

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

Operator: Continental Resources, Inc.
Well Name/Number: Cummings 1-24H
Location: SE SW Section 24 T23N R52E
County: Richland, MT; **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, 15 to 25 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick rig to drill a single lateral horizontal Bakken Formation test, 13,960'MD/9,378'TVD.

Possible H2S gas production: Slight chance H2S gas from Mississippian Formations.

In/near Class I air quality area: No, no Class I air quality area nearby.

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: No special concerns – using triple rig to drill a single lateral horizontal Bakken Formation test. 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 limited gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes - intermediate casing string hole will be drilled with oil based invert drilling fluids, 1560' to 9616'MD. Horizontal lateral will be drilled with brine water. Surface casing hole will use freshwater and freshwater mud system (Rule 36.22.1001), surface to 1560'.

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

Surface drainage leads to live water: No, nearest drainages are an unnamed ephemeral tributary drainage to Lisk Creek, to the north from this location.

Water well contamination: None, Surface hole will be drilled with freshwater and freshwater mud system, Rule 36.22.1001. Surface casing will be set at 1550' 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 liquids (in approved facility)

Other: Lined cuttings pit (16 mil impervious synthetic) will be used since this is a closed loop mud system to be employed.

Comments: 1560' of surface casing enough to cover the base of the Fox Hills and cemented to surface adequate to protect freshwater zones, Rule 36.22.1001.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No stream crossings anticipated.

High erosion potential: unlikely high erosion potential at this location. The location will require a moderate cut/fill.

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: Not a large wellsite, 400'X450' location size required for a single well pad for the drilling location.

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, #126. Short new access road will be built into this location from the county road #126. Cuttings will be buried in the lined cuttings pit. Oil based drilling fluids will be recycled. Reserve pit fluids will be hauled to a commercial disposal. Pit will be allowed to dry and then closed by filling in with clay subsoils. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are more than 1/2 mile away from this location. The town of Richey, Montana is about 9.5 miles to the southwest of this location.

Possibility of H₂S: Very slight chance of H₂S from Mississippian Formations.

Size of rig/length of drilling time: Triple drilling rig/short, 15 to 25 days drilling time.

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.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): Fox Lake State Game Management Area is several miles to the east of this location.

Proximity to recreation sites: Fox Lake State Game Management Area is about 20 miles to the east.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: . NH tracker website indicate zero (0) species of concern in this township and range.

Mitigation:

Avoidance (topographic tolerance/exception)

Other agency review (DFWP, federal agencies BLM, DNRC/TLMD)

Screening/fencing of pits, drillsite

Other: _____

Comments: Privately owned cultivated surface lands. If there may be species of concern that may be impacted by this wellsite, we ask the operator to consult with the surface owner as to what he would like done; Board of Oil and Gas does not have any jurisdiction over the management of private surface. No specific concerns for this area.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

avoidance (topographic tolerance, location exception)

other agency review (SHPO, DNRC/TLMD, federal agencies BLM)

Other: _____

Comments: Private cultivated surface 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. Board of Oil and Gas does not have any jurisdiction over the privately owned historical or cultural artifacts.

Social/Economic

(possible concerns)

Substantial effect on tax base

Create demand for new governmental services

Population increase or relocation

Comments: Wildcat well. No concerns.

Remarks or Special Concerns for this site

Continental will drill a single lateral Bakken Formation horizontal well test, 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/Thomas Richmond
(title:) Administrator
Date: August 2, 2013

Other Persons Contacted:

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Richland County
(subject discussed)
July 8, 2013
_____ (date)

Montana Natural Heritage Program Website
(Name and Agency)
Heritage State Rank= S1, S2, S3 T23N R53E
(subject discussed)
July 8, 2013
_____ (date)

Montana Cadastral Website
(Name and Agency)
Surface Ownership and surface use Section 24 T23N R53E
(subject discussed)
July 8, 2013
_____ (date)

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