Environmental and Safety Issues Associated with Shale Gas Production

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• This slide set is provided for informational purposes only. Nothing herein constitutes the provision of legal advice or services.
Water Quantity

• Up to 4-5 million gallons of water per lateral (estimates vary)
• Multiple wells and laterals per well pad
• Refracing each lateral as many as 8 times over the well life
Potential Contaminants to Water

• Fracing fluid chemicals
• Dissolved chemicals from the deposit in the return fluid
• Salts
• Particulates (sediment)
Ground Water Quality

• Sources of contamination
  – defective well casings that allow fluid to leak into groundwater bearing strata
  – surface storage of waste fluid, and attendant seepage and spills, that can contaminate groundwater through infiltration
  – Transport and other accidents that result in spills and leaks
Ground Water Quality

• Sources of contamination (continued)
  – illegal dumping into surface waters (groundwater can be contaminated as a result because of its hydrological connection to surface water)
  – incomplete treatment of the waste at treatment plants, discharge to surface waters and reintroduction to groundwater through a hydrological connection
  – failed injection wells, where that is the disposal method
Surface Water Quality

• surface storage of waste fluid, and attendant seepage and spills, that can contaminate groundwater through infiltration
• Transport and other accidents that result in spills and leaks
• illegal dumping into surface waters (groundwater can be contaminated as a result because of its hydrological connection to surface water)
• incomplete treatment of the waste at treatment plants, discharge to surface waters and reintroduction to groundwater through a hydrological connection
• Runoff (chemicals, spilled oil & fuel, & sediment)
Waste fluid disposal

• Methods
  – Recycling
  – Injection
  – Treatment
  – Evaporation
  – Storage
  – Illegal dumping
Well Owner Protections

- Private right of action (HB 242)
  - Limited to contracts signed after effective date
  - Prior well condition (baseline)
  - Proof of causation
- No fault compensation fund?
Land

- Destruction of vegetation
- Archaeological/historic sites
- Critical habitat
- Erosion
Emergency Response

- Emergency responder training
- Staffing
- Equipment
- Access to information held as trade secrets
Traffic/Crime

• Need for additional law enforcement personnel & training
• Additional road maintenance & traffic control devices
Air Quality

- Fugitive methane (7-8 percent)
  - Can be reduced
- Dust/particulates
- Mobile sources
Methane Migration

• Sources
  – Defective well casings or piping
• Explosion hazard
• Health hazard in drinking water – none known
Noise

- Traffic
- Processing units and compressors
- Construction
USDA Programs

• Is leased land included in USDA conservation programs?
  – Any incompatibilities?

• Existing conservation easements
Seismic Activity

• Injection wells