

CHECKLIST ENVIRONMENTAL ASSESSMENT

Proposed Action: Approve Drilling Permit (Form 22)

Project/Well Name: Allen 10-31-22-27-H1

Operator: Cardinal Oil, LLC

Location: SE SE, Section 22 T10N R31E

County: Rosebud MT; **Field (or Wildcat):** Sumatra

Proposed Project Date: 10/30/2020

I. DESCRIPTION OF ACTION

Cardinal Oil, LLC plans to drill a Heath/Cox Ranch Formation test, 5,087' TVD; 10,386' MD. The location is in core Sage Grouse habitat and requires sage grouse approval. The approval letter was received 10/21/2020.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED

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

US Fish and Wildlife, Region 6 website

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

Montana Natural Heritage Program Website (FWP)

Heritage State Rank= S1, S2, S3, T10N R31E

Montana Cadastral Website

Surface Ownership and surface use Section 22 T10N R31E

Montana Department of Natural Resources MEPA Submittal

2. ALTERNATIVES CONSIDERED

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

Action Alternative: Cardinal Oil, LLC would have permission to drill the well.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

3. AIR QUALITY

Long drilling time: Not anticipated
Unusually deep drilling (high horsepower rig): No.

Possible H₂S gas production: Potentially in Mississippian formations.
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. AQB review.

Comments: No special concerns – using small rig to drill to 5,087' TVD; 10,386' MD. 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: Freshwater mud system will be used on surface hole. Surface hole will be drilled to 615' and steel surface casing will be set and cemented to surface. Inhibited freshwater mud will be used on the on intermediate and main hole.

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

Surface drainage leads to live water: No, an irrigation canal is located about 2/5 of a mile to the west. The Musselshell River is located about 1 mile to the west.

Water well contamination: No water wells within a ½ mile radius.

Porous/permeable soils: Slightly, sandy loam/shale.

Class I stream drainage: No class I streams in the area.

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 set and cemented to surface to protect ground water. (Rule 36.22.1001).

5. SOILS/VEGETATION/LAND USE

Vegetation: Area is grassland.

Stream crossings: Must cross an existing canal crossing and another canal crossing that will require a culvert and/or fill.

High erosion potential: No, a small fill of 7.2' and a medium cut of 12.5' required.

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

Unusually large wellsite (Describe dimensions): No, 375' X 330' location.

Damage to improvements: Slight, surface use for grazing.

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: Highway 12, Whiskey River Rd., and existing dirt road. About 2,365' of new access will be built into location.

Drilling fluids/solids: Cuttings will be buried in pits on location, liquids will be allowed to dry in pit.

6. HEALTH HAZARDS/NOISE

Proximity to public facilities/residences: No residents within a ½ mile radius. The town of Melstone, MT is located about 3 miles to the southwest.

Possibility of H2S: Potentially in Mississippian formations.

Size of rig/length of drilling time: Small rig, 3 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: In core habitat and requires sage grouse approval from the Greater Sage Grouse Habitat Conservation Program. Greater Sage-Grouse approval letter received 10/21/20.

Proximity to sensitive wildlife areas (DFWP identified: Sage-Grouse core area.

Creation of new access to wildlife habitat: The road into location and the location itself is in core Greater Sage-Grouse habitat.

Conflict with game range/refuge management: No.

Threatened or endangered Species: Species listed as endangered or threatened in Rosebud County are the Pallid Sturgeon, Whooping Crane, and Interior Least Tern. The Montana Natural Heritage Program

website lists ten (10) species of concern: Black-tailed Prairie Dog, Chestnut-collared Longspur, Greater Sage-Grouse, Loggerhead Shrike, Long-billed Curlew, Sage Thrasher, Brewer's Sparrow, Spiny Softshell, Great Plains Toad, and Sauger.

Mitigation:

Avoidance (topographic tolerance/exception)

Other agency review (DFWP, federal agencies, DNRC Trust Lands, **Montana Sage Grouse**

Habitat Conservation Program)

Screening/fencing of pits, drillsite

Other: Cardinal Oil, LLC is to receive stipulations to limit impact to Grater Sage Grouse habitat, which includes restricted hours of operation.

Comments: Subject to Sage Grouse Stipulations Private cultivated surface lands. There may be other 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 L, 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 Title: Compliance Specialist
Signature:	Date: 10/22/20