

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

**Operator:** Fidelity Exploration & Production Company  
**Well Name/Number:** McCurdy 41-33H  
**Location:** NE NE Section 33 T22N R57E  
**County:** Richland, MT; **Field (or Wildcat)** W/C

**Air Quality**

(possible concerns)

Long drilling time: 35-40 days drilling time for a single lateral horizontal Upper Bakken Shale/Three Forks Formation test.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill a vertical pilot hole to 10,303' TD in the Nisku Formation. Plugback and kick off and drill a Upper Bakken Shale Formation, 14,472'MD/10,178' TVD /single lateral horizontal well test.

Possible H2S gas production: H2S gas production is slight (Mississippian Formations).

In/near Class I air quality area: No Class I air quality area in the area of review.

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, proper BOP stack should mitigate any concerns. (BOP's 5,000 psig annular, pipe and blind rams) rule 36.22.1014. No concerns. Triple derrick drilling rig to drill a vertical pilot hole to 10,303' TD in the Nisku Formation. Plugback and kick off and drill a Upper Bakken Shale Formation, 14,472'MD/10,178' TVD /single lateral horizontal well test. If there are no gas gathering systems in the area, associated sweet gas and H2S 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 vertical pilot hole and intermediate casing string hole and saltwater to drill horizontal lateral. Surface casing hole will be drilled with freshwater and freshwater drilling fluids.

High water table: Possible high water table in the area of review. Localized spring nearby.

Surface drainage leads to live water: None, closest drainages are unnamed ephemeral tributary drainages to Fox Creek, about 1/8 of a mile to the north and about 1/16 of a mile to the south from this location. Fox Creek is about 1/2 of a mile to the south.

Water well contamination: No, closest water well is about 1/2 of a mile to the northeast from this location. Depth of this stockwater well is 400'. Surface hole will be drilled with freshwater. Estimated required amount of surface casing at this location is 1700'. Will require 1700' of surface casing will be set and cemented to surface. (Rule 36.22.1001)

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

Class I stream drainage: No Class I stream drainage 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 with lined cuttings pit will be

utilized.

Comments: 1700' of surface casing cemented to surface is adequate to protect freshwater zones. Also, fresh water mud systems to be used on surface hole. (Rule 36.22.1001)

### Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated.

High erosion potential: Possible erosion potential, moderate cut, up to 15.9' and small fill, up to 7.9', 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: Large, 470'X470' location size required.

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 \_\_\_\_\_

Comments: Access will be over existing county road, #120 and existing private surface road. Fidelity will construct about 2 miles of new access road into this location off the existing private surface road. Drilling fluids and completion fluids will be hauled to a commercial disposal. Oil based invert drilling fluids will be recycled. Solids will be allowed to dry in the lined cuttings pit. When dry the cuttings will be mixed with subsoil clays in the lined pit. The pit liner will be folded over the top of the solids, spoil dirt to fill pit, top soil spread over pit area, and seeded to land owners specification. No special concerns

### Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: No residences within a 1 mile radius from this well location.

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

Size of rig/length of drilling time: Triple drilling rig 35 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 any problems. (BOP's 5,000 psig annular, pipe and blind rams) rule 36.22.1014. 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: None

Conflict with game range/refuge management: Closest game management area is Fox Lake State Game Management Area, about 10.5 miles to the west northwest from this location.

Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Least 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 one (1) species of concern: Whooping Crane.

Mitigation:

\_\_\_ Avoidance (topographic tolerance/exception)

\_\_\_ Other agency review (DFWP, federal agencies, DSL)

\_\_\_ Screening/fencing of pits, drillsite

\_\_\_ Other: \_\_\_\_\_

Comments: Private grassland. 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 grassland. 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 well test. No concerns.

**Remarks or Special Concerns for this site**

Well will be drilled as a vertical pilot hole to 10,303' TD in the Nisku Formation.  
Plugback and kick off and drill a Upper Bakken Shale Formation, 14,472'MD/10,178'  
TVD /single lateral horizontal well test.

**Summary: Evaluation of Impacts and Cumulative effects**

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

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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: September 18, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)  
Richland County water wells  
(subject discussed)  
September 18, 2012  
(date)

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

September 18, 2012  
(date)

Montana Natural Heritage Program Website (FWP)  
(Name and Agency)  
Heritage State Rank= S1, S2, S3, T22N R57E  
(subject discussed)  
September 18, 2012  
(date)

If location was inspected before permit approval:  
Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_