

# Montana Board of Oil and Gas Conservation Environmental Assessment

**Operator:** Sagebrush Resources II, LLC  
**Well Name/Number:** Gunderson 1-8H  
**Location:** NW SW Section 8 T35N R51E  
**County:** Daniels, MT; Field (or Wildcat) Wildcat

## Air Quality

(possible concerns)

Long drilling time: No, 20 to 30 days drilling time.  
Unusually deep drilling (high horsepower rig): Triple derrick drilling rig to drill a single lateral horizontal Bakken Formation well, 13,659' MD/7807' TVD.  
Possible H2S gas production: Yes possible H2S from Mississippian Formations.  
In/near Class I air quality area: No Class I air quality area in the area of review.  
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: If there are existing pipelines for natural gas in the area then associated gas must be tied into a system or if no gathering system nearby, associated gas can be flared under Board Rule 36.22.1220.

## Water Quality

(possible concerns)

Salt/oil based mud: Yes will drill with oil based invert drilling fluids for the intermediate casing hole. Horizontal hole will be drilled with saltwater (brine). Surface casing hole will be drilled with freshwater and freshwater mud system, Rule 36.22.1001.  
Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to Middle Fork Eagle Creek, about 1/32 of a mile to the southwest and about 1/8 of a mile to the south from this location.  
Water well contamination: Closest stock and domestic water wells are about 3/8 of mile to the south, about 5/8 of a mile to the northeast, about 5/8 of a mile to the southwest and about 7/8 of a mile to the southeast from this location, depth of these wells range from 20' to 220'. 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, rule 36.22.1001.  
Porous/permeable soils: No, sandy clay soils.  
Class I stream drainage: No, Class I stream drainages.

Mitigation:

- Lined reserve pit (surface hole and cement returns)
- Adequate surface casing
- Berms/dykes, re-routed drainage
- Closed mud system (oilbased mud system)
- Off-site disposal of **solids/liquids (in approved facility)**
- Other: \_\_\_\_\_

Comments: 2200' surface casing well below freshwater zones in adjacent water wells, rule 36.22.1001. Also, covering Fox Hills aquifer. Adequate surface casing and operational BOP equipment will prevent any problems, rule 36.22.1014. 16 mil liner will be used in the .reserve pit

## Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: No stream crossings anticipated.

High erosion potential: No, location will require a small cut of up to 6.3' and small fill, up to 7.9', 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 400'X400', required for the Gunderson 1-8H well location.

Damage to improvements: Slight, surface use is cultivated land.

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 State Highway #5. About 1163' of new access road will be built into this location from the existing State Highway #5. Cuttings will be trucked to an authorized disposal. Oil based invert drilling fluids will be recycled. Completion fluids will be hauled to commercial Class II Disposal. The reserve pit after solidification will be mixed with flyash and backfilled with subsoils. No concerns.

## Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 3/8 of a mile to the south, about 5/8 of a mile to the southwest, about 3/4 of a mile to the southeast, about 7/8 of a mile to the southeast and about 7/8 of a mile to the northeast from this location.

Possibility of H2S: Yes possible from Mississippian Formations.

Size of rig/length of drilling time: Triple drilling rig will require about 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 (3,000 psig annular and double ram preventer), rule 36.22.1014, 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. Candidate species is the Sprague's Pipit. NH Tracker website lists seven (7) species of concern: Baird's Sparrow, Sprague's Pipit, Ferruginous Hawk, Bobolink, Smooth Greensnake, Northern Redbelly Dace and Pearl Dace.

Mitigation:

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

Comments: Private surface cultivated lands. 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 cultivated land. 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**

Triple derrick drilling rig to drill a single lateral horizontal Bakken Formation well, 13,659' MD/7807' TVD. No concerns.

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

Some 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: February 4, 2013  
 Other Persons Contacted:

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

(Name and Agency)

Daniels County water wells

(subject discussed)

January 14, 2013

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

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

(subject discussed)

January 14, 2013

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

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

(subject discussed)

January 14, 2013

(date)

If location was inspected before permit approval:

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

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

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