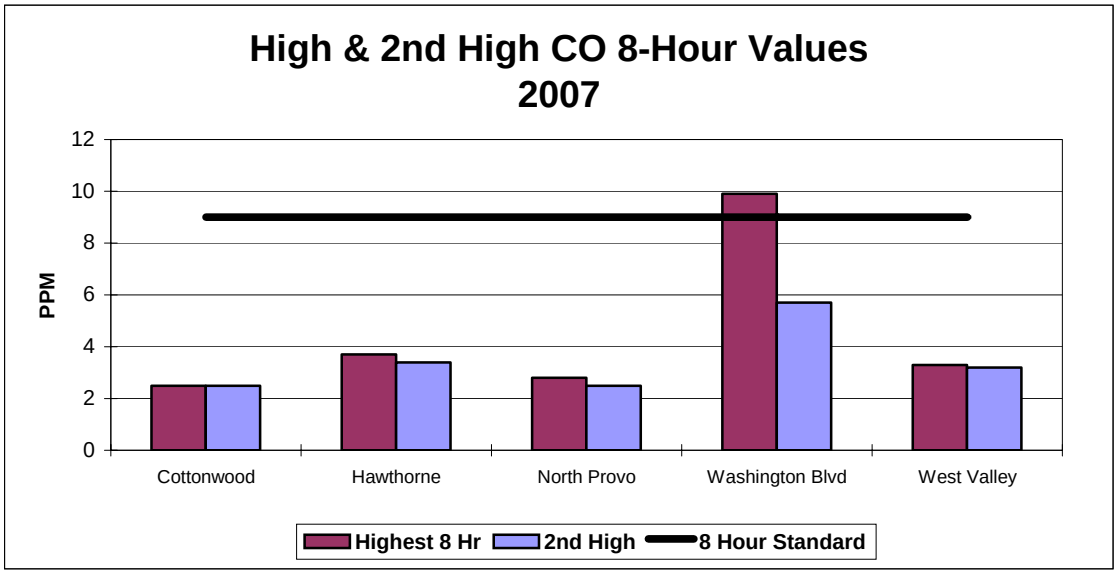
At the time the monitors were first installed, violations of the CO NAAQS were routinely recorded in Ogden, Provo, and Salt Lake City. The State developed and implemented State Implementation Plans and Maintenance Plans for those three areas that were subsequently approved by EPA. The implementation of those plans has resulted in all three areas attaining the CO NAAQS and being redesignated as attainment areas. In addition to the control measures identified in the plans, increasing federal controls on

automobiles are resulting in significantly lower emissions, resulting in monitored ambient concentrations of CO that are significantly below the NAAQS.

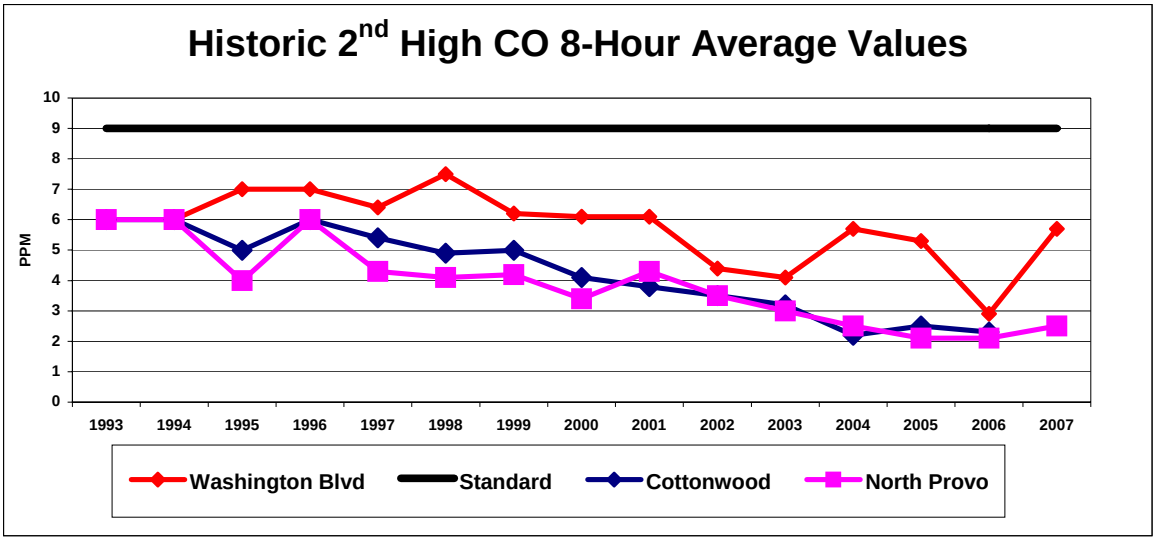
The existing CO monitoring stations that operate all year are: Hawthorne, North Provo and Washington Blvd. CO monitoring began in Ogden in December 2007. The intent is to evaluate the CO data from Washington Blvd and Ogden and then have the Ogden site continue as the long term trend site for Weber County.

Data Review from the Existing Monitoring Network

The following graph shows the highest and second highest measured CO 8-hour average concentrations for 2007. The high value at the Washington Blvd. site occurred during a late summer night on August 28, 2007. This was not during an inversion period or any late night city activities. Based on the data, we assume a maintenance vehicle parked under the inlet probe and idled for four hours with the vehicle exhaust blowing into the CO inlet while maintenance work was being performed on the building. The same thing happened for 2 hours on August 27, 2007 and August 29, 2007. That impact affected the second high CO 8-hour average as can be seen on the graph. As can be seen, all the other values are all well below the 8-hour standard.



The following graph shows the trend in the second highest CO concentrations from 1993 through 2007. The decrease in CO levels is a result of the controls that are required on new vehicles, the impact of the county vehicle inspection and maintenance programs, and controls on industry.



Additional Monitoring

Carbon monoxide can be considered as a problem solved; therefore, no additional CO monitoring is planned.

Changes To The CO Monitoring Network

We have many years of measuring low CO concentrations at the Cottonwood, Hawthorne, North Provo monitoring sites, and with the exception of the singular events in August 2007, Washington Blvd. monitoring site. The year around CO monitoring for Salt Lake County will now be performed at the Hawthorne monitoring site.

CO monitoring will continue at the consolidated Hawthorne and North Provo sites, and the CO monitor at Washington Blvd will be moved to the consolidated Ogden site after we evaluate the past winter season of CO data to show the move is reasonable. This will provide on-going monitoring to insure that all CO maintenance areas continue to meet the NAAQS.

Special Studies

No special studies are planned.

2.4 OZONE

Unlike carbon monoxide, SO_2, and NO_2, ozone is generally not emitted directly into the atmosphere in quantities high enough to result in a violation of the NAAQS. It is produced in the atmosphere as precursors – nitrogen oxides, hydrocarbons, and CO – react in the presence of sunlight to form a number of photochemical compounds. The photochemical reaction takes time to occur; therefore, ozone monitoring should be conducted down wind from the sources of precursors.

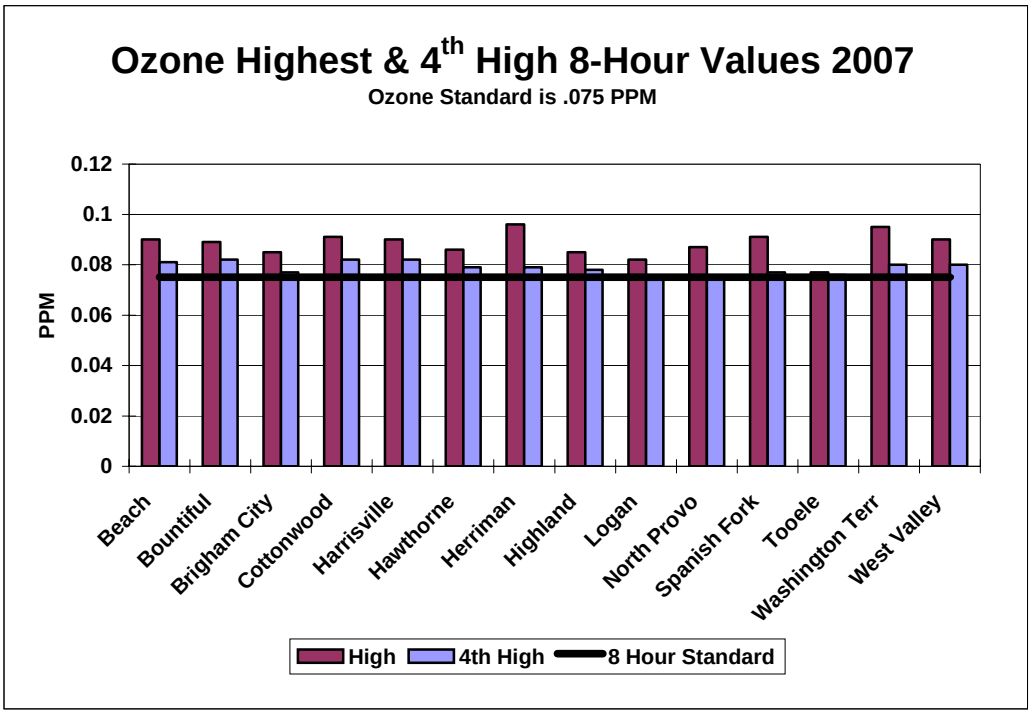
The valley setting of the major urban areas along the Wasatch Front complicates ozone monitoring. Typically, peak ozone stations should be located five to seven hours downwind from an urban area. However, summer wind patterns along the Wasatch Front result in a diurnal up-valley/down-valley wind flow pattern, such that after five to seven hours, the polluted air mass may be right back over the urban area.

Ozone concentrations at all DAQ monitoring sites fluctuate seasonally, with higher values measured only during the warmer months. Ozone is also created during winter temperature inversions as part of the complex photochemical reaction that is also creating $PM_{2.5}$. Therefore, some of the DAQ ozone monitors are operated seasonally, while others will be operated year-round.

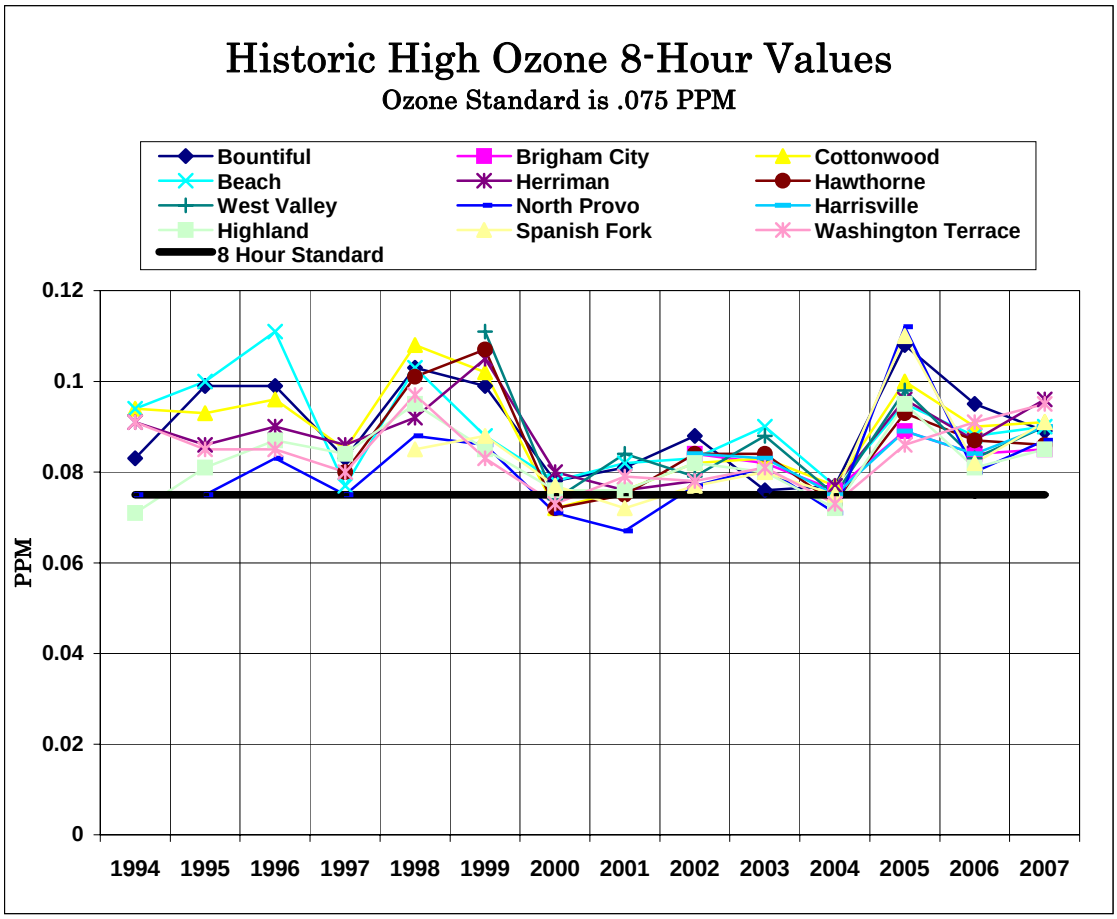
The existing ozone monitoring sites are located where the highest hourly and 8-hour ozone concentrations have occured, primarily in the populated counties along the Wasatch Front. Many of the sites routinely observe exceedances of the old 8-hour ozone NAAQS and the new 8-hour ozone NAAQS. Analysis of data from rural areas throughout Utah and the bordering states indicates that ozone is potentially much more of a regional problem in the West than was originally thought. Utah is actively participating with other states in the region to further analyze this; and this analysis may result in the need for an expanded ozone monitoring network.

Data Review from the Existing Network

The following graph shows the highest and 4th highest 8-hour average concentrations of ozone for 2007. As can be seen, exceedances of the 8-hour standard occur throughout our urban areas. Some of the sites have 4th high averages that also exceed the standard. To violate the standard, the 4th high average for three years must be averaged, if that average of the three yearly averages is above the standard, then that station has measured a violation. A review of the ozone data for 2005-2007 shows that the Beach, Bountiful, Brigham City, Cottonwood, Harrisville, Hawthorne, Herriman, Highland, Spanish Fork, Tooele, Washington Terrace and West Valley have 3 year averages that are above the new ozone standard.



The following graph shows the trend for the 8-hour average ozone concentration for 1994 through 2007. Ozone concentrations have remained level despite significant population growth due to emission control devices on new vehicles, the county-operated vehicle emission inspection and maintenance programs, a requirement for Stage I vapor controls at gasoline dispensing facilities, and significant control measures installed by industrial sources. In addition to comparing the measured ozone concentrations to the NAAQS, ozone is of interest because of its involvement in the formation of secondary particulate matter. More detailed ozone data may be needed to evaluate ozone involvement in the chemical reaction that forms secondary particulate matter.



Additional Monitoring

Previous modeling suggests that ozone concentrations may be higher in the southeast part of Salt Lake Valley when the afternoon lake breeze pushes the polluted air mass from Salt Lake City into this part of the valley. The mountains partially trap the air mass, allowing the ozone concentrations to build up. Therefore, DAQ will establish two new monitoring sites for ozone, one in the Draper area, and the other in the West Jordan/South Jordan area as resources are identified and become available.

Changes To The Ozone Monitoring Network

Analysis of years of monitoring data has shown that the polluted air mass moves around the valley, analogous to water sloshing around in a bathtub. At any given time, the ozone concentrations at some sites may be higher than others in the network. DAQ currently operates four ozone monitors in the Salt Lake / Davis County Maintenance Area. It has been our experience that the Cottonwood and Bountiful monitors usually record the highest ozone concentrations in the air shed. The Hawthorne site will be the Salt Lake County consolidated monitoring site. The Beach monitor, located at the edge of the Great Salt Lake where no people live, at times shows elevated ozone concentrations although it is not a location to which a significant portion of the population may be exposed. The Beach Monitor will continue as an intermittent maximum ozone site.

DAQ is planning to locate additional ozone monitors in the southern part of Salt Lake Valley as resources allow.

Ozone monitoring will continue at Beach, Brigham City, Bountiful, Cottonwood, Harrisville, Hawthorne, Logan, North Provo, Ogden, Spanish Fork and Tooele. We are planning to locate monitors in the southern part of the valley as resources allow. Additional ozone monitoring sites may be established to respond to growth or to supplement the information regarding regional ozone concentrations.

Special Studies

None are planned for this next year.

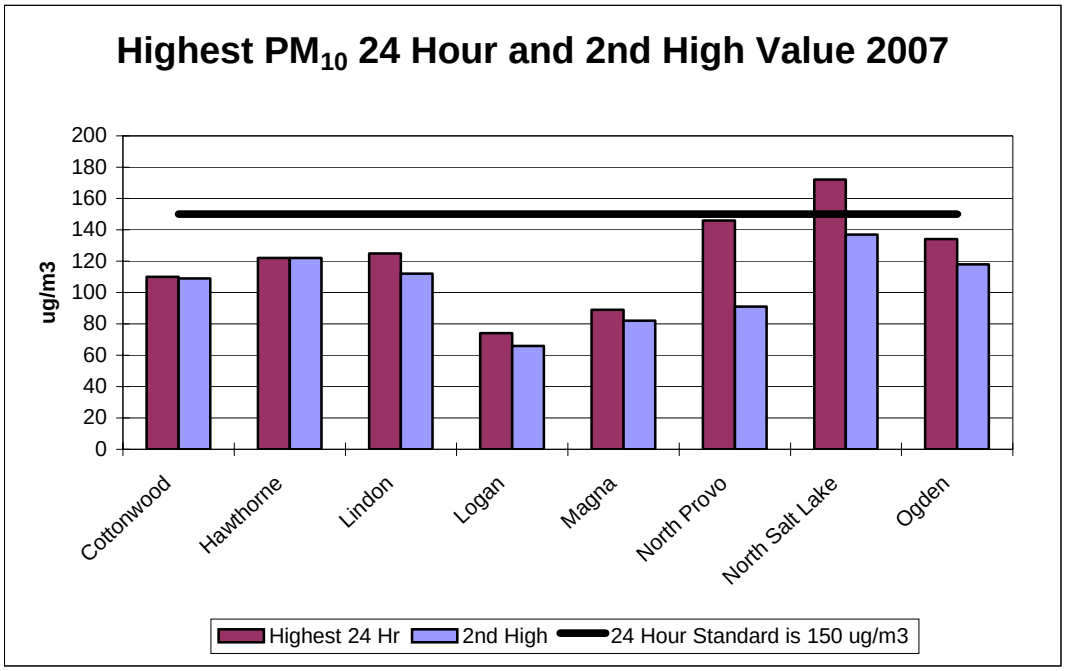
2.5 PM_{10}

The PM_{10} samplers were initially installed at the same sites as the Total Suspended Particulate (TSP) samplers because computer modeling was not available to assist in locating the sites. TSP monitoring had been performed for many years at those locations and showed many violations of the TSP standard.

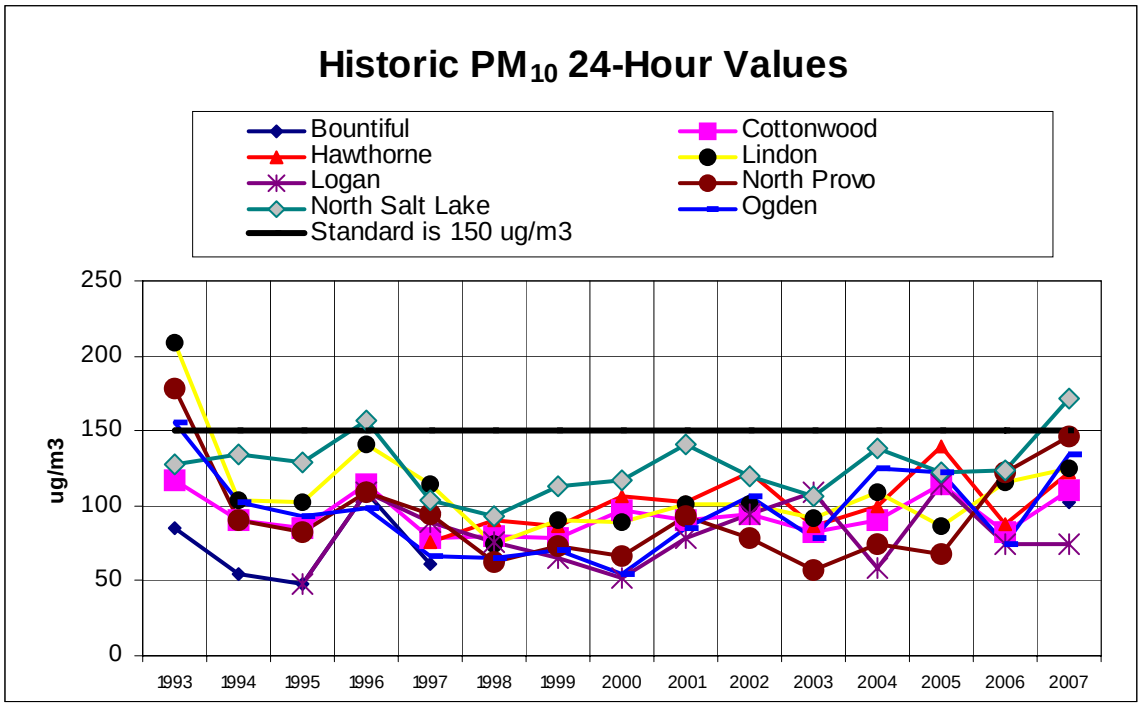
PM_{10} monitoring is complicated by the fact that there are two types of PM_{10} particles. Primary particles are released from the source as particles and their concentration decreases from the point of release dependent on dispersion characteristics. Secondary particles are released as gases and become PM_{10} particles through chemical reactions in the atmosphere. Concentrations of secondary particles are greater some distance from the source or after some time has elapsed from the time of release to allow the reactions to occur. Monitored PM_{10} concentrations are a combination of both primary and secondary particles. Establishing monitoring sites to measure both types of particles can be a concern. Historically, TSP and PM_{10} sites have been located based on primary particulates.

Data Review from the Existing Monitoring Network

The following graph shows the highest and second highest 24-hour average PM_{10} values for 2007. As can be seen, only one station measured exceedances of the standard. The high values were the result of a natural event consisting of very high winds which blew dust all along the Wasatch Front.



The graph below shows the PM_{10} trends from 1993 through 2007. All of the sites show attainment of the PM_{10} standard including North Salt Lake if the provisions of the exceptional events rule are applied.



Additional Monitoring

No additional PM_{10} monitoring is necessary at this time.

Special Studies

No special studies are planned for the next year.

Changes To The PM_{10} Monitoring Network

In the 2006 revisions to 40 CFR 58, the minimum population based monitoring requirements were changed. The Salt Lake MSA should have 4 to 8 PM_{10} monitoring sites based on the population size. No changes are planned to the PM_{10} network until final action is taken by EPA on PM_{10} SIPs.

The location of the North Salt Lake monitor will be evaluated to determine if the current location is appropriate and representative. The Division has concerns that the local impacts of construction activities, sand and gravel operations, and the emissions from idling diesel trucks at an adjacent intersection and rail road crossing and neighboring yard activities are biasing the results of the ambient sampling.

Additional PM_{10} monitoring sites may be established to respond to growth and associated state monitoring needs.

2.6 $PM_{2.5}$

On September 20, 2006, the Environmental Protection Agency promulgated a new NAAQS for particulate matter measured as $PM_{2.5}$. The promulgation changes the 24-hour standard from 65 ug/m3 to 35 ug/m3, effective December 18, 2006. The more stringent standard increases the importance of $PM_{2.5}$ sampling.

$PM_{2.5}$ is comprised of two different types of particles. Primary $PM_{2.5}$ particles are released from the source as particles and their concentration decreases from the point of release, dependent on dispersion characteristics. Secondary particles are released as gases and become $PM_{2.5}$ particles through chemical reactions in the atmosphere. Measured $PM_{2.5}$ concentrations are a combination of both primary and secondary particles.

In Utah, elevated $PM_{2.5}$ concentrations principally occur during the winter time when the ground is covered in snow and strong, cold temperature inversions set up along the Wasatch Front, resulting in stagnant air and foggy conditions. During these times, nearly all of the monitored $PM_{2.5}$ is secondary particulate. DAQ has operated many monitors along the Wasatch Front and participated in studies in the Cache Valley, and has found that $PM_{2.5}$ concentrations are generally fairly homogeneous throughout the valleys during the winter stagnant conditions.

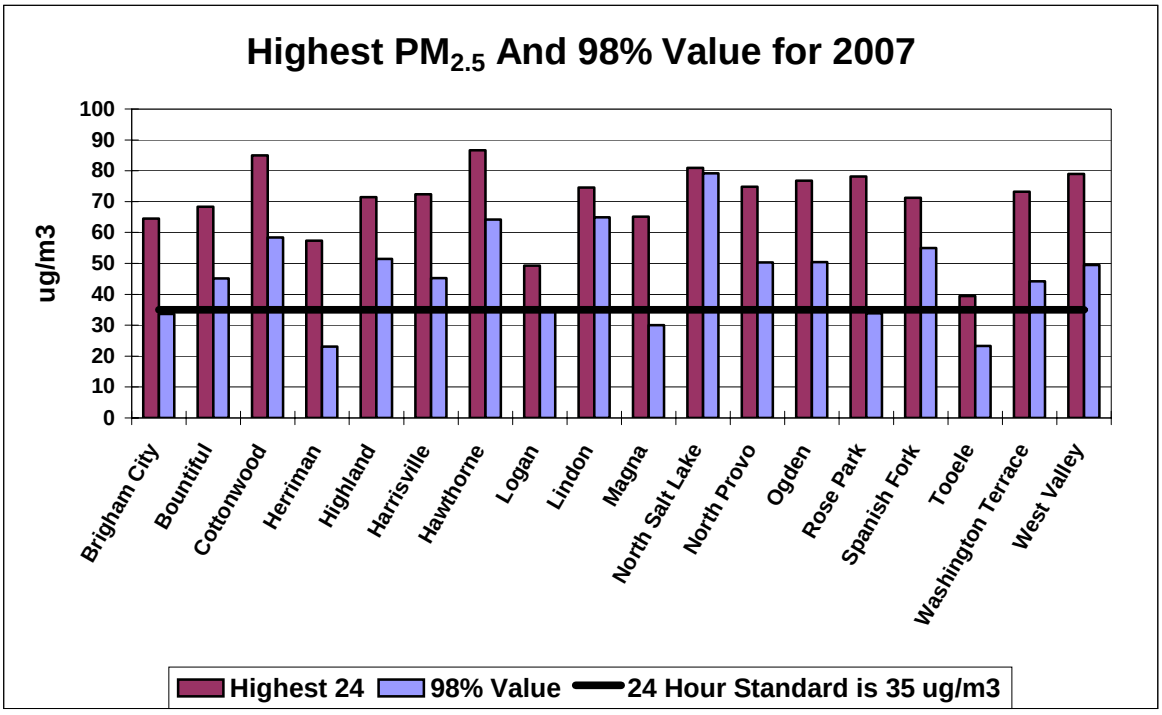
In the summer, strong wind events may cause elevated concentrations of $PM_{2.5}$, most of which is primary particulate (wind-blown dust).

Particulate sampling was first conducted for TSP, then PM_{10} at several locations in each county. Previous particulate monitoring has shown that the existing locations have elevated particulate concentrations. In addition, computer modeling for TSP and PM_{10} and some limited PM_{10} saturation sampling also showed existing particulate sampling sites are located in the areas of high concentrations for particulates. Therefore, when the initial $PM_{2.5}$ monitors were set up, it was done at those historic sites.

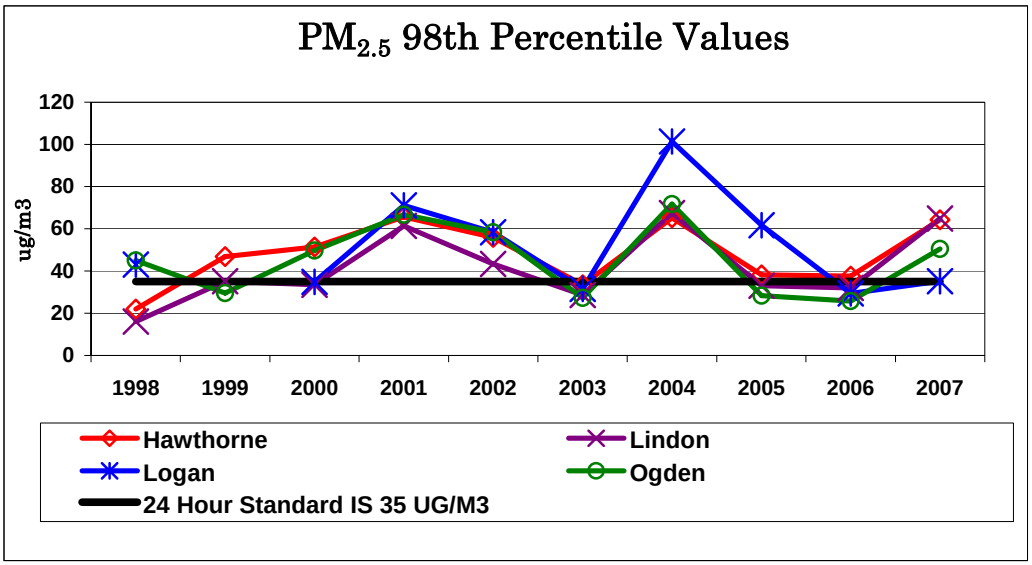
Historically, TSP and PM_{10} sites were located based on primary particulates, and the $PM_{2.5}$ monitoring sites were located based on concentrations of PM_{10}. The appropriateness of that decision will be reviewed as modeling for $PM_{2.5}$ is performed. To complete the modeling, emission inventory information must be collected and the reactive models need to be verified; however, our finding thus far of the homogeneity of $PM_{2.5}$ concentrations throughout the air shed indicates that one or two $PM_{2.5}$ monitors in each air shed are adequate to demonstrate compliance with the NAAQS. $PM_{2.5}$ monitors that sample every three days are of limited value because continuous hourly data are needed for public notification and modeling. DAQ is proposing to develop a more robust network, by going to a 24 hour network, with enough data to be helpful in modeling.

Data Review from the Existing Monitoring Network

The following graph shows the highest 24-hour average $PM_{2.5}$ and 98% value of $PM_{2.5}$ for 2007. The values are significantly over the new $PM_{2.5}$ standard that became effective in December 2006.



The following graph shows the history of $PM_{2.5}$ 98th percentile concentrations measured in Utah. With the lower $PM_{2.5}$ standard in place most of the monitoring sites violate the standard.



Additional Studies

No special $PM_{2.5}$ studies are planned for this next year

Changes to the $PM_{2.5}$ Monitoring Network

DAQ will continue to monitor $PM_{2.5}$ at Cottonwood, Bountiful, Brigham City, Hawthorne, Highland, Lindon, Logan, Magna, North Provo, Ogden, Rose Park, Spanish Fork and Tooele. We will begin monitoring $PM_{2.5}$ at two new sites, one in West Jordan or South Jordan and the other in Draper. These modifications will allow for the installation of some more expensive real-time monitors for use in detailed modeling analysis and for notification to the public of current air quality conditions. Additional $PM_{2.5}$ monitoring sites may be established to respond to growth associated state monitoring needs.

2.6.1 $PM_{2.5}$ Speciation

DAQ operates three $PM_{2.5}$ speciation sites. The Hawthorne site, in Salt Lake County, is one of 54 Speciation Trends Network sites (STN) operated nationwide on an every third day sampling schedule. Sites at Bountiful/Viewmont, in Davis County, and Lindon, in Utah County, are SLAMS $PM_{2.5}$ speciation sites that operate on an every sixth day sampling schedule. Samples are prepared by the EPA contract laboratory and shipped to Utah for sampling. Samples are collected for particulate mass, elemental analysis, major cation and anions, elemental, and organic carbon. Carbon sampling and analysis changed in 2007 to match the IMPROVE method using a modified IMPROVE sampler at all sites. Samples are returned to the EPA contract laboratory as soon as possible after sampling packed with ice substitutes to retain the volatile compounds sampled. Individual samples are distributed to separate laboratories dependant on the specific

compounds of interest. Data undergoes level one and two review and data checks by the laboratory. The data is then submitted to the state for level 3 review and concurrence. The data are submitted to the AIRS database by the contractor. Data from the speciation network shows the importance of volatile secondary particulates during the colder months. These particles are significantly lost in FRM $PM_{2.5}$ sampling. The speciated samples have been useful in identifying impacts from wild fire and residential wood burning smoke and holiday firework events. Data has identified the contribution of soils during high wind events.

2.7 METEOROLOGICAL DATA

By measuring surface wind speed and direction, one can attempt to determine where a pollutant-laden air mass has come from and where it is going. This information is essential any time an attempt is made to determine the cause of high pollution periods. The wind patterns in the mountainous terrain of Utah can be very difficult to analyze. Winds affected by geographical features can, and often do, control air mass movement in the mountain valleys where most industrial and urban activities are concentrated.

Because of these complex wind patterns, it has been the policy of the DAQ that many major air monitoring stations of middle scale or larger should record meteorological data. Each station must be evaluated separately because of the complex micrometeorology in Utah. Because the terrain produces complex wind patterns, it is difficult to collect enough monitoring data to adequately represent the meteorology within the air shed.

There is a need to collect Solar Radiation/Delta T (SRDT) data for use in computer modeling. Delta T is the differential temperature at 2 and 10 meters and shows the stability of the air mass that is being modeled. Sources outside the Wasatch Front will be required to collect SRDT data as part of any PSD permitting actions. However, in nonattainment areas such as along the Wasatch Front where PSD permitting is not required, it may be necessary for DAQ to begin to collect SRDT data, based on available funding.

Existing Monitoring

Meteorological monitoring is currently conducted at Antelope Island, Badger Island, Beach, Bountiful, Brigham City, Cottonwood, Harrisville, Hawthorne, Highland, Lindon, Logan, Magna, North Provo, Ogden, Salt Air, Santa Clara, Spanish Fork, Syracuse, and Tooele monitoring sites.

Additional Monitoring

The importance of measuring meteorological parameters has increased as a result of more complex computer modeling. Modifications to the meteorological monitoring network have occurred as a result of a report prepared by the Technical Analysis Section. DAQ will be using the AERMOD computer model to analyze $PM_{2.5}$ and ozone data. AERMOD requires an extensive amount of meteorological information. The current meteorological monitoring network does not collect SRDT data, so the network may be modified to begin collecting SRDT data as funding is identified to purchase the necessary equipment.

Changes To The Meteorological Monitoring Network

DAQ will continue to perform meteorological monitoring at Antelope Island, Badger Island, Beach, Bountiful, Brigham City, Cottonwood, Harrisville, Hawthorne, Highland, Lindon, Logan, Magna, North Provo, Ogden, Salt Air, Santa Clara, Spanish Fork, Syracuse, and Tooele. DAQ proposes begin meteorological monitoring at two new sites, one in West Jordan or South Jordan, and the other in Draper as resources become available.

2.8 AIR TOXICS

The category of toxic air pollutants encompasses literally thousands of different compounds, including organic and inorganic particulate compounds and volatile and semi-volatile organic compounds. It would be an impossible task to monitor for every known toxic compound. The list of known toxic compounds is growing, with dozens of compounds being added yearly.

The Clean Air Act of 1990 identified 189 toxic air pollutants which became the focus of the toxic monitoring program. That list has since been modified to 188 Toxic Air Pollutants. EPA has chosen 33 toxic air pollutants to focus on in its Integrated Urban Air Toxics Strategy. The pressure to increase monitoring for toxic air pollutants has been increased by the National Monitoring Policy. In response, EPA is reducing the number of criteria pollutant monitors required by regulation, allowing states to refocus the cost savings toward additional toxics monitoring. Any increase in the toxic monitoring network will depend on additional funding by EPA.

Mercury as an air toxic is of significant interest in Utah. Advisories to limit the consumption of fish from certain lakes and water sheds have been issued because of the mercury content of the fish flesh. The sediment of the Great Salt Lake has mercury to an extent that has raised concern about its origin. DAQ became part of the National Mercury Deposition Network and in May 2007, began monitoring for mercury in the ambient air.

Sampling Locations

Specific sources of toxic pollutants have been identified using SARA 313 information and a toxic air pollution survey conducted by Radian for DAQ. Toxic monitoring at these sources was not conducted for the initial sampling phase of the program; rather a general survey of the air contaminants was initiated. Monitoring near specific sources is being performed based on identified need. Historic sampling has been performed at Salt Lake City, Lindon, and North Provo stations. DAQ has been part of the EPA funded Urban Air Toxics Monitoring Program since a site was installed at West Valley in October 1999. In West Valley, VOCs, aldehydes and particulate metals were sampled.

In January 2003, the air toxics monitoring was moved to the Bountiful monitoring station so Urban Air Toxics equipment would be co-located with the $PM_{2.5}$ speciation

equipment. This will provide for a more complete evaluation of the air mass being monitored. Using EPA funds, an aethalometer has been added to the Bountiful site to measure ambient carbon particles. In addition, sampling for hexavalent chromium (Cr^{VI}) was initiated in 2005. A new carbon sampler began operation in 2007.

The Mercury Deposition Network sampler is located on the roof of the Air Monitoring Center in the western Salt Lake City suburb of West Valley City. Monitoring for Mercury began in May 2007.

Existing monitoring

The one Urban Air Toxics monitoring site provides a baseline for air toxics data in the urban areas along the Wasatch Front.

Additional Monitoring

EPA has indicated a desire to increase monitoring for non-criteria pollutants. EPA is re-allocating $6.3 million nationwide from existing funds for measuring criteria pollutants to increased monitoring of air toxics. As more guidance comes from EPA, that information will be used to assess needed changes in air toxics monitoring.

Additional Studies

No additional studies are planned for next year.

Changes to the Air Toxics Monitoring Network

EPA's National Monitoring Policy recommends increasing the number of sites and number of parameters being measured as part of identifying toxic air pollutants in the urban areas. As regulations are promulgated that implement the National Monitoring Policy, DAQ will identify needed changes to the toxics monitoring network.

DAQ has obtained additional funding to conduct additional mercury sampling work to include dry deposition monitoring.

3.0 EMERGENCY EPISODE MONITORING

One of the responsibilities of the Division is to assure that the public is protected from air pollution concentrations that will cause immediate damage or impact to their health. Rule R307-105 establishes emergency response criteria in accordance with Subpart H and Appendix L of 40 CFR 51. Whenever air pollution concentrations meet or exceed the Alert, Warning, or Emergency levels, an Emergency Episode is determined to exist and actions are taken to reduce the emissions of air pollutants. It is the responsibility of the monitoring section to collect the air pollution data used to determine when an Emergency Episode exists. The data collection telemetry system is alarmed and the monitoring staff is alerted whenever the Alert, Warning, or Emergency levels are approached. The monitoring staff has the primary responsibility to notify the director of

the Division that an emergency episode exists. This is a critical function that is required by State and federal law. The telemetered stations along the Wasatch Front are included in the Emergency Episode network. The Emergency Episode Plan has been reviewed to allow it to remain current.

No changes have been identified in the emergency episode monitoring effort.

4.0 NETWORK MODIFICATION FORMS

Network modification forms will be prepared for submittal to EPA Region VIII to implement the network modifications identified in this network plan.

5.0 SUMMARY AND CONCLUSIONS

The monitoring requirements identified by federal regulation are currently being met with the existing monitoring network in Utah. The procedures that are being used and the instruments that are being operated meet the standards that have been established by EPA.

A.0 APPENDIX A- PUBLIC COMMENTS ON MONITORING PLAN

The comments received during the public review of the monitoring plan will be evaluated and the plan will be modified if determined to be appropriate.