

# Montana Board of Oil and Gas Conservation Environmental Assessment

**Proposed Action:** Approve Drilling Permit (Form 22)

**Operator:** Mertz Energy, LLC

**Well Name/Number:** Sapphire #1

**Location:** NE NE Section 29 T26N R51E

**County:** Richland, MT; Field (or Wildcat) Wildcat

## Air Quality

(possible concerns)

Long drilling time: No, 20-25 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a single vertical Red River Formation test, 10,100'MD/10,100'TVD.

Possible H<sub>2</sub>S gas production: Slight chance H<sub>2</sub>S gas from Mississippian Formations.

In/near Class I air quality area: Yes, closest Class I air quality area in the area of review is the Fort Peck Indian Reservation, about 6 miles to the north from this location.

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 single vertical Red River Formation test, If there is an existing pipeline for associated gas/H<sub>2</sub>S gas in the area gas can be gathered or if no gathering system nearby limited amounts of associated gas/H<sub>2</sub>S 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 (75/25 – 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 anticipated.

Surface drainage leads to live water: No - an ephemeral drainage is located about 7/10 of a mile to the west, a stock pond about 3/10 of a mile to the northwest and 7/10 of a mile to the southwest from the location.

Water well contamination: None, no water wells in area that could be affected. Water wells are located about 2/5 of a mile to the west, 1/2 of a mile to the southwest and 2/5 of a mile to the southwest from this location. Depths of these water wells range from 80' -492'. This well will drill surface with freshwater and freshwater drilling fluids to 1000' (Rule 36.22.1001) and will run 1000' of steel surface casing and cement it to surface.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: The only Class I stream drainage is the Missouri River in the area of review, about 5.5 miles to the northeast from this location.

Mitigation:

Lined reserve pit

Adequate surface casing

Berms/dykes, re-routed drainage

Closed mud system

**Off-site disposal of liquids** (in approved facility)

Other: Lined cuttings pit for cutting disposal on the wellsite.

Comments: 1000' 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: No high erosion potential on this location. Small cut of 6.8' and small fill of 6.1'.

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, well site 300'X350'.

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 \_\_\_\_\_

Comments: Access will be over existing county road 304. Operator will construct about 378' of new access road into this location from the existing road. All fluids will be hauled to a class II commercial disposal site and disposed. Operator will utilize a closed loop mud system. Cuttings and mud solids will be dried and disposed of in the lined cuttings pit on the wellsite. Liner will be a 16 mil impervious liner. No concerns.

### Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residence is about 7/10 of a mile to the northwest.

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

Size of rig/length of drilling time: Triple drilling rig 20 to 25 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 identified.

Proximity to recreation sites: None identified.

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, Northern Long-eared Bat and Piping Plover. NH tracker website indicates one (1) species of concern in this area, Townsend's Big-eared Bat.

Mitigation:

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

Comments: This is private cultivated surface lands. There may be 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, DSL, federal agencies)
- Other: \_\_\_\_\_

Comments: This is private cultivated surface lands. There may be 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: No concerns.

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### Remarks or Special Concerns for this site

Single vertical Red River Formation well test,10,100'MD/10,100'TVD.

### Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

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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/ John Gizicki  
(title:) Compliance Specialist

Date: June 01, 2016

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

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

June 01, 2016  
(date)

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

June 01, 2016  
(date)

Montana Cadastral Website  
(Name and Agency)  
Surface Ownership and surface use : Section 29 T26N R51E  
(subject discussed)

June 01, 2016  
(date)

If location was inspected before permit approval:

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

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

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