

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Brigham Oil & Gas, L.P.
Well Name/Number: Richardson #30 #1
Location: NE NW Section 30 T34N R56E
County: Sheridan, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 30-40 days drilling time.
Unusually deep drilling (high horsepower rig): Triple derrick rig 900 HP, 11,250''TVD Red River Formation test.
Possible H2S gas production: Yes
In/near Class I air quality area: No
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

- Air quality permit (AQB review)
- Gas plants/pipelines available for sour gas
- Special equipment/procedures requirements
- Other: _____

Comments: Associated gas to be flared or if a pipeline is run to a sweetening facility then it can be hooked up.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to long string, production hole, invert oil based drilling fluids. Surface casing freshwater, and freshwater mud system to be used.
High water table: No
Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to Antelope Creek, about 1/16 of a mile to the south of this location.
Water well contamination: None, water wells in the area are 335' or shallower. Closest water well is about 1/2 of a mile to the north, northeast and southeast of this location. Significantly shallower than the surface casing setting depth of 2000'.
Porous/permeable soils: No, sandy clay soils.
Class I stream drainage: No, Class I stream drainages.

Mitigation:

- Lined reserve pit
- Adequate surface casing
- Berms/dykes, re-routed drainage
- Closed mud system
- Off-site disposal of solids/liquids (in approved facility)
- Other: _____

Comments: 2000' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and BOP equipment to prevent problems in and around freshwater drainage.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None

High erosion potential: No, location will require a moderate cut of up to 22.5' and small fill, up to 9.4', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of wellsite will be reclaimed.

Unusually large wellsite: No, large well site 300'X450'

Damage to improvements: Slight, surface use is grassland.

Conflict with existing land use/values: Slight

Mitigation

- Avoid improvements (topographic tolerance)
- Exception location requested
- Stockpile topsoil
- Stream Crossing Permit (other agency review)
- Reclaim unused part of wellsite if productive
- Special construction methods to enhance reclamation
- Other _____

Comments: Will use existing roads, State Highway, #16 and county road, East Antelope Road. About 3477' of new access road will be built into this location off East Antelope road. Cuttings will be buried in the lined reserve pit. Drilling fluids will be removed to commercial disposal or recycled to the next location. Pit will be allowed to dry after all fluids have been removed. The pit after drying will be backfilled. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Residences about ¼ of a mile to the south and ½ of a mile to the northeast, 1 mile east and southeast and ¾ of a mile to the southeast of this location. Town of Antelope is 1 mile to the northwest of this location.

Possibility of H2S: Yes

Size of rig/length of drilling time: Triple drilling rig 30 to 40 days drilling time.

Mitigation:

- Proper BOP equipment
- Topographic sound barriers
- H2S contingency and/or evacuation plan
- Special equipment/procedures requirements
- Other: _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems. Sufficient distance between location and buildings noise should not be a problem.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: None identified.

Mitigation:

- Avoidance (topographic tolerance/exception)
- Other agency review (DFWP, federal agencies, DSL)
- Screening/fencing of pits, drillsite
- Other: _____

Comments: Private surface lands. No concerns.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

 avoidance (topographic tolerance, location exception)

 other agency review (SHPO, DSL, federal agencies)

 Other: _____

Comments: Surface location is private land. No concerns.

Social/Economic

(possible concerns)

 Substantial effect on tax base

 Create demand for new governmental services

 Population increase or relocation

Comments: No concerns.

Remarks or Special Concerns for this site

No concerns.

Summary: Evaluation of Impacts and Cumulative effects

Short term impacts expected, no long term impacts anticipated.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): Steven Sasaki *Steven Sasaki*

(title): Chief Field Inspector

Date: March 28, 2008

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center GWIC website

(Name and Agency)

Sheridan County water wells

(subject discussed)

March 28, 2008

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____