



Ozone and Nitrogen Concerns in NM

WRAP Ozone and NO_x
in the West

November 11, 2009



New Mexico Air Quality Issues

- Ozone
- NOx emissions
- VOC emissions
- Haze
- SOx emissions
- Fugitive Dust
- Smoke emissions
- Climate Change
- Mercury Deposition



New Mexico Sources

- Four Corners Power Plant and San Juan Generating Station—3840 MW of coal-fired power
- Oil and Gas—Four Corners and Permian Basin
- Dust
- Mobile
- Fire



Coal Fired Power Plant Emissions Inventory

Source	NOx (tpy) [2008]	SO ₂ (tpy) [2008]	PM (tpy) [2005]	CO ₂ (tpy) [2008]	Hg (lbs/yr) [2005]
SJGS 1798 MW	22,200	10,600	673	11,881,200	766
Four Corners 2040 MW	40,300	10,400	1,791	15,015,800	575
Total	62,500	21,000	2,464	26,897,000	1,341



New Mexico Air Quality Initiatives

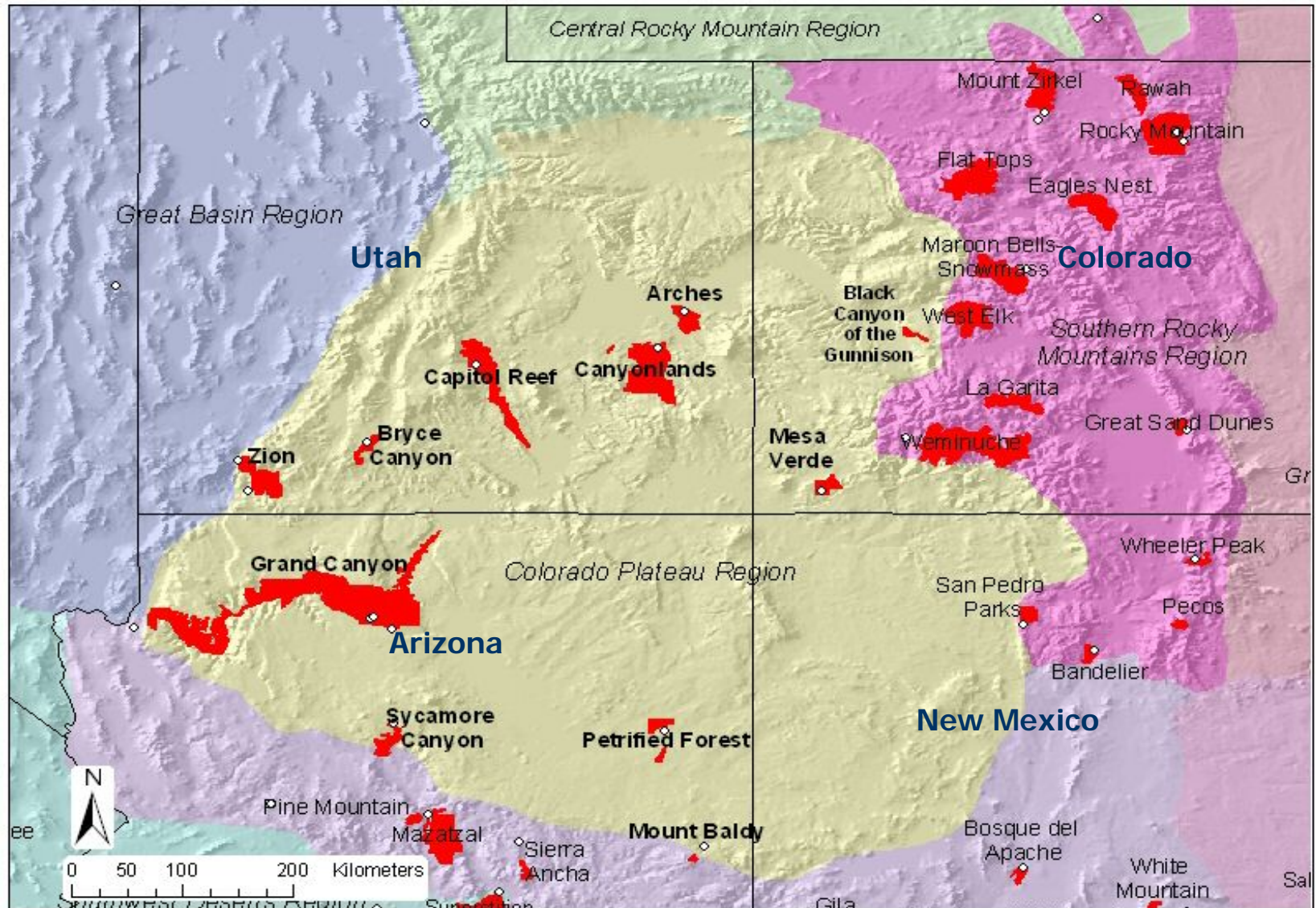
- Smoke Management Regulations
- SJGS Consent Decree
- SO₂ reductions-SJGS and gas plants
- NO_x and VOC inventories
- Backstop cap and trade for SO₂
- Clean Cars regulation
- Four Corners Air Quality Task Force
- Border Air Quality
- Statutory Changes addressing ozone



Permitting Challenges in Four Corners

- 19,000 existing Oil and Gas Wells
- 12,000 projected for next 20 years
- Aggregation of O&G sources
- Many small unregulated sources
- Multiple Operators
- Changing Field Conditions

Class I Areas in the Four Corners





4-Corners Air Quality Task Force

- Stakeholder Process

- Hundreds of participants from industry, federal, state, local and tribal governments, citizens, environmental groups
- Work Groups: Power Plants, Oil and Gas, Other Sources, Monitoring, Cumulative Effects
- Quarterly meetings with Work Group conference calls to review options and accomplish work
- Final report with mitigation options--Dec. 2007
- Continued meetings to review modeling, plan/prioritize and discuss regional air quality



Climate Change in New Mexico

- Drier conditions/more intense rainfall may result in more dust
- Warmer conditions may increase ozone concentrations and ammonia
- Controlling criteria pollutant emissions has co-benefit in some cases of reducing ghg emissions



New Mexico Needs for Regional Analysis

- Transport of pollutants into the state affects our air quality
 - ozone
 - mercury
- Advantages to pooling of western state resources for western analyses

Baseline ambient gaseous ammonia monitoring in the Four Corners Area

- Ambient ammonia monitoring using Ogawa passive samplers conducted in the Four Corners area and eastern Oklahoma during 2007.
- Regional background ammonia indicator concentrations in Four Corners area = 0.2 ppb.
- Annual mean ammonia concentrations for all Four Corners area sites for the 2007 study ranged from 0.2 ppb to 1.5 ppb.
- Data are being used in current visibility modeling exercises.
- Future follow-up studies desired.



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Baseline ambient gaseous ammonia concentrations in the Four Corners area and eastern Oklahoma, USA

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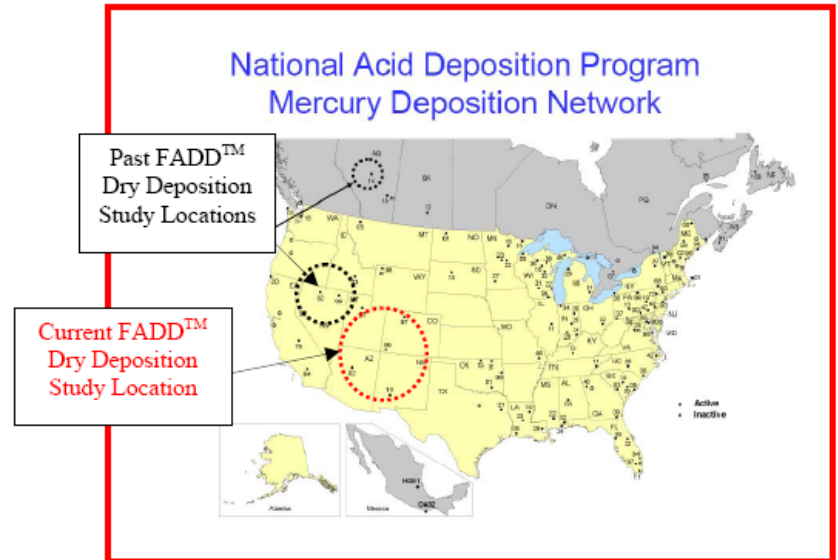
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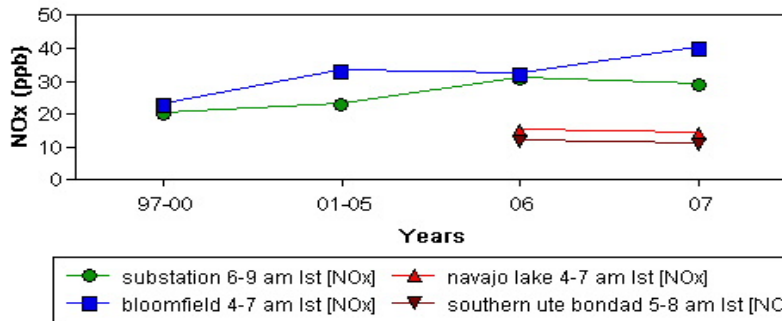
Ambient reactive gaseous mercury monitoring in the Four Corners Area

- Using EPA ORD RARE (Regional Applied Research Effort) funds, a 12-month study to measure mercury dry deposition at six sites in the Four Corners area and one site in eastern Oklahoma began in August, 2009.
- Contractor: Frontier Geosciences
- This will be the first data on dry deposition of mercury in the Four Corners area.

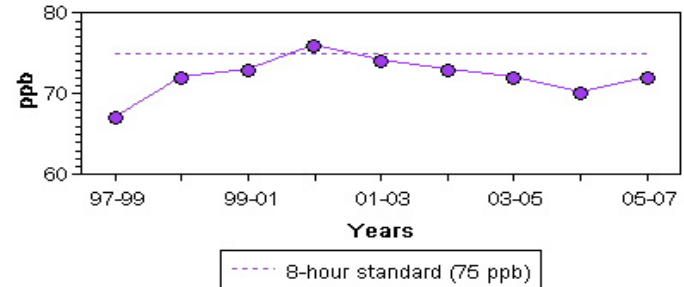


EPA Region 6 continues to provide analyses of ozone and ozone precursor data in the Four Corners Area

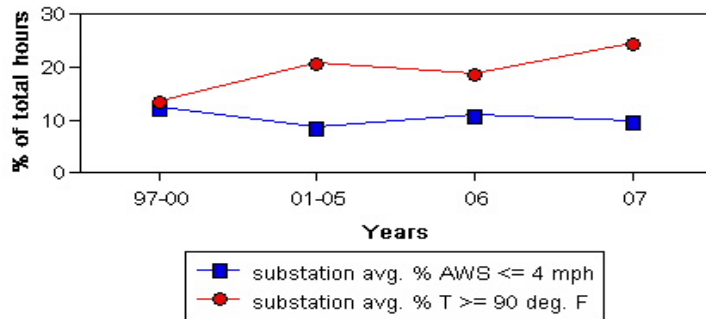
NOx Concentration Trends
June-August weekday mornings



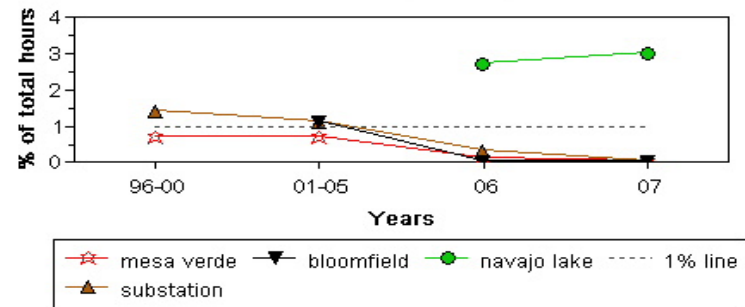
8-Hour Ozone Trends
3-year averages of annual 4th highs
highest site in network each 3-year period



High Temperature and Stagnation Trends
0500-1900 LST; June-August
T=temperature, AWS=average wind speed



8-Hour Ozone Trends
avg. % 8-hour [ozone] > 75 ppb
0800-1900 LST; June-August





Questions?
