Jonah Field and Pinedale Anticline Development Area (JPAD) in the Upper Green River Basin of Wyoming

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19th International Emissions Inventory Conference
September 28, 2010
Topics

- State Wide and JPAD maps
- JPAD well development overview
  - (1994 – 2008)
- Oil & Gas Permitting Changes
- JPAD Production & Emissions Trends
- UGRB Wintertime Ozone

- Jonah EA issued in 1994
  - 47 existing wells
- Jonah II ROD issued in April, 1998
  - 450 additional wells
- Pinedale Anticline Project Area (PAPA) ROD issued July 27, 2000
  - 700 wells
- Jonah Infill ROD issued March 14, 2006
  - 3,100 additional wells
- PAPA SEIS ROD issued September 12, 2008
  - 4,400 wells on 600 pads and a liquids gathering system
Permitting Changes

- June 1997 the WDEQ/AQD issued an oil & gas permitting guidance document for new & modified production sites which specified BACT requirements.
  - <40 TPY VOC uncontrolled
- July 28, 2004 (4th revision to the guidance) was a proactive approach to the pending Jonah Infill ROD
  - <30 TPY VOC uncontrolled for single well pads
  - Controls required upon first date of production for multi well pads
- March, 2010 (6th revision to the guidance)
- [http://deq.state.wy.us/aqd/oilgas.asp](http://deq.state.wy.us/aqd/oilgas.asp)
A second proactive approach to the pending Jonah Infill ROD was to start collecting well-by-well inventory information for the JPAD area.

The first annual inventory for JPAD was requested in January 2005 for calendar year 2004.

In 2008 the annual inventory was expanded to all of Sublette County (statewide for the 2008 NEI).
Sublette County Condensate Production

- 1990: 4,000,000 Bbls
- 1995: 3,000,000 Bbls
- 2000: 7,000,000 Bbls
- 2004: 5,000,000 Bbls
- 2005: 3,000,000 Bbls
- 2006: 1,000,000 Bbls
- 2007: 2,000,000 Bbls

Legend:
- Non-JPDA
- Pinedale
- Jonah
Production & Emissions Trends (continued)

- **Total Producing JPAD Wells:**
  - 26 in 1995
  - 282 in 2000
  - 901 in 2004
  - 2,964 in 2008 (an increase of 515 wells per year)

- **Total Jonah Field Wells:**
  - 539 in 2004
  - 1,811 in 2008

- **Total Pinedale Anticline Wells:**
  - 362 in 2004
  - 1,153 in 2008
2004 JPAD inventory included:
- 8 Sources
  - drill rigs, wellhead engines, process burners, tanks, dehydration units, pneumatic pumps, well venting, and well completions
- 7 Pollutants
  - \(\text{NO}_x\), \(\text{SO}_2\), Total VOCs, and BTEX

2009 UGRB inventory included:
- 14 Sources
  - 8 sources above plus fugitives, truck loading, non-road mobile, on-road mobile on both paved and unpaved roads, flares and compressor engines
- 25 Pollutants
  - 7 pollutants above plus C1 through C10+ speciated hydrocarbons, CO, \(\text{H}_2\text{S}\), and formaldehyde
In November, 2004, EnCana Oil & Gas (USA), Inc. began operating the infield Jonah ambient monitor as part of a Supplemental Environmental Project (SEP).

In February, 2005, Shell Rocky Mountain Production began operating the infield Boulder ambient monitor.

As a result of the growth in production and the corresponding rise in emissions as noted by the FRM ambient monitors, a “wintertime” (February 1 – March 31) inventory was first requested in 2007 for all of Sublette County.

On February 21, 2008, the Boulder monitor recorded an 8-hr ozone concentration of 122 ppb.
Sublette County Winter Inventory
Daily VOC Emissions

Years
2007 2008 2009 2010

Tons Per Day
0 5 10 15 20 25 30 35 40 45 50

O&G On-Road Mobile
O&G Non-Road Mobile
Venting & Blowdowns
Completions
Drill Rigs
Stationary Engines
Pneumatic Pumps
Dehys
Tanks
Process Heaters
Sublette County Winter Inventory
Daily NOx Emissions

Years
2007 2008 2009 2010

Tons Per Day
0 5 10 15 20 25 30 35

- O&G On-Road Mobile
- O&G Non-Road Mobile
- Venting & Blowdowns
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- Drill Rigs
- Stationary Engines
- Pneumatic Pumps
- Dehys
- Tanks
- Process Heaters
Estimated JPDA Drill Rig Engine NOx Emissions
Drill Rigs
Questions?