



# UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF AIR QUALITY

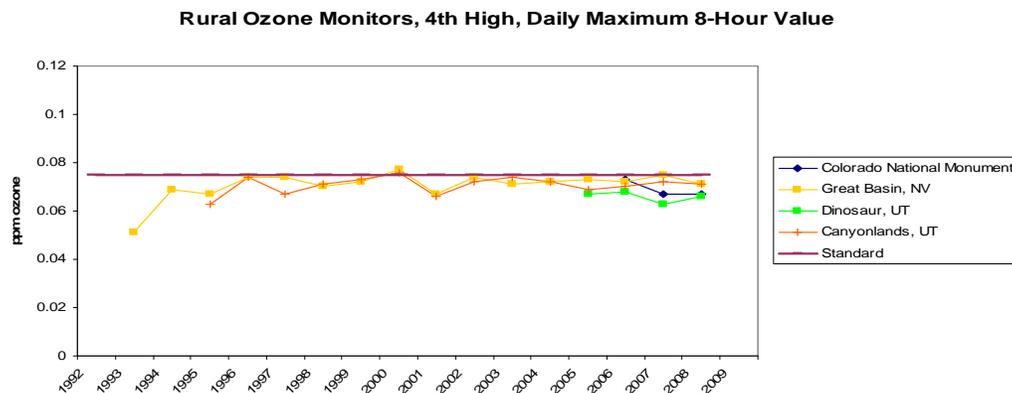
## RURAL AIR QUALITY AND OIL/GAS DEVELOPMENT IN UTAH FACT SHEET

June 2010

### The problem: Rural Air Pollution Concentrations are at the Standard

Ambient concentrations of rural air pollution are rising and the EPA standards are going down. In 2006 EPA reduced the 24-hour standard for PM<sub>2.5</sub> by nearly 50%. EPA is expected to cut the standard for ozone by up to 20% this coming August. At the same time ambient concentrations of both PM<sub>2.5</sub> and ozone are near the current standards.

Figure 1



EPA recently started monitoring ozone at 4 locations in the Uintah Basin at Myton, White Rocks, Ouray, and Red Wash. Last winter ozone levels reached a high 8-hour value of .137 ppm during inversion conditions, nearly twice the federal health standard.

UDAQ wintertime monitoring studies for 2007, 2008, and 2009 in the Uintah Basin have shown that under inversion conditions PM<sub>2.5</sub> can be as high as that seen along the Wasatch Front with concentrations at or above the standard.

The UDAQ, BLM, and USFS are deploying new monitors to better track air pollution trends in rural areas of Utah. These agencies have agreed to coordinate the siting of new monitors and the sharing of collected data.

During the summertime, elevated ozone concentrations occur throughout the West, even in remote rural areas. It isn't clear why rural air pollution concentrations are elevated. It could be due to transport from ever growing population centers, wildfires, oil and gas production, or some combination these factors. However, if rural areas of the State do not meet the new federal health standards it could have adverse impacts on economic development.

**Why it's important: Air Emissions from Oil and Gas Production**

Oil and gas development is important to the economy of Utah. However emissions from this development can have an adverse affect on air quality and this has been a central environmental issue for federal agencies responsible for permitting new wells.

The Uintah Basin has the greatest oil and gas production and is experiencing the greatest growth in oil and gas production in the state. The best estimate of the air emissions coming from this production is the 2006 Phase III oil and gas emissions inventory sponsored by the Western Regional Air Partnership (WRAP) in conjunction with producers. The pollutant totals from the WRAP estimates are listed by county in Table 1.

Table 1 Air Emissions from oil and gas production for the Unita Basin counties.

County	NOx (TPY)	VOC (TPY)	CO (TPY)	SOX (TPY)	PM (TPY)
Carbon	1,024	2,748	833	23	43
Duchesne	3,709	19,280	3,232	97	178
Emery	273	453	199	9	14
Grand	698	2,429	331	16	26
Uintah	7,390	46,637	4,133	251	362
<b>Total</b>	<b>13,093</b>	<b>71,546</b>	<b>8,727</b>	<b>396</b>	<b>623</b>

The emissions from oil and gas production can be air pollutants in and of themselves, or they can serve as “precursors” to the chemical formation of other air pollutants such as ozone.

**The future: Production Relatively Small but Rising**

The state of Utah is ranked 13th in the country in crude oil production and 8th in natural gas production (Energy Information Administration; rankings based on 2007 production, not including Federal Offshore production areas). There are approximately 8,600 wells currently in production within the state. (Division of Oil Gas and Mining). Most of this production is located in the Uintah Basin. Utah’s natural gas and oil production has steadily increased over the last 10 years although it is still dwarfed by production in surrounding states.

Figure 2

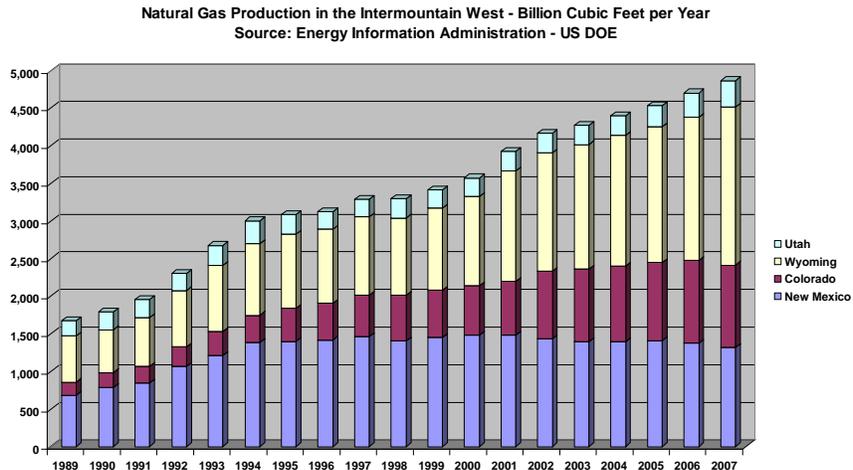
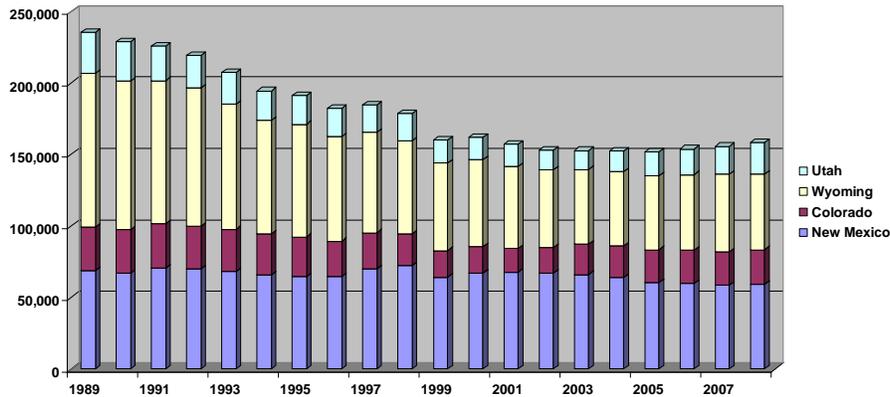


Figure 3

Oil Production in the Intermountain West - Thousands of Barrels per Year  
 Source: Energy Information Administration - US DOE



**Jurisdictionally complex: A Question of Authority**

Regulatory management of air quality in the Uintah Basin is complicated by the distribution of energy production areas and the jurisdiction of those areas by state, federal, and tribal agencies. Approximately 70% oil and gas production takes place in “Indian Country” where the Tribes and the EPA have regulatory authority.

Figure 4

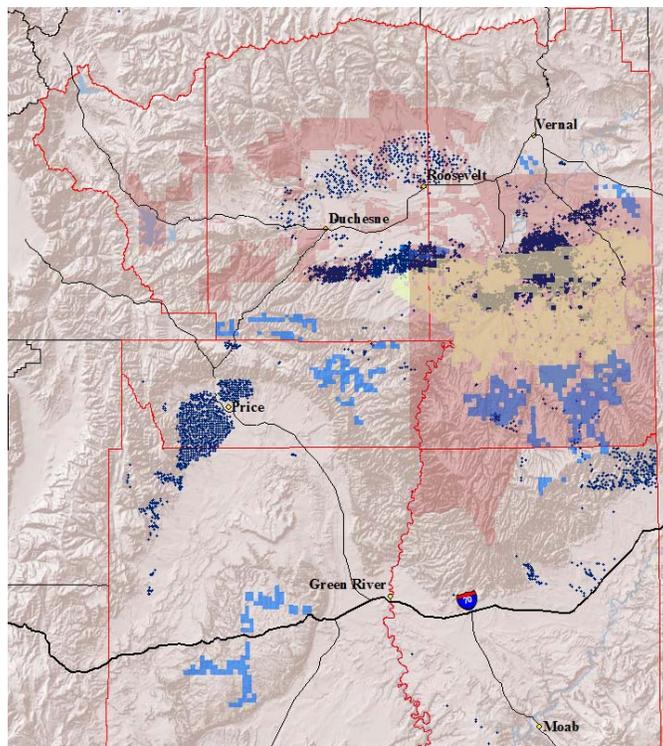
**EASTERN UTAH**

2006 Oil and Gas Production

BLM Proposed Leasing for Oil Shale and Tar Sands Development

“Indian Country” –  
 Regulatory Authority Controlled by the Tribes and EPA

-  Oil and Gas Wells
-  Oil Shale Leasing
-  Tar Sands Leasing
-  “Indian Country”



## **What Utah is doing: UDAQ Regulation of Oil and Gas Emissions on State Lands**

- **Monitoring - Expansion into rural areas**

Monitoring is the basis for understanding potential impacts from oil and gas development. UDAQ is working with the BLM and the USFS on rural ozone monitoring planned by the 3 agencies over the next 3 years. The desire is to coordinate siting and data sharing to the extent possible. Purposes for the monitoring data include understanding regional transport, delimiting potential non-attainment boundaries, photochemical model validation, characterizing trends in oil and gas areas, and wilderness area impacts.

Starting late summer 2010 UDAQ will begin monitoring ozone, oxides of nitrogen, and meteorological parameters at a location east of Price. In addition, UDAQ will operate a second monitoring station at Fruitland under an assistance agreement to the BLM. The purpose of these two sites will be to measure air quality levels at the western extent of the Uinta Basin, look at air quality trends over time, assess transport of pollutants from the Wasatch Front, and to benchmark air quality model results.

- **Permitting - Major and minor source permitting program**

Oil and gas sources that trigger new source review (NSR) permitting are subject to Best Available Control Technology (BACT) review, modeling, and public comment before a permit is issued. Utah has a minimum threshold for NSR permitting. If the source emits less than 5 tons per year of any criteria pollutant, less than 500 pounds per year of any single hazardous air pollutant (HAP), or less than 2000 pounds per year of combined hazardous air pollutants, the source does not need to undergo NSR review. Many of the emission sources in the oil and gas production industry are below this de minimis threshold for NSR permitting in Utah, including most of the wellheads and associated tanks. Utah is working with stakeholders to determine the feasibility of general rules for this category to establish better controls on these smaller sources.

- **Regional modeling studies - UBAQS**

The Independent Petroleum Association of Mountain States (IPAMS) with input from stakeholders, including Utah, undertook the Uintah Basin Air Quality Study (UBAQS), a comprehensive modeling study that provides quantitative estimates of air quality in the Uintah Basin. IPAMS conducted this analysis to ensure that industry, state, and federal land managers have the tools necessary to protect air quality.

The study provides a comprehensive analysis of cumulative air quality impacts using conservative modeling assumptions from natural gas and oil activities to provide public land managers and regulators with a worst-case scenario in the basin. The UBAQS results show that the basin will remain in attainment for all air quality standards, including ozone, through the year 2012. This study was focused on summertime conditions, and does not address the unique conditions that occur during the winter when strong temperature inversions develop in the Uintah Basin.

- **Three-State modeling center**

The 3-State Study is a pilot project sponsored by the states of Utah, Colorado, and Wyoming, EPA, BLM and the USFS that will provide a regional assessment of air quality conditions focused on the oil and gas development. Although the pilot study is focused on portions of these three states, the data warehouse created through this effort may eventually serve a much larger geographic area, including adjacent states. The pilot project focuses on the following activities:

1. Expand air quality monitoring to establish baseline conditions, track trends, and evaluate model performance
2. Create a data warehouse to store, manage, and share data among state/federal agencies, industry and their contractors to support modeling of air pollutants
3. Perform regional scale air quality modeling of current and projected conditions

Utah is anticipating that the results of this study will provide quantitative information about the air quality impacts of oil and gas that can be used for airshed management and ultimately provide a framework for making project-by-project cumulative NEPA analyses.

**Costs to Utah:**

The adverse health effects of both ozone and PM2.5 are well documented, and the high levels measured during winter temperature inversions may be affecting the population in the Uintah Basin. During the summer when regional ozone levels are high, large rural areas may also be affected. People with respiratory disease, the elderly, and children are at most risk for impacts from both of these pollutants. The current monitoring and modeling efforts will improve our understanding of the extent of the problem.

Utah will need to develop a state plan, in conjunction with EPA and the Tribe to reduce emissions that are contributing to the ozone and PM2.5 levels in the Uintah Basin and in other rural areas that do not meet the new ozone health standard. There may be significant costs to the oil and gas industry to upgrade equipment to meet the goals of the state plan. If an area is designated nonattainment for ozone or PM2.5 there are other, mandatory measures that must be implemented. The State will be required to establish an emission budget for vehicle emissions, and all future transportation plans in the area must conform to that budget. Other measures, such as vehicle inspection and maintenance programs may also be required. The permitting program in the area would also be affected. New sources in nonattainment areas are required to obtain an offset from existing sources to ensure that overall emissions do not increase in the area. New sources in nonattainment areas must also meet the highest standard of control. These restrictions could affect economic development in the area.

**For more information contact Brock LeBaron of the Utah Division of Air Quality at: (801) 536-4000.**