

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

Operator: Continental Resources, Inc.
Well Name/Number: Calvin 1-33H
Location: SE SW Section 33 T25N R55E
County: Richland, **MT;** **Field (or Wildcat)** WC

Air Quality

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.
Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill a single lateral Bakken Formation well to 19,913'MD/10,007' TVD.
Possible H2S gas production: Slight chance H2S gas production.
In/near Class I air quality area: No Class I air quality area nearby.
Air quality permit for flaring/venting (if productive) NA

Mitigation:

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

Comments: No special concerns – using triple rig to drill a single lateral Bakken Formation well to 19,913'MD/10,007' TVD.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, oil based invert drilling mud system will be used on the intermediate casing hole and saltwater for the horizontal lateral hole. Freshwater and freshwater mud system will be used on the surface hole
High water table: No high water table anticipated.
Surface drainage leads to live water: Yes, closest drainages are unnamed ephemeral tributary drainages to Hay Coulee, about ¼ of a mile to the northwest and about ¼ of a mile to the south from this location. Within the north drainage there is a stock pond, about ¼ of a mile to the northwest from this location.
Water well contamination: No, closest water wells are 3/8 of a mile to the southwest, 7/8 of a mile to the southeast and 1 mile to the west. The deepest nearby water well is 203' in depth. Surface hole will be drilled with freshwater and freshwater muds. Steel surface casing will be run and cemented to surface from a depth of 1479'.
Porous/permeable soils: No, silty sandy 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: 1479' of surface casing cemented to surface adequate to protect freshwater zones and to cover the Fox Hills Formation.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No, stream crossings anticipated.

High erosion potential: Possible, moderate cut, up to 17.6' and small fill, up to 6.5', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, a large wellsite, 500'X270' required.

Damage to improvements: Slight, surface use is cultivated

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: Access will use existing county road 143. Will construct about 110' of new access into this location off county road 143 into this location. Oil based invert drilling fluids will be recycled. Completion fluids will be disposed of down a Class II authorized disposal well. Cuttings will be solidified in the lined reserve pit and backfilled. No special concerns

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: No residences within 1 mile in any direction from this location.

Possibility of H2S: None anticipated.

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 and operational BOP should mitigate all problems. No concerns.

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 new access to wildlife habitat.

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Lease Tern, Piping Plover and Whooping Crane. Species listed as candidate species are the Greater Sage Grouse and Sprague's Pipit. NH

tracker website for this Township and Range lists only two (2) species of concern as the Eastern Red Bat and the Whooping Crane.

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: On private surface lands. 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: No concerns.

Remarks or Special Concerns for this site

A single lateral Bakken Formation well to be drilled to 19,913'MD/10,007' TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term surface impacts will occur.

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: October 31, 2011 _____

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC
website _____
(Name and Agency)
Richland County water wells _____
(subject discussed)
October 31, 2011 _____
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County _____
(subject discussed)
October 31, 2011 _____
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T26N R55E _____
(subject discussed)
October 31, 2011 _____
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____