

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Slawson Exploration Company, Inc.
Well Name/Number: Gladius 1-16-9DLH
Location: NE NE Section 16 T20N R60E
County: Richland, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 20-30 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a dual lateral horizontal Bakken Formation test, 15,751'MD/10,579'TVD and 15,237'MD/10,582'TVD.

Possible H₂S gas production: Slight chance H₂S gas 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: Triple derrick drilling rig to drill a dual lateral horizontal Bakken Formation test, 15,751'MD/10,579'TVD and 15,237'MD/10,582'TVD. If there is an existing pipeline for associated gas/H₂S gas in the area and gas can be gathered or if no gathering system nearby associated gas/H₂S gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate string hole to be drilled with oil based invert (80/20) drilling fluids. Horizontal lateral will be drilled with oil based invert (80/20) drilling fluids. Surface casing hole will use freshwater and freshwater mud system, Rule 36.22.1001.

High water table: No high water table at this location.

Surface drainage leads to live water: No, surface drainage does not lead to live water. Closest drainage is an unnamed ephemeral tributary to Shadwell Creek, about 3/8 of a mile to the south from this location.

Water well contamination: None, closest water wells are about 5/8 of a mile to the northeast, about 3/4 of a mile to the northeast and about 3/4 of a mile to the southeast from this location.

Depth of these water wells range from 240' to 250'. This well will drill surface casing hole with freshwater and freshwater drilling fluids to 1700' (Rule 36.22.1001) and will run 1700' of steel surface casing and cement it back to surface.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No, Class I stream drainages in the area of review.

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: Lined (12 mil synthetic liner) cuttings pit for cutting disposal on wellsite.

Comments: 1700' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer, Rule 36.22.1001. Adequate surface casing and BOP equipment to prevent any problems (BOP's 5,000 psig annular, pipe and blind rams) rule 36.22.1014.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: Yes, possible high erosion potential on moderate cut and fill slopes. The location will require a moderate cut, up to 19.5' and a moderate fill, up to 16.6', 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 360'X350', single well location for the Gladius #1-16-9DLH.

Damage to improvements: Slight, surface use is grazing 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: _____

Comments: Access will be over existing county road, #354. Operator will construct about 746' of new access road into this location from the existing county road. Oil based invert drill fluids will be recycled. Completion fluids will be trucked to a Class II disposal. Operator will utilize a closed loop mud system. Cuttings and mud solids will be disposed of in the lined cuttings pit. Lined cuttings pit will be backfilled when dry. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 2.5 miles to the south from this location. The town of Sidney, Montana is about 15.5 miles to the northwest and the town of Savage, Montana is about 13.3 miles to the west southwest from this location.

Possibility of H₂S: Slight chance H₂S gas from Mississippian Formations.

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 a working BOP stack should mitigate any problems, (BOP's 5,000psig annular, pipe and blind rams) rule 36.22.1014.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None in the area of review.

Proximity to recreation sites: None in the area of review.

Creation of new access to wildlife habitat: No, none.

Conflict with game range/refuge management: No, none.

Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Least Tern, Whooping Crane and Piping Plover. Candidate species are

the Sprague's Pipit and the Greater Sage Grouse. NH tracker website indicates four (4) species of concern in this area: Sprague's Pipit, Whooping Crane, Loggerheaded Shrike and Greater Short-horned Lizard.

Mitigation:

- Avoidance (topographic tolerance/exception)
- Other agency review** (DFWP, federal agencies, **DNRC Trust Lands**)
- Screening/fencing of pits, drillsite
- Other: _____

Comments: This is DNRC Trust Lands grazing surface lands and minerals. 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 are discovered at this location.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

- avoidance (topographic tolerance, location exception)
- other agency review** (SHPO, **DNRC Trust Lands**, federal agencies)
- Other: _____

Comments: This is DNRC Trust Lands grazing surface lands and minerals 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.

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

A dual lateral horizontal Bakken Formation test, 15,751'MD/10,579'TVD and 15,237'MD/10,582'TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts 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): /s/ Steven Sasaki
(title:) Chief Field Inspector

Date: June 14, 2013

Other Persons Contacted:
Bureau of Mines and Geology, GWIC website

(Name and Agency)
Water wells in Richland County, Montana
(subject discussed)

June 14, 2013
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County
(subject discussed)

June 14, 2013
(date)

Montana Natural Heritage Program Website
(Name and Agency)
Heritage State Rank= S1, S2, S3 T20N R60E
(subject discussed)

June 14, 2013
(date)

Montana Cadastral Website
(Name and Agency)
Surface Ownership and surface use Section 16 T20N R60E
(subject discussed)

June 14, 2013
(date)

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