



MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Geologic Resources Management Division

Environmental Impact Assessment

Required for issuance of well permit pursuant to Part 615, 1994 PA 451, as amended. Falsification of this information may result in fines and/or imprisonment. Check all boxes and fill in all blanks which apply to this drilling application. Attach additional pages as necessary.

A. Description of Project

1. Applicant's name: _____
Well name and number: _____
Intended use of well: _____

2. Mineral ownership, check each category of mineral owners in drilling unit or Antrim Uniform Spacing Plan

Private State Federal Indian Other, identify _____

3. Applicable spacing order and drilling unit size

S.O. 14-9-94 N. Mich. Antrim, 80 acres S.O. 3-3-95 S. Mich. Antrim, 40 acres
S.O. 1-73 Niagaran, 80 acres S.O. 2-81 Oakland Co. Niagaran, 40 acres
R 324.301 General rule, 40 acres S.O. 1-86 P.D.C., 640 acres
Field Spacing or Unitization Order (identify below):

Antrim USP (identify name, number of acres, and number of drilled and permitted wells):

Administrative exception requested per R324.303 (2). See instructions for applying for an administrative spacing exception

Exception to spacing requested, petition for hearing filed

Non-producing well, no drilling unit

4. Applicant's right to drill and produce

Yes No Are all mineral interests in the drilling unit under lease and controlled by the applicant/permittee?

If no, submit map showing well, wellbore path, and location of unleased acreage, and

petition filed for statutory pooling OR certified efforts to obtain leases are attached (if allowed by spacing order / Gen. Rule)

Not applicable, no drilling unit.

Yes No Has applicant obtained all the legal and contractual rights needed to locate the well and wellbore where it is proposed?

If no, what additional approvals are needed? _____

5. Special considerations

Replacement well for permit no. _____ or Existing well pad

Yes No Is well expected to encounter H₂S?

Yes No Is well located in a city, township, or village with a population greater than 70,000?

Other (describe) _____

B. Impacts as a Result of Drilling

1. Access route dimensions

_____ feet x _____ feet / 43,560 = _____ acres.

Provide a detailed description of topography, drainage, soil type(s), direction and percentage of slopes, land cover and present land use for the access route while drilling. Identify route on attached plat.

2. Well site dimensions

_____ feet x _____ feet / 43,560 = _____ acres.

Provide a detailed description of topography, drainage, soil types(s), direction and percentage of slopes, land cover and present land use for the well site. Identify well site on attached plat:

3. Is well site located in residentially zoned area?

Yes No If yes, R324.407(3) and R324.505 apply.

4. Are drain tiles present? Yes No

If yes, identify where they exist on attached plat or project map. How will they be handled if they are encountered?

5. Identify the distance and direction to all of the following, also identify on attached plat

a. All buildings, fresh water wells, public roads, power lines and other man-made features within 600' of the well site:

b. All Type I and Type IIa public water supply wells within 2000' of the well site and all Type IIb and Type III public water wells within 800' of the well site:

(NOTE: Type I is a community water supply with year-round service ≥ 15 living units or ≥ 25 residents. Type II is a non-community water supply with ≥ 15 service connections or ≥ 25 individuals for not less than 60 days per year. Average daily water production: IIA ≥ 20,000 GPD IIB <20,000 GPD Type III is a public water supply which is neither type I or II.)

c. Surface waters, floodplains, wetlands, natural rivers, critical dune areas, threatened or endangered species within 1320' and Great Lake shorelines within 1500' of the well site:

d. Describe the actions to be taken to mitigate impacts to any of the items identified in Part B-5 a-c above:

6. Identify the source of fresh water used for drilling and completing this well

- "Permanent" water well, to be retained after final completion OR used for drinking water (shall be drilled and installed pursuant to Part 127 of 1979 PA 368, as amended)
- "Temporary" water well, will be plugged upon final completion and not used for drinking water (consult R 324.403 (2) for minimum construction requirements)
- Fresh water will be hauled from existing water well or municipal source (identify)

- No fresh water will be used in drilling this well

7. Method of Well Completion and Well Treatment (check all that may apply)

- Perforated casing
- Open Hole
- Acidizing
- Hydraulic Fracturing. Est Total HF Fluid Vol. _____ gallons
(If Gas, give Liquid Phase Vol) _____ gallons
- Yes No Is High Volume Hydraulic Fracturing expected to be utilized in completion of this well? (HF fluid vol. >100,000 gal). If yes, submit Chemical Pre-Disclosure & HVHF EIA forms (EQP 7200-26, EQP 7200-24)
- Other (describe) _____

8. Pit location and handling and disposal of drill cuttings, muds and fluids

Anticipated depth to groundwater _____

Method determined by _____

- On site in-ground pit, anticipated dimensions: L _____ W _____ D _____
- Remote in-ground pit, anticipated dimensions: L _____ W _____ D _____

If Remote Pit, attach approval of landowner and attach survey of remote pit location

Well drilled below base of Detroit River Anhydrite. Describe how mud and cuttings pursuant to R324.407(7)(iv) will be handled.

Pit fluids below DRA disposed by _____ licensed liquid waste hauler **OR**

Pit fluids below DRA disposed at the _____ disposal well.

If drill cuttings & mud don't pass paint filter test, they will be disposed at _____ landfill.

- No salt cuttings **OR**
- Salt cuttings dissolved and disposed by _____ licensed liquid waste hauler **OR**
- Salt cuttings hauled to _____ landfill
- Temporary pit, cuttings and muds disposed at (identify): _____
- No in-ground pit, cuttings and muds disposed at (identify): _____
- Pit will be solidified.

C. Impacts as a Result of Production

1. Kind of well Exploratory Development Other (describe): _____
 Antrim project (**submit separate project EIA, form EQP 7200-21, for access roads, flow lines, and surface facilities**) where is project EIA found? _____ and complete C-2, omit C-3 and C-4

2. Location of surface facilities (Prior to construction, the District Geologist, pursuant to R324.1002, must also approve all surface facility secondary containment plans.)

Greater than 300' from wellhead. Identify facility location on attached plat and complete C-3 and C-4.

Less than 300' from wellhead. Identify facility location on attached plat, complete C-3, omit C-4

Surface facility exists or was previously approved for construction and is known as _____ complete C-3, omit C-4.

Surface facility location was not determined for this **exploratory** well (omit C-3 and C-4). Submit a separate request for **Surface Facility Location Approval (form 7200-22)**, which includes a Facility Plan, Environmental Impact Assessment, and Soil Erosion and Sedimentation Control Plan, to District Geologist prior to construction pursuant to R324.504.

3. Flow Line Environmental Impact Assessment

Identify flow line location and course from well to the surface facility on attached plat.

Flow line route dimensions _____ feet x _____ feet / 43,560 = _____ acres.

Describe the topography, drainage, soil type(s), direction and percentage of slopes, land cover and present land use along the flow line route:

4. Surface Facility Environmental Impact Assessment

a. Dimensions of surface facility _____ feet x _____ feet / 43,560 = _____ acres.

b. Describe the topography, drainage, soil type(s), direction and percentage of slopes, land cover, and present land use:

1. Along access route to surface facility:

2. At surface facility site:

c. Are surface facilities likely to receive oil or gas with H₂S concentration greater than 300 ppm?

Yes No, if yes, R324.1106(2) applies.

d. Will surface facilities be located in residentially zoned area?

Yes No, If yes, R324.506 may apply.

e. Identify the distance and direction to all of the following, and identify on attached plat

1. Distance and direction to all buildings, fresh water wells, public roads, power lines and other man-made features within 600' of surface facility:

2. Distance and direction to any surface waters, floodplains, wetlands, natural rivers, critical dune areas, and threatened or endangered species within 1320' and Great Lakes shorelines within 1500' of the surface facility site:

3. Describe the actions to be taken to mitigate impacts to any of the items identified in Part C-4e 1 and 2 above:

4. Distance and direction to all Type I and Type IIa public water supply wells within 2000' of the surface facility site and all Type IIb and Type III wells within 800' of the surface facility:

Type I is a community water supply with year-round service ≥ 15 living units or ≥ 25 residents. Type II is a non-community water supply with ≥ 15 service connections or ≥ 25 individuals for not less than 60 days per year. Average daily water production: IIA $\geq 20,000$ GPD IIB $<20,000$ GPD Type III is a public water supply which is neither type I or II.

5. Method of brine disposal

- Dedicated flow line to disposal well _____, permit number _____
- Transported by tanker. Other _____

6. Method of transporting hydrocarbons past the point of sale

- Oil sold through transmission line Gas sold through transmission line
- Oil transported by tanker for sale Gas flared on site (production restrictions may apply)
- Other _____

D. Mitigation of Impacts from Drilling and/or Production

Describe additional measures to be taken to protect environmental and/or land use values:

E. Additional Permits

Identify additional permits to be sought: _____

F. Soil Erosion and Sedimentation plan

Submit a soil erosion and sedimentation plan (**form 7200-18**) which addresses **each** well site, surface facility, and flow line route identified in this application. (Refer to requirements under Part 91, 1994 PA 451)

G. Alternate Well and Surface Facility Locations

Were alternate surface locations considered for this well or surface facility?

- No, alternate sites did not seem necessary or more desirable
- Yes, the following locations were considered: _____

Why were they rejected in favor of the proposed location?

H. Certification

"I state that I am authorized by said applicant to prepare this document. It was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."

Name and title (printed or typed)

Authorized Signature

Date

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