

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

Operator: Continental Resources, Inc.
Well Name/Number: Lucille 3-27H
Location: SE SW Section 27 T23N R55E
County: Richland, MT; **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, long time drilling, will require about 30 to 40 days drilling time.
Unusually deep drilling (high horsepower rig): No, will utilize a triple derrick drilling rig to drill a single lateral Bakken Formation horizontal well, 20,048'MD/10,131'TVD.
Possible H₂S gas production: Slight chance of H₂S gas from Mississippian Formations.
In/near Class I air quality area: No Class I air quality area nearby.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under rule 75-2-211.

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 horizontal well, 20,048'MD/10,131'TVD. If there is an existing gathering system for natural gas in the area, then associated gas can be gathered or if no gathering system nearby gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, oil based invert drilling fluids to drill the intermediate casing string hole (oil/water ration 70/30 and 80/20) and saltwater/brine fluid system to drill the horizontal lateral. Freshwater and freshwater drilling fluid system to be used to drill the surface hole, rule 36.22.1001.

High water table: No high water table anticipated at this location.

Surface drainage leads to live water: No, nearest drainages are unnamed ephemeral tributary drainages to Fox Creek, about 1/4 of a mile to the southwest, about 1/4 of a mile to the southeast, about 3/8 of a mile to the northwest and about 1/2 of a mile to the northeast from this location.

Water well contamination: No, closest water wells are about 1/2 of a mile to the southwest, about 5/8 of a mile to the east, about 5/8 of a mile to the southwest, about 3/4 of a mile to the northeast and about 3/4 of a mile to the from this location. Surface hole will be drilled with freshwater and freshwater drilling fluids, rule 36.22.1001. Depth of these freshwater stock and domestic wells range from 30' to 240'. Surface casing will be set at 1860' and cemented to surface.

Porous/permeable soils: No, silty sandy clay soils.

Class I stream drainage: No Class I stream drainages in the area of review.

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: Closed loop mud system will be employed so the cuttings pit will be lined with a minimum of a 12 mil liner.

Comments: 1860' of surface casing cemented to surface is adequate to protect freshwater zones and will cover the base of the Fox Hills Formation.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: Yes, possible high erosion potential on moderate fill slopes. Location will require a moderate cut, up to 10.0' and moderate fill, up to 22.3', required.

Loss of soil productivity: No, location will be restored after drilling if unproductive. If productive, unused portion of this drilling location will be restored.

Unusually large wellsite: No, large wellsite, 450'X400' location size required.

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 _____

Comments: Access will be over existing county road, #328 and #324. About 200' of new access road will be built into this location from the county road #324. Cuttings will be buried in the lined cuttings pit on the wellsite. Oil based invert drilling fluids will be recycled. Reserve pit fluids and completion fluids will hauled to a commercial Class II SWD well. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 1/2 of a mile to the east, 5/8 of a mile to the southwest, about 1.25 miles to the northeast and about 1.325 miles to the southeast from this location. The town of Lambert, Montana is about 2.7 miles to the southeast from this location.

Possibility of H2S: Slight chance of H2S gas from Mississippian Formations.

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

Mitigation:

Proper BOP equipment

Topographic sound barriers

H2S contingency and/or evacuation plan

Special equipment/procedures requirements

Other: Standard H2S safety equipment for the drilling of this well, rule

36.22.1014.

Comments: Adequate surface casing cemented to surface with an operational BOP stack (annular and double ram (pipe and blinds) rated for 5,000 psig) should mitigate any problems, Rule 36.22.1014. No concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): Fox Lake State Game Management Area is about 2 miles to the south.

Proximity to recreation sites: Fox Lake State Game Management Area is about 2 miles to the south.

Creation of new access to wildlife habitat: No

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 no species of concern. NH Tracker website lists one (1) Potential Species of Concern: Brook Stickleback.

Mitigation:

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

Comments: Private surface cultivated lands. There may be 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 cultivated lands. There may be 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

Will drill a single lateral Bakken Formation horizontal well, 20,048'MD/10,131'TVD. No special concerns.

Summary: Evaluation of Impacts and Cumulative effects

No significant long term impacts expected, some short term 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: March 20, 2013

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Water wells in Richland County
(subject discussed)

March 20, 2013
(date)

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

March 20, 2013
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T23N R55E
(subject discussed)

March 20, 2013
(date)

Montana Cadastral Website
(Name and Agency)
Surface Ownership and surface use Section 27 T23N R55E
(subject discussed)

March 20, 2013
(date) _____

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____