**Section 675.80 Recommended Guidelines for the Construction of Wells and the Type and Setting of Pumps**

a) *The district, with the assistance and approval of the Illinois Department of Agriculture, shall issue recommended guidelines for the construction of all groundwater withdrawal points, and the type and setting of pumps for use in those points of withdrawal* (Section 5.1 of the Act). It is not the intent of these guidelines to supersede the Illinois Water Well Construction and Pump Installation Codes (77 Ill. Adm. Code 920 and 925), and all constructed wells and well pump installations shall comply with those Codes.

b) A natural consequence of groundwater withdrawal is drawdown in the source aquifer. An aquifer can safely support a certain amount of drawdown (called "allowable drawdown") without jeopardizing the availability of the regional groundwater resources. This allowable drawdown implies that there is a critical water level elevation for the aquifer. As long as the actual water level in the aquifer does not fall below the critical water level elevation, the aquifer resource remains protected. It is the intent of the recommended guidelines to promote construction of new wells which will provide an uninterrupted supply of water for reasonable use (see Section 4(g) of the Act and Section 675.10) with the aquifer water level at or above the critical water level.

c) The recommended guidelines for the minimum aquifer penetration and pump intake settings, based upon aquifer type, shall be:

1) Unconsolidated or consolidated (bedrock) aquifers under artesian conditions: The minimum well penetration into the aquifer shall be 100% or 80 feet, whichever is less. The minimum pump intake setting shall be at or as close as possible to the top of the well screen for unconsolidated aquifers. For consolidated wells, the minimum pump intake setting shall be at the depth corresponding to 50% of the well's penetration into the aquifer. If instability in the bedrock aquifer precludes setting the pump intake at this depth, the pump setting shall be adjusted to a depth which alleviates the condition.

2) Unconsolidated or consolidated (bedrock) aquifers under water table conditions: The minimum well penetration shall be 100% for these aquifers which can be fully penetrated within 100 feet of land surface or which are less than or equal to 50 feet thick. The minimum well penetration for aquifers greater than 50 feet thick shall be 50 feet or 50% of the aquifer thickness, whichever is greater. The minimum pump intake setting shall be at or as close as possible to the top of the well screen in unconsolidated aquifers. For consolidated wells, the minimum pump intake setting shall be at the depth corresponding to 50% of the well penetration into the aquifer. Note: The aquifer thickness is controlled by the saturated thickness of the permeable geologic materials. For a water table aquifer, this thickness changes throughout the year as the water table rises and falls in response to natural groundwater recharge and runoff. Therefore, the aquifer thickness for water table conditions used in determining the minimum well penetration will be the thickness which results with the natural average annual low water table at the point of withdrawal as obtained from scientific data on the aquifer, hydrology, and geology of the area.

3) Multiple or combined aquifers (both consolidated and unconsolidated): In some areas a hydraulic connection exists between more than one interval of water-bearing unconsolidated and/or consolidated deposits such that all deposits will respond in varying degrees to pumpage from a select few. The degree of interconnection can vary from deposit to deposit which influences both the response time and magnitude. In some cases, the interconnection allows several units to be treated collectively as one aquifer. In most cases, one deposit or a small group of deposits can be designated the primary aquifer whether it be the thickest, most permeable, deepest, or largest in areal extent. For multiple aquifers, the minimum well penetration and pump intake setting shall be used from the aquifer classifications (Subsections (c)(1) and (c)(2) of this Section) which correspond to the primary aquifer at each individual point of withdrawal. If designation of a primary aquifer is not possible, the minimum well penetration and pump intake setting shall be determined on an individual case by case basis in accordance with the scientific data on the groundwater aquifer, hydrology, and geology of the area as may be available from the well driller, Illinois State Water Survey, and State Geological Survey.

d) The well pump shall be of the type to provide the necessary lift capabilities so that an uninterrupted supply of water for reasonable use (see Section 4(g) of the Act and Section 675.10) is obtained should water levels in the aquifer at the well site approach the critical groundwater level. Furthermore, an access opening to measure the well water level shall be provided. Such measurements are commonly obtained with a measuring tape or electric probe and require a sanitary access opening into the well which allows insertion of a ¾ inch diameter tape or probe. The access opening shall conform to the Illinois Water Well Pump Installation Code (77 Ill. Adm. Code 925.40(h)).

e) Copies of the recommended guidelines shall be printed by the Department of Agriculture and shall be made available upon request from the Kankakee, Iroquois, Tazewell, and McLean County Soil and Water Conservation District offices.