

CHECKLIST ENVIRONMENTAL ASSESMENT

Proposed Action: Approve Drilling Permit (Form 22)

Project/Well Name: Gehringer 24-13 #2H

Operator: Kraken Operating LLC

Location: NWNE Section 25-28N-58E

County: Roosevelt **MT; Field (or Wildcat):** Elm Coulee, Northeast.

Proposed Project Date: 03/01/2018

I. DESCRIPTION OF ACTION

Kraken plans to drill a horizontal oil well with the objective formation being the Bakken, 21,003' MD / 10,030' TVD.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED

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

US Fish and Wildlife, Region 6 website

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

Montana Natural Heritage Program Website (FWP)

Heritage State Rank= S1, S2, S3, T28N R58E

Montana Cadastral Website

Surface Ownership and surface use Section 25 T28N R58E

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: 25 to 35 days drilling time.

Unusually deep drilling (high horsepower rig): No, using tippie derrick rig.

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

In/near Class I air quality area:

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 to drill to 21,003' MD / 10,030' TVD. 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: Surface hole to be drilled with freshwater, intermediate will use invert and then from intermediate to TD will be brine.

High water table: No.

Surface drainage leads to live water: Possible. There is a stock pond about 475 feet to the west and a reservoir about 2/5 of a mile to the northeast. An unnamed ephemeral drainage to the reservoir exists about 480 to the northeast. An unnamed ephemeral drainage to Shotgun Creek exists 1/4 of a mile to the west. Shotgun Creek is located 2.3 miles to the south.

Water well contamination: No, nearest water well is a stockwater well 1/5 of a mile to the north at a depth of 34'. Another well listed as a stockwater well is located about 1/2 mile to the northeast and there is no depth data. Another water well is 3/5 of a mile to the southwest, depth of this domestic well is 235'. Another domestic well exists a little over 1/2 of a mile to the south. The depth of this well is 80'. Another well is listed on GWIC as a stockwater well 1/2 of a mile to the northwest. There is no data on this well.

Porous/permeable soils: No, Sandy clay.

Class I stream drainage: No.

Groundwater vulnerability area: No.

Mitigation:

Lined reserve 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 to 1,790' and cemented to surface to protect ground water. (Rule 36.22.1001).

5. SOILS/VEGETATION/LAND USE

Vegetation: Grassland.

Steam crossings: None anticipated.

High erosion potential: No, Small cut of 6.0' and small fill of 5.0' required.

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

Unusually large wellsite (Describe dimensions): A large location 470' X 500' for a four well pad.

Damage to improvements: Slight, surface use appears to be mix of cultivated and grass lands.

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

Access Road: Off U.S. Highway 2 and then an existing road to the north. A new access of 1,482' will be built into location.

Drilling fluids/solids: A 16 mil synthetic pit liner will be installed. After drilling is completed and if the well is completed as a producer, the liquids will be hauled to a commercial disposal site and disposed. The cuttings will be allowed to dry and the pit will be reclaimed with the liner remaining intact. If productive, unused portion of site will be reclaimed.

6. HEALTH HAZARDS/NOISE

Proximity to public facilities/residences: Nearest residence is 7/10 of a mile to the south. A structure exists 3/10 of a mile to the northwest. The town of Bainville, MT is located about 2.5 miles to the southwest.

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

Size of rig/length of drilling time: Triple derrick rig, 25-35 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 identified as threatened or endangered are the Pallid Sturgeon, Piping Plover, Interior Least Tern, Whooping Crane, Red Knot, and Northern Long-eared Bat. The Montana Natural Heritage Program website lists five (5) species of concern: LeConte's Sparrow, Nelson's Sparrow, Whooping Crane, Iowa Darter, and Northern Pear Dace.

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:

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:

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Date: 09/28/17