Wyoming’s Integrated Oil & Gas Management Approach

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Producing Well Sites
Development Options

Pads

Single Wells

Pods

Pads; Pods; or Single Wells...
At the basic level:

- A deviated (or directional) well is a well that has been intentionally deviated from vertical. The deviation (or inclination) is measured from the vertical.
- A horizontal well is a deviated well with an inclination at or near 90°

**Vertical Well**
- Some unintentional deviation
- Typical inclination < 3°

**Deviated (directional) Well**
- Planned deviation from vertical
- Planned direction (azimuth)
- Inclination up to 85°

**Horizontal Well**
- Planned deviation of 85° – 95°
- Planned azimuth
Integrated “Toolbox”

- Regulations
- Guidance
- Permitting
- Modeling
- Compliance
- Inventory
- Monitoring
- NEPA
- Coordination
O&G Production Facilities Permitting Guidance

- June 1997
- November 1998 rev
- January 2000 rev
- August 2001 rev
- July 2004 rev
- August 2007 rev
- March 2010 rev
- September 2013 rev

Legend
- JPAD/NPL
- UGRB
- CDA
- Statewide
O&G Emissions Inventory Development

- Inventories began in 2004
  - Annual, Production Facilities
  - Jonah and Pinedale Anticline Development area
  - 8 Emission Sources, 7 Pollutants

- Winter Inventories began in 2007
  - Upper Green River Basin

- Inventory evolution circa 2008
  - Annual, Production Facilities & Midstream Facilities
  - Upper Green River Basin & Statewide
  - 14 Emission Sources, 25 Pollutants
O&G Production and Midstream Facilities

- Annual Inventories Collected
  - 1,305 from 2004 – 2013
  - Includes 2008 & 2011 Statewide Inventories

- UGRB Winter Inventories Collected
  - 635 from 2007 – 2014

- Each inventory can contain information for one to several thousand individual production facilities
O&G Emissions Inventory Data Management

- OGER (Oil & Gas Emissions Reporting) Data System
  - Access to data from Wyoming Oil & Gas Conservation Commission
  - Store emissions data
  - Nonpoint data flow to EPA EIS

- Query Wizard (http://qrywiz.wyo.gov/)
  - Quality assured actual emissions inventory data
  - Public access without formal information request
www.WyVisNet.com
Studies

- **Upper Green Winter Ozone Study**
  - Monitoring to aid in the understanding of ozone formation

- **EPA Office of Research & Development**
  - Mobile monitoring studies and diffusion tube monitoring studies

- **Extended Hydrocarbon Analyses**
  - Generate emissions factor groups by similar field and formation

- **Produced Water Tank Study**
  - Field sampling to research and quantify emissions

- **Emissions Inventory Study**
  - Field sampling to assess combustor control effectiveness and quantify emissions from fugitive sources

- **Produced Water Pond Study**
  - Field sampling to research and quantify emissions
Websites/Links/Contact

- Inventory Web Page: http://deq.state.wy.us/aqd/ei.asp
- Actual Emissions Web Page: http://deq.state.wy.us/aqd/Actual%20Emissions.asp
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