

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

Operator: Unit Petroleum Company
Well Name/Number: Abenroth 1-2H
Location: (NE NW) Lot 3 Section 2 T36N R54E
County: Sheridan, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 20-30 days drilling time.
Unusually deep drilling (high horsepower rig): Triple derrick drilling rig to drill a pilot hole to 8000'+ to the Three Forks Formation. Plugback to 7000' into the Mission Canyon and kickoff drilling a Bakken formation single lateral horizontal well, 11,872'MD/7810'TVD.
Possible H2S gas production: Slight possibility of H2S 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 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 drilling rig to drill a pilot hole to 8000'+ to the Three Forks Formation. Plugback to 7000' into the Mission Canyon and kickoff drilling a Bakken formation single lateral horizontal well 11,872'MD/7810'TVD. If there is an existing pipeline for gas in the area and 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: Intermediate string hole will be drilled with oil based drilling fluids (oil based invert mud system) and openhole horizontal production hole will be drilled saltwater drilling fluids. Surface casing hole will be drilled with a freshwater, and freshwater mud system, Rule 36.22.1001.
High water table: No high water table anticipated.
Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral drainage to the Syme Slough, about ¼ of a mile to the northwest from this location. Syme Slough is about ½ of a mile to the east from this location.
Water well contamination: None, closest water wells in the area beyond a 1 mile radius in any direction from this location. Surface hole will be drilled with freshwater and freshwater drilling muds, Rule 36.22.1001. The surface casing setting depth. of 1325' should be below all freshwater zones, Rule 36.22.1001.
Porous/permeable soils: No, sandy 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: 1325' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer, Rule 36.22.1001.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: Small cut, up to 4.6' and small fill, up to 5.4', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large well site 450' X 375'

Damage to improvements: Slight, surface use is a 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 use existing county road, Nine Mile Road. A short road will be constructed into this location, about 245' Surface hole (freshwater) cuttings and oil based invert mud cuttings will be buried in the lined pit, after being allowed to dry. Oil based drilling fluids will be recycled to the next location or returned to the mud company's recycling facility. Completion fluids will be trucked to a commercial Class II disposal. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residence is 1 mile and further from this location.

Possibility of H2S: Yes, slight from the Mississippian Formations.

Size of rig/length of drilling time: Triple derrick drilling rig, about 20 to 30 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 cemented to surface with working BOP stack should mitigate any problems. BOP stack is composed of 3,000 psig double ram and annular prevent, Rule 36.22.1014.

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

Conflict with game range/refuge management: No

Threatened or endangered Species: Only species identified as threatened or endangered are the Whooping Crane and Piping Plover. Species of concern is the Sprague's Pipit. NH tracker website lists nine (9) species of concern. As follows: Bairds Sparrow, Nelson's Sparrow, Sprague's Pipit, Chestnut Collared Longspur, Whooping Crane, Common Tern, Northern Redbelly Dace and Iowa Darter.

Mitigation:

Avoidance (topographic tolerance/exception)

Other agency review (DFWP, federal agencies, DSL)

Screening/fencing of pits, drillsite

Other: _____

Comments: Private cultivated surface lands. Private surface land. 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. No concerns.

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: 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. The Board of Oil & Gas has no jurisdiction over private surface lands. No concerns.

Social/Economic

(possible concerns)

Substantial effect on tax base

Create demand for new governmental services

Population increase or relocation

Comments: No concerns. Wildcat well.

Remarks or Special Concerns for this site

Wildcat well will drill a pilot hole to 8000'+ to the Three Forks Formation. Plugback to 7000' into the Mission Canyon and kickoff drilling a Bakken formation single lateral horizontal well, 11,872'MD/7810'TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. 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: October 3, 2012
Other Persons Contacted:
Montana Bureau of Mines and Geology, Groundwater Information Center website.

(Name and Agency)
Sheridan County water wells
(subject discussed)
October 3, 2012
(date)

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

October 3, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T36N R54E
(subject discussed)

October 3, 2012
(date)

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