Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: Headington Oil, Limited Partnership.
Well Name/Number: Johnson 14X-24
Location: SW SW Section 24 T24N R56E
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): No, triple derrick drilling rig 1000 HP, drilling a single lateral Bakken Formation single lateral horizontal leg, 19,888'MD/10,470'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, under rule 75-2-211.

Mitigation:
X Air quality permit (AQB review)
X Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:

Comments: Existing gas pipelines in the area. Horizontal Bakken formation test MD 19,888'/ 10,470'TVD.

Water Quality

(possible concerns)
Salt/oil based mud: Yes to long string oil based drilling fluids. Horizontal openhole will be drilled with saltwater. Surface casing hole to be drilled with freshwater and freshwater mud.
High water table: No
Surface drainage leads to live water: None, nearest drainage is an ephemeral drainage, Lone Tree Creek about 5/8 of a mile to the south of this location.
Water well contamination: No, nearest well is about 1 mile to the south and west of this location. All wells are shallower than 1900' surface casing setting depth.
Porous/permeable soils: No, sandy clay soils.
Class I stream drainage: No, Class I stream drainages.

Mitigation:
X Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
__ Closed mud system
__ Off-site disposal of solids/liquids (in approved facility)
__ Other:

Comments 1900' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and BOP equipment to mitigate any problems.

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: None
High erosion potential: No, moderate cut up to 19.8' and small fill, up to 9.9', 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, surface use cultivated land.
Conflict with existing land use/values: Slight

Mitigation

__ Avoid improvements (topographic tolerance)
__ Exception location requested
_X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
_X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will be over existing county roads, #133 and #335. A short access road will be built into location from the existing county road #335, about 1,222'. Oil based muds will be recycled. Completion fluids will be either recycled or hauled to a disposal well. Drill cuttings will be buried in a lined pit. Pit will be closed with dry subsoils.. No Concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Residence 1 3/4 mile to the southwest and 2 miles to the east of this location.
Possibility of H2S: Slight
Size of rig/length of drilling time: Triple drilling rig 30 to 40 days drilling time.

Mitigation:

_X Proper BOP equipment
__ Topographic sound barriers
_X 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. 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: 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: Existing permanent spacing unit with existing well. No concerns

Remarks or Special Concerns for this site

A Development well in this spacing unit. Single lateral Bakken Formation single lateral horizontal leg, 19,888'MD/10,470'TVD.

Summary: Evaluation of Impacts and Cumulative effects

No, long term impacts expected, some short term impacts will occur, but can be mitigated.

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: February 15, 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)
February 15, 2008

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