



Pat Quinn, Governor
Damon T. Arnold, M.D., M.P.H., Director

525-535 West Jefferson Street • Springfield, Illinois 62761-0001 • www.idph.state.il.us

MEMORANDUM

To: Local Health Departments
Administrators
Directors of Environmental Health

Regional Engineers/Supervisors

Dewatering Well Contractors

From: Jerry Dalsin, P.G.
Division of Environmental Health

Date: July 21, 2009

Subject: Guidance Document for Dewatering Wells

Background:

This policy serves as a guidance document for the Department and local health departments, regarding the construction of dewatering well systems. It is understood that some local health departments have requirements in their ordinances that may differ from this policy. It is not the intent of this policy to preclude those requirements.

A water well, designed to lower the groundwater level, is often referred to as a dewatering well, and as such falls under the Illinois Water Well Construction Code, Section 920.10, definition of a water well. Sumps intended for the purpose of removing water from excavations for basements or foundations, and trench excavations for utilities are not classified as water wells. Clarifying this further, if the largest surface dimension of a trench or hole is larger than its depth, then, generally, it is not considered to be a well – this is in line with the definition of a well in the Environmental Protection Act (415 ILCS 5/1 et seq.), Section 3.555. **As a further clarification, any uncased excavation temporarily installed for purposes of dewatering or any cased excavation with less than 20 feet of temporary casing is not considered a water well, and thus, does not need to meet requirements of the Illinois Water Well Construction Code (77 Illinois Administrative Code 920).**

Dewatering systems, usually consisting of 10 or more water wells, are designed to lower the groundwater level to a specified depth to facilitate below ground construction. Dewatering systems can be either permanent, e.g., maintaining the groundwater below a certain level for a stretch of highway, or temporary, usually lasting no more than 12 months, e.g., building projects, installation of pipelines.

A dewatering well shall not connect to a potable water system. Like a non-potable irrigation well, a dewatering well is not required to be sampled for the presence of coliform bacteria and nitrate concentration.

The following requirements apply to the construction and sealing of dewatering wells:

Contractor Licensing:

A dewatering well which meets the definition of a water well shall be constructed by a licensed water well contractor or an individual who performs labor or services for a licensed water well contractor and under the personal supervision of a licensed water well contractor. Rental pumps, wire and discharge for dewatering wells shall be installed by a licensed water well pump installation contractor or an individual who performs labor or services for a licensed water well pump installation contractor and under the personal supervision of a licensed water well pump installation contractor on stationary construction projects, e.g., building projects, and the initial setup for moving projects such as pipelines or sewer work. On moving projects, pumps, wire and discharge can be moved by the contractor performing the work as the project progresses as long as he or she follows the procedures used by the licensed water well pump installer.

Permitting:

Prior to the construction, a permit for the dewatering system which uses a well or wells which meet the definition of a water well shall first be obtained from the Department or local health department in accordance with the Illinois Water Well Construction Code (IWWCC), Section 920.130. The recommended permit fee to be charged is \$100.00 per 10 dewatering wells. As an example, the permit fee for 100 wells would be \$1,000.00. The permit and fee may vary according to the local health department's ordinance. All permanent dewatering wells shall have separate permit applications and a permit fee of \$100.00 per well.

As part of the permit application for a dewatering system, the dewatering plan can be used as the drawing and shall show the locations of dewatering wells, sources of contamination, and known locations of nearby potable water supply wells. Existing well data is available on the web sites of the Illinois State Geological Survey, www.sws.uiuc.edu/gws/gwinfo.asp, Illinois State Water Survey, www.sws.uiuc.edu/gws/gwinfo.asp, and the Illinois Environmental Protection Agency, <http://maps.epa.state.il.us/website/swap/intro.htm>. Wells can be relocated or wells added as job conditions warrant in order to dewater the excavations as required by contract if they remain within a reasonable distance from that shown on the original permit application drawing and do not violate required setback distances to sources of contamination. Any added wells are also subject to a permit fee as described above.

Construction of a Permanent Dewatering Well:

A permanent dewatering well shall be constructed in accordance with the IWWCC. Perforated well casing or well screen may extend up to within 10 feet of the ground surface for dewatering wells intended for shallow aquifers or alluvial formations. In such situations, the annular space shall be grouted from two feet above the gravel pack to the surface.

Construction of a Temporary Dewatering Well:

A temporary dewatering well extending into an unconsolidated formation, and installed for a specified period of time, not to exceed 12 months unless justification can be provided to the Department or local health department, shall meet the minimum following requirements:

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1. The casing shall be water tight, free of contaminants, and constructed to withstand the forces exerted on it during installation and removal. Well casing that is removed may be reused only for the construction of other dewatering wells.
2. Extend the upper terminal of the casing at least 8 inches above the working grade in accordance with the IWWCC Section 920.100 a). The working grade is the elevation of the ground surface during a construction project.
3. If used, screen selection is optional. The well screen shall be sufficiently strong and durable so that it may be readily removed intact with the well casing.
4. The top of the casing shall be capped or covered in a manner to prevent entry of foreign material, and precautions shall be taken to prevent the entry of flood water into the casing.
5. If filtering material (gravel pack) is used, it shall be clean and free of contaminants.
6. The filtering material shall extend no more than 5 feet above the top of the sand and gravel formation. The annular space shall be filled with impervious clay or with native material that is of the same composition as what was excavated from the borehole. Where native sand and gravel material continues above the water bearing sand and gravel formation, the top of the sand and gravel formation shall be considered the point at which water is first encountered.

Pump Installation and Operation:

1. The discharge line of a dewatering well shall leave the well above working grade.
2. Electrical connections to the pumping equipment shall be made in accordance with the current edition of the National Electric Code or the local authority with such jurisdiction and shall be made in a manner that protect the safety and welfare of workers and the public from possible electrical shock.
3. The contractor, consulting engineer, and the owner of the construction project for which the dewatering system is being installed shall give due consideration as to what effect the lowering of the groundwater table will exert on existing nearby wells.

Loss of Potable Supply:

The contractor who installs a dewatering system that causes the loss of an adequate private, semiprivate, or non-community water supply shall provide such water supply owner with a temporary supply of potable water during the operation of the dewatering well. The Department or local health department may require the private water well to be tested to determine if the water quality is satisfactory for potable use before the alternate source of water supply is discontinued.

Sealing a Permanent Dewatering Well:

A permanent dewatering well shall be sealed in accordance with the IWWCC, Section 920.120.

Sealing a Temporary Dewatering Well:

An abandoned temporary dewatering well extending into an unconsolidated formation (alluvial formations consisting of gravel and sand), shall be sealed as follows:

1. The contractor shall follow the requirements of Section 920.120 e), regarding notification prior to beginning the operation of sealing wells in the dewatering well system.
2. The casing and screen may be pulled and reused only in the construction of a dewatering well.
3. When the casing is being pulled, the filtering material may be allowed to cave in.

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4. If, when the filtering material caves in, and the top of the filtering material is below the top of the sand and gravel formation, the filtering material may be topped off with similar material (sand and gravel that was removed during the drilling process), limestone chips, impervious clay or pea gravel to within three feet of the top of the sand and gravel formation.
5. Where the annular space that was sealed with impervious clay or native materials remains open after the casing has been pulled, it shall be filled with impervious clay or bentonite chips within two feet of the surface and the balance filled with topsoil.

Well Construction and Sealing Reports:

For each permanent dewatering well constructed, and each temporary dewatering well constructed (meets the definition of a water well), complete and submit a well construction report in accordance with the IWWC, Section 920.30 b), indicating the locations of all dewatering wells constructed on the dewatering well system site plan. For each permanent dewatering well sealed, and for each temporary dewatering well sealed (meets the definition of a water well), complete and submit a well sealing form in accordance with the IWWC Section 920.120 e) 2), indicating the locations of all dewatering wells sealed on the dewatering well system site plan.

Water well construction and water well sealing forms are available on the Department's internet site at <http://www.idph.state.il.us/envhealth/waterwells.htm>. Report GPS coordinates to the nearest 0.1 second.

This supersedes April 14, 2008 Memorandum, Requirements for Dewatering Wells.

Jerry Dalsin, Program Manager
Private Water Program
Division of Environmental Health

cc: Water Well Licensing Board
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