



MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Geologic Resources Management Division

Requesting An Exception To Special Order No. 2-73, Amended

Restrictions, conditions and instructions for requesting an exception to
Special Order No. 2-73, amended.

“Casing And Sealing Requirements For Wells Drilled Below The Base Of The Detroit River Group
With Rotary Tools.” (Submit requests as part of the Application for Permit to Drill.)

Restrictions And Conditions Applying To Exceptions

- A Though an exception to Special Order No. 2-73 may be granted, all other pertinent requirements of the Special Order remain in effect. The supervisor’s representatives must be notified immediately if circulation loss or high pressure is encountered. Remedial measures must be undertaken immediately if it is determined that hazardous or potentially hazardous conditions exist. These conditions may require running intermediate casing.
- B An exception to reduce or eliminate intermediate casing will rule out permission at a later date to deepen the well to deeper potentially productive formations unless additional casing is run.
- C Exceptions that reduce or eliminate intermediate casing may not be granted if the drilling program includes cutting core in the Salina-Niagaran or deeper formations (See instruction for requesting an exception).
- D In Northern Michigan an exception for setting a shorter intermediate casing string may be allowed in certain limited areas. The intermediate casing string may be set below the Detroit River Salt rather than below the Amherstburg formation where conditions allow.
- E In Southern Michigan, an exception allowing the setting of extended surface casing instead of running intermediate casing may be granted. Should such an exception be granted, the minimum amount of surface casing required shall be 30% (.30) of the intended depth of the well. It shall be cemented with a volume of cement sufficient to circulate uncontaminated slurry to the surface. Conductor casing may be required to protect the fresh water bearing strata and/or enable the hole to be drilled without undue risk.
- F (1) In some areas of northern and southeastern Michigan karst and collapsed or fractured strata may result in “losing returns” into deep aquifers containing fresh water. These geologic conditions are associated with the subcrop and outcrop of the Middle Devonian and upper Silurian strata.

(2) The geologic setting that has resulted in these deep fresh water aquifers also dictates the need for setting surface casing into extraordinarily deep formations. In this case the surface casing also may serve the purpose of intermediate casing and obviate the need for additional intermediate casing. Restrictions on coring and deepening will not ordinarily be imposed when casing is set into formations in accord with paragraph 2), Special Order no. 2-73, amended.

(3) Special Order No. 2-73 requires surface casing to be run at least 100 feet below fresh water aquifers and to be cemented to the surface. When cement does not return to the surface because of “losing returns”, an exception to the requirement must be requested specifying the measures proposed to deal with the situation. All avenues for entry of pollutants into fresh water from surface sources must be closed.

(4) No fluid shall be injected into the annulus between the surface casing and conductor casing.

(5) Only fresh water fluid and biologically inert fluid loss or circulation control materials shall be used for drilling and setting the conductor and surface casing. Operations shall conform to the practices set forth in “Notice and Requirements for Sources of Water and Water Wells Used in Conjunction With Oil and Gas or Mineral Well Drilling and Operations”, December 1, 1984.

(6) The plan that follows is not sponsored by but is acceptable to the Supervisor of Wells. An applicant may propose an alternative. Placing bull plugs in the wellhead outlets is not sufficient.

(a) Set conductor pipe well into bedrock, where possible, below upper fresh water aquifers. Cement to surface. Setting conductor pipe in this manner will prevent flow down the hole or casing annulus into deeper lost circulation zones which may have significantly lower hydraulic heads. The conductor pipe shall be of such a diameter that there is room for a grout pipe to be inserted between the conductor and surface casing.

(b) When “losing returns” of drilling fluid, set extended surface casing to a depth below the lowermost porous or lost circulation zone containing fresh water. Select, where possible, a casing point at a depth and in a formation capable of containing cement to seal the annulus for a distance of 500 feet or more above the casing shoe. Do not penetrate rock salt. Cement with a volume of cement equal to the calculated annular volume to circulate to surface plus 100% excess. In addition to other casing hardware run a cementing basket on this casing below the third collar from the top at least 50 feet below ground. Cement the annulus through a grout pipe from the cementing basket to the surface if cement from the primary cement job fails to circulate. At least 50 feet of cement must remain in the annulus above the cementing basket.

(c) Should problems arise in implementing this and other practices, additional or alternate plans may be required by the Supervisor of Wells or his authorized representative.

Instruction For Requesting An Exception

Respond, as needed, in detail to the concerns listed below. Attach and submit as supplemental sheets(s) per instructions found with the Application for Permit to Drill.

- (A) Describe any drilling problems encountered in the adjacent wells or that are known to the area. Provide all pertinent data and a detailed description including: a location map showing adjacent well(s); geological information; reservoir pressures, casing and cementing programs.
- (B) Outline a contingency plan should an exception be granted and one or more of the following conditions be encountered:
- (1) Circulation loss zone(s) incapable of supporting a cement column to the surface on surface casing or to the prescribed height on intermediate casing.
 - (2) Circulation loss zone(s) incapable of supporting the column of drilling fluid without the addition of lost circulation material and/or which would break down if subjected to formation pressure should it be necessary to close the blowout preventers.
 - (3) Failure to obtain a pressure test which meets specifications as set forth in Special Order No. 2-73 or as prescribed by the Supervisor's representative.
 - (4) Gas pressure zones above the producing horizon capable of causing a kick sufficient to unload or cause a partial unloading of the drilling fluid from the well bore.
 - (5) Potential lost circulation and BLOWOUT conditions subsequent to encountering the producing horizon and/or before production casing is set and cemented.

**Contact The Geologic Resources Management Division Or District Geologist
For Specific Casing, Sealing And Drilling Details.**

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