



PSD Class I

Increment Analysis
in North Dakota

May, 2005



PSD Increment Program

- Clean Air Act established strict limits on SO₂ and PM concentration increases called increments that may occur in Class I areas (National Parks and Wilderness areas), Class II areas (attainment areas that are not Class I or III) and Class III (heavy industry areas)
- PSD increment level for SO₂ at Teddy Roosevelt National Park (TRNP) is a concentration change (increase) of 5 ug/m³ (24-hr average). The NAAQS level is a total concentration of 365 ug/m³ (24-hr average)
- Emission increases and decreases after two different baselines (one for major sources and one for minor sources) are counted to judge compliance with the increment



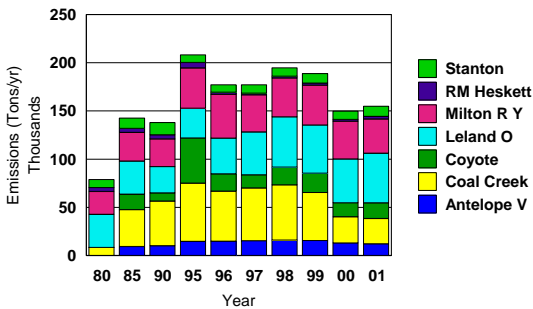
Background

- Since 1999, North Dakota and EPA have been working together to determine if the Class I increment for SO₂ is protected in western North Dakota
- A number of different modeling reports have been prepared by the State and EPA which come to different conclusions.
- The central question is how has air quality changed in the Theodore Roosevelt National Park (TRNP) since 1977 in the western part of North Dakota.

Background (continued)

Emissions have increased significantly since baseline date (1977) based on both EPA and ND estimates

SO2 Emission Trends at North Dakota Power Plants





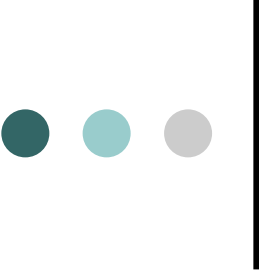
Background (continued)

- Considerable public interest nationally in this issue from enviros, industry, States, Congress, and media
- Dakota Resource Council (DRC) sued in 2003 but case dismissed due to "no final Agency action"
- In August 2004, DRC submitted an APA petition to Reg. 8 RA and EPA's administrator requesting that EPA 1) Find increment violations in ND and 2) Call for a SIP revision from State. EPA has not responded to the petition
- Litigation and media interest are likely when EPA makes a final decision



Timeline

- Oct 1999- ND submits study to EPA showing PSD increment violations using existing EPA guidance and practice
- EPA informed State of its duty to protect increment (2000)
- State volunteered to conduct modeling per an alternate protocol and amend SIP as appropriate (January 2001)
- State and EPA could not reach agreement on modeling protocol (April 2001)



Timeline (Continued)

- EPA, using existing guidance and practice and State using an alternate modeling protocol conducted separate modeling analyses – results sent out for comment early 2002
- State held hearing May 2002 and by October 2002 made finding of no increment problem.
- EPA modeling results indicated significant increment problems
- May 2002- EPA proposes MOU as part of a process to resolve differences



Timeline (continued)

- MOU signed by Administrator Levitt and ND Governor Hoeven in February 2004
- MOU identified points of agreement, unresolved issues, and a process for resolving the dispute over the status of PSD increment in ND Class I areas
- ND conducted revised modeling during 2004 following a specific alternative protocol. Some issues were resolved at the protocol stage through ongoing EPA involvement and discussions. These include "paired in space and time" and averaging across receptors. Other procedures ND attempted showed no benefit in terms of lower concentrations of air quality in the modeling and were not used.



Timeline (Continued)

- Spring 2004- EPA regional air modeling staff express concerns to OAQPS regarding NDs analysis approach. Their concern was the ND analysis approach contained substantial changes from past air quality modeling guidance and accepted methods and could set precedent for analyses in other Regions.
- Winter to Spring 2005- RO modelers and OAQPS staff/mgmt jointly review NDs Nov 2004 "final" modeling study. Remaining issues from those discussions are presented below.



Issues of Concern

- Model Evaluation and Background Concentration
- Annual Average Emissions for Short-Term impacts
- Alternate Data Period for Baseline Emission Estimates
- Oil and Gas Emission Estimates
- Paired in Space and Time Methodology
- Use of Monitoring Data for PSD Increment Analysis
- Years of Meteorological Data Used
- Use of Emissions Data from Years Not in Protocol
- Use of WindLogic RUC2 Data in Analysis
- Effect of FLM Variance Sources on PSD Increment
- Availability of Modeling Data and Software