

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

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

**Operator:** VECTA Oil and Gas

**Well Name/Number:** Deep Freeze 34-1

**Location:** SW SE Section 1 T7N R31E

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

**Air Quality**

(possible concerns)

Long drilling time: No, 12 to 15 days drilling time.

Unusually deep drilling (high horsepower rig): No, a double or small triple drilling rig to drill to a 6590' TD vertical Amsden Formation well test.

Possible H<sub>2</sub>S gas production: Slight H<sub>2</sub>S possible.

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: No special concerns – using a double or small triple drilling rig to drill a vertical Amsden Formation well test. No gas gathering system exists in this area. Associated sweet gas and H<sub>2</sub>S gas in limited volumes can be flared under Board Rule 36.22.1220, if no gathering systems are in close proximity to this well.

**Water Quality**

(possible concerns)

Salt/oil based mud: No,- surface hole will be drilled with freshwater. Main hole will be drilled with freshwater drilling mud system.

High water table: No high water table in the area of review.

Surface drainage leads to live water: No, an unnamed ephemeral drainage to Hawk Creek is located about 220' to the northwest from this location.

Water well contamination: No, nearest water well is 4/5 of a mile to the northwest.

Depth of this water well is 318'. This well will drill and set 8 5/8" surface casing to 600' and cement to surface. If productive 5 1/2" production casing will be run and cemented.

Porous/permeable soils: No, silty "Gumbo" 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)

X Other: Drill cuttings will be buried in the lined cuttings pit and mixed off with dry subsoil. Cuttings pit will be closed when dry. A minimum of four feet (4') dry subsoil and topsoil will cover the cuttings pit.

Comments: Freshwater mud system to be used on surface hole. Freshwater mud system will be used out from under surface casing to 6590' TD. The cuttings pit will be allowed to dry and then covered. No concerns.

### Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No live water stream crossings.

High erosion potential: No, small cut of 6.1 and small fill of 3.8' required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, a average location, 250X250' size required.

Damage to improvements: Slight, surface use is grass and sagebrush 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 from existing county road, Musselshell Trail Road. About 2.4 miles of new road will be constructed into this location. Freshwater drill cuttings and mud solids will be buried in the lined cuttings pit. Lined pit will be backfilled and covered when dry. No concerns.

### Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: No residences within a 1 mile radius from this location. The town of Musselshell, MT is about 17 miles to the northwest from this location.

Possibility of H2S: slight chance of H2S.

Size of rig/length of drilling time: Triple derrick drilling rig, about 10 to 15 days drilling time.

Mitigation:

Proper BOP equipment

Topographic sound barriers

H2S contingency and/or evacuation plan

Special equipment/procedures requirements

Other:

Comments: Operational BOP and adequate surface casing should mitigate any problems. (BOP's 3,000 psig annular, pipe and blind rams) rule 36.22.1014. No concerns.

### 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: Threatened or endangered species identified in this county is the Black-Footed Ferret, Whooping Crane, and Red Knot. Candidate species are the Greater Sage-Grouse and Sprague's Pipit. NH tracker website lists three (3) Species of Concern: the Black-tailed Prairie Dog, Hoary Bat, and the Little Brown Myotis.

Mitigation:

Avoidance (topographic tolerance/exception)

Other agency review (DFWP, federal agencies, DSL)

Screening/fencing of pits, drillsite

Other: \_\_\_\_\_

Comments: Private surface grazing land immediately adjacent to county gravel road. There maybe species of concern that could be impacted by this wellsite. The Board of Oil & Gas has no management authority 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: Private surface grazing land. There could 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: Well is a wildcat, unless/until production is established, no social or economic impact is likely.

### Remarks or Special Concerns for this site

Well is a 6590' TD vertical Amsden Formation well test.

**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: August 18, 2015

Other Persons Contacted:

Montana Bureau of Mines and Geology GWIC website

(Name and Agency)  
Yellowstone County water wells

(subject discussed)  
August 18, 2015  
(date)

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

August 18, 2015  
(date)

Montana Natural Heritage Program Website (FWP)  
(Name and Agency)  
T7N R31E  
(subject discussed)

August 18, 2015  
(date)

If location was inspected before permit approval:

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

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

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