

CHECKLIST ENVIRONMENTAL ASSESMENT

Proposed Action: Approve Drilling Permit (Form 22)

Project/Well Name: Thor Kevin 04-04-33N-01W

Operator: Thor Resources USA, LLC

Location: NW NW Section 4 T33N R1W

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

Proposed Project Date: 11/01/2018

I. DESCRIPTION OF ACTION

Thor Resources plans to re-enter this well for a Souris River formation test TD/TVD 4,508'.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED

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

US Fish and Wildlife, Region 6 website

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

Montana Natural Heritage Program Website (FWP)

Heritage State Rank= S1, S2, S3, T33N R1W

Montana Cadastral Website

Surface Ownership and surface use Section 4 T33N R1W

Montana Department of Natural Resources MEPA Submittal

2. ALTERNATIVES CONSIDERED

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

Action Alternative: Thor Resources USA, LLC would have permission to drill the well.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

3. AIR QUALITY

Long drilling time: No, 5-10 days drilling time.

Unusually deep drilling (high horsepower rig): No, drilling rig for a TD/TVD 4,508' re-entry. The objective formation is Souris River.

Possible H₂S gas production: Yes, possible H₂S gas from the Mississippian 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 rig to re-enter well to 4,508' TD/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: Use freshwater and freshwater mud system for re-entering this well.

High water table: No high-water table anticipated at this location.

Surface drainage leads to live water: No South Fork Willow Creek is located ½ of a mile to the west of the location. An ephemeral drainage is located about 2.5 of a mile to the northwest.

Water well contamination: No water wells within a 1 mile radius of this location.

Porous/permeable soils: No, silty sandy bentonite 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 is set to 540' 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: Slight, a small cut of 6.1' and a small fill of 3.2' is required.

Loss of soil productivity: None, location to be restored after drilling well, if well is nonproductive.

Unusually large wellsite (Describe dimensions): No, a large location will be used, 320' X 320'.

Damage to improvements: None anticipated, surface use is dry 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

Access Road: A new access of 300' will be built off existing two track. Two track is found off Seward Rd.

Drilling fluids/solids: Any used fresh water in the wellbore or 3% KCL water or Saline production water will be disposed through Keesun's water handling facilities in Cutbank, MT.

6. HEALTH HAZARDS/NOISE

Proximity to public facilities/residences: No residences within 1/2 mile radius.

Possibility of H2S: Yes, possible H2S gas from the Mississippian formations.

In/near Class I air quality area:

Size of rig/length of drilling time: 5-10 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 Red Knot, Grizzly Bear, and Whitebark Pine. MTFWP Natural Heritage Tracker website lists two (2) species of concern, the Chestnut-collared Longspur and the Loggerhead Shrike.

Mitigation:

Avoidance (topographic tolerance/exception)

Other agency review (DFWP, federal agencies, DNRC Trust Lands, Sage Grouse Habitat Conservation Program)

Screening/fencing of pits, drillsite

Other:

Comments: Private 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: 08/27/18

Title: Compliance Specialist