

STATE OF MICHIGAN



JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

"Better Service for a Better Environment"

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RUSSELL J. HARDING, Director

REPLY TO:

DRINKING WATER & RADIOLOGICAL
PROTECTION DIVISION
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LANSING, MI 48909-8130

March 22, 2001

TO: Registered Water Well Drilling Contractor

FROM: Michael S. Gaber, Chief 
Well Construction Unit
Ground Water Supply Section

SUBJECT: Abandoned Well Plugging

Over the past few years, the Department of Environmental Quality (DEQ), Drinking Water and Radiological Protection Division, Well Construction Unit (WCU), has received several reports of improper abandoned well plugging activities. In each case, the WCU has investigated the complaint, taken enforcement action, and required correction of the deficiencies.

The improper activities have included:

- Cursory attempts to find buried abandoned wells.
- Unregistered contractors performing well plugging activities.
- Failure to use neat cement or concrete grout when plugging rock wells.
- Superficial attempt or no attempt to remove obstructions (pump, drop pipe, etc.) or drive them to the bottom of the well before plugging the well.
- Submitting inaccurate well plugging records or failure to submit abandoned well plugging records.
- Bridging of plugging materials due to improper grout placement.
- Damaging well casings during demolition activities, which makes plugging operations more difficult.

Improper well plugging actions are costly to repair. Correction orders issued by the DEQ and local health departments have included: (1) drilling out improper plugging materials, (2) making a more rigorous attempt to remove obstructions, using appropriate equipment (taper taps, fishing jars, hydraulic jacks, etc.), and (3) plugging the wells in accordance with the Michigan Water Well Construction and Pump Installation Code (State Well Code) provisions.

We expect that 37 Michigan communities will soon be awarded Abandoned Well Management Grants through the Clean Michigan Initiative. These communities will rely on Michigan's registered water well drilling contractors to properly plug thousands of abandoned wells within their wellhead protection areas. We need your cooperation to safeguard Michigan's ground water resources and to protect the health of Michigan's citizens. Properly plugging abandoned wells is an important way for water well drilling contractors to help accomplish these goals while protecting the interests of the water well drilling industry.

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In the coming months, the WCU will be offering abandoned well training activities throughout Michigan. We will notify you as soon as arrangements have been finalized. In addition, an update on the DEQ, Abandoned Well Management Program (AWMP), will be presented at the 73rd Michigan Ground Water Association Convention in Lansing on March 29, 2001 at 10:00 a.m. We urge you to attend.

The WCU has prepared several training tools pertaining to abandoned well plugging. Samples are enclosed. These materials are useful as sales aids to convince customers of the importance of proper well plugging. Additional copies of these items can be ordered on the enclosed WCU order form. Also enclosed are the abandoned well plugging regulations excerpted from the State Well Code.

If you have questions concerning abandoned well plugging issues, please contact Mr. James S. McEwan, Coordinator, at 517-335-9322 or Ms. Anita Ladouceur, Environmental Sanitarian, AWMP, WCU, at 517-335-9162.

Attachments

MSG:ckp

cc: John Schmitt, Michigan Ground Water Association
Flint C. Watt, DEQ
James K. Cleland, DEQ
Wm. Elgar Brown, DEQ
James S. McEwan, DEQ
Anita Ladouceur, DEQ
DEQ District Offices



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER DIVISION
WELL CONSTRUCTION UNIT
ABANDONED WELL MANAGEMENT PROGRAM

Abandoned Water Well Plugging Regulations

In Michigan, the plugging of water wells is regulated under the authority of Part 127, Act 368 PA 1978. The Act authorizes promulgation of rules contained within the Michigan Water Well Construction and Pump Installation Code. The following rules from the code apply to abandoned wells.

R 325.1601 Definitions; A.

Rule 101. (1) "Abandoned water well" means any of the following:

- (a) A well which has its use permanently discontinued.
- (b) A well which is in such disrepair that its continued use for the purpose of obtaining groundwater is impractical.
- (c) A well which has been left uncompleted.
- (d) A well which is a threat to groundwater resources.
- (e) A well which is or may be a health or safety hazard.

R 325.1605 Definitions; R to T.

Rule 105. (6) "Temporarily abandoned well" means a well that is not in use, but is intended by the owner to be used as a source of groundwater.

R 325.1606 Definitions; V to Y

Rule 106. (4) "Well drilling" means any of the following:

- (a) Constructing, reconstructing or repairing a well.
- (b) Operating a well drilling machine.
- (c) Installing or removing casing or a well screen.
- (d) Well grouting.
- (e) Well development.
- (f) Well rehabilitation.
- (g) Hydrofracturing.
- (h) Chemical treatment of a well.
- (i) Plugging abandoned wells.

R 325.1662 Abandoned wells and dry holes; persons responsible for plugging; removal of debris and obstructions; wells taken out of service when municipal water is installed.

Rule 162. (1) An abandoned well or dry hole shall be plugged by a well drilling contractor who is registered pursuant to the provisions of the act or by the well owner. An abandoned well that is located on property which has a well that serves the public or a residence other than the well owner's residence, shall be plugged by a registered well drilling contractor.

(2) A pump, a drop pipe, a packer, other equipment, debris, or obstructions shall be removed from the well, if possible, before plugging.

(3) A well that is abandoned when municipal water is installed shall be plugged pursuant to the provisions of these rules.

R 325.1663 Abandoned wells and dry holes; plugging method.

Rule 163. (1) An abandoned well or dry hole shall be plugged as follows:

- (a) A well or dry hole that terminates in overburden shall be plugged by filling with any of the following materials:
 - (i) Neat cement.
 - (ii) Concrete grout.
 - (iii) Bentonite chips.
 - (iv) Bentonite pellets.
 - (v) Bentonite grout.

(b) A section of a well or dry hole that is in bedrock shall be plugged by filling with neat cement or concrete grout from the bottom of the well or dry hole to not less than 20 feet above the top of the bedrock or to the ground surface. The section of the well from 20 feet above the bedrock to the ground surface shall be plugged in accordance with the provisions of subdivision (a) of this subrule.

(2) Gravel, sand, stone aggregate, or other materials that are acceptable to the department may be used for plugging that portion of a well that penetrates lost circulation zones, such as gravel or cavernous, creviced, or fractured bedrock.

(3) The flow from an abandoned flowing well shall be stopped by plugging the well with neat cement or concrete grout.

(4) Abandoned wells that discharge subterranean gases shall be plugged with neat cement or concrete grout.

R 325.1664 Abandonment of wells; plugging materials.

Rule 164. Abandoned well or dry hole plugging materials shall be placed as follows:

(a) Bentonite chips or bentonite pellets shall be poured slowly into the top of the well or dry hole to prevent bridging in the casing or borehole. Fine bentonite particles that accumulate in the shipping container shall not be used. The plugging operation shall continue until the bentonite chips or bentonite pellets appear at the ground surface. Upon completion of the plugging operation, water shall be placed into the casing or borehole to promote expansion of the bentonite above the static water level.

(b) Neat cement, concrete grout, or bentonite grout shall be placed through a tremie pipe from the bottom of the well or dry hole to the ground surface.

(c) Other materials and methods may be used if the materials and methods proposed to be used will plug the abandoned well or dry hole to prevent them from acting as a channel for contamination or the escape of subterranean gases and if prior approval is given by a health officer.

R 325.1665 Plugging of dug wells and crock wells.

Rule 165. A large diameter dug well or crock well shall be plugged pursuant to the provisions of R 325.1663 and R 325.1664 or may be plugged as follows:

(a) A layer of bentonite chips or bentonite pellets that is not less than 6 inches thick shall be placed at the bottom of the well. The remainder of the well shall be plugged by placing clean soil backfill in layers that are not more than 10 feet thick, with a layer of bentonite chips or bentonite pellets that is not less than 6 inches thick placed on top of each clean soil backfill layer. Dry granular bentonite may be used in place of, or in combination with, bentonite chips or bentonite pellets, and neat cement or concrete grout may be poured if the well has been dewatered before plugging.

(b) The uppermost section of concrete crock or tile or the upper 3 feet of stone, brick, or other curbing material that supports the well bore shall be removed. Before backfilling the well up to the ground surface, a layer of bentonite chips or bentonite pellets that is not less than 6 inches thick shall be placed.

R 325.1667 Plugging wells drilled by person other than property owner or registered well drilling contractor.

Rule 167. A well that was drilled by a person other than the property owner or by a person other than a well drilling contractor who is registered pursuant to the provisions of the act shall be abandoned and plugged pursuant to the provisions of these rules.

R 325.1668 Order to plug abandoned well or dry hole.

Rule 168. The department or a health officer may order a well owner or a registered well drilling contractor to plug an abandoned well or a dry hole.

R 325.1669 Owner and contractor responsibility for plugging abandoned wells.

Rule 169. (1) A well owner shall be responsible for the plugging of an abandoned well, except as provided in a written contract between the owner and a registered well drilling contractor.

(2) If a health officer or the department determines that a registered well drilling contractor has improperly located or constructed a well, the well drilling contractor shall be responsible for plugging the well.

R 325.1670 Temporarily abandoned wells.

Rule 170. (1) A temporarily abandoned well shall be in compliance with the minimum construction and isolation distance requirements of these rules.

(2) A temporarily abandoned well shall be disconnected from any water distribution piping and shall have the top of the casing securely capped to prevent the entrance of surface water or foreign materials into the well and to prevent access to the well.

R 325.1675 Well records.

Rule 175. (3) Within 60 days after plugging an abandoned well or dry hole, the person who performed the plugging operation shall provide the department or local health department with 2 copies of a report that sets forth all of the following information:

- (a) The well owner's name.
- (b) The location of the well.
- (c) The well depth.
- (d) The well diameter.
- (e) The plugging procedure.
- (f) The plugging material.
- (g) The amount of plugging material used.

Standard forms for the report shall be provided by the department. When an abandoned well is plugged where a replacement well will be or has been constructed, the plugging information may be recorded on the well log that is submitted for the replacement well. Information on several abandoned wells or dry holes within a single parcel may be submitted on a single well log form if the geologic materials and plugging methods are similar.

- (4) A well log shall be signed by a registered well drilling contractor.

Abandoned Well Plugging Record (Form EQP 2044)

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Abandoned Well Management Program
Well Construction Unit
Ground Water Supply Section
Drinking Water and Radiological Protection Division
Michigan Department of Environmental Quality