

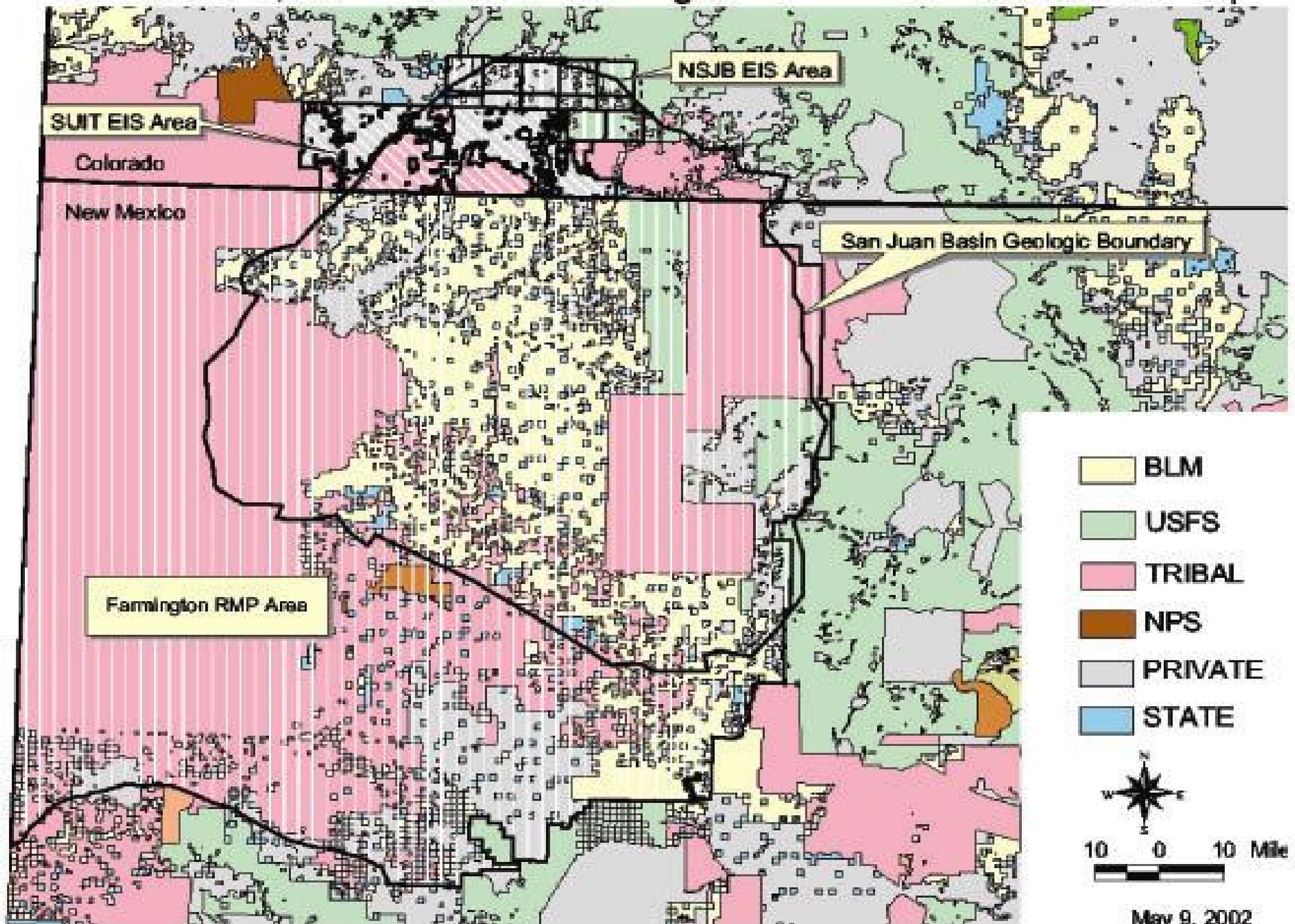


Northern San Juan Basin  
Environmental Impact Statement  
for Coalbed Methane Development

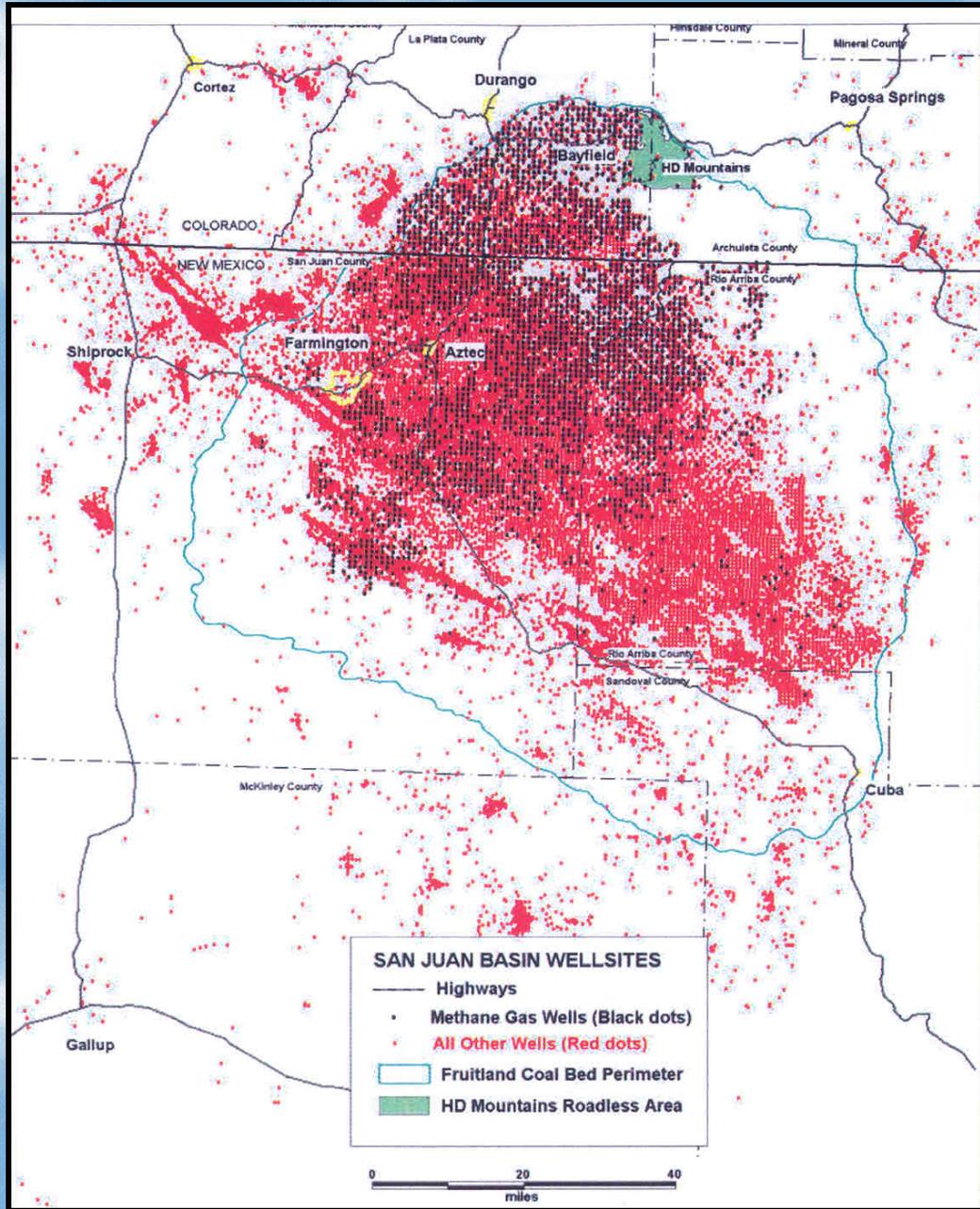


12/2/2004

# NSJB EIS, SUIT EIS and Farmington RMP Area Land Status Map



May 9, 2002



# Existing Oil and Gas Development in the San Juan Basin

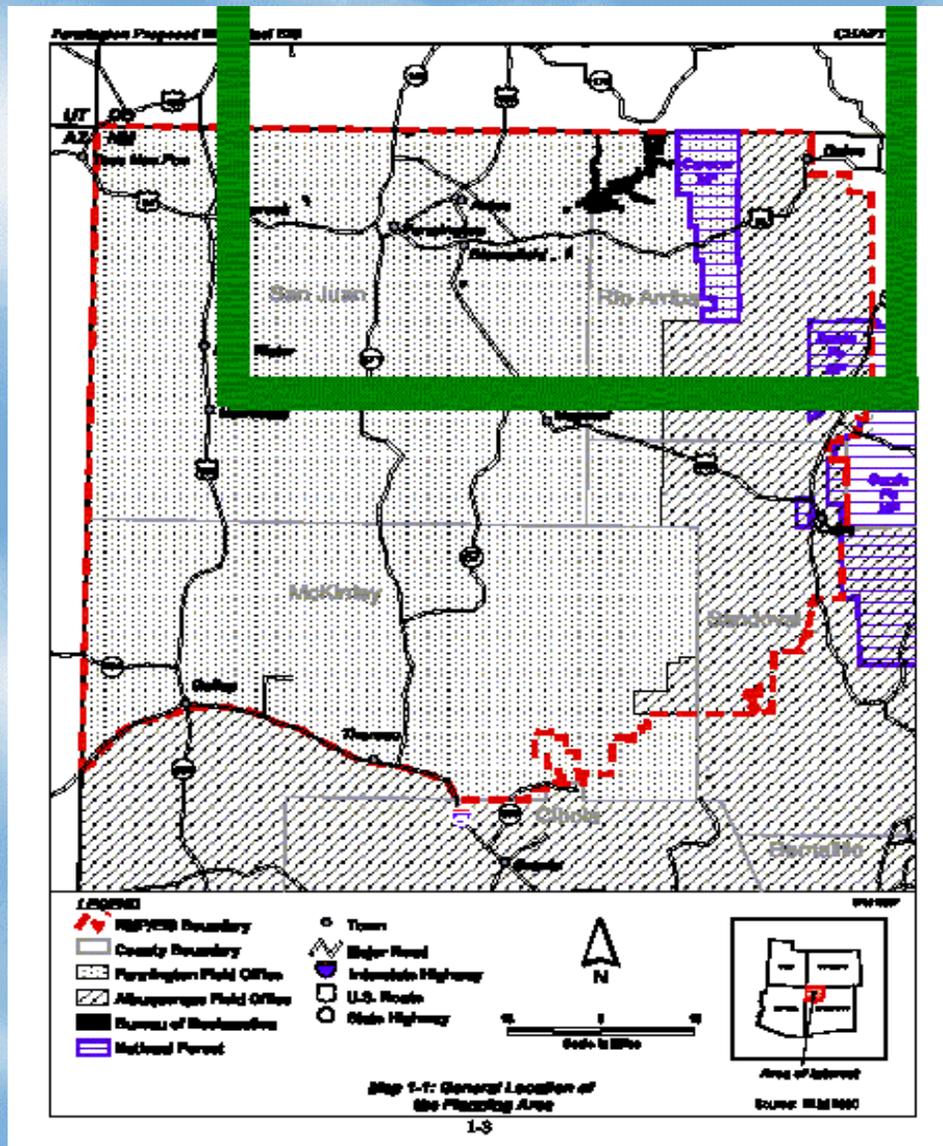
# Air Quality

**“Expanded Regional Cumulative Air Quality Impact Assessment: BLM shall perform a regional cumulative far-field [air] analysis ... as part of the planned Northern San Juan Basin Coalbed Methane Development EIS ... Based on the outcome of the regional analysis, additional mitigation may be required.”**

**- September 2003 ROD for the Farmington PRMP/FEIS**

# Well Pads, New Road Mileage & Impacted Acreage by Alternative

	<b>NSJB EIS Alternatives</b>						
<b>Activity</b>	<b>1 Companies' Proposed Action</b>	<b>1a Reduce Surface Well Pad Density</b>	<b>1b Reduce Surface Well Pad Density</b>	<b>2 Maximum Developmt</b>	<b>3 No New Developmt in USFS Roadless Area</b>	<b>4 Proceed Under Existing Guidance</b>	<b>5 No Action</b>
<b>Well Pads</b>	<b>273</b>	<b>211</b>	<b>158</b>	<b>499</b>	<b>212</b>	<b>185</b>	<b>117</b>
<b>Road Miles</b>	<b>118</b>	<b>94</b>	<b>62</b>	<b>203</b>	<b>78</b>	<b>91</b>	<b>39</b>
<b>Impacted Acreage</b>	<b>1,113</b>	<b>965</b>	<b>690</b>	<b>1,843</b>	<b>756</b>	<b>766</b>	<b>422</b>



## Regional Air Quality Modeling Domain

Based on previous Southern Ute CBM Calmet/Calpuff Analysis Area

Over 2,000 grid points

Approximately 12,000 sq mi

# Results of Air Quality Modeling

- Cumulative impacts from NSJB and Farmington RMP sources are predicted to exceed visibility thresholds at Mesa Verde National Park and Weminuche Wilderness Class I Areas.
- Cumulative impacts are also predicted to exceed ANC thresholds at Upper Grizzly Lake
- Cumulative impacts could be reduced if state-of-the-art NO<sub>x</sub> emission controls were required on new O&G-related emission sources.
- Contributors:
  - Existing and Predicted O&G Development:
    - NM: approx. 20,000 existing wells (approx. 10,000 proposed)
    - CO: approx. 2,500 existing wells (approx. 1,000 proposed)
  - NM power plants and residential growth
- O&G development is currently in compliance with standards but has the potential to exceed thresholds in the future.

# Lake Chemistry Analysis

Emission Source Group	Potential Change in ANC				
	Big Eldorado Lake (percent)	Lower Sunlight Lake (percent)	Upper Sunlight Lake (percent)	Upper Grizzly Lake (percent)	Upper Grizzly Lake ( $\mu\text{eq/l}$ )
<b>Baseline ANC Values (<math>\mu\text{eq/l}</math>)</b>	<b>27.7</b>	<b>79.8</b>	<b>25.8</b>	<b>24.3</b>	<b>24.3</b>
Alt 1 + Existing + RFS	1.14	0.41	1.82	3.41	0.83
Alt 2 + Existing + RFS	1.29	0.47	2.05	3.87	0.94
Alt 5 + Existing + RFS	1.00	0.35	1.55	2.92	0.71
Alt 1 + Existing + RFS + FRMP	2.79	0.99	4.31	8.11	<b>1.97</b>
Alt 2 + Existing + RFS + FRMP	2.93	1.05	4.55	8.57	<b>2.08</b>
Alt 5 + Existing + RFS + FRMP	2.64	0.93	4.04	7.62	<b>1.85</b>
Alt 1 + Existing + RFS + FRMP (2.0 g/hp-hr)	1.89	0.64	2.80	5.07	<b>1.23</b>
Alt 2 + Existing + RFS + FRMP (2.0 g/hp-hr)	2.03	0.70	3.03	5.54	<b>1.35</b>
Alt 5 + Existing + RFS + FRMP (2.0 g/hp-hr)	1.74	0.59	2.53	4.58	<b>1.11</b>
<b>Significance Threshold</b>	<b>10.00</b>	<b>10.00</b>	<b>10.00</b>	<b>10.00</b>	<b>1.0</b>

# CO/NM Air Quality Significant Impacts

- **Northern San Juan Basin CBM (Alt 2)**

Near-field –  $\text{NO}_2 \leq$  PSD Class II Increment

– formaldehyde  $> 1$  to  $100 \times 10^{-6}$  risk

Far-field (Alt 2 Cum)

– 0 to 4 days  $> 1.0$  dv @ MEVE

– 0 to 12 days  $> 1.0$  dv @ WEMI

(FRMP Alone @ 9.6 gm/hp-hr)

– 7 to 24 days  $> 1.0$  dv @ MEVE

– 1 to 12 days  $> 1.0$  dv @ WEMI

(Alt 2 Cum + FRMP @ 9.6 gm/hp-hr)

– 15 to **32** days  $> 1.0$  dv @ MEVE

– **11** to 25 days  $> 1.0$  dv @ WEMI

# CO/NM Air Quality Significant Impacts

- **Northern San Juan Basin CBM (Alt 1)**

Far-field

(Alt 1 Cum @ 2.0 gm/hp-hr)

– *no* days > 1.0 dv @ MEVE or WEMI

(FRMP Alone @ 2.0 gm/hp-hr)

– 0 to 5 days > 1.0 dv @ MEVE

– 0 to 2 days > 1.0 dv @ WEMI

(Both Alt 1 Cum and FRMP @ 2.0 gm/hp-hr)

– 3 to 10 days > 1.0 dv @ MEVE

– **2 to 12** days > 1.0 dv @ WEMI

# Continuing Actions

- **FLMs continue cooperation with Ozone Task Force**
- **Consulted with NMED/CDPHE Air Managers**
- **Briefed EPA Region 8 Air and NEPA Staff**
- **FRMP APD Approved (with additional NEPA)**

## **Potential Alternative Mitigation Measure Strategies**

- **Prescriptive** - require 2.0 gm/hp-hr wellhead engines
- **Descriptive** - limit total wellhead engines to 4,960 tons/year
- **Adaptive Management** - interagency team continual review
- **Interagency Work Group** - further regional air quality analyses
- **Minimal** - approve APDs with minimal mitigation requirements
  - Wait for 2008 NMED Visibility SIP w/BACT-BART
- **Issued NSJB CBM Draft EIS to Public**
  - Including description of anticipated mitigation strategy
  - Preclude EPA Region 8 EU (Environmentally Unsatisfactory) Rating

# Prescriptive Mitigation

- **FLMs could specify a fixed NOx emission rate for small well-head engines**
- **Features**
  - Enforced by FLMs
  - Would limit potential visibility and lake chemistry impacts
  - Based on existing air quality impact assessment
  - Operators could obtain site-specific approval to exceed prescribed limits if they demonstrate doing so would not cause or contribute to predicted impacts
  - Would provide “certainty” to operators, although equipment may be more expensive
  - Would not address other emission source growth (power plants)
  - Would require emission source monitoring to implement
  - Operational in about 30 to 45 days after NSJB FEIS is published

# Descriptive Mitigation

- **FLMs could establish a total NO<sub>x</sub> emission “Level of Concern” for small well-head engines**
- **Features**
  - Enforced by FLMs
  - Would limit potential visibility and lake chemistry impacts
  - Based on existing air quality impact assessment
  - Operators could choose their own emission controls, as long as total emission “level of concern” is not exceeded
  - Would provide “flexibility” to operators, although “later” development may have greater emission limits
  - Would not address other emission source growth (power plants)
  - Would require emission inventory, analysis and tracking to implement
  - Operational in about six months after NSJB FEIS is published

# Adaptive Management Mitigation

- **FLMs could establish an Adaptive Management Plan and Workgroup**
- **Features**
  - Implemented by Interagency Workgroup
  - Would limit potential visibility and lake chemistry impacts
  - Continual process would incorporate changing technical and social approaches to achieve desired ecological, economic and other social objectives
  - Would be uncertain for operators
  - Could address other emission source growth (power plants)
  - Would continual emission inventory and air quality impact assessment to implement
  - Operational at least one year after NSJB FEIS is published

# Minimal Mitigation

- **No additional NOx emission controls for small well-head engines**
- **Features**
  - FLMs would approve Applications for Permit to Drill with minimal mitigation requirements
  - Depends on existing EPA requirements to prevent significant adverse AQRV (including visibility and atmospheric deposition) impacts from occurring
  - Includes extensive Regional Haze Regulations and Program
  - Assumes EPA's oversight of local, state and tribal Air Regulatory Agency implementation of these programs should prevent the predicted significant adverse impacts from actually occurring
  - Operational once EPA approves CDPHE/NMED Visibility SIPs with BACT-BART

# Interagency Task Force

- **NM/CO Air Quality Regulators and FLMs could establish interagency task force to develop and implement a more comprehensive air quality impact assessment**
- **Features**
  - Enforcement by State Air Quality Regulators
  - Would involve “stakeholders” (public, environmental & industry)
  - Would limit potential visibility and lake chemistry impacts
  - Would require revised emission source inventory and modeling
  - Could expand analysis region and issues of concern
  - Could address other emission source growth (power plants)
  - Could require a tracking system to implement
  - Operational in about six months after NSJB FEIS is published

# Interim Requirements

- **FLMs could require new and replacement wellhead engines to achieve 2.0 gm/hp-hr NOx emission rate throughout Life of Project as part of APD approval**
- **Features**
  - Interim measure until Interagency Task Force action
  - Enforcement by Federal Land Managers
  - Would not address other emission source growth
  - Would require a tracking system to implement
  - Is technology presently available?
  - Increased costs to Operators (potential Legal Appeal)
  - Operational 30-45 days after NSJB FEIS is published

# Monitoring

- **FLMs could continue to cooperate with existing atmospheric deposition and visibility impact monitoring**
- **The need for, and design of, additional monitoring could include the involvement of EPA Region 8 Federal Leadership Forum and applicable Air Regulatory Agencies**
- **Oil and Gas Lease Terms (Section 6) require the lessee, within lease rights granted, to take necessary measures to minimize adverse impacts to air quality**
- **If additional mitigation measures are required in the ROD, FLMs must monitor and enforce those requirements**
- **Operators may be required to fund additional air quality monitoring, such as continuous direct optical monitoring at the Mesa Verde and/or Weminuche mandatory federal PSD Class I areas**

# Projected Timeline \* ...



Date	Action
June 15, 2004	Issue DEIS >160 day comment period begins
Nov 30, 2004	Comment period closed
April 2005	Issue FEIS
May 2005	Issue ROD
Mid-Jun 2005	Appeal period closes

*\* Schedule subject to change.*

# **For More Information**

**Scott F. Archer**

**Senior Air Resource Specialist**

**USDI-Bureau of Land Management**

**National Science and Technology Center**

**Denver Federal Center, Building 50**

**P.O. Box 25047, ST-133**

**Denver, Colorado 80225-0047**

**303.236.6400**

**303.236.3508 Fax**

**[scott\\_archer@blm.gov](mailto:scott_archer@blm.gov)**