

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

**Operator:** Sagebrush Resources II, LLC  
**Well Name/Number:** SBR 1-36H  
**Location:** NW SE Section 36 T35N R51E  
**County:** Sheridan, MT; Field (or Wildcat) Redstone

**Air Quality**

(possible concerns)

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

Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a vertical pilot hole to 9955' TD. Plugback and drill a dual lateral Winnipegosis Formation horizontal well: Leg #1 9273'TVD/10,773'MD Leg #2 9273'TVD/10,788'MD.

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.

**Water Quality**

(possible concerns)

Salt/oil based mud: Yes, pilot hole to be drilled with oil based invert drilling fluids. Horizontal laterals will be drilled with brine water. Surface casing freshwater and freshwater mud system to be used.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to Redstone Creek, about 1/16 of a mile to the north from this location.

Water well contamination: Closest stock and domestic water wells are about 5/8 of a mile to the south, 5/8 of mile to the southwest, 3/4 of a mile to the southwest and 3/4 of a mile to the northwest from this location, depth of these wells range from 30' to 310'. Significantly shallower than the surface casing setting depth of 2200'. All other wells are 1 mile or further away in any direction. Surface casing will be set to 2200' and cemented to surface to protect ground waters.

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: 2200' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and operational BOP equipment will prevent any problems.

**Soils/Vegetation/Land Use**

(possible concerns)

Steam crossings: None to be crossed. Will be crossing only ephemeral drainages.

High erosion potential: No, location will require a moderate cut of up to 18.4' and small fill, up to 13.4', 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 300'X400'

Damage to improvements: Slight, surface use is grassland adjacent to 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, South Redstone road. About 3629' of new access road will be built into this location from the existing county gravel road, South Redstone Road. Cuttings will be buried in the lined reserve pit. 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: Closest residences are about 3/4 of a mile to the northwest, about 1 mile to the southeast and 1.5 miles to the southwest from this location.

Possibility of H2S: Yes possible.

Size of rig/length of drilling time: Triple drilling rig 40 to 50 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. Candidate species is the Sprague's Pipit. NH Tracker website lists six (6) species of concern: Baird's Sparrow, Grasshopper Sparrow, Sprague's Pipit, Ferruginous Hawk, Bobolink and Greensnake.

Mitigation:

Avoidance (topographic tolerance/exception)

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

Comments: Private surface grasslands. There maybe 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.

### 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 private grassland. There maybe 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.

### Social/Economic

(possible concerns)

- Substantial effect on tax base
- Create demand for new governmental services
- Population increase or relocation

Comments: Wildcat well. No concerns.

### Remarks or Special Concerns for this site

To drill a vertical pilot hole to 9955' TD in the Red River Formation. Plugback and drill a dual lateral Winnepegosis Formation horizontal well: Leg #1 9273'TVD/10,773'MD Leg #2 9273'TVD/10,788'MD. 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: October 5, 2011

Other Persons Contacted:

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

(Name and Agency)

Sheridan County water wells

(subject discussed)

September 26, 2011

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES, Sheridan County

(subject discussed)

September 26, 2011

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T35N R51E

(subject discussed)

September 26, 2011

(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Others present during inspection: \_\_\_\_\_