



State of Michigan  
 Department of Environmental Quality  
 Office of Oil, Gas, and Minerals  
 P.O. Box 30256  
 Lansing, MI 48909-7756

**PERMIT TO**

**DRILL AND OPERATE**     **DEEPEN AND OPERATE**

GRANTED UNDER THE PROVISIONS OF  
 Part 615 Supervisor of Wells, Act 451, PA 1994, as amended

Violation of and/or non-compliance with the provisions of this act or its rules, instructions or orders of the supervisor, or these permit conditions may result in penalties. This permit includes as requirements all the operations and methods proposed by the applicant in the application to drill, unless rejected or altered by the DEQ. This permit is also subject to the general and specific conditions identified on this page and/or attached to it. Initiation of any work under this permit confirms the permittee's acceptance and agreement to comply with its terms and conditions.

PERMIT NO. <b>61170</b>	ISSUE DATE 3/8/2016	EXPIRATION DATE 3/8/2018
WELL NAME AND NUMBER <b>WORD OF FAITH 16-27</b>		
FORMATION AT TOTAL DEPTH <b>NIAGARAN GRAY</b>	COMPLETION FORMATION <b>NIAGARAN</b>	
PERMITTED TOTAL DEPTH (MEASURED) 2900 ft.	PERMITTED TOTAL DEPTH (TVD) 2900 ft.	
TYPE OF PERMIT Oil Well	API NUMBER 21-125-61170-00-00	
ISSUED TO: JORDAN DEVELOPMENT CO LLC 1503 GARFIELD RD NORTH TRAVERSE CITY, MI 49686-9005		

LOCATION AND FOOTAGES: SHL: SE SE SE, SEC 27, 1N 10E, SOUTHFIELD TWP, OAKLAND CO.  
 330 FT. FROM S AND 670 FT. FROM E SECTION LINE.  
 330 FT. FROM S AND 670 FT. FROM E DRILLING UNIT LINE.

**CASING AND SEALING REQUIREMENTS**

HOLE DEPTH	HOLE DIA.	CASING O.D.	WT./FT.	GRADE	CONDITION	DEPTH (M.D.)	SACKS CMT	CEMENT TOP	MUD WT.
50'	Driven	16"	65	H-40	NEW	50'			
300'	14 3/4"	11 3/4"	42	H-40	NEW	300'	220	SURFACE	8.4
1200'	10 5/8"	8 5/8"	24	J-55	NEW	1200'	269	SURFACE	8.8
2900'	7 7/8"	5 1/2"	15.5	J-55	USED	2900'	292	1300	10.3

**SPECIFIC PERMIT CONDITIONS**

1. Have Sour Trim on BOPs, H2S safety equipment available, wind socks, and warning signs at drill pad, and H2S monitor on drilling deck 500' prior to encountering the Niagaran.
2. A permittee shall communicate with the local fire marshall and emergency responders to explain and describe the timing, sequence, and critical points at the drilling operation at least seven days before moving a drilling rig to the well location and on an as-needed basis during drilling operations, and shall provide the fire marshal and emergency responders with a means to contact
3. Unless a bat survey, performed by a qualified biologist, indicates probable absence of the Federally Threatened Northern Long-Eared Bat (*Myotis septentrionalis*) and State/Federally Endangered Indiana Bat (*Myotis sodalis*), no tree clearing of greater than 1 acre shall be allowed between April 1 through September 30 of any calendar year.
4. A permittee shall post an identification sign in a clearly visible place at the entrance to the well location. The permittee shall post the sign at least five days before commencing drilling operations and shall maintain the sign until after drilling operations are completed. The sign shall have lettering at least 1 1/2 inches high and legible under normal circumstances at a distance of 25 feet, and shall show the following information: a. A statement that the site is the location of an oil and gas well; b. the expected duration of the drilling operation; c. the name of the permittee; and d. a telephone number by which an authorized representative of the permittee may be contacted at any time to respond to an emergency at the well.
5. A temporary water well for onsite freshwater is allowed. The Area Geologist shall be notified at least 5-days in advance prior to commencement of water well installation. Well will be installed in accordance with R403(2) of Part 615 and Supervisor of Wells Instruction 1-2013. Well needs to be plugged by a registered water well driller when no longer needed for well-completion operations.
6. Permittee shall install a downgradient monitoring well and collect a water sample from both the monitoring well and the temporary water well (if a temporary water well is drilled at this location) prior to commencing drilling operations, and at approximately 3 months and 6 months following drilling completion. The water samples shall be tested for specific conductance, chloride, benzene, ethylbenzene, toluene, and xylene. Permittee shall provide results of the sample analysis to OOGM within 7 days of the date the results are available.
7. Silt fences must surround all berms especially along ditch and wetland areas to south and west of pad.
8. Place temporary orange snow fence around the inside perimeter of pad except at entrance of lease road until pad area is ready to be regraded.
9. Permittee shall post MSDSs for all chemicals that are used or stored at well site for which MSDSs are required under Section 311 of the Federal Emergency Planning and Community Right-to-Know Act. The MSDSs shall be posted at the entrance to the access drive in a manner such that they can be accessed by the public and emergency response personnel.
10. NOTE: SEE REVERSE SIDE FOR ADDITIONAL CONDITIONS

**GENERAL PERMIT CONDITIONS**

1. The permittee is required to give notice to public utilities in accordance with Act 53, PA 1974, M.C.L. 460.701-460.718.
2. This permit does not convey property rights in either real estate or material, neither does it authorize any injury to any public or personal property.
3. This permit does not preclude the necessity of obtaining other local, state, or federal permits which may apply to the drilling or operation of this well.
4. All trash and garbage shall be removed from the drill site at the completion of drilling, no garbage may be buried on site.
5. This permit allows a well containing hydrogen sulfide to be drilled and tested subject to the Hydrogen Sulfide Management Provisions of the Rules promulgated under Part 615, 1994 PA 451, as amended. Contact the Air Quality Division prior to producing a sour well to determine if an Air Quality Installation or Operation Permit is required.

OFFICE TO BE NOTIFIED PRIOR TO PREPARING LOCATION  
 AND PRIOR TO MOVING IN DRILLING EQUIPMENT  
 Southeast Michigan Office (586) 753-3700

PERMIT ISSUED FOR THE SUPERVISOR OF WELLS BY

11. Permittee shall assure that a supervisory person who is qualified in well safety is present at the well site at all times during drilling operations.
12. In addition to other required liners, the following shall be underlain by 20 mil PVC liner: Rig sub-structure, all motorized equipment, all fuel, brine and chemical tanks, and any other potential spill sources. Liners must be sealed around rat hole and mouse hole. Any spills that are not contained by liners must be cleaned up according to the rules under Part 615, Act 451, PA 1994, as amended. Upon completion the liners must be hauled to an approved landfill.
13. Drill cuttings, muds, and fluids used in drilling a well shall be contained in tanks and shall not be stored in on-ground pits or disposed of at the well location. Solidify/stabilize on site prior to transport for disposal.
14. Permittee shall provide site security as needed to prevent unauthorized access to the well site during drilling operations.
15. Install BOP and gas diverter with flare on 16" conductor for potential shallow gas.
16. To the extent practical, schedule deliveries, casing runs, and cementing during daylight hours on weekdays.
17. Drill rig engines shall be equipped with quiet design mufflers or equivalent. All mufflers shall be properly installed and maintained in proper working order.
18. Drill rig lighting shall be shielded to prevent unnecessary light being directed toward structures used for human occupancy within 600 feet of the well location.
19. This application indicates the use of used casing. Casing used in this well shall be of sufficient weight, grade and condition to have an internal yield of 1.2 times the greatest expected well bore pressure pursuant to Rule 324.410(3).
20. 11-3/4" casing shall be set at 300' TVD or 100' into the Antrim, whichever is deeper. Need geologist to pick the top of the Antrim and ensure the surface casing is set into or below the Paxton.
21. Salt cuttings are to be dissolved and removed from the mud system for proper disposal.
22. If the well is productive, permanent fencing shall be maintained around the perimeter of the well site to limit access.
23. Combustible gas and vapor produced during well completion and testing shall be captured or burned in a flare or incinerator. A flare shall be surrounded by a shroud so that the flame shall not be visible at the ground level in surrounding areas.
24. Transportation of equipment and supplies to an associated facility after well completion operations shall be limited to the hours of 8:00 am to 8:00 pm except as needed for emergencies.
25. If well is placed on artificial lift, all pump motors must be electric.
26. Hydraulic fracturing is not approved for this location. Should the permittee propose hydraulic fracturing in the future, additional approvals are needed from the OOGM. In that case, the OOGM would provide an additional comment period, and an additional public meeting if requested.
27. Copies of all Electric Logs run on this well shall be submitted to the PMGU-OOGM in both paper and electronic format within 30 days after conducting the logging run. Log ASCII Standard (LAS) and Tag Image File Format (TIF) files shall be submitted on a CD. These files should be named using the well's permit number, log type and name.