

CHECKLIST ENVIRONMENTAL ASSESMENT

Proposed Action: Approve Drilling Permit (Form 22)

Project/Well Name: Laas 22-14

Operator: Thor Resources USA LLC

Location: Section 14 33N-R4E

County: Liberty **MT; Field (or Wildcat):** Wildcat

Proposed Project Date: 11/25/2017

I. DESCRIPTION OF ACTION

Re-permit to re-enter above well to deepen, perforate and test the Niskua, Duperow, and Souris River formations to a TD of 5,600'.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED

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

US Fish and Wildlife, Region 6 website

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

Montana Natural Heritage Program Website (FWP)

Heritage State Rank= S1, S2, S3, T33N R4E

Montana Cadastral Website

Surface Ownership and surface use Section 14 T33N R4E

Montana Department of Natural Resources MEPA Submittal

2. ALTERNATIVES CONSIDERED

No Action Alternative: The proposed well would not be re-entered.

Action Alternative: Thor Resources USA, Inc would have permission to re-enter the well.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

3. AIR QUALITY

Long drilling time: No, 3-4 days.

Unusually deep drilling (high horsepower rig): No

Possible H₂S gas production: Potentially in Madison group and Duperow formations.

In/near Class I air quality area: No.

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 small rig to drill to 5,600' TD. If there aren't any gas gathering systems nearby, associated gas can be flared under Board Rule 36.22.1220.

4. WATER QUALITY

Salt/oil based mud: Freshwater mud system to be used.

High water table: No.

Surface drainage leads to live water: Eagle Creek is located 3/10 of a mile to the southwest from this location.

Water well contamination: Nearest water well is about 2/5 of a mile to the southwest. The depth of this domestic water well is 500'.

Porous/permeable soils: No, clay soils.

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 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: No, a small cut of 1.6' and a small fill of 0.8' required.

Loss of soil productivity: No, location will be restored after drilling if unproductive.

Unusually large wellsite (Describe dimensions): No, 330' X 170'.

Damage to improvements: Slight.

Conflict with existing land use/values:

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: An access road of 0.3 miles will be built off a 2 track that connects to County Road 500.

Drilling fluids/solids: Reserve pits are to be lined with a minimum of 12 mil liner. A thicker liner may need to be used if soil condition present a risk of tearing or failure of the liner. No liquid hydrocarbons are expected, but will be monitored and any hydrocarbons will be immediately removed and disposed of according to MBOGC regulations. Drilling solid waste and produced fluid waste disposal will be as per the MBOGC regulations below. The only anticipated produced fluid is potentially produced water with a TDS of up to 200,000 ppm.

6. HEALTH HAZARDS/NOISE

Proximity to public facilities/residences: Farm buildings 2/5 of a mile to the southwest.

Possibility of H2S: Possibility in Madison Group and Duperow formations.

Size of rig/length of drilling time: 3-4 days.

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):

Proximity to recreation sites: None.

Creation of new access to wildlife habitat: No.

Conflict with game range/refuge management: No.

Threatened or endangered Species: Listed threatened or endangered species in Liberty County is the Red Knot. Candidate species is the Whitebark Pine. The Montana Natural Heritage Program website lists two (2) species of concern, the Chestnut-collared Longspur and the McCown's Longspur.

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: 10/7/16

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