Gas/Condensate Well Drilling, Completion & Production Equipment

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Jonah Field

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Photos Taken August 10, 2011
Oil and Gas Development

- Jonah Field and Pinedale Anticline Development (JPAD)
Jonah-Pinedale Anticline Development (JPAD) & Normally Pressured Lance (NPL)
Jonah-Pinedale Anticline Development (JPAD) Area 2008 Well/Monitor Locations
Jonah Field Development

- Jonah Environmental Assessment (EA) issued in 1994
  - 47 existing wells
- Jonah II ROD issued in April, 1998
  - 450 additional wells
- Jonah Infill ROD issued March 14, 2006
  - 3,100 additional wells
  - 16 acre down-hole well spacing
- Single well pads
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°
Development Options

- **Pads**
  - 40ac Parent PAD
  - 20ac Satellite PAD
  - 10ac Satellite PAD
  - ~800 ft – Access Roads & Pipelines

- **Single Wells**
  - Individual Well
  - Production Facilities
  - 10ac
  - 20ac
  - 40ac

- **Pods**
  - 10ac Parent PAD
  - 0ac Satellite PAD
  - ~800 ft – Access Roads & Pipelines

*Pads; Pods; or Single Wells...*
Encana’s Ensign 157 Drill Rig

Jenbacher J320GS 1,818 Hp natural gas fired engines w/ 1.0 g/Hp-hr NOx emissions

90 feet long drill pipe

Chemical Tanks

Control Room
Drill Pipe (45 foot lengths)
Chemical Tanks
Natural Gas Meter Station for supplying gas to the rig engines
Well-Head Housing Sheds
Controlled Storage Tanks
Well-head Sheds
Enclosed Smokeless Combustor
Controlled Tanks
Gas Custody Transfer Point
Solar Panels for Data Acquisition Systems
Multiple Well Pad

Smokless Combustor

Well-head Sheds

Production Equipment

Controlled Storage Tanks
4 Wells ~ 10 feet apart
Multi-Well Pad

- Controlled Storage Tanks
- Production Equipment
- Smokeless Combustor
- Gas Custody Transfer Point
- Well Heads
Single Well (connected to multiwell pad)

Solar Panels for Control System

Gas Custody Transfer Building
Micro Turbine for electricity
Multi-Well Pad (8 wells)

Well-Head Housing Sheds

8 Well Header
Multi-Well Pad (8 wells)

- Dehy Contact Towers
- Dehy Reboilers
- Combustor
- Separator Heater
- Line Heater for heat tracing
Multi-Well Pad
Enterprise-Jonah Gas Gathering’s Bridger Compressor Station

14,000 Hp Solar Tital 130S Turbine Compressors

Electric Compressor Engines

Over 77,000 total Hp from engines & turbines at this natural gas compression station
Websites/Links

- Inventory Web Page:  
  http://deq.state.wy.us/aqd/ei.asp

- UGRB Ozone Non-Attainment Area Inventory Forms Web page:  
  http://deq.state.wy.us/aqd/Annual%20and%20Winter%20Upper%20Green%20River%20Basin%20Emission%20Inventories.asp

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

- Oil & Gas forms & Guidance Documents Web page:  
  http://deq.state.wy.us/aqd/oilgas.asp

- Oil & Gas Production Facilities Guidance Document:  
  http://deq.state.wy.us/aqd/Oil%20and%20Gas/September%202013%20FINAL_Oil%20and%20Gas%20Revision_UGRB.pdf
Questions?

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http://deq.state.wy.us/aqd/ei.asp
http://deq.state.wy.us/aqd/oilgas.asp