

CHECKLIST ENVIRONMENTAL ASSESSMENT

Proposed Action: Approve Drilling Permit (Form 22)

Project/Well Name: Marvin 2-14 #4H

Operator: Kraken Operating, LLC

Location: Section 33 25N 59E SW SW

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

Proposed Project Date: TBD

I. DESCRIPTION OF ACTION

Triple derrick rig 22,726' MD/10,516' TVD Bakken Formation horizontal well test. Surface casing to be set at 2,087'.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED

Montana Bureau of Mines and Geology, GWIC website (Richland County Wells).

US Fish and Wildlife, Region 6 website

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

Montana Natural Heritage Program Website (FWP)

Heritage State Rank= S1, S2, S3, T25N R59E

Montana Cadastral Website

Surface Ownership and surface use Section 33 T25N R59E

Montana Department of Natural Resources MEPA Submittal

2. ALTERNATIVES CONSIDERED

No Action Alternative: The proposed well would not be drilled.

Action Alternative: Kraken Operating, LLC would have permission to drill the well

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

3. AIR QUALITY

Long drilling time: No, normal drilling time 5 to 7 days.

Unusually deep drilling (high horsepower rig): No.

Possible H₂S gas production: Yes, slight H₂S possible from Mississippian Formations.

In/near Class I air quality area: No Class I air quality area in area of review.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211. AQB review.

Comments: No special concerns – Using triple derrick rig 22,726’MD/10,516’ TVD Bakken Formation horizontal well test. If there are no gas gathering systems nearby, associated gas can be flared under Board Rule 36.22.1220.

4. WATER QUALITY

Salt/oil based mud: Yes, intermediate casing string hole will be drilled with oil based invert drilling fluids. Horizontal lateral will be drilled with salt based drilling fluids. Surface casing will be drilled with freshwater and freshwater mud system.

High water table: No.

Surface drainage leads to live water: No, nearest drainage is Third Hay Creek Creek and is located about 3/10 of a mile to the west.

Water well contamination: No. GWIC lists a domestic water well about 3/10 of a mile to the northeast and is 65’ deep. There are three MBMG research wells in the same area with depths of 50’, 63’, and 69’. Several other MBMG research wells are located about 1/5 of a mile to the northeast. A stockwater well is located about 1/5 of a mile to the south and is 62’ deep. A domestic water well is located about 2/5 of a mile to the southwest and is 65’ deep. Another Domestic water well is located about 1/2 a mile to the southwest and is 310’ deep. Two more water wells are located about 1/5 of a mile to the southwest, a domestic water well 308’ deep and a stockwater well 90’ deep.

Porous/permeable soils: No, Sandy clay.

Class I stream drainage: No.

Groundwater vulnerability area: No.

Mitigation:

Lined cuttings pit

Adequate surface casing

Berms/dykes, re-routed drainage

Closed mud system

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

Comments: Steel surface casing will be run and cemented to surface to protect ground water. (Rule 36.22.1001).

5. SOILS/VEGETATION/LAND USE

Vegetation: Grassland.

Stream crossings: None anticipated.

High erosion potential: Potentially, location requires a large cut of 15.1' and small fill of 8.7'.

Loss of soil productivity: No, if it is a dry hole the location will be reclaimed, if well is a producer the location will be downsized to accommodate only production equipment, rest of location will be reclaimed.

Unusually large wellsite (Describe dimensions): Large wellsite to accommodate three wells, 465' X 484'.

Damage to improvements: Slight, surface use is grassland.

Conflict with existing land use/values: Slight, surface use is grassland.

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

Access Road: Access will be off HWY 20 and CR 352. A new access of 1,136' will be built into location.

Drilling fluids/solids: After drilling is complete, the liquids will be hauled to a commercial disposal site and disposed. The cuttings will be dried and collected and hauled to a commercial disposal site.

6. HEALTH HAZARDS/NOISE

Proximity to public facilities/residences: Occupied structure located within 1/4 of a mile of the location.

Operator required to notify owners of occupied structures within 1/4 mile per ARM 36.22.620. There is another occupied structure about 3/10 of a mile to the northeast and does not require notice to owner. The town of Fairview, MT is located about 3.9 miles to the southeast.

Possibility of H2S: Yes, slight H2S possible from Mississippian Formations.

Size of rig/length of drilling time: Triple derrick rig, 5-7 days drilling time.

Mitigation:

Proper BOP equipment

Topographic sound barriers

H2S contingency and/or evacuation plan

Special equipment/procedures requirements

Other:

7. WILDLIFE/RECREATION

Sage Grouse: No.

Proximity to sensitive wildlife areas (DFWP identified): None.

Proximity to recreation sites: None.

Creation of new access to wildlife habitat: None.

Conflict with game range/refuge management: None.

Threatened or endangered Species: Species listed as threatened or endangered in Richland County are: Pallid Sturgeon, Piping Plover, Interior Least Tern, Whooping Crane, and the Northern Long-eared Bat. The Montana Natural Heritage Program site lists three (3) species of concern: Whooping Crane, Northern Redbelly Dace, and the Iowa Darter.

Mitigation:

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

Comments: 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 is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands. No concerns.

IV. IMPACTS ON THE HUMAN POPULATION

8. HISTORICAL/CULTURAL/PALEONTOLOGICAL

Proximity to known sites: None.

Mitigation

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

Other:

9. SOCIAL/ECONOMIC

Substantial effect on tax base

- Create demand for new governmental services
- Population increase or relocation

Comments: No concerns.

IV. SUMMARY

No long term impacts expected. Some short term impacts will occur, but can be mitigated. 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.

EA Checklist Prepared By:	Name: John Gizicki	Date: 11/19/20
	Title: Compliance Specialist	