North Dakota Oilfield Development
Environmental Challenges

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Background Issues
• Environmental issues to date not associated with the physical process of Hydraulic Fracturing
• Geology and location of the resource
• Rural Ag to Rural Ag/industrial – Culture Clash
• Rapid Development
• Infrastructure lagging
• Previous Boom – Bust
• Belief in Community
• Public Perception vs. Science/data

Air Quality

Air Quality
• NAAQS Compliant
• Required Emission Controls to Control VOC’s
• Primary Environmental Challenges:
  – Dust
  – Increasing Emissions (Stationary and Mobile)
  – Intermittent Discharges

Waste Management Challenges
– Varied Waste Stream - Waste Segregation
– Declining Municipal Landfill Capacity
– Increase in Special Waste Landfill Requests
– NORM Waste
– Litter

Water Quality
Water Quality Challenges

• NPDES - Seasonal vs. Continuous
• Testing Infrastructure Limits
• Proximity of Waste Generation to Treatment
• Reported Releases
• Unreported Releases and “Midnight” Dumping
• Small Housing “Development”

Municipal Facility Challenges

• Increase in Public Water Supply Systems
• Trained Operators

Environmental Response to Date

• Increase Field Presence
• Rule Modifications – Updates
• Monitoring
• Enforcement Philosophy
• Outreach
  — Local, State and Federal Governmental Agencies
  — Citizen Engagement
  — Industry
  — Enforcement