

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

Operator: Headington Oil LP
Well Name/Number: Sorensen 24X-17H
Location: SE SW Section 17 T23N R58E
County: Richland, **MT;** **Field (or Wildcat) W/C**

Air Quality

(possible concerns)

Long drilling time: 30-40 days drilling time
Unusually deep drilling (high horsepower rig): No, triple drilling rig for Bakken Formation
Single lateral horizontal well 16,105' MD/10,509' TVD.
Possible H₂S gas production: Slight
In/near Class I air quality area: No
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: Gas plant available to take associated sweet gas. No special concerns.

Water Quality

(possible concerns)

Salt/oil based mud: Use freshwater and freshwater mud system on surface, oil based drilling fluids for intermediate string and saltwater for horizontal leg.
High water table: No
Surface drainage leads to live water: No, surface slopes naturally, 1/8 of a mile to the southeast towards ephemeral tributary drainages to Lone Tree Creek. Within these drainages are stock ponds.
Water well contamination: No, only 1 water well within 1/2 of a mile of this location.
Water well depth is 202', stock water well. Surface casing will be drilled with freshwater and steel casing set and cemented to protect shallow ground water.
Porous/permeable soils: No, sandy clay soils.
Class I stream drainage: No

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: Recommend setting 1931' of surface casing based upon Base of Fox

Hills map.

Comments: 1550' of surface casing is not enough, recommend setting 1931' of surface casing. Surface casing to be cemented to surface adequate to protect freshwater zones to cover base of Fox Hills formation. Also, fresh water mud systems to be used on surface hole. Reserve pit liquids to be recycled or hauled to a commercial disposal. Solids will be allowed to dry, pit liner folded over the

top of the solids, spoil dirt to fill pit, top soil spread over pit area, and seeded to land owners specification.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None.

High erosion potential: No, moderate cut, up to 27.2' and moderate fill, up to 15.6', 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, 300'X430' location size required.

Damage to improvements: Slight, surface use appears to be 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: Using existing county road, #127. Short access off existing county road, approximately 300' of new road into this location. Oil based drilling fluids will be recycled. Completion fluids will be trucked to a Class II disposal. Cuttings and mud solids will be disposed of in the lined reserve pit. Pit will be solidified with subsoil and clay. No special concerns

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: None nearby, residences about 3/4 of a mile to the southeast, 1 mile to the west and 1.2 miles to the north northeast of this wellsite.

Possibility of H2S: Slight

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

Mitigation:

Proper BOP equipment

Topographic sound barriers

H2S contingency and/or evacuation plan

Special equipment/procedures requirements

Other: _____

Comments: No concerns, proper BOP stack and surface casing should be able to control any problems that occurs.

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: None identified.

Mitigation:

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

Comments: 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 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

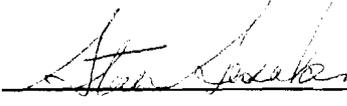
Remarks or Special Concerns for this site

Well is a 16,105'MD/10,509'TVD single lateral horizontal Bakken Formation test.

Summary: Evaluation of Impacts and Cumulative effects

No 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): Steven Sasaki 
(title:) Chief Field Inspector
Date: January 16, 2008

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Richland County water wells

(subject discussed)

January 16, 2008

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____