

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: XTO Energy, Inc.
Well Name/Number: P&Q Farms 21X-28BXC
Location: NE NW Section 28 T23N R59E
County: Richland, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 20-30 days drilling time.

Unusually deep drilling (high horsepower rig): A triple derrick rig to drill a single lateral Bakken Formation Horizontal Lateral, 21,025' MD/10,161' TVD.

Possible H₂S gas production: Slight chance of H₂S gas production from Mississippian Formations.

In/near Class I air quality area: No, not in a Class I air quality area.

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

Mitigation:

Air quality permit (AQB review)

Gas plants/pipelines available for sour gas

Special equipment/procedures requirements

Other: _____

Comments: No special concerns – using triple derrick drilling rig to drill a single lateral horizontal Bakken Formation well. If existing gas gathering system for natural gas in the area, associated gas can be gathered or if no gathering system nearby, associated gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate casing string hole will be drilled with oil based invert drilling fluids(80/20). Horizontal lateral will be drilled with produced brine water. Surface casing hole will be drilled with freshwater and freshwater drilling fluids, Board Rule 36.22.1001.

High water table: Potentially high water table anticipated. Appears to be in a irrigated field.

Surface drainage leads to live water: Yes, irrigated fields all around this location.

Water well contamination: None, surface hole will be drilled with freshwater and freshwater drilling fluids to 1550', steel surface casing will be run and cemented to surface from 1550' to protect any ground and surface waters. Closest water wells, there are numerous domestic and stock water wells with a ½ mile radius from this location. Depth of these stock and domestic water well range from 5' to 1420'. Surface casing hole will be drilled with freshwater and a freshwater drilling fluids, Board Rule 36.22.1001. Surface casing will be set well below the depth of these water wells and cemented to surface, Board Rule 36.22.1001. No concerns.

Porous/permeable soils: Yes porous, sandy silty clay soils.

Class I stream drainage: Yes, nearest Class I stream drainage, Yellowstone River, about 2 miles to the east from this location.

Mitigation:

Lined reserve pit

Adequate surface casing

- Berms/dykes, re-routed drainage
- Closed mud system
- Off-site disposal of solids/liquids (in approved facility)**
- Other: _____

Comments: 1550' of surface casing is enough surface casing to cover Base Fox Hills Formation. Surface hole will be drilled with freshwater and freshwater drilling fluids to 1600', Board Rule 36.22.1001. Steel surface casing will be run and cemented to surface, Board Rule 36.22.1001. Oil based invert drilling fluids will be recycled. Drill cuttings will be disposed offsite. After the well has been completed, completions fluids will go to a commercial Class II disposal. No concerns.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None, anticipated.

High erosion potential: No - Location will require a very small cut, to prevent storm water runoff.

Loss of soil productivity: None, location to be restored after drilling well, if well is nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: Yes, well site is very large, 490' X 375', for multiple wells to be drilled from this site.

Damage to improvements: Private irrigated crop 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
- Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28).

Comments: Access will be over existing county road, #126. A very short access road will be constructed into this location. Oil based invert drilling fluids will be recycled. Completion fluids will be hauled to a Class II commercial disposal. Drill cuttings will be disposed of offsite at an approved disposal site. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 1/4 of a mile to the east of this location. The town of Sidney, Montana is about 1 mile to the south.

Possibility of H2S: Slight chance of H2S from Mississippian Formations.

Size of rig/length of drilling time: Triple derrick drilling rig, 20 to 30 days drilling time.

Mitigation:

- Proper BOP equipment
- Topographic sound barriers

H2S contingency and/or evacuation plan

Special equipment/procedures requirements

Other: _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems, (BOP's 5,000 psig annular, pipe and blind rams) rule 36.22.1014. No concerns.

Wildlife/recreation

(possible concerns)

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

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No, no game range/refuge in the area.

Threatened or endangered Species: No T&E species likely to be impacted –in suburban farmed area.

Mitigation:

Avoidance (topographic tolerance/exception)

Other agency review (DFWP, federal agencies, DSL)

Screening/fencing of pits, drillsite

Other: _____

Comments: Private irrigated crop lands. There maybe 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.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

avoidance (topographic tolerance, location exception)

other agency review (SHPO, DSL, federal agencies)

Other: _____

Comments: Private irrigated crop lands. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

Substantial effect on tax base

Create demand for new governmental services

Population increase or relocation

Comments: Horizontal Bakken Formation oil well in a 2560 acre spacing unit. No concerns.

Remarks or Special Concerns for this site

A single lateral Bakken Formation horizontal well test.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

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.

Prepared by (BOGC): /s/ Thomas Richmond
(title:) Administrator
Date: October 1, 2013

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Richland County water wells
(subject discussed)
January 26, 2013
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES, Richland County
January 26, 2013 (for nearby well)
(date)

Montana Cadastral website
(Name and Agency)
Ownership, topo map, aerial photos
(subject discussed)
October 1, 2013
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____