

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

Operator: Headington Oil, Limited Partnership.

Well Name/Number: Williams 41X-31

Location: NE NE Section 31 T24N R55E

County: Richland, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 30-40 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig 900 HP to drill a single lateral horizontal Bakken Formation well, 19,497' MD/10,075' TVD.

Possible H₂S gas production: Slight

In/near Class I air quality area: No

Air quality permit for flaring/venting (if productive): Yes, if productive. DEQ air quality permit required.

Mitigation:

Air quality permit (AQB review)

Gas plants/pipelines available for sour gas

Special equipment/procedures requirements

Other: _____

Comments: Existing gas pipelines in the area.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to long string oil based invert drilling fluids. Horizontal hole to be drilled with brine water. Surface casing hole to be drilled with freshwater and freshwater mud.

High water table: No.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to the East Fork Fox Creek, about 1/8 mile to the south of this location.

Water well contamination: No, all surrounding water wells are less than 2100' deep. Closest water well to this location is about 3/8 of a mile to the northeast in section 29 T24N R55E and 1 mile to the southwest in section 31 T24N R55E. 2100' of surface casing will be set and cemented to surface.

Porous/permeable soils: No, sandy silty 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: 2100' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and BOP equipment to prevent problems.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None, utilizing exiting roads and crossings.

High erosion potential: No, moderate cut up to 21.6' of cut and moderate fill up to 19.9', 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 430'X300'

Damage to improvements: Slight

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, #119. A short access will be built from the existing county road into this location, about 150' will be required. Oil based drilling fluids will be recycled. Freshwater surface hole cuttings will be buried on site. Oil based drill cuttings will be buried in the lined pit. Completion pit fluids will be hauled to a licensed saltwater disposal. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Yes, residences, about 1 mile to the southwest and 1.5 miles to the northwest from this location.

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: Adequate surface casing, 2100', cemented to surface with working BOP stack should mitigate any problems. Noise should not be a problems, sufficient distance from residence to rig should mitigate this.

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: Surface location on private surface. 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. No concerns.

Social/Economic

(possible concerns)

Substantial effect on tax base

Create demand for new governmental services

Population increase or relocation

Comments: No concerns

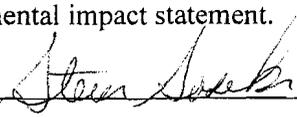
Remarks or Special Concerns for this site

Single lateral horizontal Bakken Formation well, 19,497' MD/10,075' TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impact 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 22, 2008

Other Persons Contacted:

(Name and Agency)

Montana Bureau of Mines and Geology, Groundwater Information Center
website.

(subject discussed)

Water wells in Richland County

(date)

January 22, 2008

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____