

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

Operator: Brigham Oil & Gas, L.P.
Well Name/Number: Charley 10-15 #1H
Location: NE NW 10 T28N R57E
County: Roosevelt, 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, 19,482' MD/10,139' TVD Bakken Formation horizontal well test.
Possible H2S gas production: Slight H2S gas production.
In/near Class I air quality area: No Class I air quality area.
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 gathering facility then it can be hooked up.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate casing string hole, oil based invert drilling fluids. Horizontal lateral will be drilled with brine fluids. Surface casing freshwater, and freshwater mud system to be used.
High water table: No high water table anticipated.
Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to Shell Creek, about just to the south from this location.
Water well contamination: None, closest water wells in the area are about 3/8 of a mile to the west southwest and about 1 mile to the west, from this location. Depth of these wells range from 24' to 100'. Significantly shallower than the surface casing setting depth of 1900'.
Porous/permeable soils: No, sandy silty clay soils.
Class I stream drainage: No, Class I stream drainages nearby.

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: 1900' 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 anticipated.

High erosion potential: No, location will require a moderate cut of up to 12.6' and moderate fill, up to 10.0', 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 400'X400'

Damage to improvements: Slight, surface use is cultivated land.

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 Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28)

Comments: Will use existing county roads, Lanark Road and unnamed section line county gravel road. About 110' of new access road will be built into this location off existing east-west county road. Cuttings will be solidified with flyash and buried in the lined reserve pit. Oil base invert drilling fluids will be recycled. Completion fluids will be removed and hauled to commercial Class II Disposal. The pit after solidification will be covered with subsoil if well is productive. If well is not productive subsoil will be spread and topsoil will be spread on top of the subsoil. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Residences about 3/4 of a mile to the northwest and 1.25 miles to the northwest from this location. Town of Culbertson is about 6.8 miles to the southeast and the town of Bainville is about 7.8 miles to the southwest from this location.

Possibility of H2S: Slight

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: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Lease Tern, Whooping Crane and Piping Plover. Candidate species is the Sprague's Pipit. MTFWP Natural Heritage Tracker website indicates no species of concerns.

Mitigation:

Avoidance (topographic tolerance/exception)

Other agency review (DFWP, federal agencies, DSL)

Screening/fencing of pits, drillsite

Other: _____
Comments: Private cultivated 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 cultivated land. No concerns.

Social/Economic

(possible concerns)

Substantial effect on tax base

Create demand for new governmental services

Population increase or relocation

Comments: Wildcat Bakken Formation horizontal well. No concerns.

Remarks or Special Concerns for this site

19,482' MD/10,139' TVD Bakken Formation horizontal well test. 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): /s/Steven Sasaki

(title:) Chief Field Inspector

Date: February 16, 2011

Other Persons Contacted:

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

(Name and Agency)

Roosevelt County water wells

(subject discussed)

February 16, 2011

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Roosevelt County

(subject discussed)

February 16, 2011_____

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T28N R57E

(subject discussed)

February 16, 2011_____

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____