

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Brigham Oil & Gas, L.P.
Well Name/Number: Willard 19-18 #1-H
Location: NW NW 30 T28N R59E
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 19,895' MD/10,103' TVD Bakken Formation single lateral horizontal well test.

Possible H2S gas production: Slight chance H2S gas production (Mississippian Formations).

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: If there are existing pipeline for H2S gas in the area then gas must be tied into system or if no gathering system nearby H2S gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate casing string hole to be drilled with oil based invert drilling fluids. Horizontal lateral will be drilled with brine fluids. Surface casing will be drilled with freshwater and freshwater mud.

High water table: Possible high water table.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage Shotgun Creek, about 1/8 of a mile to the southeast and an unnamed ephemeral tributary drainage to Shotgun Creek, about 3/8 of a mile to the northwest, from this location.

Water well contamination: None, closest water wells in the area are about 1/2 of a mile to the northeast, about 1/2 of a mile to the southeast, about 5/8 of a mile to the northwest, about 3/4 of a mile to the southwest and about 3/4 of a mile to the southeast from this location. Depth of these water wells range from 14' to 332'. Surface hole will be drilled with freshwater drilling fluids to about 1800'. Steel surface casing will be run and cemented from 1800' to surface.

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: 1800' 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)

Steam crossings: None anticipated.

High erosion potential: No, location will require a moderate cut of up to 13.6' and small fill, up to 7.3', 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: Yes, very large well site designed as a 4 well pad, 550'X550', for the WILDE 30-31 #1H, WILDE 30-31 #2H, Willard 19-18 #1H and Willard 19-18 #2H.

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

Comments: Will use existing unnamed county roads. About 1/4 of a mile of new access road will be built into this location off existing north-south county road. Cuttings will be solidified with flyash and buried in the lined cuttings 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 folded in and covered with subsoil. 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: Closest residence is about 7/8 of a mile to the southwest from this location. Town of Bainville, Montana is about 3.16 miles to the southwest from this location.

Possibility of H2S: Slight chance of H2S (Mississippian Formations).

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 two (2) species of concerns. They are the Whooping Crane and the Bobolink.

Mitigation:

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

Comments: Private surface lands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

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. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

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

No concerns for drilling a 19,895'MD/10,103'TVD Bakken Formation single lateral horizontal well test.

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 22, 2012

Other Persons Contacted:

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

(Name and Agency)

Roosevelt County water wells

(subject discussed)

February 22, 2012

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

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

(subject discussed)

February 22, 2012

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T28N R59E

(subject discussed)

February 22, 2012

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____