

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

Operator: Noble Energy, Inc.
Well Name/Number: CR COWBOYS 32-34
Location: SW NE Section 34 T4N R18E
County: Golden Valley, **MT;** **Field (or Wildcat)** Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 10 to 15 days drilling time.

Unusually deep drilling (high horsepower rig): No, shallow drilling with a triple derrick drilling rig, 1000 HP (Estimated). Will drill a vertical hole to 3,422' TD.

Possible H2S gas production: No, Cretaceous Frontier Formation at total depth.

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 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 double derrick drilling rig, 1000 HP (Estimated) to drill to 3,422' TD.

Water Quality

(possible concerns)

Salt/oil based mud: No, freshwater and freshwater mud system.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is the South Fork of Big Coulee, about 1/8 of a mile to the southeast from this location.

Water well contamination: No water wells within 1 mile from this location. Surface casing hole will be drilled with freshwater/freshwater drilling fluids. Steel surface casing will be run and cemented to surface from 1000'. Main hole will be drilled with freshwater and freshwater fluids to 3,422'. If production string will be run, production casing will be cemented from TD to surface.

Porous/permeable soils: No silty clay soils.

Class I stream drainage: No Class I stream drainages.

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: 1000' of surface casing cemented to surface adequate to protect freshwater zones. Also, fresh water mud system to be used to drill surface hole and mainhole. Production casing will be cemented. Closed loop mud system with offsite disposal of cutting and mud solids.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: Yes, moderate cut required up to 13.2 and small fill, up to 6.2', 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, 300'X350' location size required.

Damage to improvements: Slight, surface use is a cultivated field.

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, Hanson Road and two track ranch trails. An access road will be built over the existing two track ranch trail into this location off the existing county road, about 9,881'. Cuttings will be disposed of off site in an approved disposal facility. Drilling fluids will be recycled and or disposed of in at an approved site. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residence is about 1 ½ miles to the southwest from this location.

Possibility of H2S: None, Cretaceous Frontier Formation at total depth.

Size of rig/length of drilling time: Triple derrick drilling rig/short amount of drilling time, estimate 10 to 15 days drilling time.

Mitigation:

Proper BOP equipment

Topographic sound barriers

H2S contingency and/or evacuation plan

Special equipment/procedures requirements

Other: _____

Comments: Operational BOP and adequate surface casing should mitigate any problems. Formations to be drilled are characteristically non H2S bearing. Distance to residences sufficient not to create a noise problem. 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, all surface access is private land.

Conflict with game range/refuge management: None. No game range/refuge nearby.

Threatened or endangered Species: Species listed as threatened or endangered is the Black-footed Ferret, (Listed in Golden Valley County by US Fish & Wildlife website) and Species of Concern Greater Sage Grouse. Proposed specie is the Mountain Plover.

Mitigation:

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

Comments: No concerns. Private surface lands. Public access, recreation and hunting issues are controlled by the private land owner. Surface use is a cultivated field.

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: No concerns. On private land, cultivated field.

Social/Economic

(possible concerns)

- Substantial effect on tax base
- Create demand for new governmental services
- Population increase or relocation

Comments: No concerns, wildcat exploratory well. Until production is established it is unknown what the economic impact will be on tax base, governmental services and population. If well is a dry hole no impact.

Remarks or Special Concerns for this site

Well is a wildcat exploratory test to be drilled to 3,422' total depth into the Cretaceous Frontier Formation on the east side of the Crazy Mountains.

Summary: Evaluation of Impacts and Cumulative effects

No significant impacts or cumulative effects are expected from the drilling of this test well. No long term impacts expected, since the drilling of this well would take a maximum of 15 days and the completion and testing phase if productive another 30 days. Some short term impacts will occur, but can be mitigated in a short time.

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 22, 2010

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center
(Name and Agency)
Golden Valley County water wells.
(subject discussed)
September 11, 2010
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Golden Valley County
(subject discussed)
September 11, 2010
(date)

If location was inspected before permit approval:

Inspection date: September 16, 2010

Inspector: Mr. Fraser

Others present during inspection: Mr. Bill Paddock