

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

**Operator:** Nadel and Gussman Rockier LLC  
**Well Name/Number:** Tange 4  
**Location:** SW SE Section 20 T36N R53E  
**County:** Sheridan, MT; Field (or Wildcat) Outlook

**Air Quality**

(possible concerns)

Long drilling time: No, 20-30 days drilling time.  
Unusually deep drilling (high horsepower rig): Triple derrick rig 900 HP, 9,905' MD/9900' TVD Red River Formation directional well test.  
Possible H2S gas production: Yes, possible.  
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 75-2-211.

Mitigation:

- Air quality permit (AQB review)
- Gas plants/pipelines available for sour gas
- Special equipment/procedures requirements
- Other: \_\_\_\_\_

Comments: Associated gas to be flared or if a pipeline is run to a sweetening facility then it can be hooked up.

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**Water Quality**

(possible concerns)

Salt/oil based mud: Yes to long string, production hole, oil based invert drilling fluids. Surface casing freshwater, and freshwater mud system to be used.  
High water table: Possible high water table.  
Surface drainage leads to live water: No, closest drainage is and unnamed ephemeral tributary drainage to Plentywood Creek, about adjacent to the wellsite to the southwest from this location.  
Water well contamination: Closest water wells are about 3/8 to 1/2 of a mile away from this location, depth of these wells are 104' or less. Significantly shallower than the surface casing setting depth of 1000'. Surface casing hole will be drilled with freshwater and freshwater drilling mud. Surface casing will be set to 1000' and cemented to surface to protect shallow ground waters and the Fox Hills aquifer.  
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: 1000' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and BOP equipment to prevent problems in and around freshwater drainage.

**Soils/Vegetation/Land Use**

(possible concerns)

Steam crossings: None to be crossed only an ephemeral drainage.  
High erosion potential: No, location will require a moderate cut of up to 10.4' and moderate fill, up to 11.8', required.  
Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of wellsite will be reclaimed.  
Unusually large wellsite: No, large well site 230'X430'  
Damage to improvements: Slight, surface use is cultivated fields.  
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 Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28)

Comments: Will use existing county gravel road, Mission Canyon Road and a ½ section road. About 0.15 of a mile of new access road will be built into this location off existing ½ section road. Cuttings will be buried in the lined reserve pit. Oil based invert drilling fluids will be recycled. Completion fluids will be removed and hauled to commercial Class II Disposal. The pit after solidification will be backfilled with subsoil. No concerns.

### Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: No residences within 1 mile from this location.  
Possibility of H2S: Yes, possible.  
Size of rig/length of drilling time: Triple drilling rig 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. Sufficient distance between location and buildings noise should not be a problem.

### 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: Species identified as threatened or endangered are the Whooping Crane and Piping Plover.

Mitigation:

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

Comments: Private cultivated 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: Surface location is on private cultivated land. 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**

9,905' MD/9900'TVD Red River Formation directional hole. No concerns.

**Summary: Evaluation of Impacts and Cumulative effects**

Short term impacts expected, no long term impacts anticipated.

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: July 7, 2010

Other Persons Contacted:

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

(Name and Agency)

Sheridan County water wells

(subject discussed)

July 7, 2010

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA  
COUNTIES, Sheridan County  
(subject discussed)

May 28, 2010  
\_\_\_\_\_ (date)

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